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**R o z p r a w a   d o k t o r s k a**

**Crowd-learning as a method of improving vocational skills  
in the Information Society by the example of Poland**

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## Introduction

The twenty-first century and the development of new media have affected all aspects of humans' life, including communication and education. It is not enough to graduate from university to follow the changing reality and the development in the branch. The speed of technological outcomes, social and communication changes force humans to learn continually and improve their skills. Moreover, working society not only has to but also wants to enhance their professional qualifications. OECD promotes the idea of lifelong learning as a concept of learning from the cradle to the grave in different settings<sup>1</sup>. Even though the term of lifelong learning differs among European countries, it refers to vocational and further education and training. "It is essential for employability and competitiveness, social inclusion, active citizenship and personal development. The challenge is to provide learning opportunities for all adults. Adult learning comprises formal, non-formal, and informal learning; it can be for employing basics, for obtaining new qualifications, for up-skilling or re-skilling for employment, for personal growth, or just for pleasure"<sup>2</sup>. As the demand for adult learning is increasing European Commission helps all European Union countries to construct adult learning systems characterized by flexibility, high quality, excellent teaching, and the full involvement of local authorities, employers, social partners, civil society, and cultural organizations. European Commission developed Education and Training 2020 (ET 2020) which is the framework for cooperation in education and training. In 2009, ET 2020 set four common EU objectives to address challenges in education and training systems by 2020: making lifelong learning and mobility a reality, improving the quality and efficiency of education and training, promoting equity, social cohesion, and active citizenship, enhancing creativity and innovation, including entrepreneurship, at all levels of education and training<sup>3</sup>.

European Commission initiated Digital Workplace Strategy to enter in the 2020s as a modern public administration able to effectively support the achievement of the

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<sup>1</sup>OECD (2001): *Lifelong Learning For All Policy Directions*.

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/cote=DEELSA/ED/CERI/CD\(2000\)12/PART1/REV2&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/cote=DEELSA/ED/CERI/CD(2000)12/PART1/REV2&docLanguage=En) (visited 30 April 2018).

<sup>2</sup> EC: *EU policy in the field of adult learning*. [http://ec.europa.eu/education/policy/adult-learning\\_en](http://ec.europa.eu/education/policy/adult-learning_en) (visited 1 May 2018).

<sup>3</sup> Official Journal of the European Union: COUNCIL NOTICES FROM EUROPEAN UNION INSTITUTIONS AND BODIES *Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training* ('ET 2020') (2009/C 119/02).

priorities of the European Commission. The vision of the project is: “The Digital Workplace initiative will provide staff with the right IT tools, platforms and services, enabling users to work and collaborate anywhere, any time with a fit-for-purpose security and optimising their work experience and productivity. It will be adaptive and flexible to incorporate different types of users, new behaviours and new technologies”<sup>4</sup>. That is further suggestion of what activities are desired and what is the direction of personal development.

Development of ICT, social media, globalization, mediatization, Wikinomics, and need for 21<sup>st</sup>-century skills resulted in new learning practices. Importance of informal and non-formal learning is growing<sup>5</sup>. Humans learn in every place, at work, at school, at home, during everyday activities. One of the European Commission's recommendations is to support informal learning in emerging online communities. “Social computing tools are developing fast and continuously creating new communities around them. These new communities and technological platforms are important places for learning ICT skills, as they gather the knowledge of different users and motivate new people to use ICT. There is a need to develop resources that promote awareness and emphasize the need for advanced digital competence for these learners and communities, such as sites for specific target groups that can easily be shared between informal learners<sup>6</sup>”. B. Cushard<sup>7</sup> wrote on his blog about two key lessons for learning professionals: First, adapt to the on-demand world and second embed learning into the context of people’s work. “The future of learning will not contain very many classes at scheduled dates and times. They will be on-demand. (...) Like embedded advertising in a television show, learning must be

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<sup>4</sup> EC (2017): *Digital Workplace Strategy*, p.1.

<https://ec.europa.eu/info/sites/info/files/digitalworkplacestrategy2017.pdf> (visited 11 July 2018).

<sup>5</sup>According to OECD „Informal learning is never organised, has no set objective in terms of learning outcomes and is never intentional from the learner's standpoint. Often it is referred to as learning by experience or just as an experience. (...)Non-formal concept lies in the fact that such learning may occur at the initiative of the individual but also happens as a by-product of more organised activities, whether or not the activities themselves have learning objectives”. <http://www.oecd.org/education/skills-beyond-school/recognitionofnon-formalandinformallearning-home.htm> (visited 30 April 2018).

„Non-formal learning indicates planned learning activities of the individual out of school settings or the formal institutions which can end up with a certification. informal learning is its more random and spontaneous structure. Informal learning can be experienced even following a formal curriculum or attending weekend classes, by asking a question to a friend or a colleague”. Yaşar O., Karadeniz S. (2011): *The power of social media in informal learning*. A. Méndez-Vilas (Ed.): „Education in a technological world: communicating current and emerging research and technological efforts”. Formatex, p. 532.

<sup>6</sup> Ala-Mutka K., Punie Y., Redecker Ch. (2008): *Digital Competence for Lifelong Learning*. European Commission, Joint Research Centre – Institute for Prospective Technological Studies, Office for Official Publications of the European Communities, Luxemburg, p. 6.

<sup>7</sup> Bill Cushard is a writer covering the intersection of learning, enterprise software adoption, and customer success.

embedded in people's work. We cannot take people away from their work to teach them something that may or may not be relevant to them. We must provide employees with learning opportunities — in the context of their work — as they use work tools”<sup>8</sup>.

The main change is that they do not learn alone or in an organized class. They learn individually, but in the collective, they use the wisdom of the crowd to facilitate knowledge. New learning practices are based on collaboration, collectivism, connectivism and communities of practice, possible due to the development of ICT.

The importance of lifelong learning and new models of learning was emphasised by Ursula von der Leyen, The European Commission President, who wrote in her *A Union that strives for more. My agenda for Europe- Political Guidelines For The Next European Commission 2019 - 2024*: „And we need to change the culture of education towards lifelong learning that enriches us all. (...) We need to rethink education by using the potential the Internet provides to make learning material available to all”<sup>9</sup>.

The subject of the work is the phenomenon of crowd-learning, which is becoming more and more noticeable in Poland. The main aim is to understand better the phenomenon of crowd-learning in Poland, which has developed thanks to social media and functions within them, to indicate social and communication changes that have influenced the development of new forms of professional development and to present their relationship with the mediation process. Across the globe, different platforms are enabling formal, non-formal and informal learning online. They offer courses, workshops but also degrees. The final product is going to provide recommendations for the crowd-learning platform functioning in Poland. The author hopes that the analysis of communication and sociological changes, new ways of vocational education influenced by these processes, and exploring the role of social media users will contribute to the project. Polish society is not fluent in foreign languages. According to the author, in order to attract representatives of various professions, the platform should be operated in the mother tongue and be set in the Polish cultural context. After a successful implementation among Polish users, there is a possibility to extend the platform on a European scale.

To pursue the main aim of the dissertation, specific aims were formulated:

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<sup>8</sup> Cushard B., *On-Demand is the Future of Online Learning. Mindflash*, [in:] <https://www.mindflash.com/blog/on-demand-is-the-future-of-online-learning> (visited 16 April 2018).

<sup>9</sup> Von der Leyen U. (2019): *A Union that strives for more. My agenda for Europe- Political Guidelines For The Next European Commission 2019-2024*. [https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf) (visited 25 February 2020).

- indicating technological and communication transformations which influenced a change of communication model and a learning paradigm;
- systematizing the definition of crowd-learning, as this term is not common in the Polish language, explaining processes and presentation of new trends, which gave the beginning to the development of this phenomenon;
- giving examples of the functioning of the crowd-learning in Poland and across the world. Advantages and disadvantages will be discussed. Conducted research are going to select the most functional features of the crowd-learning application;
- characterizing modern learning paradigm and its functions in the context of new media development in connection with the phenomenon of mediatization, globalization, and e-learning;
- perceiving changes in vocational training by representatives of varied professions;
- presenting new solutions connected with improving qualifications based on new media with their advantages and disadvantages;
- analysis of resources and delivery of crowd-learning across the world in comparison with possibilities in Poland.

### **The main problem:**

This work is interdisciplinary. It concerns the research area of communication and media studies and pedagogy. The author analyses the extent to which development of ICT (Information and Communication Technologies), and especially new media defined as "analogue media converted to a digital representation"<sup>10</sup>, affect ways of gaining knowledge and lifelong learning. The author intends to show a model of communication between crowd-learners. The author is going to answer the questions: What usability features should crowd-learning platform characterize in order to gather representatives of different professions, engage both laics and experts, and provide (synchronous) interaction between users? Is it possible for the crowd-learning platform to be valued by employers?

Specifying the main problem refers to taking into account and examining transformations in the forms of professional development, both from the point of view of people taking an active part in improving professional competences as well as individuals

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<sup>10</sup> Manovich L. (2000): *The language of New Media*. Cambridge, The MIT Press, p. 66.

whose activities predestine new opportunities for further education. This part of the research covered the following specific problems:

1. What is the attitude of Polish society towards the idea of lifelong learning?
2. What types of informal training are chosen by Polish society?
3. What new forms of professional development have emerged thanks to the development of new media?
4. Are new forms of professional development resulting from the development of modern communication technologies and new media perceived as more attractive than traditional training?
5. What are the advantages, disadvantages, opportunities and problems of participants and moderators of crowd-learning?

### **Formulating research hypotheses:**

Based on the indicated goals and research problems, the main research hypothesis was formulated:

The modern connectivism paradigm, based on acquiring and storing knowledge in other people and digital resources, Wikinomics and the process of mediatization, has influenced the development of a new forms of professional development such as crowd-learning, whose participants are aware of the rapid tempo of technological development and changes in the labour market community, striving for continuous updating of knowledge and raising professional competences, which requires designing the software for its formal functioning in Poland.

The formulation of the above statement was guided by the following auxiliary hypotheses, which were aimed at clarifying the subject of the research:

Hypothesis 1: Number of adults in Poland undertaking learning activities is increasing over time. Polish society follows the world's education trends based on the knowledge economy.

Hypothesis 2: Using the new media and the "wisdom of the crowd" operating within them, the society quickly reaches the currently needed knowledge and in a short time finds answers to questions and creative solutions to problems.

Hypothesis 3: There are both laymen and experts in the communities participating in the crowd-learning, possible thanks to the development of mediatization. The benefits of active participation in crowd-learning are reciprocal for laics and experts.

Hypothesis 4: Membership in a professional group sharing knowledge and experience in social media causes establishing and maintaining social bonds between members.

Hypothesis 5: Members of the crowd-learning community, focused on personal and professional development, form an auditorium for on-line training entities.

Hypothesis 6: Crowd-learning participants are prosumers, using Internet resources and sharing their content on the web.

Hypothesis 7: Flexible forms of training are possible thanks to the development of the Internet and ICT.

### **The research**

The author wishes to examine a current degree of mediatization and digitalization of Polish society as well as educational behaviour by the analyses of data provided by the Polish Offices and Ministries, European Union, European Commission and other international organisations and compare it with European countries. The behaviour of internet users is going to be examined and classified, defining their roles. Motives and benefits connected with sharing and exchanging knowledge via social media are going to be described.

Along with the development of the internet and new media model of communication has changed. The author of the work considers crowd-learning not only in terms of gaining

knowledge, but also in terms of analysing communication processes that occur between crowd-learners. The author's intention is to analyse how models of communication were changing through time and to use this analysis together with defined roles of the internet users, their motives and benefits to present own model of communication on the Internet.

The research is also going to examine the quality of knowledge gained through online activities in crowd-learning environment based on the opinion of the internet users/ group members. The added value of the work would be the design of a crowd-learning platform. The author is going to analyse selected crowd-learning platforms in different countries, conduct research based on surveys-pool among internet users who represent varied professions and conduct in-depth interviews with crowd-learners.

The author expects the studies would define the size and the profile of the target group, conceptualize crowd-learning medium whether as a platform, an application or a social medium. The author hopes that research would specify users' needs in matters of functionalities. The study is going to provide information about the possibility of financial benefits. What is more, the subject of crowd-learning is not explored in Poland yet. The dissertation will cover a piece of this issue.

### **The current state of research**

M. Sharples et al. defined crowd learning, also known as crowdsourcing learning, as "a process of learning from the knowledge and opinions of others, shared by online social spaces, websites and activities"<sup>11</sup>. The authors also characterized the phenomenon of crowd-learning as a form of learning, often occurring informally and spontaneously, where practically everyone can be a teacher or a source of knowledge. They made a list of places in the network supporting crowd-learning, described its advantages and indicated the role of the instructor. J. Dron and T. Anderson described different types of learning crowds; groups, networks, collectives and indicated social software that enables crowd-learning. Analyzing theories of social learning, they explained how a crowd

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<sup>11</sup> Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., & Gaved, M. (2013). *Innovating Pedagogy 2013: Open University Innovation Report 2. Milton Keynes: The Open University.* [http://www.open.ac.uk/personalpages/mike.sharples/Reports/Innovating\\_Pedagogy\\_report\\_2013.pdf](http://www.open.ac.uk/personalpages/mike.sharples/Reports/Innovating_Pedagogy_report_2013.pdf)

learns<sup>12</sup>. D. E. Kalisz also studied crowd-learning and memorization in context. He outlined the history of crowd-learning, its concepts and its impact on the future of the learning process, as well as the role of the instructor<sup>13</sup>. W. S. Lasecki et al. defined how the crowd learns and remembers over time in the context of human calculations and how more realistic assumptions of an employee's experience can be used when designing new systems. They showed, using real-time game settings, that participants in a crowd-learning community can learn over time and remember, passing strategies from one generation of employees to the next, despite high rotation rates among the employees who create them<sup>14</sup>.

Researchers use different terms referring to participant types. J. D. Bransford made a distinction between experts and newcomers<sup>15</sup>. Y. Yan and others have called them annotators<sup>16</sup>. U. Upadhyay and others from the Max Plank Institute for Software Systems proposed contributors (expert users) and students<sup>17</sup>. J. Zou and D. Parkes talk about employees<sup>18</sup>. A. Pal and J. A. Konstanty emphasized that there is usually a small number of experts among the large user population. The survey showed that experts prefer to answer questions where they are more likely to make valuable contributions. They used Gauss classification models to distinguish experts from ordinary users effectively<sup>19</sup>.

The quality of the knowledge provided through crowd-learning has also been a concern. Marisa Ponti et al. stated that crowd-learning can take place with both positive and negative consequences for teaching and learning. They see crowd-learning as a quick personalised, but dependent on the type of volunteering of others: a group of well-informed, interested and knowledgeable people who will bring their knowledge, even without formal remuneration. They have been wondering how this form of volunteer input

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<sup>12</sup> Dron J., Anderson T. (2014): *Teaching Crowds: Learning And Social Media*. AU Press, Athabasca University.

<sup>13</sup> Kalisz D. E. (2015): *Crowd Learning: Innovative Harnessing the Knowledge and Potential of People*. w: Tiwari S. R., Nafees L. (red.): *Innovative Management Education Pedagogies for Preparing Next-Generation Leaders*. IGI Global.

<sup>14</sup> Lasecki W. S., White, S. C., Murray K. I., Bigham J. P. (2012): *Crowd memory: learning in the collective* <https://arxiv.org/pdf/1204.3678v2.pdf> (visited 20th August 2018).

<sup>15</sup> Bransford J. D. (1999): *How people learn. Brain, mind, Experience, School*, National Academy Press, Waszyngton.

<sup>16</sup> Yan Y. et. al.: *Active Learning from Crowds*.

[http://www.cs.columbia.edu/~prokofieva/CandidacyPapers/Yan\\_AL.pdf](http://www.cs.columbia.edu/~prokofieva/CandidacyPapers/Yan_AL.pdf) (visited 5th September 2018).

<sup>17</sup> Upadhyay U, Valera I, Gomez-Rodriguez M. (2016): *Uncovering the Dynamics of Crowdlearning and the Value of Knowledge*. <https://arxiv.org/pdf/1612.04831.pdf> (visited 1st September 2018).

<sup>18</sup> Zou J., Parkes D.: *Get another worker? Active crowdlearning with sequential arrivals*.

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.269.7213&rep=rep1&type=pdf> (visited 5th September 2018).

<sup>19</sup> Pal A., Konstan J. A.: *Expert Identification in Community Question Answering: Exploring Question Selection Bias*. <http://files.grouplens.org/papers/p1505-pal.pdf> (visited 2nd September 2018).

can be maintained<sup>20</sup>. Alireza Farasat and others discussed the motivation for development through crowd-learning as an example of teaching practice<sup>21</sup>. C. Raykar et al. described a probabilistic approach to supervised learning when we have many (probably noisy) annotators providing labels. The proposed algorithm evaluates various experts and also estimates the actual hidden labels<sup>22</sup>. Lena Mamykina et al. examined the increase in staff precision after they were exposed to expert-generated feedback and feedback generated by the participants. The study confirmed that expert-generated feedback is a powerful mechanism to facilitate learning and lead to significant profits. It also showed that comparing one's solutions with the various solutions suggested by others and their comparison frequencies leads to significant increases in precision<sup>23</sup>.

U. Upadhyay, I. Valera and M. Gomez-Rodriguez presented a probabilistic crowd-learning framework model that reveals the evolution of user experience over time, drawing on the opinions of other users about its contribution. The model allows for both off-site and on-site learning as well as knowledge capture. They follow the claims that answers with high knowledge value are rare. Beginners and experts usually acquire less knowledge than mid-range users. The most productive learners also seem to be proficient users who publish high-value responses<sup>24</sup>.

J. Glazer, I. Kremer and M. Perry investigated when to provide information and how much information to provide. They showed that an optimal policy requires a delicate balance of hiding and disclosing information<sup>25</sup>.

The author of the work considers crowd-learning not only in terms of gaining knowledge but also in terms of analysing communication processes that occur between

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<sup>20</sup> Ponti M., Hagen N., Hillman T., Kasperowski D., Kullenberg C., Stankovic I. (2013): *Designing Futures for Learning in the Crowd: New Challenges and Opportunities for CSCL*. <https://www.isls.org/cscl2015/papers/1202-Workshop-Ponti.pdf> (visited 29th August. 2018).

<sup>21</sup> Farasat, Alireza & Nikolaev, A.G. & Miller, Suzanne & Gopalsamy, Rahul. (2017). *Crowdlearning: Towards Collaborative Problem-Posing at Scale*. Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale, pp. 221-224. 10.1145/3051457.3053990.

<sup>22</sup> Raykar V. C. et al. (2010): *Learning from Crowds*. Journal of Machine Learning Research 11 (2010) 1297-1322. [http://delivery.acm.org/10.1145/1860000/1859894/11-1297-raykar.pdf?ip=80.244.157.7&id=1859894&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&\\_\\_acm\\_\\_=1536119509\\_7f63122c08ca34189ce937b5a074f2e7](http://delivery.acm.org/10.1145/1860000/1859894/11-1297-raykar.pdf?ip=80.244.157.7&id=1859894&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&__acm__=1536119509_7f63122c08ca34189ce937b5a074f2e7) (visited 5th September 2018).

<sup>23</sup> Mamykina L. et al. (2016): *Learning from the Crowd: Observational Learning in Crowdsourcing Communities*. <https://www.eecs.harvard.edu/~kgajos/papers/2016/mamykina16learning.pdf> (visited 30th August 2018).

<sup>24</sup> Upadhyay U., Valera I., Gomez-Rodriguez M.: *Uncovering the Dynamics of Crowdlearning and the Value of Knowledge*. <https://arxiv.org/pdf/1612.04831v1.pdf> (visited 30th August 2018).

<sup>25</sup> Glazer J., Kremer I., Perry M. (2015): *Crowd Learning without Herding : A Mechanism Design Approach*. Warwick Economics Research Paper Series. [https://warwick.ac.uk/fac/soc/economics/research/workingpapers/2015/twerp\\_1095\\_glazer.pdf](https://warwick.ac.uk/fac/soc/economics/research/workingpapers/2015/twerp_1095_glazer.pdf) (visited 31st August 2018).

crowd-learners. The author's intention is to analyse how models of communication were changing through time and to use this analysis together with defined roles of the internet users, their motives and benefits to present own model of communication on the internet.

## Literature review

Learning through crowd-learning is a phenomenon that has emerged in the era of dynamic technological and social changes related to the development of new media, the digital economy and the deepening of globalization and mediation processes. It is closely associated with outsourcing and global cooperation. Above all, it is a learning paradigm. Awareness of all the links between the factors mentioned above requires clarification of the multi-faceted background.

As it was said earlier, crowd learning has emerged in the era of dynamic technological and social changes characteristic of the information society. Theoretical contemplation was based on works by Polish and foreign authors. F. Machlup<sup>26</sup> analysed the production and distribution of knowledge in the fifties. He noted that American society was becoming a society based on knowledge and information. T. Umesao created the concept of the Information Society in the 1970s. Y. Masuda<sup>27</sup> explains the idea of the information society, which began with the Japanese plan for 2000. At the same time, D. Bell observes social and technological changes and calls modern post-industrial. M. Castells marks the beginning of the Information Age until the seventies, when the capitalist crisis ended the end of the post-war settlement, perceived as full employment, rising living standards, the state welfare system. Polish authority in the field of media science T. Goban-Klas<sup>28</sup> recalls in his works the concepts of M. Castells and D. Bell and describes the development of information society in Poland. The analysis of various Polish definitions of the information society over time shows the progress of technological development. They also write about the information society: W. Kasperkiewicz<sup>29</sup>, M. Kęsy<sup>30</sup>, P. Sienkiewicz and J. S. Nowak<sup>31</sup>, M. Golka<sup>32</sup>.

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<sup>26</sup> Machlup, F. (1962): *The Production and Distribution of Knowledge in the United States*. Princeton, N.J.: Princeton University Press.

<sup>27</sup> Masuda Y. (1983): *The Information Society as Post-Industrial Society*. World Future Society, Waszyngton, p. 3.

<sup>28</sup> Goban-Klas T., Sienkiewicz P. (1999): *Spoleczeństwo informacyjne: Szanse, zagrożenia, wyzwania*. Wydawnictwo Fundacji Postępu Telekomunikacji, Kraków.

<sup>29</sup> Kasperkiewicz W. (2004): *The concept of an Information Society in the European Union*. Acta Universitatis Lodziensis, Folia Oeconomica Nr 182, p. 309.

<sup>30</sup> Kęsy M. (2011): *Spoleczeństwo Informacyjne w rozwoju cywilizacyjnym ludzkości*. Dydaktyka Informatyki. Problemy i wyzwania Społeczeństwa Informacyjnego. Wydawnictwo Uniwersytetu Rzeszowskiego (1/2011), s. 74- 94.

<sup>31</sup> Sienkiewicz P., Nowak J. S. (ed.) (2008): *Spoleczeństwo Informacyjne. Krok naprzód, dwa kroki wstecz*. Polskie Towarzystwo Informatyczne- Oddział Górnośląski, Katowice, s. 25.

<sup>32</sup> Golka M. (2005): *Czym jest Spoleczeństwo Informacyjne?* Ruch Prawniczy, Ekonomiczny i Socjologiczny, No 4/2005, p. 254.

The two main processes shaping the Information Society are globalization and mediatization. The issue of globalisation has a rich literature. The author refers to A. Giddens<sup>33</sup>, who emphasizes that globalization is "action at a distance" and this term becomes a keyword for contemplation. Also, M. Castells<sup>34</sup>, M. McLuhan<sup>35</sup>, Z. Bauman<sup>36</sup>, A. Lemańska-Majdzik<sup>37</sup>, B. J. Feder<sup>38</sup>, A. Dreher<sup>39</sup>, C. Oman<sup>40</sup> wrote about globalisation. The theme of globalization in Poland is raised by G. Kołodko<sup>41</sup>, representatives of the National Bank of Poland M. Gardzewicz, J. Hagemeyer, Z. Żółkiewski, L. Kąsek<sup>42</sup>. The influence of globalization on education was discussed by W. Kołodziejczyk and M. Polak<sup>43</sup>, M. Govind Kumar Menon<sup>44</sup>. The studies of the European Commission<sup>45</sup> are also of great value. The aspect of mediation and its significance for education was dealt with,

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<sup>33</sup> U. Beck, A. Giddens, S. Lash: *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Stanford University Press, Kalifornia, s. 96.

<sup>34</sup> Castells M. (2010): *The Rise of the Network Society*. Wiley-Blackwell, p. 77.

<sup>35</sup> McLuhan M. (1962): *The Gutenberg Galaxy. The making of a typographic man*. University of Toronto Press, p. 31.

<sup>36</sup> Bauman Z. (2000): *Globalizacja. I co z tego dla ludzi wynika*. Polski Instytut Wydawniczy, Warszawa, p. 5.

<sup>37</sup> Lemańska- Majdzik A.: *Globalizacja- szansa czy zagrożenie dla współczesnego świata*. <http://www.sbc.org.pl/Content/80841/Zarz%C4%85dzanie1.2013%20Lema%C5%84ska2.pdf> (visited 19th July 2018).

<sup>38</sup> Feder B. J. (2006): *Theodore Levitt, 81, Who Coined the Term 'Globalization', Is Dead*. „New York Times”

<https://www.nytimes.com/2006/07/06/business/06levitt.html> (visited 3rd April 2018).

<sup>39</sup> Dreher A. (2008): *Measuring Globalisation. Gauging Its Consequences*. Springer, New York, p. 11.

<sup>40</sup> Oman C. (1996): *The Policy Challenges of Globalisation and Regionalisation*, OECD Development Centre, Policy Brief No 11, p. 5.

<sup>41</sup> Kołodko G. W. (2007): *Polska z globalizacją w tle. Instytucjonalne i polityczne aspekty rozwoju gospodarczego*. TNOiK, Toruń.

<sup>42</sup> Kąsek L. (2015): *Poland as a Global Development Partner*. The World Bank. Waszyngton, p. 11. <http://pubdocs.worldbank.org/en/228061435014173462/Poland-Global-engagement.pdf> (visited 18th July 2018).

<sup>43</sup> Kołodziejczyk W., Polak M. (2011): *Jak będzie zmieniać się edukacja. Wyzwania dla polskiej szkoły i ucznia*. Instytut Obywatelski, Warszawa.

<sup>44</sup> Govind Kumar Menon M. (2006): *Globalisation and education. An overview*. In: Sánchez Sorondo M., Malinvaud E., Léna P. (red.): *Globalization and education. The Proceedings of a Joint Working Group 16-17 November 2005 Casina Pio IV, Watykan*, pp. 24-38.

<sup>45</sup> European Commission (2017): *Reflection paper on harnessing globalisation*. Brussels, p. 7. [https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation_en.pdf)

among others, by T. Goban-Klas<sup>46</sup>, A. Adamski<sup>47</sup>, K. Lundby<sup>48</sup>, N. Couldry and A. Hepp<sup>49</sup>, S. Rawolle and B. Lingard<sup>50</sup>, S. Hjarvard<sup>51</sup>, R. L. Konsbruck<sup>52</sup>.

Continuous technological development and the appearance of new media makes us wonder what new media are. As time passes, every new medium becomes old. Among the researchers dealing with the subject of new media, there are M. Lister<sup>53</sup>, S. Livingstone<sup>54</sup>, L. Manovich<sup>55</sup>, P. Levinson<sup>56</sup> and L. V. Szabo<sup>57</sup>. With the development of the Internet and new media and ubiquitous globalization, the communication model has changed. The one-to-one and one-to-multiple models that applied until the 20th century are no longer sufficient. Multiple-to-one and multi-to-multiple models are becoming increasingly common. The author analysed the changes in the known communication models divided into traditional ones, where the flow of information is one-sided and modern,

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<sup>46</sup>Goban-Klas T.: *Media. Historia i współczesność*.

[http://users.uj.edu.pl/~usgoban/files/media\\_podstawowe\\_problemy.pdf](http://users.uj.edu.pl/~usgoban/files/media_podstawowe_problemy.pdf) (visited 11th July 2018).

<sup>47</sup> Adamski A. (2016): Media as the intersphere of human life: Another view on the mediatization of communication theory. Conference Proceedings from International Scientific Conference 14th - 15th April 2015 Congress Hall of the Slovak Academy of Science Smolenice, Slovak Republic, Trnava.

<sup>48</sup> Lundby K.(ed.) (2014): *Mediatization of Communication*. Walter de Gruyter GmbH & Co KG

<sup>49</sup>Couldry N., Hepp A. (2013): *Conceptualizing Mediatization: Contexts, Traditions, Arguments*. „Communication Theory”, No 23. <https://onlinelibrary.wiley.com/doi/abs/10.1111/comt.12019> (visited 20th April 2018).

<sup>50</sup>Rawolle S., Lingard B. (2014): *Mediatization and education: a sociological account, in Mediatization of communication*. De Gruyter Mouton, Berlin, s. 595-614.

<sup>51</sup>Hjarvard S. (2008): *The Mediatization of Society A Theory of the Media as Agents of Social and Cultural Change*. Nordicom Review 29 (2008) 2, p. 113. <https://pdfs.semanticscholar.org/44e7/57ca2bb52642ad32ea58d48c5345521c2f78.pdf> (visited 10th June 2018).

<sup>52</sup>Konsbruck R. L.: *Impacts of Information Technology on Society in the new Century*.

<https://www.zurich.ibm.com/pdf/news/Konsbruck.pdf> (visited 11th July 2018).

<sup>53</sup>Lister M. (2009): *New media. A critical introduction*. Routledge Taylor and Francis Group, London and New York, pp. 10-11.

<sup>54</sup>Livingstone, S. (1999): *New media, new audiences?* *New media and Society*, 1(1): 59-66. LSE Research Online. <http://eprints.lse.ac.uk/archive/00000391>. (visited 12th July 2018).

<sup>55</sup> Manovich L.: *The Language of New Media*. The MIT Press.

<sup>56</sup> Levinson P. (2013): *New New Media*. Second edition, Pearson.

<sup>57</sup>Szabo L. V. (2014): *The Future of Communication: From new Media to Postmedia*. *Procedia - Social and Behavioral Sciences*. 163. 10.1016/j.sbspro.2014.12.283.

based on two-way communication. Communication literature includes works by T. Goban-Klas<sup>58,59</sup>, M. Mrozowski<sup>60</sup>, E. Kulczycki<sup>61</sup>, A. Adamski<sup>62</sup>, D. McQuail<sup>63,64</sup>, M. McLuhan<sup>65</sup>, S. Cleary<sup>66</sup>, J. Keyton<sup>67</sup>, R. M. Losee<sup>68</sup>, J. Turow<sup>69</sup>, J. R. Dominick<sup>70</sup>, E. Carne<sup>71</sup> and others. The ecological model of D. Fougler<sup>72</sup> was presented as a reflection of communication in the era of crowd-learning. Crowd-learning was discussed mainly by foreign researchers. Among the scientists who contributed the most, one should mention M. Sharples<sup>73</sup>, D. E. Kalisz<sup>74</sup>, J. Dron and T. Anderson<sup>75</sup>, A. Farasat<sup>76</sup>, W. Lasecki<sup>77</sup>, V. C. Raykar<sup>78</sup>.

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<sup>58</sup> Goban-Klas T. (2005): *Spoleczeństwo medialne*. PWN, Warszawa, p. 13.

<sup>59</sup> Goban-Klas T. (2004): *Media i komunikowanie masowe: Teorie i analizy prasy, radia, telewizji i Internetu*. PWN SA, Warszawa, p. 211.

<sup>60</sup> Mrozowski M. (2001): *Media masowe: władza, rozrywka, biznes*. Oficyna wydawnicza ASPRA-JR, Warszawa, p. 14.

<sup>61</sup> Kulczycki E. (2012): *Teoretyzowanie komunikacji*. Wydawnictwo Naukowe IF UAM, Poznań, pp. 15-16.

<sup>62</sup> Adamski A. (2012): *Media w analogowym i cyfrowym świecie*. Dom Wydawniczy Elipsa, Warszawa.

<sup>63</sup> McQuail D., Windahl S. (1993): *Communication Models for the Study of Mass Communication*. Routledge Taylor and Francis Group, Londyn, Nowy Jork, p. 5.

<sup>64</sup> McQuail D. (2007): *Teoria komunikowania masowego*. PWN, Warszawa, p. 72.

<sup>65</sup> McLuhan M. (1994): *Understanding the Media. The extensions of man*. London and New York, pp. 10-46.

<sup>66</sup> Cleary S., red. (2004): *The communication handbook*. Juta and Company Ltd., Lansdowne, p. 2.

<sup>67</sup> Keyton, J. (2011): *Communication and organizational culture: A key to understanding work experience*. Thousand Oaks, CA: Sage.

<sup>68</sup> Losee R. M. (1999): *Communication Defined as Complementary Informative Processes*. „Journal of Information, Communication and Library Science”, Vol. 5, No. 3, pp. 1-15.

<sup>69</sup> Turow J. (2014): *Media Today. Mass Communication in a Converging World*. Routledge Taylor and Francis Group, Londyn, Nowy Jork, p. 6.

<sup>70</sup> Dominick J. R. (2004): *The Dynamics of Mass Communication. Media in the Digital Age*. Eight Edition. Mc Graw Hill, Nowy Jork, p. 11.

<sup>71</sup> Carne E. (1999): *Telecommunications Primer. Data, Voice and Video Communications*. Pearson, pp. 2-3.

<sup>72</sup> Fougler D. (2004): *Models of the Communication Process*.

<http://davis.foulger.info/research/unifiedModelOfCommunication.htm> (visited 29th May 2018).

<sup>73</sup> Sharples M. et al. (2014): *Mobile and Accessible Learning for MOOCs*. Journal of Interactive Media in Education, X(X): X, pp. 1-8, DOI: <http://dx.doi.org/10.5334/jime.ai> (visited 3rd August 2018).

<sup>74</sup> Kalisz D.E. (2015): *Crowd Learning: Innovative Harnessing the knowledge and potential of people*. [w:] Tiwari S. R., Nafees L. red. „Innovative Management Education Pedagogies for preparing the next generation leaders”. IGI Global.

<sup>75</sup> Dron J., Anderson T. (2014): *Teaching Crowds: Learning And Social Media*. AU Press, Athabasca University.

<sup>76</sup> Farasat A. et al. (2017): *Crowdlearning: Towards Collaborative Problem-Posing at Scale*. Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale, pp. 221-224. 10.1145/3051457.3053990.

<sup>77</sup> Lasecki S. W. et al. (2012): *Crowd memory: learning in the collective*.

<https://arxiv.org/pdf/1204.3678.pdf> (visited 3rd August 2018).

<sup>78</sup> Raykar V. C. i in. (2010): *Learning form Crowds*. Journal of Machine Learning Research 11 (2010) 1297-1322. [http://delivery.acm.org/10.1145/1860000/1859894/11-1297-raykar.pdf?ip=80.244.157.7&id=1859894&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&\\_\\_acm\\_\\_=1536119509\\_7f63122c08ca34189ce937b5a074f2e7](http://delivery.acm.org/10.1145/1860000/1859894/11-1297-raykar.pdf?ip=80.244.157.7&id=1859894&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&__acm__=1536119509_7f63122c08ca34189ce937b5a074f2e7) (visited September 2018).

## Methodology

As it was written by J. Apanowicz, the term “methodology” comes from Greek “metha hodos” which means a way to the goal, following or chasing. Defining “methodology”, he refers to ancient philosophers: Plato who viewed a method as a doctrine and Aristotle who saw a method as a research doctrine<sup>79</sup>.

S. Nowak defines a method as a particular, repetitive and learnt pattern aimed to reach a goal by a selection of suitable means. Nevertheless, he differentiates a general methodology and science methodology. According to S. Nowak science methodology is a specified procedure aimed at conscious completion of science cognitive purpose. Its aim is the extension and deepening our knowledge of the phenomena, subjects and processes that are of interest to a given science. Sociology, as the field of science the author of this paper deals with, is an empirical science which recommends certain research methods. Research methods are understood as typical and repetitive ways of collecting, elaborating, analysing and interpreting empirical data aimed to obtain maximally justified answers to questions asked<sup>80</sup>. The author decided to apply sequential, three-phase research using a mixed methodology which aim is:

- exploration of crowd-learning phenomenon itself and in Polish society,
- exploration of lifelong learning engagement in Europe and Poland,
- description of benefits coming from taking part in crowd-learning,
- explanation of motives why people share knowledge free of charge and finally,
- creation of guidelines for the Polish crowd-learning platform.

In the first phase, which are two previous chapters, the author used desk research method described by E. Babbie as especially important. He claimed existing statistics should always be taken into account as a complementary source of data which could bring historical context for original research. The unit of analysis of existing data is nearly always group of people, not individuals; however, there is a risk that group behaviour patterns may vary from individual behaviour patterns<sup>81</sup>. That problem is referred to as

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<sup>79</sup> Apanowicz J. (2002): *Metodologia Ogólna*. Wydawnictwo Diecezji IVIplińskiej Bernardinum, Gdynia, p. 59.

<sup>80</sup> Nowak S. (2012): *Metodologia Badań Społecznych*. Wydawnictwo naukowe PWN, Warszawa, pp. 19-23.

<sup>81</sup> Babbie E. (2019): *Badania społeczne w praktyce*. Wydawnictwo Naukowe PWN, Warszawa, pp. 353-360.

ecology mistake<sup>82</sup>. It can be reduced by using theoretical deduction and empirical facts equally and using different sources of research. That is why the author of the thesis used data coming from varied organisations, at national level and European level. Other two problems concern accuracy and reliability. Existing data are limited, and they very often do not include particular issues researchers are concerned. Only logical inference and recurrence are solutions to that problem. E. Babbie emphasises researchers should always be conscious that a reliability problem might occur. In that case investigation of ways of data collecting and data compilation would allow estimating reliability level. Desk research made by the author included reports of governmental and non-governmental organisations at a national and European level in the field of lifelong learning and adult learning.

In order to estimate the number of people who are engaged in crowd learning and specify who they are as a target group for crowd-learning platform, the author used quantitative research in the second phase. The research was also aimed to define the roles of users who learn in the crowd and estimate their ratio. In that case, the author used probability sampling described by E. Babbie as a basic method of selecting large representative samples for social research. He emphasises probability sampling is more representative than other methods<sup>83</sup>. What is more, the theory of probability allows to estimate the representativeness of the random sample:

$$N \min = \frac{NP(\alpha^2 \cdot f(1-f))}{NP \cdot e^2 + \alpha^2 \cdot f(1-f)}$$

*N min- minimum sample size*

*NP - the size of the population from which the sample is taken*

*α - confidence level for results, the value in the standard distribution for the assumed significance level, e.g. 1.96 for 95%*

*f - fraction size*

*e - the assumed maximum error, expressed in fractional numbers, e.g. 5% is 0.05*

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<sup>82</sup> Ibidem, pp. 119-120.

<sup>83</sup> Babbie E. (2019): *Badania społeczne w praktyce*. Wydawnictwo Naukowe PWN, Warszawa, p. 204.

The unit of the author's analysis was professionally active population, aged 25-64, which in Poland equals 17053 thousand people<sup>84</sup>. As the author does not know fraction size, she assumes 0,5 and maximum error 0,5. The confidence level for results is estimated 95%, so it is 1,96.

$$N_{min} = \frac{17053000 (1,96^2 \cdot 0,5 (1-0,5))}{17053000 \cdot 0,05^2 + 1,96^2 \cdot 0,5 (1-0,5)}$$

$$N_{min}=384$$

Quantitative research was conducted by a national research panel „Ariadna” as a part of the omnibus survey among representative sample using a CSAQ surveys-pool method (computerized self-administered questionnaire) conducted among 1000 participants. The research panel guarantees representativeness in terms of age, sex, and size of place of living. Although the minimum number of people taking part in the research should be 384, the sample was greater, and it equalled 598 participants; thus, the maximum error equals 4%. The questionnaire is included in the annex.

The third phase of the research included a kind of Field Surveys- Group Focus Interview described by E. Babbie as frequently used when it comes to product marketing<sup>85</sup>. The focus group should consist of 12 – 15 people. Their goal is to discuss some particular issue. Participants are not chosen by a probability sample but they have something in common with the product. There are many advantages of this method: it is cheap and flexible (as the research could be modified anytime), it gives results fast, it has got high face validity, and it relies on collecting data from real life. What is more, the dynamics of the group triggers issues which are not predicted by a researcher. The greatest advantage is the presence of a researcher and the possibility of keeping a record. Although many advantages there are some disadvantages too. A researcher has got less control than during individual depth interviews, and data analysis is difficult. It is hard to gather a group, and a moderator should have special skills. The method is not convenient for the statistical

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<sup>84</sup>GUS (2018): *Informacja o rynku pracy w pierwszym kwartale 2018 roku*. <http://stat.gov.pl/obszary-tematyczne/rynek-pracy/pracujacy-bezrobotni-bierni-zawodowo-wg-bael/informacja-o-rynku-pracy-w-pierwszym-kwartale-2018-roku,12,33.html?pdf=1> (visited 22 August 2018).

<sup>85</sup> Babbie E. (2019): *Badania społeczne w praktyce*. Wydawnictwo Naukowe PWN, Warszawa, pp. 330-337.

description of society. Finally, the discussion has to be conducted in a favourable environment. E. Babbie emphasises that all kinds of field surveys are characterized by higher accuracy and lower reliability.

The author of the thesis organised a lecture titled “Crowd learning as a method of vocational training in the Information Society” as a part of a social campaign “Days of Adult Learning 2019”. The author addressed the event to professionally active people aged 25-64. The event took place in the afternoon (after participants' work) at the University of Information Technology and Management in Rzeszów and had 12 participants. During the lecture, the author presented the subject of crowd learning and quantitative research results and invited to a discussion concerning the creation of crowd learning platform in Poland. The aim of the discussion was to point the most useful functionalities for crowd learning platform and define factors encouraging people for using the platform. The discussion was moderated by the author to some extent as the participants were very active, and they desired to cover some issues on their own, and the author allowed participants to be creative. The discussion was recorded by a voice recorder. The participants were informed by the author about the recording, and they all agreed. The Group Focus Interview lasted 2 hours. The author asked questions attached in the annex.

The research made by the author of the thesis was conducted in accordance with the applicable ethics in social research, which means conforming to the standards of conduct of a given profession or group. They include<sup>86</sup>:

- voluntary participation - participants of the quantitative research were volunteers gathered by the “Ariadna” Research Panel, and participants of qualitative research were volunteers interested in the event organised by the author;
- “Do not harm participants” rule - the author did not use questions aimed to reveal inconvenient views and information. Participation in the research did not influence private or public life of participants who agreed to take part in the research consciously;
- Anonymity - participants of the quantitative research with the probability sample remain completely anonymous for the author;
- Privacy - the author knows who participated in Group Focus Interview and is able to identify speakers. At the same time the author guarantees not to reveal the

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<sup>86</sup> Babbie E. (2019): *Badania społeczne w praktyce*. Wydawnictwo Naukowe PWN, Warszawa, pp.514-534.

information and to destroy the recording when it would not be necessary to store it;

- The researchers' identity - participants of the quantitative research with the probability sample gather in the “Ariadna” Research Panel know the research panel collects opinions of Poles in various topics related to everyday life and that the research panel cooperates with centres in the field of social science. In turn, participants of the Group Focus Interview were informed about the author's identity and intention of the research;
- Analysis and results presentation - the author presents the results of her research honestly;
- Political aspects of social research- personal political views of the author, did not influence conducted as well as political views of research participants were not revealed, nor expressed and they did not influence the research either.

### **Added-value of the work**

Although the wisdom of the crowd has already been raised by Polish researchers, until now the issue of crowd-learning has not been discussed. More attention was paid to crowdsourcing, which is based on the wisdom of the crowd but is usually embedded in marketing and business frameworks. Polish researchers M. Frania<sup>87</sup> and M. Donderowicz<sup>88</sup> have devoted their work to new theories of learning in the digital age. Recently, crowd-learning activity in social media (Facebook) has been noticed, which was an interest of both B. Cyrek<sup>89</sup> and the author of the thesis<sup>90</sup>. In his article, Cyrek asks about what causes Internet users who have transferred the world of science to informal

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<sup>87</sup> Frania M. (2017): *Nowe media, technologie i trendy w edukacji. W kierunku mobilności i kształcenia hybrydowego*. Oficyna Wydawnicza Impuls, Kraków.

<sup>88</sup> Donderowicz M. (2014): *Najnowsze teorie uczenia w epoce cyfrowej*. *Dydaktyka Informatyki* 9, pp. 153-163. [http://bazhum.muzhp.pl/media/files/Dydaktyka\\_Informatyki/Dydaktyka\\_Informatyki-r2014-t9/Dydaktyka\\_Informatyki-r2014-t9-s153-163/Dydaktyka\\_Informatyki-r2014-t9-s153-163.pdf](http://bazhum.muzhp.pl/media/files/Dydaktyka_Informatyki/Dydaktyka_Informatyki-r2014-t9/Dydaktyka_Informatyki-r2014-t9-s153-163/Dydaktyka_Informatyki-r2014-t9-s153-163.pdf) (visited 9 September 2018).

<sup>89</sup> Cyrek B. (2016): *Media społecznościowe- nowa przestrzeń nauki*. *Kognitywistyka i Media w Edukacji*, No 2, pp. 25-56. [http://www.czasopisma.marszalek.com.pl/images/pliki/kim/2016\\_2/kim2016204.pdf](http://www.czasopisma.marszalek.com.pl/images/pliki/kim/2016_2/kim2016204.pdf) (visited 6th September 2018).

<sup>90</sup> Przybyło S. (2018): *From correspondence distance learning to crowd learning via social media – a case study of Polish teachers of English groups on Facebook*. *Biuletyn Edukacji Medialnej*, No 1/2018, pp. 28-41.

communities, which are virtual interest groups, and indicates the need to complete the issue. The proposed thesis will supplement the shortcomings mentioned above and create a place for Polish society to learn in the form of crowd-learning.

### **The structure of the work**

In the first chapter of the work, the author presents the processes of globalization and mediatization, which accompanied the development of the Information Society and specifies what the Information Society is. These processes had an impact on transformations within the communication models. The author goes through traditional models of communication and moves to new ones. The new communication model based on communication between crowd-learners is being introduced here.

The second chapter deals with the issue of adult learning, vocational training and lifelong learning in Europe and Poland along with the 21<sup>st</sup>-century skills. The author provides statistics concerning lifelong learning and adult education in Europe and Poland and analyses differences between them. The author discusses the importance of informal learning to lifelong education.

In the third chapter, the author presents new types of learning based on the wisdom of the crowd and collaboration. This part explains the phenomenon and the model of crowd-learning carefully as well as differences between crowd-learning and other innovative forms of learning. This part is also devoted to the author's research. The author did search for 10 crowd-learning platforms operating worldwide, combined and compared them. The reader is going to obtain a detailed overview of crowd-learning platforms. Further steps taken by the author include quantitative research. The reader can find out how many people in Polish society are engaged in crowd-learning and who are they. The next part of the chapter presents the outcomes of the focus test and individual-depth-reviews describing the experiences and needs of crowd-learners. The chapter concludes with recommendations for the first Polish crowd-learning platform.

The work ends with conclusions. The author explains the outcome of the research and verifies the research hypotheses stated in the introduction.

## **1. Processes and transformations accompanying the development of the Information Society**

Social transformation means a fundamental change in society, which can be contrasted with social change viewed as gradual or incremental changes over time. Varied cultures perceive social transformations differently. In the Judeo-Christian-Islamic time is perceived as an arrow, moving forward in a linear trajectory. In the Hindu concept, time is cyclical. The epochs, in the Hindu tradition, regress from the age of truth to one of materialism, sin and corruption. The concept of societal transformation refers to the change of societal system: technological, economic, political and cultural. In developing the theories of social change and modernization, sociologists draw upon the contributions of classical sociologists who were grappling with the rise of the capitalist industrial society in the 19th century. K. Marx was absorbed with the new social relations of exploitation, and predicting a path towards an end of exploitation. M. Weber was engaged in the paradoxical consequences of modernization and cultural transformations. A. de Tocqueville was examining the social circumstances that gave rise to the democratic social order. The social and cultural consequences of the growing division of labour and specialization in society brought in by industrialization were examined by E. Durkheim.

The 20<sup>th</sup> century has experienced the most radical alterations of all the centuries recorded in history. The social change concerned the two World Wars, the decline of imperialism, the rise of the new nation-states, the Cold War and the collapse of socialism.

The post-Second World War period characterized by the research and reflections on social change in the so-called Third World<sup>91</sup>.

The technological progress of the 20<sup>th</sup> century caused the transformation of Industrial Society into Information Society which we are. For the past several dozen years information has become the most valuable merit. The basis of the Information Society is a fast development of information and communication technology,<sup>92</sup> and a characteristic feature of the Information Society is the speed of civilisation changes.

According to A. Toffler, human civilization has progressed during three historic waves: the agrarian, industrial and technological. By this time the humans have lived through two great waves of change (agrarian and industrial), each of which almost completely destroyed previous cultures and civilizations, introducing its customs. In the new civilization, many things contradict the old, traditional industrial civilization. The new civilization is primarily technological, being at the same time anti-industrial. It emerged in 1955 in the USA when number of white-collar workers exceeded the number of blue-collar workers. It creates new world-view of time, space, logic and principle of causality. The most important in his concept of the third wave civilization is the disappearance of a gulf between producers and consumers creating prosumers economy. Toffler indicates that when a society is affected by two waves at the same time, without any domination of one of them, social tensions, dangerous conflicts and accumulation of previously unknown political trends are emerging. When people learn to distinguish transformations of the third wave from those connected with the second wave, they will see a new vision for the world<sup>93</sup>.

Note that the agrarian era had been evaluating for several thousand years, the Industrial Society lasted about 300 years, and the Information Society might be as long as 180 years. It should be emphasised that the knowledge resources double every ten years and the internet resources even every year<sup>94</sup>.

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<sup>91</sup> Khondker H., Schuerkens U. (2014): *Social transformation, development and globalization*. Sociopedia. ISA DOI: 10.1177/205684601423 (visited 18 January 2019).

<sup>92</sup> Sienkiewicz P., Nowak J. S. (ed.) (2008): *Spoleczeństwo Informacyjne. Krok naprzód, dwa kroki wstecz*. Polskie Towarzystwo Informatyczne- Oddział Górnośląski, Katowice, p. 25.

<sup>93</sup> Toffler A. (1986): *Trzecia fala*. Państwowy Instytut Wydawniczy. Warszawa.

<sup>94</sup> Kęsy M. (2011): *Spoleczeństwo Informacyjne w rozwoju cywilizacyjnym ludzkości*. Dydaktyka Informatyki. Problemy i wyzwania Społeczeństwa Informacyjnego. Wydawnictwo Uniwersytetu Rzeszowskiego (1/2011), p. 74- 94.  
[cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight...47cb.../Kesy\\_M1.pdf](http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight...47cb.../Kesy_M1.pdf) (visited 9 July 2018).

Literature concerning the Information Society allowed to define the term and characterize the phenomenon in the second half of the 20<sup>th</sup> century, and now, in the 21<sup>st</sup> century. The development of media, the process of globalization and mediatization caused changes in all aspects of life in the Information Society, including education.

The first chapter aims to picture varied concepts of social transformations and feature the emergence of the Information Society. The invention of the internet and new media changed communication models significantly. The author has prepared the comparison between communication models before and after technological transformations and she has proposed the supplementation of the latest model. The goal is also present how technology and communication transformations have affected education models. Technology is the most important driving force of civilisation transformations and science is the main productive power. Globalization, which was defined by Giddens as action at a distance, whose acceleration was possible due to the development of information technologies made geographical distance level out.

### **1.1. From the Japanese plan to reality.**

The term “Information society” was used for the first time by Japanese economist Tadao Umesao in 1963. He emphasised the growing importance of information and modern technologies in socio-economic development in Japan<sup>95</sup>. In 1972 “The Plan for Information Society” was introduced to the Japanese government by Japan Computer Usage Development Institute. It was seen as a national goal toward the year 2000. According to that plan, Information Society is "a society with highly intellectual creativity where people may draw future designs on an invisible canvas and pursue and realize individual lives worth living"<sup>96</sup>. The image of the Information society was built on two premises. First, that the production of information would value and not material values would be driving force, and second, that the past developmental pattern of human society can be used as a historical analogical model for future society<sup>97</sup>.

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<sup>95</sup> Kasperkiewicz W. (2004): *The concept of an Information Society in the European Union*. Acta Universitatis Lodzianis, Folia Oeconomica No.182, p. 309.  
cejsh.icm.edu.pl/.../foe182\_Witold\_Kasperkiewicz\_309\_318.pdf (visited 27 June 2018).

<sup>96</sup> Masuda Y. (1983): *The Information Society as Post-Industrial Society*. World Future Society, Washington, p. 3.

<sup>97</sup> Ibidem, p. 29.

In the early 1970s, Daniel Bell called the phenomenon the post-industrial society. He claimed that post-industrial society emerges from changes in a social structure, including the economy, the occupational structure, and the stratification system. According to Bell, a feature of particular societies is defined by the type of work that is most common. Following that statement, he suggested that while in pre-industrial societies agricultural labour is pretty well ubiquitous, and in industrial societies factory work is the norm, in post-industrial societies, it is service employment which predominates<sup>98</sup>. From Bell's point of view in the post-industrial society, information is the material of work for the majority. Bankers, therapists, advertisers, teachers - they all communicate knowledge. Service employment preponderance led to a greater abundance of information. Information work is mainly white-collar as it involves dealing with people rather than with things.

F. Webster is repeating after Bell that central person in post-industrial society "is the professional, for he is equipped, by his education and training, to provide the kinds of skill which are increasingly demanded in the post-industrial society. (...) post-industrial society is its professional technical services', the 'scientists and engineers, who form the key group in the post-industrial society'. Fourth, it is a particular segment of services that 'is decisive for post-industrial society'. These are those professionals in health, education, research, and government, where we are able to witness 'the expansion of a new intelligentsia – in the universities, research organizations, professions, and government'<sup>99</sup>.

Coming back to the Japanese Plan for Information Society, Y. Masuda prepared a comparison between Industrial Society and Information Society. He divided factors differentiating Industrial Society from Information Society into three categories: innovation technology, socio-economic structure, and values. In the first category, steam engine power changed into a computer (memory, computation, control). The basic function of Industrial Society: replacement and amplification of physical labour transformed into mental work. Material productive power converted into information productive power. The most critical modifications among socio-economic structure include main products and industries. Valuable goods and services in Industrial Society, now are information, technology and knowledge. Manufacturing industries became intellectual ones. Values connected with Industrial Society: material values, fundamental

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<sup>98</sup> Webster F. (2006): *Theories of the Information Society*. Routledge Taylor & Francis Group, London and New York, p. 39-40.

<sup>99</sup> Ibidem, p. 42.

human rights and human liberation passed away. The Information Society brought time-values, self-discipline, social contribution and globalism, seen as the symbiosis of a man and nature<sup>100</sup>.

The term information society may also derive from the economist F. Machlup who analysed knowledge production and distribution in the 1950s. His observation showed that the information sector in 1958 provided 29% of national income. It was clear that American society becomes a society based on knowledge and information. Since the development of technology and computation, the information sector was quickly expanding, the Information Society was rapidly growing<sup>101</sup>.

M. Castells, influenced by Marxism, claims that the information age announces a new society which resulted from the development of networks and which gives priority to information flows. He introduces the term 'informational capitalism' which combines enormous flexibility with global reach thanks to network arrangements. Castells marked the beginning of the information age to 1970s when capitalist crisis lined the end of post-war settlement seen as full employment, rising living standards, state welfare system. Since then 'informational capitalism' utilizes information networks to conduct its affairs, from within the factory to worldwide marketing. He specifies information labour. He sees it as a range of jobs which generates change, holds together the new economy, and generally thinks, conceiving, planning and operationalising required by informational capitalism. Information skills are the most important skills for those who run their own business. Adaptability skills are more essential than specific ones to survive in the fast-paced world of information capitalism. Permanent and secure employment has been replaced by contract work for the duration of the particular project. Information labour is looking for excitement and challenge of the latest development of their field rather than secure employment. In comparison to generic labour, which hungers for job security and performing the same tasks every day, information labour is eager for change. It is the main source of wealth<sup>102</sup>.

In 1994 1st Polish Information Technology Congress defines Information Society as "A society characterized by preparation and ability to use of IT systems, computerized

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<sup>100</sup> Masuda Y. (1983): *The Information Society as Post-Industrial Society*. World Future Society, Washington, p. 30

<sup>101</sup> Machlup, F. (1962): *The Production and Distribution of Knowledge in the United States*. Princeton, N.J.: Princeton University Press.

<sup>102</sup> Goban-Klas T., Sienkiewicz P. (1999): *Spółeczeństwo informacyjne: Szanse, zagrożenia, wyzwania*. Wydawnictwo Fundacji Postępu Telekomunikacji, Kraków.

and using telecommunications services for the transmission and remote processing of information". Three years later, preparation changes into achievement. In 1997 in Poland National Broadcasting Council published a report "Information Society in Poland" where a definition is given: "society becomes information society when it achieves the level of the development, scale and messiness of social and economic processes which require new technologies connected with hoarding, processing, transmitting and usage great mass of information generated by these processes"<sup>103</sup>. Readiness changed into achievement. According to that definition in the information society information, knowledge and technology are the main productive factors and ICT is a versatile factor of development. The workforce consists mainly of information workers, and the majority of national gross income is created within a broadly defined information sector.

Dictionary definition by Oxford University Press states "A society in which low-cost information technology, computers, and telecommunications are widely used to facilitate communication nationally and internationally, and to promote access to libraries, data archives, and other stores of the information held by private organizations or in the public domain"<sup>104</sup>.

Later, leading Polish media theorist T. Goban- Klas defined the information society as the society which not only owns well-developed means of processing information and communication, but processing of information is the basis of generating of national income and delivers the source of majority society maintenance<sup>105</sup>.

Another Polish public institution GUS (Statistics Poland) defines the Information Society as "society at a stage of development at which the level of IT and telecommunications technology has created technical, economic, educational and other conditions to use information in the production of goods and services. Such a society provides citizens with universal access and the ability to use information technologies in their professional and social activities, in order to raise and update knowledge, use cultural achievements, protect health and spend free time and other services affecting a higher quality of life"<sup>106</sup>.

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<sup>103</sup> KRTiT (1996/1997): *Spoleczeństwo informacyjne w Polsce. Wstęp do formułowania założeń polityki Państwa*. Warszawa, p. 5.

<sup>104</sup> [www-1] <https://www.encyclopedia.com/social-sciences/dictionaries-thesauruses-pictures-and-press-releases/information-society> (visited 27 June 2018).

<sup>105</sup> Goban-Klas T., Sienkiewicz P. (1999): *Spoleczeństwo informacyjne: Szanse, zagrożenia, wyzwania*. Wydawnictwo Fundacji Postępu Telekomunikacji, Kraków.

<sup>106</sup> GUS: *Wskaźniki społeczeństwa informacyjnego- badania wykorzystania technologii informacyjno-telekomunikacyjnych*. GUS, Warszawa. <http://stat.gov.pl/metainformacje/sloownik-pojec/pojecia-stosowane-w-statystyce-publicznej/1869,pojecie.html> (visited 27 June 2018).

As stated by the European Commission “The term *information society* describes a society where a significant degree of activity focuses on the creation, distribution, use, and reuse of information. This activity takes place employing what is known as information and communication technologies (ICTs). The use of ICTs, the growth of the internet and the opening up of telecommunications markets have revolutionised Europeans' daily lives over the last 25 years. They offer opportunities like teleworking, e-health and e-learning to name but a few”<sup>107</sup>.

It is a society for whom the most important feature is production, collection and the flow of information. The internet and information technologies are the most important features of humans' life and work. The information is a product for sale, which becomes a driving force of contemporary civilisation. It is crucial to say that the information is relatively inexpensive and consequently, quite common<sup>108</sup>. The flow of information is the basis of life in the Information Society.

The overview of varied concepts of the Information Society led to a conclusion that the definition of the Information Society has been evolving through time and involving more and more requirements. As it was said earlier, readiness changed into achievement, the achievement of progressively sophisticated demands concerning more and more aspects of life. Humans have been facing progressive development and everlasting evolution, which means that adaptability skills more important than hard skills, thus lifelong learning remains an immanent feature of the Information Society.

## **1.2. Globalization and mediatization as the processes shaping communication and education transformations in the Information Society.**

M. Castells refers to last twenty-five years of the 20th century as the new economy based on informationalism, globalisation and networking. “It is informational because the productivity and competitiveness of units or agents in this economy (be it firms, regions, or nations) fundamentally depend upon their capacity to generate, process, and apply efficiently knowledge-based information. It is global because the core activities of

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<sup>107</sup> EUR-Lex: *Glossary of summaries- Information Society*.

[https://eurlex.europa.eu/summary/glossary/information\\_society.html](https://eurlex.europa.eu/summary/glossary/information_society.html) (visited 27 June 2018).

<sup>108</sup> Golka M. (2005): *Czym jest Społeczeństwo Informacyjne?* *Ruch Prawniczy, Ekonomiczny i Socjologiczny*, No. 4/2005, p. 254.

[https://repozytorium.amu.edu.pl/bitstream/10593/5615/1/19\\_Marian\\_Golka\\_Czym%20jest%20spo%C5%82ecze%C5%84stwo%20informacyjne\\_253-265.pdf](https://repozytorium.amu.edu.pl/bitstream/10593/5615/1/19_Marian_Golka_Czym%20jest%20spo%C5%82ecze%C5%84stwo%20informacyjne_253-265.pdf) (visited 9 July 2018).

production, consumption, and circulation, as well as their components (capital, labour, raw materials, management, information, technology, markets), are organized on a global scale, either directly or through a network of linkages between economic agents. It is networked because, under the new historical conditions, productivity is generated through, and competition is played out in a global network of interaction between business networks”<sup>109</sup>. Castells sees a global economy as an economy whose core components have the institutional, organizational, and technological capacity to work as a unit in-real time, or in the chosen time, on a planetary scale. The main resource of the information society the knowledge and informing activities. It is strictly connected with means of mass communication, the development of information technology, intelligent technologies, virtual reality and progress of globalisation process<sup>110</sup>.

For the first time the concept of “globalization” appeared in Harvard Business Review article "The Globalization of Markets" by T. Lewitt in 1983. He defined globalization as the changes in technology and social behaviours that allow multinational companies to sell the same products worldwide<sup>111</sup>. McLuhan, in his volume “The Gutenberg Galaxy”, used the image of a global village referring to conditions of extreme independence on a global scale generated by electricity<sup>112</sup>. Electronic media create the global village transforming people into complex, depth-structured and emotionally aware of their interdependence with all of human society. Alex Dreher et al. State that “the world is increasingly becoming a global village because people’s lives – irrespective of their specific location – are connected with other parts of the world through the media”<sup>113</sup>.

According to Charles Oman ‘Globalization’ is the growth, or more precisely the accelerated growth, of economic activity across national and regional political boundaries. It finds expression in the increased movement of tangible and intangible goods and services, including ownership rights, via trade and investment, and often of people, via

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<sup>109</sup> Castells M. (2010): *The Rise of the Network Society*. Wiley-Blackwell a John Wiley & Sons, Ltd., Publication, p. 77.

<sup>110</sup> Tomski P. (2012): Komunikacja w społeczeństwie informacyjnym: aspekt niekomercyjny. Zeszyty Naukowe Uniwersytetu Szczecińskiego, No. 703. Ekonomiczne Problemy Usług No. 88, p. 836-837. [http://bazhum.muzhp.pl/media/files/Ekonomiczne\\_Problemy\\_Uslug/Ekonomiczne\\_Problemy\\_Uslug-r2012-t-n88/Ekonomiczne\\_Problemy\\_Uslug-r2012-t-n88-s835-843/Ekonomiczne\\_Problemy\\_Uslug-r2012-t-n88-s835-843.pdf](http://bazhum.muzhp.pl/media/files/Ekonomiczne_Problemy_Uslug/Ekonomiczne_Problemy_Uslug-r2012-t-n88/Ekonomiczne_Problemy_Uslug-r2012-t-n88-s835-843/Ekonomiczne_Problemy_Uslug-r2012-t-n88-s835-843.pdf) (visited 10 July 2018).

<sup>111</sup> Feder B. J. (2006): *Theodore Levitt, 81, Who Coined the Term 'Globalization', Is Dead*. „New York Times” <https://www.nytimes.com/2006/07/06/business/06levitt.html> (visited 3rd April 2018).

<sup>112</sup> McLuhan M. (1962): *The Gutenberg Galaxy. The making of a typographic man*. University of Toronto Press, p. 31.

<sup>113</sup> Dreher A. et al. (2008): *Measuring Globalisation. Gauging Its Consequences*. Springer, New York, p. 11.

migration. It can be and often is facilitated by a lowering of government impediments to that movement, and/or by technological progress, notably in transportation and communications. The actions of individual economic actors, firms, banks, people, drive it, usually in the pursuit of profit, often spurred by the pressures of competition. Globalization is thus a centrifugal process, a process of economic outreach, and a microeconomic phenomenon”<sup>114</sup>.

Globalization is seen as an economic game with additional opportunities and threats connected with trade, finance, political, co-operational, investment and cultural relations with other countries. On the other hand, we reduce psychological and political boundaries as well as trade and capital flow boundaries<sup>115</sup>. Globalization is the fact whether we agree on that or not. Z. Bauman noticed people who see globalization as practices which make them delighted and those who perceive it as a motive of misfortune<sup>116</sup>. Mobility is the highest value in the globalised world. Whether we want to move or not, the movement is unavoidable, by the reason that the world is constantly changing. This new state brings different effects. “Globalization also means that the labour needed to manufacture a product can now be bought from almost anywhere. Now, jobs are transferred from one side of the world to the other with remarkable speed”<sup>117</sup>. Those who have an ability to match benefit, who have not lost.

Globalization is also perceived as a long term development which accelerated during the 1970s. It signals the growing interdependence and interpretation of human relations close by the increasing integration of the world's socio-economic life. Capitalist activities are worldwide and able to enter in different spheres. Capitalism has brought the whole world into networks of relationships. Webster distinguishes following significant features of globalization: market, production, finance, communications and information infrastructure.

A. Dreher et al. discuss the history and the definition of globalisation as they see its beginning connected with the discovery of America by Columbus and then with the invention of steam locomotive and electricity. Nevertheless, they define globalisation as “the intensification of cross-national interactions that promote the establishment of trans-

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<sup>114</sup> Oman C. (1996): *The Policy Challenges of Globalisation and Regionalisation*, OECD Development Centre, Policy Brief No. 11, p. 5.

<sup>115</sup> Kołodko G. W. (2007): *Polska z globalizacją w tle. Instytucjonalne i polityczne aspekty rozwoju gospodarczego*. TNOiK, Toruń.

<sup>116</sup> Bauman Z. (2000): *Globalizacja. I co z tego dla ludzi wynika*. Polski Instytut Wydawniczy, Warszawa, p. 5.

<sup>117</sup> Cisco Systems (2010): *The Learning Society*. Cisco Public Information, p. 4

national structures and the global integration of cultural, economic, environmental, political, technological and social processes on global, supra-national, national, regional and local levels”<sup>118</sup>.

The increased influence of the media on our daily lives changed people's way of perceiving the world, consumption patterns and affected local cultures. The essence of globalisation is action at a distance<sup>119</sup>. M. Govind Kumar Menon describes driving forces of globalisation. It is possible due to the advances that have taken place in science and technology, resulting in major disruptive technologies across a range of areas. On the one hand, major changes in the scale of transportation modes were the effect of a series of innovations. They enabled people and goods to move using wide-bodied jet aircraft, giant ocean-going vessels, containerised transport and pipeline systems.

On the other hand, fibre optics and laser technology, satellites, and wireless communications, all based on scientific discoveries and related technologies enhanced communication. The author points at innovation which is essential in all phases associated with a product. People need something different<sup>120</sup>.

Although globalization affected the whole world, it looks a bit different among countries, and the difference comes from the political division on capitalist and socialist countries. As far as Poland is concerned, Kołodko conceptualizes globalisation as a historical liberalisation and integration process of the capital market and goods market which were functioning separately thus far, into one global market. As Poland remained influenced by socialism up to 1989, globalization came with a time lag and on a smaller scale of the workforce. Poland, inexperienced and without its view of development, followed leading, highly-developed countries by liberating, opening and denationalising. As a consequence, the Polish economy got hurt as it was not comparable to any other<sup>121</sup>. After the strengthening of market economy mechanism and progressing integration with the European Union Poland finally accessed to the EU in 2004<sup>122</sup>. The World Bank

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<sup>118</sup> Dreher A. et al. (2008): *Measuring Globalisation. Gauging Its Consequences*. Springer, New York, p. 15.

<sup>119</sup> Beck U., Giddens A., Lash S.: *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Stanford University Press, California, p. 96.

<sup>120</sup> Govind Kumar Menon M. (2006): *Globalisation and education. An overview*. In: Sánchez Sorondo M., Malinvaud E., Léna P. (ed.): *Globalization and education. The Proceedings of a Joint Working Group 16-17 November 2005 Casina Pio IV, Vatican City*, pp. 24-38.

<sup>121</sup> Kołodko G. W. (2007): *Polska z globalizacją w tle. Instytucjonalne i polityczne aspekty rozwoju gospodarczego*. TNOiK, Toruń, p. 21-22.

<sup>122</sup> Gradzewicz M., Hagemeyer J., Żółkiewski Z. (2008): *Globalization and the Polish Economy: Stylized Facts and CGE Model Simulations*. National Bank of Poland.  
<https://ecomod.net/sites/default/files/document-conference/ecomod2007/387.pdf> (visited 18.07.2018).

describes the beginning of Poland in the EU in such a way: “Poland has come a long way as a European Union member state. From being a rather cautious new entrant in 2004, it has become one of the organization’s most active members, as evidenced by the ECFR’s European Foreign Policy Scorecard (2014)”<sup>123</sup>.

European Commission refers to globalisation as a positive force as long as the more connected world has brought with it new opportunities. “People travel, work, learn and live in different countries. They interact with each other on the web, sharing their ideas, cultures and experiences. Students have online access to courses run by leading universities across the world”<sup>124</sup>. Creativity and accelerated innovation are stimulated by international competition, global climate action, scientific cooperation and exchange of ideas.

Polish educators W. Kołodziejczyk and M. Polak emphasise that globalization allows drawing inspiration from the experience of other countries. The analysis of the comparative research favour introducing modernisation and innovations in education. They indicate the growing interest of Polish society in the alternative, informal forms of learning, anytime and anywhere. That is why e-learning and mentoring is becoming popular<sup>125</sup>.

M. Govind Kumar Menon, in his paper “Globalization and education” characterizes the impact of globalization on the education of different levels. In primary education, globalization caused the division on public, which is seen as low quality, and private sector perceived as high quality. In secondary education, the children are pressurised into a pattern of obtaining certificates, higher levels of marks and into choosing subject areas that would give them the best opportunities for the next higher levels of education and their employment. In vocational education, there is a tendency to be looked down upon although vast numbers of those with professional skills at the levels as imparted by vocational education are needed by society. As a result, there is a shortage of plumbers, electricians, various categories of mechanics, nurses, medical technicians and the like. Higher education is significantly globalised because of a great deal of privatisation and commercialisation, making an impact.

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<sup>123</sup> Kąsek L. (2015): *Poland as a Global Development Partner*. The World Bank. Washington, p. 11. <http://pubdocs.worldbank.org/en/228061435014173462/Poland-Global-engagement.pdf> (visited 18 July 2018).

<sup>124</sup> European Commission (2017): *Reflection paper on harnessing globalisation*. Brussels, p. 7. [https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation_en.pdf)

<sup>125</sup> Kołodziejczyk W., Polak M. (2011): *Jak będzie zmieniać się edukacja. Wyzwania dla polskiej szkoły i ucznia*. Instytut Obywatelski, Warszawa.

In the information society overcoming the distance is possible due to the development of information technology and a process of mediatization, which is defined as a process of exploring the world by the media<sup>126</sup>. The term “mediatization of culture” was introduced in 1995 by John B. Thompson in his “The Media and Modernity” to denote the systematic cultural transformation. One of the prominent researcher, F. Krotz, defines mediatization as a long-term historical process present since the beginning of communication. “It is assumed that media exist and have been developed since the beginning of human communication, which means the birth of humankind. Media then are constructed by communication and social action of the people by using technology for communication, and communication is transformed and modified by media”<sup>127</sup>.

In 1933 E. Manheim in his book “The Bearers of Public Opinion” describes changes of social relations within modernity, marked by mass media using the term of the mediatization of direct human relationships<sup>128</sup>. Mediatization involves the process of social changes, which may have the character of transformations. It describes a way in which modernity is shaped. The term is used in order to characterize the influence media exert on a variety of phenomena. At first, in the second half of the 20th century, mediatization was used primarily in political communication. At the beginning of the 21<sup>st</sup> century, scientists considered mediatization impact on society and culture<sup>129</sup>. S. Hjarvard made a historical division of mediatization. Up to 1920 media were used as the instruments of other institutions within the system of press steered by particular interest, aimed to persuade and agitate. From 1920 to 1980 media played the role of a cultural institution guided by the public within a system of public radio, television and omnibus press. Their aim was to represent the common interest of society in a public arena. From 1980 till now, we have an era of independent media, whose content is user generated. It functions within commercial and competitive media system including satellite TV, Internet, mobile and interactive media, and it is to serve audiences<sup>130</sup>. S. Hjarvard understands the mediatization of society as „a process whereby society to an increasing degree is submitted to, or becomes dependent on the media and their logic. This process

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<sup>126</sup> Pisarek W.: Słownik terminologii medialnej. TaiWPN Universitas, Kraków, p. 118.

<sup>127</sup> Knut Lundby ed. (2014): *Mediatization of Communication*. Walter de Gruyter GmbH & Co KG.

<sup>128</sup> Couldry N., Hepp A. (2013): *Conceptualizing Mediatization: Contexts, Traditions, Arguments*. „Communication Theory”, No. 23. <https://onlinelibrary.wiley.com/doi/abs/10.1111/comt.12019> (visited 20 April 2018).

<sup>129</sup> Rawolle S., Lingard B. (2014): *Mediatization and education: a sociological account, in Mediatization of communication*. De Gruyter Mouton, Berlin, Germany, pp.595-614.

<sup>130</sup> Hjarvard S. (2012): *Mediatization and Globalization*. University of Copenhagen, Section of Film and Media Studies, Department of Media, Cognition and Communication.

is characterized by a duality in that the media have become integrated into the operations of other social institutions. At the same time, they also have acquired the status of social institutions in their own right. As a consequence, social interaction – within the respective institutions, between institutions, and in society at large – take place via the media”<sup>131</sup>. In 2008 Sonia Livingstone reflected mediatization of everything.

Different media play different roles satisfying people's needs. Media theorists classified functions of media. H. D. Lasswell distinguished environment observation, correlation of reaction to the environment and the transmission of heritage. Ch. R. Wright referred to information, interpretation and socialization. What is more, he added entertainment. Sandman, Rubin and Sachsman emphasised the economic function of media. On the other hand, P. F. Lazarsfeld and R. K. Merton saw functions of media as the after-effect of their activities: status conferring, enhancing social standards and its addiction dysfunction<sup>132</sup>. That is why media are present in every aspect of human life.

T. Goban- Klas calls the information society the media society as the media are omnipresent in people's lives, and humans strongly depend on them. He emphasises characteristic features of the media society:

- interpersonal communication is intermediated by the media;
- the media create peculiar virtual reality and the media culture;
- the telecommunication infrastructure is the basis of nets and informational circulation at a different scale. It is fundamental for effective activities undertaken by the individuals and organisations in all aspects of human lives;
- all human activities are supported by ICT;
- media industry are the crucial component of the economy and employment;
- majority of gross national product is made by the informational, telecommunication and media services;
- information, knowledge and culture are basic productive factor. Production and flow of information and knowledge are the new economy<sup>133</sup>.

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<sup>131</sup> Hjarvard S. (2008): *The Mediatization of Society A Theory of the Media as Agents of Social and Cultural Change*. Nordicom Review 29 (2008) 2, p. 113.  
<https://pdfs.semanticscholar.org/44e7/57ca2bb52642ad32ea58d48c5345521c2f78.pdf> (visited 10 June 2018).

<sup>132</sup> Mrozowski M. (2001): *Media Masowe: władza, rozrywka i biznes*. ASPRA-JR, Warszawa, p. 113-116.

<sup>133</sup> Goban-Klas T.: *Media. Historia i współczesność*.  
[http://users.uj.edu.pl/~usgoban/files/media\\_podstawowe\\_problemy.pdf](http://users.uj.edu.pl/~usgoban/files/media_podstawowe_problemy.pdf) (visited 11 July 2018).

Globalisation and mediatization are inherent processes occurring within the information society which have emerged as a result of the development of technology and communication transformations. The crucial moment in the history of current information society was the invention of the internet and the new media.

As it was stated earlier, Giddens said that the essence of globalisation is the distance. Information technology reduces the importance of distance at business, commerce, market structure, workplace, labour market, education, and private life- all aspects of people's lives. In business, firms overcome the tight local market for software engineers by sending projects to other nations where the wages are much lower. What is more, such arrangements can take advantage of the time differences so that critical projects can be worked on nearly around the clock. Firms have the opportunity to outsource their manufacturing to other nations and rely on telecommunications to keep marketing, R&D, and distribution teams in close contact with the manufacturing groups. Companies have greater freedom to locate their economic activities, creating greater competition among regions in infrastructure, labour, capital, and other resource markets. An infrastructure of computing and communication technology, providing 24-hour access at low cost to almost any kind of price and product information desired by buyers, reduce the informational barriers to efficient market operation, provide the means for effecting real-time transactions. Thanks to the internet, e-commerce is rapidly expanding into a fast-moving, open global market with an ever-increasing number of participants<sup>134</sup>.

The business has changed so the workplace and the labour market. The digital economy transformed the way people work and the skills they need at work. According to the European Commission, digital technologies are used in all types of jobs, also in economic sectors not traditionally related to digitisation, e.g. farming, health care, vocational training and construction. Life-long learning is an important element of all job profiles<sup>135</sup>. We can experience four paradigm shifts happening in the IT world today, which influence the digital workplace. The first is about mobility which implies that people connect with others and with data anywhere, any time, and on any device. The second is about data itself. Individuals have access to ever larger repositories of data, with sophisticated search and data analytic tools. The third is about Cloud, which provides

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<sup>134</sup>R. L. Konsbruck: *Impacts of Information Technology on Society in the new Century*. <https://www.zurich.ibm.com/pdf/news/Konsbruck.pdf> (visited 11 July 2018).

<sup>135</sup> European Commission (2016): *Shaping Europe's digital future. Report*. <https://ec.europa.eu/digital-single-market/en/news/report-shows-digital-skills-are-required-across-all-types-work-also-jobs-outside-office> (visited 11 July 2018).

access to a broader service catalogue with a variety of levels of service. The fourth paradigm shift is about collaboration meaning methods and tools, allowing people to connect in a network manner – and co-create the information. Collaboration allows for faster creation and dissemination of knowledge<sup>136</sup>.

Great transformations were experienced by education, which was possible due to the emergence of new communication technologies as well as journalism which influenced the public debate about education policy across the nations. The authors distinguish three kinds of mediatization to education research: technical mediatization, mediatization of education policy and mediatization of education representatives image. The first one emerged from research into development use, and effects of computer technologies in education. As it refers to changing models in the transmission of information, it is called “technical mediatization” connected with the new means of organizing teaching, and learning challenges to and effects on multiple practices in education, including pedagogy, curriculum, and assessment. Another interest is associated with the provision of media technologies in education and educational systems within the scale and cycle of production and consumption of learning media, and the economics, distribution and maintenance of these. Consequently, schools, universities, students, teachers, and lecturers are becoming important, lucrative, and competitive markets for businesses supplying new learning media technology, both to individual schools, systems of schools, universities and to governments<sup>137</sup>. A. Adamski notices that “where the media are commonly used in the system of education, e-learning is developing, whereas multimedia and interactive programs, presentations, and aids improve the process of teaching”<sup>138</sup>.

### **1.3. Technology and communication transformations.**

#### **1.3.1. Opportunities brought by the permanent development of the Internet and new media.**

The early beginning of the Internet dates back to 1957 when the Soviet Union launched the first artificial satellite, Sputnik. The United States of America was a second

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<sup>136</sup> European Commission (2017): *Digital Workplace Strategy*.

<https://ec.europa.eu/info/sites/info/files/digitalworkplacestrategy2017.pdf> (visited 11 July 2018).

<sup>137</sup> Rawolle S., Lingard B. (2014): *Mediatization and education: a sociological account*, in *Mediatization of communication*. De Gruyter Mouton, Berlin, Germany, pp.595-614.

<sup>138</sup> Adamski A. (2016): *Media as the intersphere of human life: Another view on the mediatization of communication theory*. Conference Proceedings from International Scientific Conference 14 th - 15 th April 2015 Congress Hall of the Slovak Academy of Science Smolenice, Slovak Republic, Trnava.

technological pioneer. It affected America so much that science and technology research was the most critical priority. The goal was to create a network that could function if some of its links were taken out, as by a nuclear attack<sup>139</sup>. American government conscripted The Advanced Research Projects Agency (ARPA) which sponsored research on computer technology conducted by universities across the USA. In the 1960s packet-switching technology was developed, and it enabled coding and sending messages. Two years later, the first net called ARPANET appeared. Initially, it connected a limited number of computers, and it was used for one-to-one communication between computer scientists<sup>140</sup>. Communications-hungry scientists wanted to trade information in the service of scientific progress. They wanted to create a network of networks, a massive grid that would enable every scientist to talk to every other scientist no matter what network one was on. At last, in the 1980s the network of networks – the “Internet” – was alive and linking most big institutes and universities in the nation, and some overseas, however only experts were able to use it. English scientist T. Berners Lee noticed what people really wanted out of a network was access to things on computers, not computers themselves. His work turned out to be successful as in the 1990s it resulted in a system that used the Internet to store, receive, and send documents, called the “World Wide Web”<sup>141</sup>.

Time from 1989 to 2005 was associated with Web 1.0 that was seen as a web of information connections, permitting only for searching and reading information. Its limitations considered the webmaster responsibility for updating users, and managing the content of a website, lack of dynamic representation and machine compatible content<sup>142</sup>. The Internet was developing fast. In 2004 Tim O'Reilly and Dale Dougherty of O'Reilly Media began to use the term Web 2.0 in to describe the trends and business models that survived the technology sector market crash of the 1990s<sup>143</sup>. All those survived companies, technologies and services were collaborative, interactive and dynamic. What is more, users created the content on these sites as well as consumed it. Web 2.0 movement is a web of multi-sensory communication, a collection of dialogues, user-centred and user-driven. MacDonald in his paper entitled ‘The Web 2.0 Advantage’ identifies the

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<sup>139</sup> Banks M. A. (2008): *On the Way to the Web: The Secret History of the Internet and Its Founders*. Apress.

<sup>140</sup> Hofmokl J. (2009): *Internet jako dobro wspólne*. Wydawnictwa Akademickie i Profesjonalne Warszawa.

<sup>141</sup> Poe M. T. (2011): *History of Communications. Media and Society from the Evolution of Speech to the Internet*. Cambridge University Press, New York, p. 213-214.

<sup>142</sup> Kujur P., Chhetri B. (2015): *Evolution of World Wide Web: Journey From Web 1.0 to Web 4.0*. „IJCSST” Vol. 6, No 1. <http://www.ijest.com/vol61/1/30-Pranay%20Kujur.pdf> (visited 19 April 2018).

<sup>143</sup> Maness J. M. (2006): *Library 2.0 Theory: Web 2.0 and Its Implications for Libraries*, University of Denver, 6-2006.

distinguishing feature of Web 2.0 as a bidirectional medium where people who interact with the website, as well as people and organizations, who manage the site contribute the content. He calls Web 2.0 the "read/write web" and lists and describes the main tools available, including blogs, wikis, podcasts and social tags<sup>144</sup>. Web 2.0 has enormous implications for learners and teachers in formal, informal, work-based and life-long education.

Unlike Web 1.0, it provides direct connections of more than a billion people and reaches above the virtual world boundaries joining lots of not mobile objects. It was possible thanks to the growth of computing power, efficiency and network coverage and access to tools needed for value creation and being competitive. Web 2.0 maintains a means of creating information and knowledge and changes in learning paradigms. Furthermore, it transforms consumers into active users creating and curating knowledge. Web 2.0 tools such as blogs, wiki's and social networks support innovations in education which include communities of practice, syndicated content, learning as a creative activity, peer-to-peer learning, creation of personal learning environments, and non-formal education, and they give power to the user who can add, edit, rehash content or produce one's own knowledge<sup>145</sup>. P. Kujur and B. Chhetri say: "Web 2.0 facilitates major properties like participatory, collaborative, and distributed practices which enable formal and informal spheres of daily activities ongoing on the web. In other terms, it resembles major distinguishing characteristics of Web 2.0 "relationship" technologies, participatory media and a digital social technology which in term can also be defined as the wisdom web"<sup>146</sup>. Franklin and Harmelen view the full implications of Web 2.0 for learning and teaching. The growth of Web 2.0 occurred at the same time that broadband communications, telephony and broadcast media were converging. The sector of professional production and editing in broadcast media adopted Web 2.0 technologies, with greater audience participation and audience-created content. They saw an increasing number of channels funded in diverse ways, e.g. subscription, general advertising, personalised advertising,

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<sup>144</sup>MacDonald S. (2007): *The Web 2.0 Advantage*.

<https://www.wiki.ed.ac.uk/display/Web2wiki/The+Web+2.0+Advantage;jsessionid=88EF90B16B81EC2B112D4F3458FFD0B5> (visited 19th April 2018).

<sup>145</sup>Okello-Obura C., Ssekitto F. (2015) *Web 2.0 Technologies application in teaching and learning by Makerere University Academic Staff*, "Library Philosophy and Practice e-journal". University of Nebraska, Lincoln,

<https://digitalcommons.unl.edu/cgi/viewcontent.cgi?referer=https://www.google.pl/&httpsredir=1&article=3326&context=libphilprac> (visited 20 February 2018).

<sup>146</sup> Kujur P., Chhetri B. (2015): *Evolution of World Wide Web: Journey From Web 1.0 to Web 4.0*. „IJCS” Vol. 6, No. 1, p. 134.

and via the sale of personal information collected via these channels. The increased bandwidth offered by 3G telephony encouraged a move from the desktop computer using a desktop browser to mobile devices and browsers. Content is created, shared and consumed on mobile devices. Ubiquitous computing mediated the world in new ways. The presence within social spaces increased so that users can see who is connected and who is active, and gain a feel for, or knowledge of, what other users are doing. This helps mediate between people in different ways<sup>147</sup>.

Despite revolutionary opportunities, Web 2.0 also has some constraints considering ethical issues concerning build and usage of Web 2.0, constant iteration cycle of Change and Updates to services, and limitation of interconnectivity and knowledge sharing between platforms across community boundaries. C. Fuchs et al. marshalled negative aspects of Web 2.0. First of all, Web 2.0 is based on the exploitation of free labour. Secondly, its enjoyers are more passive users than active creators. Thirdly, Web 2.0 discourse advances a minimalist notion of participation or that corporations appropriate blogs and web 2.0 in the form of corporate blogs, advertising blogs, spam blogs, and fake blogs. Fourthly, most Web 2.0 users are part of a precarious creative underclass that needs economic models that assist them in making a living from their work. Finally, Web 2.0 is contradictory and therefore, also serves dominative interests, and its economy is still dominated by corporate media chains<sup>148</sup>.

Despite the immediate appeal of Web 2.0 applications and growing reason to believe that ICTs are altering fundamentally many young people's relationships with information, passive retrieval of information remains the most popular internet-based activity among young people, with content creation a less widely practised activity. A further limitation of educative uses of Web 2.0 applications he mentions is that of the increased salience of 'e-safety', for instance, the increased potential for young people to be 'at risk' when using ICTs by interpersonal victimization, disclosure of personal information, aggressive behaviour, talking with people met online, sexual behaviour, and downloading images using file-sharing programs<sup>149</sup>.

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<sup>147</sup>Franklin, T. van Harmelen, M. (2007): *Web 2.0 for Learning and Teaching in Higher Education, Report*. The Observatory of borderless higher education, London, [http://www.obhe.ac.uk/documents/view\\_details?id=24](http://www.obhe.ac.uk/documents/view_details?id=24), (visited 2 May 2018).

<sup>148</sup>Fuchs C., Boersma K., Albrechtslund A., Sandoval M. (2012): *Internet and Surveillance. The Challenges of Web 2.0 and Social Media*. Routledge, New York, pp. 3-6.

<sup>149</sup>Selwyn N. (2007): *Web 2.0 applications as alternative environments for informal learning - a critical review*. OECD, Paris. <http://www.oecd.org/education/cei/39458556.pdf> (visited 17 January 2019).

Open access has many advantages, making this form of popular publishing in the world of science. Open access to scientific publications enables faster dissemination of the publication, which reflects in faster research results. Another issue worth mentioning is that the escalation in open-access publishing has fuelled the rise of questionable businesses known predatory journals. They are journals in which published scientific papers are not subject to expert assessment, or it is made on the basis of very low standards. These magazines are publishing publications in the open access, often offer their services at exorbitant prices, with a short publishing process<sup>150</sup>. In recent years, the number of predatory journals has risen. Predatory journals do not perform acceptable academic practices. Through their pseudo-scientific character, they are tearing at science ethos. The lack of adequate reviewing practices hits the ethos of science because the proper quality of control over the published works is not ensured. In predatory journals, there is almost no rejection of an article reported for publication. The boundary between science and non-science in predator journals has become significantly blurred, infringed and uncontrolled<sup>151</sup>.

In spite of the fact that many people are still acquiring the Web 2.0 tools, from 2016 we can say about Web 3.0 known as an intelligent web or as a semantic web specified by T. Berners-Lee, the inventor of the World Wide Web. He views it as the concept of conversion of the Web into a big collection of a database., E. Schmidt, Google's CEO stated: "Web 3.0 is a series of combined applications. The core software technology of Web3.0 is artificial intelligence, which can intelligently learn and understand semantics. Therefore, the application of Web 3.0 technology enables the Internet to be more personalized, accurate and intelligent"<sup>152</sup>. As it was explained by M. Tekdal, Ş. Saygıner and F. Ç. Baz "Semantic Web technology interacts with databases and smart devices. Web 3.0 technology is writeable, readable, and programmable web technology. It is also a web technology that perceives what is relevant to what users are interested in and generates content based on them"<sup>153</sup>. The scientists emphasise the educational role of Web 3.0.

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<sup>150</sup>Khan F, Moher D. (2017): *Predatory Journals. Do not enter*. University of Ottawa Journal of Medicine Epub. <https://uottawa.scholarsportal.info/ottawa/index.php/uojm-jmuo/article/view/1755/1778> (visited 17 January 2019).

<sup>151</sup>Burdzik T. (2017): *Drapieżne czasopisma jako przykład nieetycznego publikowania*. Philosophy and Science: Philosophical and Interdisciplinary Studies, 5, 131-149. <https://doi.org/10.6084/m9.figshare.5155939> (visited 17 January 2019).

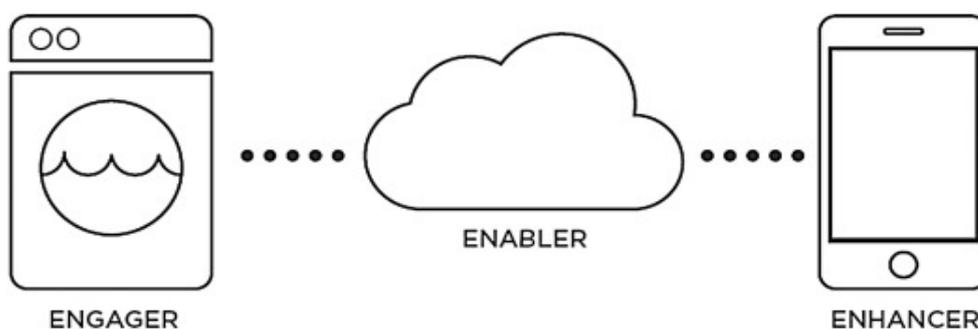
<sup>152</sup>Wikipedia. *Web 3.0 Wikipedia Definitions*. [http://en.wikipedia.org/wiki/Web\\_3.0](http://en.wikipedia.org/wiki/Web_3.0) ( visited 4 August 2010).

<sup>153</sup>Tekdal M., Saygıner Ş., Baz F. Ç. (2018): *Developments of web technologies and their reflections to education: a comparative study*. Journal Of Educational And Instructional Studies In The World. Vol.8, Issue 1., p. 21.

Semantic and three-dimensional web technologies enable teachers to bring environments from all over the world to classrooms and engage their students in virtual trips and lessons. It is especially useful when there is no laboratory environment at school.

An integrated part of Web 3.0 is the so-called Internet of Things (IoT) which is defined as “a dynamic global network infrastructure with self-configuring capabilities based on standard and interoperable communication protocols where physical and virtual things have identities, psychical attributes and virtual personalities, use intelligent interfaces, and are seamlessly integrated into the information network<sup>154</sup>”. It is also called interconnectivity of everything. This means that everyday objects can be equipped with identifying, sensing, networking and processing capabilities that let them communicate with one another and with other devices and services over the Internet to achieve some objective<sup>155</sup>. Physical things, from banknotes to bicycles, through a network, will let them take an active part on the Internet, exchanging information about themselves and their surroundings. This will give immediate access to information about the physical world and the objects in it—leading to innovative services and an increase in efficiency and productivity<sup>156</sup>.

Internet of Things is going to produce and share a magnificent number of data. Nevertheless, it results in new security and privacy problems, including confidentiality, authenticity, the integrity of data sensed and exchanged by 'things' which are not yet solved.



Picture 1. Outline of solution architecture. Source: Saarikko T. Westergren U. H., Blomquist T. (2017): The Internet of Things: Are you ready for what's coming? Business Horizons, Vol. 60, Issue 5, pp. 667-676. <https://doi.org/10.1016/j.bushor.2017.05.010>

<sup>154</sup>Vermesan O., Friess P. (2011): *Internet of Things- Global Technological and Societal Trends*. River Publishers, Aalborg, p. 10.

<sup>155</sup>Whitmore A., Agarwal A. (2015): *The Internet of Things- A survey of topics and trends*. Information System Frontiers, Vol.17, No. 2, pp. 261-274.

<sup>156</sup>Bandyopadhyay D., Jaydip S. (2011): *Internet of Things: Applications and Challenges in Technology and Standardization*. Wireless Personal Communications, Vol. 58, No. 1, p. 49.

A new dimension is referred to as Web 4.0 or Symbiotic Web. Once the metadata are organised (Web 3.0), human and machine are able to interact with each other. Future web technology world will allow for a computer to analyse the problem and offer a solution or it may be able to fix the problem itself. Web 4.0 is going to significantly improve education. Augmented reality and 3D environments can be used as tools for students to prepare presentations. Artificial intelligence robots are going to be used during classes, and digital assistants or agents will accompany and support e-learning students<sup>157</sup>.

Web 1.0	Web 2.0	Web 3.0	Web 4.0	Web 5.0
It was developed by Tim Berners Lee and covers the years from 1989 to 2004.	It was developed by Tim O'Reilly and covers the years from 2000 to 2010.	It was developed by Tim Berners Lee and covers the years from 2010 to 2020.	Web 4.0, which is described as intelligent systems, covers 2020-2030.	Web 5.0, which is described as the technology of your future, covers the end of 2020.
Static Web technology.	Social Web technology.	Semantic Web technology.	Ultra Intelligent or Symbionet Web technology.	Emotional or Telepathic Web technology.
Only static content - Text / graphics screen output.	Dynamic content - Video display, 2D materials.	3D portals, all media environments.	Intelligent personal agents, Internet of things, 3D virtual animations.	Advanced technologies like robots, avatars, intelligent systems, holograms.
Search engines, FTP, Yahoo, Netscape	Blog, Twitter, Facebook, YouTube, Flickr	Semantic database, Widgets, Semantic Wiki, Semantic Blog	Intelligent objects: Smart home, smart car. Intelligent operating systems: EyeOS, GlideOS.	Emotional robots, wefeelfine.org
Read only.	Read and Write	Personalization	All	All
Experts, code developers	People	Services and Sensors	Agents	Artificial intelligence robots

Table 1. A comparative review of Web technologies from Web 1.0 to Web 5.0. Source: Tekdal M., Sayginer Ş., Baz F. Ç. (2018): Developments of web technologies and their reflections to education: a comparative study. Journal Of Educational And Instructional Studies In The World. Vol.8, Issue 1., p. 24-25.

<sup>157</sup>Tekdal M., Sayginer Ş., Baz F. Ç. (2018): *Developments of web technologies and their reflections to education: a comparative study*. Journal Of Educational And Instructional Studies In The World. Vol.8, Issue 1., p. 17-27.

Web 5.0 is going to be real-time, emotionally responsive space, aware of human's feelings. Currently, research concerning neurological activity using non-invasive EEGs, blood pressure, and ECG monitoring are taking place in order to define various physiological and neurological states of the user. There are great opportunities of the sensory-emotive web to change the WWW from a noisy environment to a richer place of thoughtful and pleasant interactions. However, it could also become a manipulative and disruptive space for individuals<sup>158</sup>.

The Internet is not the end but the beginning of Information Society, which lives in the age of new media. To begin with, media are means of communication, all of the appliances used for transmission of information. The definition of the new media is not as simple as any medium was new at its beginning, in its Age- the print, the radio, the cinema, the television. The term new media emerged in the late 1980s when the world of media and communications began to look quite different, and this difference was not restricted to any one sector or element of that world. New media intensified processes of globalisation by dissolving of national states and boundaries in terms of trade, corporate organisation, customs and cultures, identities and beliefs.

How to define new media? New media is a relative term by the reason that although all media are at one point new, and one day, they become old. A media theorist L. Manovich claims: “new media is analogue media converted to a digital representation. In contrast to analogue media which is continuous, digitally encoded media is discrete”<sup>159</sup>. As long as all digital media share the same digital code, different media types are displayed using one machine (i.e., a computer), which acts as a multimedia display device. New media allows for random access to any data element equally fast. In contrast to old media, new media can be copied endlessly without degradation. In the end, new media is interactive, so the user can interact with a media object. “In the process of interaction, the user can choose which elements to display or which paths to follow, thus generating a unique work. Thus the user becomes the co-author of the work”<sup>160</sup>. R. Logan, author of “Understanding New Media”, defines new media as digital media that are interactive, incorporate two-way communication and involve some form of computing<sup>161</sup>. A.

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<sup>158</sup>Kambil A. (2008): *What is your Web 5.0 strategy?* Journal of Business Strategy Vol. 29, Issue 6, pp. 56-58.

<sup>159</sup>Manovich L. (2001): *The Language of New Media*. Cambridge, The MIT Press, p. 66.

<sup>160</sup>Ibidem.

<sup>161</sup> Logan R. (2010): *Understanding New Media. Extending Marshall McLuhan*. Peter Lang, p. 4.

Adamski writes that old media are analogue, linear, static and sequential in comparison to new media which are digital, interactive and dynamic<sup>162</sup>. Martin Lister et al. suggest that the connotation of the word “new” means “better” as connotations of ‘the new’ are derived from a modernist belief in social progress delivered by technology. New media deliver increased productivity, educational opportunity and open up new creative and communicative horizons. They are seen as a marker of a shift from modernity to postmodernity, as a contributory element of intensification of globalisation process, as an illustration of an industrial age of manufacturing replacement by a ‘post-industrial’ information age, and finally, as networks of new communication media decentring of established and centralised geopolitical orders<sup>163</sup>. M. McLuhan claims that the content of the “new media” will be the old media such as speech; writing; numbers; photographs; telephony; and audio recordings, radio, films, and television in the form of audios and videos. Yet, in 1999 Sonia Livingstone asked what new media are. In those days television, with its several channels available, terrestrial, via satellite and cable, was at that time the pole of attraction as well as the computer, with games, Internet access, but especially through its opening to online trade<sup>164</sup>. A decade later, the way people communicate changed once again.

We could say that new media were mobile phones, laptops, wireless technology and tablets. This new face of convergence brought changes to the public and private sectors, especially by the integration offered by social media<sup>165</sup>. L. Manovich indicates the principles of the new media. First of all, they are numerical representations as composed of digital code, meaning they are programmable. New media are characterised by modularity- a fractal structure. “Media elements, be they images, sounds, shapes, or behaviours, are represented as collections of discrete samples (pixels, polygons, voxels, characters, scripts). These elements are assembled into larger-scale objects but continue to maintain their separate identities. The objects themselves can be combined into even larger objects-again, without losing their independence”<sup>166</sup>. The third principle,

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<sup>162</sup>Adamski A: (2012): *Media w analogowym i cyfrowym świecie*. Dom Wydawniczy Elipsa, Warszawa, p. 93.

<sup>163</sup>Lister M. et al. (2009): *New media. A critical introduction*. Routledge Taylor and Francis Group, London and New York, p. 10-11. [http://www.philol.msu.ru/~discours/images/stories/speckurs/New\\_media.pdf](http://www.philol.msu.ru/~discours/images/stories/speckurs/New_media.pdf)

<sup>164</sup>Livingstone, S. (1999): *New media, new audiences?* *New media and Society*, 1(1): 59-66. LSE Research Online. <http://eprints.lse.ac.uk/archive/00000391>. (visited 12 July 2018).

<sup>165</sup>Szabo L. V. (2014): *The Future of Communication: From new Media to Postmedia*. *Procedia- Social and Behavioral Sciences*, No. 163, pp. 36-43.

<sup>166</sup>Manovich L. (2001): *The Language of New Media*. The MIT Press, p.30. [http://faculty.arts.ubc.ca/emeyers/LIBR559B/readings/Manovich\\_2001.pdf](http://faculty.arts.ubc.ca/emeyers/LIBR559B/readings/Manovich_2001.pdf) (visited 12 July 2018).

automation of operations, is possible due to the numerical coding of media and the modular structure of a media object, mentioned above. New media objects are not fixed forever; they have the potential to exist in infinite versions. The most substantial consequence of the computerization of media is transcoding. New media structure consists of the "cultural layer" and the "computer layer" which influence each other creating a new computer culture—a blend of human and computer meanings, of traditional ways in which human culture modelled the world and the computer's own means of representing it<sup>167</sup>.

New media often refer to digital media as opposed to analogue ones. Analogue media (old media) tend to be fixed physical objects in the world; their production depends upon transcriptions from one physical state to another. "Analogue refers to processes in which one set of physical properties can be stored in another analogous physical form. The latter is then subjected to technological and cultural coding that allows the original properties to be, as it were, reconstituted for the audience. They use their skills at, e.g. watching movies to 'see' the 'reality' through the analogies"<sup>168</sup>. Digital media tend towards a permanent state of flux. They may exist as analogue hard copy, but when the content of an image or text is in digital form, it is available as a mutable string of binary numbers stored in a computer's memory. In a digital media process, all input data are converted into numbers, and they can be output in that form from online sources, digital disks, or memory drives to be decoded and received as screen displays, dispatched again through telecommunications networks, or output as 'hard copy'.

The most remarkable difference between old and new media is that the audiences of old media could easily receive and consume information, but not publish it. New media in the 21st century allow consumers just as easily to produce and disseminate as receive and consume information. People call them social media, however, P. Levinson prefers the "new new media" terminology owing to the fact that old media have significant social components as well because people always talk about the books they read, the music they listen to, the films and television shows they see. He uses "new new media" term to describe the power of these media on which anyone can create (including Facebook, Twitter, and YouTube), the reader and the publisher are often the same people— a consumer/producer who now numbers in the high hundreds of millions around the world<sup>169</sup>.

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<sup>167</sup>Manovich L. (2001): *The Language of New Media*. The MIT Press

<sup>168</sup>Lister M. et al. (2009): *New media. A critical introduction*. Routledge Taylor and Francis Group, London and New York, p. 17. [http://www.philol.msu.ru/~discours/images/stories/speckurs/New\\_media.pdf](http://www.philol.msu.ru/~discours/images/stories/speckurs/New_media.pdf)

<sup>169</sup>Levinson P. (2013): *New New Media*. Pearson, second edition.

Levinson formulates guiding principles of new new media. The central characteristic shared by all the new new media is that every consumer is a producer, meaning anyone reading a blog can start a blog nearly instantly. The second feature is that new new media are always free to the consumer and sometimes to the producer. Thirdly, new new media not only compete with one another but also work to each other's benefit, for instance, a post on a blog with an embedded YouTube video can be automatically sent to Twitter, which generates an one-line message with the blog's title, first line, and link, which in turn can be set to show up on Facebook and LinkedIn, and via widgets or special applications on other blogs. New new media are much more than e-mail and search engines. They need supporting applications and underlying platforms beyond the control of their consumer/producers.

The development of the internet and new media contributed to the phenomenon of digitalisation. According to the media dictionary digitalization, also known as digitization is a transformation of a data record from analogue form into the digital form<sup>170</sup>. In the report *Social and economic impact of digital transformation on the economy* we can find that “digitisation refers to the transformations triggered by the massive adoption of digital technologies that generate, process, share and transfer information”<sup>171</sup>. UNESCO, in its instructions, defines digitalisation as the creation of digital objects from physical, analogue originals by means of a scanner, camera or other electronic device<sup>172</sup>. In the book *The digitisation of everything. How organisations must adapt to changing consumer behaviour*. Digitisation is explained as “the conversion of analogue information into digital information. As digitisation capabilities extend, virtually every aspect of life is captured and stored in some digital form, and we move closer towards the networked interconnection of everyday objects. The impact of this is a real-time global exchange of information between multiple connected devices (fixed and mobile)”<sup>173</sup>. R. L. Katz

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<sup>170</sup> Pisarek W. (2006): *Słownik Terminologii Medialnej*, p. 32.

<sup>171</sup> Katz R. L. (2017): *Social and economic impact of digital transformation on the economy*. GSR-17 Discussion paper, p. 4. [https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2017/Soc\\_Eco\\_impact\\_Digital\\_transformation\\_finalGSR.pdf](https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2017/Soc_Eco_impact_Digital_transformation_finalGSR.pdf) (visited 13 July 2018).

<sup>172</sup> UNESCO: *Fundamental principles of digitization of documentary heritage*. [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization\\_guidelines\\_for\\_web.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization_guidelines_for_web.pdf) (visited 13 July 2018).

<sup>173</sup> Earnst & Young (2011): *The digitisation of everything. How organisations must adapt to changing consumer behaviour*. Earnst & Young, London, p. 2. [https://www.ey.com/Publication/vwLUAssets/The\\_digitisation\\_of\\_everything\\_-\\_How\\_organisations\\_must\\_adapt\\_to\\_changing\\_consumer\\_behaviour/%24FILE/EY\\_Digitisation\\_of\\_everything.pdf](https://www.ey.com/Publication/vwLUAssets/The_digitisation_of_everything_-_How_organisations_must_adapt_to_changing_consumer_behaviour/%24FILE/EY_Digitisation_of_everything.pdf) (visited 13 July 2018).

distinguishes three waves of digitalisation. The first is associated with the introduction and adoption of what today is considered “mature” technologies (e. g. management information systems, telecommunications technologies and voice telecommunications which allow the remote access of information). The second wave of digitization entails the diffusion of the Internet and its corresponding platforms (search engines, marketplaces), which enable the networking of enterprises to consumers and enterprises among themselves for purchasing of supplies, and distribution of output. The third entails the adoption of a range of advanced technologies, such as big data/analytics, Internet of Things, robotics, sensors, and artificial intelligence, and is aimed at enhancing information processing and the quality of decision making, while further automating routine tasks within business enterprises and governments<sup>174</sup>.

Digitalization, as a continual convergence process of a real and a virtual world, becomes the main driving force of innovation and transformations in a majority of economic sectors. Key factors empowering the development of a digital economy are Internet of Things and Internet of Everything, hyperconnectivity, cloud computing, Big Data Analytics – BDA and Big-Data-as-a-Service – BDaaS, automation and robotization, multi-channel and omnichannel models of the distribution of products and services<sup>175</sup>.

How far are we digitalised? According to research made by Eurostat in 2017, 87% of households in the European Union had access to the internet. A great majority of the internet users were online every day. The most common activities were sending and receiving e-mails (86 % of people who had used the internet during the last three months), finding information (78 %), reading online news (72 %) and participating in social networks (65 %). 90 % of younger (aged between 16-24) EU internet users participate in social networks. Over one-third of EU internet users use cloud services providing the possibility for internet users to save documents, pictures, music and other files, irrespective of the device being used; the cloud also opens up possibilities to collaborate and share information with other people. At the beginning of 2017, only 3% of businesses did not have an internet connection. 79 % of companies with internet access had their own website to provide different information and functionalities to their customers or business

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<sup>174</sup> Katz R. L. (2017): *Social and economic impact of digital transformation on the economy*. GSR-17 Discussion paper, p. 4. [https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2017/Soc\\_Eco\\_impact\\_Digital\\_transformation\\_finalGSR.pdf](https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2017/Soc_Eco_impact_Digital_transformation_finalGSR.pdf) (visited 13 July 2018).

<sup>175</sup> Pieriegud J. (2016): *Cyfryzacja gospodarki i społeczeństwa – wymiar globalny, europejski i krajowy*. [in:] Grajewski J. et al. (ed): *Cyfryzacja gospodarki i społeczeństwa. Szanse i wyzwania dla sektorów infrastrukturalnych*. Publikacja Europejskiego Kongresu Finansowego, Gdańsk, p. 11.

partners. Businesses can also use social media channels to spread information or for marketing/promotional purposes. Nowadays, an increasing number of businesses rely on ICT for their daily operations. Over 90 % of people with an ICT education in the EU are employed. Among those who had used the internet in the year before the 2017 survey, 68 % were e-shoppers, and 18% of business turnover in the EU countries comes from e-sales.

Poland, as a developing country, is trying to pursue Europe. Although it has made visible progress, it is still at the end in the rank of the European countries. 60% of Polish used a mobile phone to go online and, 63% participated in social networks. Polish are not as eager as other member states to provide personal information online. They make up 51% of the internet users in comparison to the European average of 71% and a dominant country of Luxembourg (92%). 73% of businesses had a mobile broadband connection, however, only 29% used social media in comparison to the European Union, where 49% of businesses used social media. In the EU ICT specialists are predominantly highly educated men aged 35+. In Poland, the majority of ICT specialist are aged 15 to 34. They were employed by only 12% of businesses. ICT security policy in Poland looks poor as only 13% of businesses using a computer followed it in comparison to 32% in the European Union. What is more, cloud services are not popular. Poland is the last country in the tally to use it (20%) by people as well as by businesses<sup>176</sup>.

In 2018 European Commission published Europe's Digital Progress Report based on the Digital Economy and Society Index (DESI). There are five dimensions of DESI: connectivity, human capital, use of the internet, integration of digital technology and digital public services. Poland belongs to the low-performing cluster of countries (Romania, Greece, Bulgaria, Italy, Poland, Hungary, Croatia, Cyprus and Slovakia). In the Digital Economy and Society Index, Poland ranks 24th out of the 28 EU Member States. As for connectivity, the highest score was registered by the Netherlands, followed by Luxembourg and Belgium. Croatia, Bulgaria and Poland had the weakest performance in this dimension of the DESI. According to the report, in 2017, Poland improved its ranking in the Connectivity and Human Capital as well as its performance on Use of Internet, Integration of Digital Technology and Digital Public Services. Nevertheless, Poland's ranking slipped in the use of the Internet. It maintained its ranking on Integration of Digital

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<sup>176</sup> European Commission (2018): *Digital Economy and Society Index (DESI) 2018 Country Report Poland*. [http://ec.europa.eu/information\\_society/newsroom/image/document/2018-20/pl-desi\\_2018\\_-\\_country\\_profile\\_eng\\_B440E0DD-F8E8-B007-4A97A5E2BE427B1F\\_52233.pdf](http://ec.europa.eu/information_society/newsroom/image/document/2018-20/pl-desi_2018_-_country_profile_eng_B440E0DD-F8E8-B007-4A97A5E2BE427B1F_52233.pdf) (visited 26 July 2018).

Technology despite significant improvements in electronic information sharing, the use of cloud services and eInvoices. On Connectivity, Poland made progress on mobile broadband take-up, achieving better results than the EU average. Poland is close or equal to the EU average in terms of 4G coverage (91 %), fast broadband take-up (32 %) and the broadband price index (88 out of 100), and slightly below it on ultrafast broadband coverage (53 %) and take-up (13.2 %). Nevertheless, its performance is still being undermined by low fixed broadband coverage (87 %), fixed broadband take-up (61 %) and next-generation access (NGA) coverage (67 %). On Human Capital, Poland has made moderate progress. The number of Poles with at least basic digital skills and using the internet has increased compared to 2017.

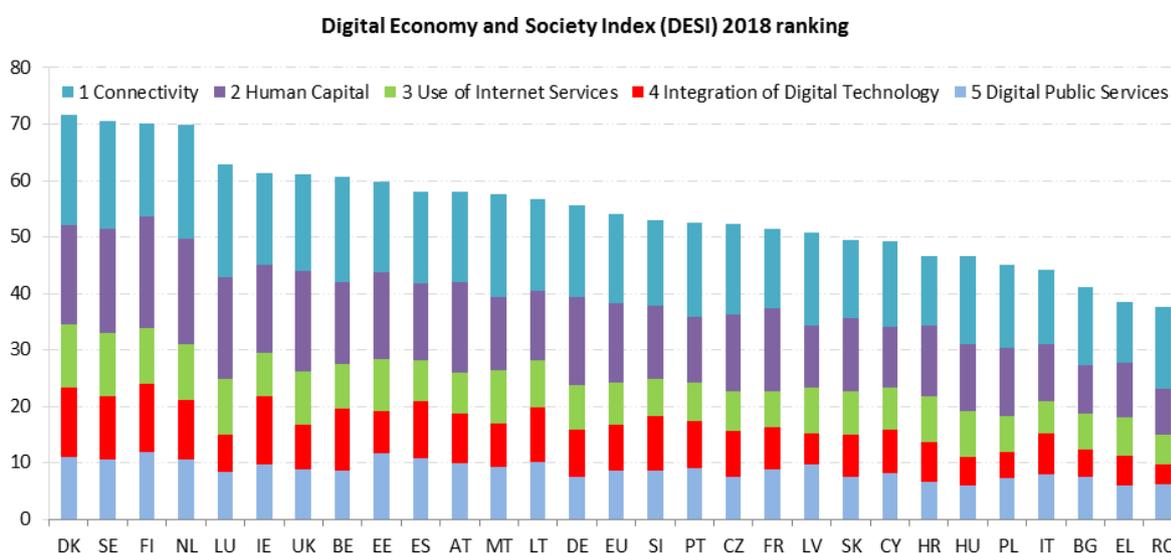


Figure 1. Digital Economy and Society Index. Source: European Commission (2018): Digital Economy and Society Index (DESI) 2018 Country Report Poland.

There is a growing interest in using digital technology in Poland. Digital skills are covered by the third priority axis of the OPDP. The programme channels funds to education and information campaigns that promote the benefits of digital technologies. Poland has developed a comprehensive approach to digital skills education. Poland has made moderate progress on the use of video calls, social networks and online shopping compared to 2017. However, Poles are above the EU average as regards reading online news. Despite moderate improvements, Poland slipped one place to 25th in DESI 2018. Poland has been taking measures to address the obstacles to better internet use. It has

launched a number of initiatives to encourage citizens to go online. Poland has made some progress in the Integration of Digital Technology dimension. However, other countries have been progressing faster, with Poland ranking the same as last year. The use of social media, cloud services, eInvoices and electronic information sharing by companies has slightly improved. Only 9.5 % of Polish SMEs sell online, and 3.9 % sell online cross border. Poland ranks 24th in Digital Public Services. Poland is taking measures to improve its digital public services<sup>177</sup>. The report published by the Polish Ministry of Digital Affairs shows that although 70% of the internet users are satisfied with the digital services of the public administration, only 30% of the internet users keep in touch with the public administration via the internet. About 42% of the public e-services enable to deal via the internet entirely. The aim of the Ministry is the development of e-country and digitalization of economy. The challenge is to encourage citizens to make use of digital services of the public administration. There is a small number of running projects and a long time devoted to preparation and lengthen legislation. Unfortunately, not all the schools are connected with the fast internet. The plan of the Ministry is to create a net of access to the internet joining all the schools in Poland as well as to introduce personal documents on mobile devices. Majority of e-services have transactional (50%) and informational (28%) character in comparison to personalised (2%). The problem is with dispersing of e-services on different portals which makes it difficult for users to find them<sup>178</sup>.

Conforming to Reuters Institute Digital News Report 2017, 68% of 38-million-population use the internet. Polish audiences still rely on the computer and portals more than smartphones when compared with other Europeans. As a result, new mobile messaging apps are also less popular than elsewhere. Online outlets have become the main source of news in the country in recent years, and 16% of people pay for online news<sup>179</sup>.

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<sup>177</sup> European Commission (2018): *Digital Economy and Society Index. Poland*. <https://ec.europa.eu/digital-single-market/en/scoreboard/poland> (visited 26 July 2018).

<sup>178</sup> Ministry of Digital Affairs (2018): *Raport o cyfryzacji kraju*. <https://www.gov.pl/cyfryzacja/raport-o-cyfryzacji-kraju> (visited 25 July 2018).

<sup>179</sup> Newman N. et.al (2017):*Reuters Institute Digital News Report 2017*. Reuters Institute for the Study of Journalism.

## TOP SOCIAL MEDIA AND MESSAGING

Rank	Brand	For news	All
 1	Facebook	69%	81%
 2	YouTube	30%	70%
 3	Facebook Messenger	15%	45%
 4	WhatsApp	14%	39%
 5	Twitter	9%	20%

Figure 2. Top social media and messaging in Poland. Source: Reuters Institute Digital News Report (2017).

Every year a global advertising agency “We are social” prepares a digital report. According to the newest one “Digital 2020” 81% of the population are internet users, and 93% of them are mobile internet users. 50% of them are active social media users<sup>180</sup>.

Analysis of the reports shows that there is a lot to do in Poland as far as digitalisation and mediatization is concerned, especially in business. Polish enterprises are reluctant to invest in upskilling their employees in digital skills or in new technologies. The main challenges are the lack of awareness of opportunities, limited access to a digitally skilled workforce and the lack of funding.

Online learning is also a response to different crisis situations, like natural disasters when school and university buildings are damaged preventing learning, and recent global pandemic of COVID-19 where social distancing makes face-to-face learning impossible<sup>181</sup>. Generally, economic downturns increase demand for online courses. J. Sener points to two “wildcards” which could cause a spike in the growth of online education. The first - the current initiatives to improve retention and graduation rates, and the second - the potential need for an emergency response to a devastating natural or man-made hazard<sup>182</sup>. The unexpected COVID-19 pandemic, which appeared at the beginning

<sup>180</sup> We Are Social (2020): *Digital 2020*. [https://datareportal.com/reports/digital-2020-poland?fbclid=IwAR2AtwNuMCTPlyCAA7GUreUus5YID\\_g7MdFKNr3XRvR1bcJcssSGKePIXmM](https://datareportal.com/reports/digital-2020-poland?fbclid=IwAR2AtwNuMCTPlyCAA7GUreUus5YID_g7MdFKNr3XRvR1bcJcssSGKePIXmM) (visited 21 February 2020).

<sup>181</sup> Murphy M. (2020): *COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy*, Contemporary Security Policy, DOI: 10.1080/13523260.2020.1761749.

<sup>182</sup> Sener, J. (2010): *Why online education will attain full scale*. Journal of Asynchronous Learning Networks, Vol. 14, Issue 4, pp. 3-16. <https://eric.ed.gov/?id=EJ909907> (visited 23 May 2020).

of 2020, exposed the country's infra-structural weaknesses and the low level of media literacy in Polish society. Within several days education was brought into online, however, 85% of teachers didn't have any experiences with remote learning before the pandemic. Over 30% of educators and students lack equipment needed to online learning and nearly 40% of students have problems with a connection streaming. Some students have a radio connection or other, unstable. The problem is interruption internet connection in time of classes. As it was stated in the report: "It is extremely important in this context extensive teaching system self-help - common practice is assistance for the less digitally competent to teachers by younger colleagues"<sup>183</sup>. The author as a member of professional Facebook groups observed a great increase in the number of members on the first days of schools closure. Members of community groups on social media were extremely active and helpful to implement into online teaching. These are further reasons for creating a crowd-learning platform in Poland.

### 1.3.2. Changes in communication models

Process of communication accompanies humankind since the dawn of time. According to D. McQuail and S. Windahl communication "can be any or all of the following: an action on others; an interaction with others, and a reaction to others"<sup>184</sup>. Conforming to J. Keyton communication can be defined as the process of transmitting information and common understanding from one person to another<sup>185</sup>. R. M. Losee writes about communication as information which enters a process and eventually leaves its inverse process<sup>186</sup>. Although it is associated with speech and writing, different senses take part in communication understood by S. Cleary as: „the process of creating meaning between two or more people through the expression and interpretation of messages”.<sup>187</sup> D. L. Kincaid sees communication as “a cyclical process of convergence in which

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<sup>183</sup> Centrum Cyfrowe (2020): Edukacja zdalna w czasie pandemii. Raport z badań. [https://centrumcyfrowe.pl/wp-content/uploads/sites/16/2020/05/Edukacja\\_zdalna\\_w\\_czasie\\_pandemii.pptx-2.pdf](https://centrumcyfrowe.pl/wp-content/uploads/sites/16/2020/05/Edukacja_zdalna_w_czasie_pandemii.pptx-2.pdf) (visited 23 May 2020).

<sup>184</sup> McQuail D., Windahl S. (1993): *Communication Models for the Study of Mass Communication*. Routledge Taylor and Francis Group, London and New York, p. 5.

<sup>185</sup> Keyton, J. (2011): *Communication and organizational culture: A key to understanding work experience*. Thousand Oaks, CA: Sage

<sup>186</sup> Losee R. M. (1999): *Communication Defined as Complementary Informative Processes*. „Journal of Information, Communication and Library Science”, Vol. 5, No. 3, p. 1-15.

<sup>187</sup> Cleary S., ed. (2004): *The communication handbook*. Juta and Company Ltd., Lansdowne, p. 2.

participants create and share information, resulting in a more mutual understanding and agreement over time”<sup>188</sup>. For J. Turow communication means “interacting in ways that at least one of the parties involved understands as messages—collections of symbols (words, signs) that appear purposefully organized (meaningful) to those sending or receiving them”<sup>189</sup>. R. Lorimer proposes a definition from a social point of view. He states that “communication is the process by which a message (content) (meaning) is encoded, transmitted, and decoded and how a message (content) (meaning) is transformed by that three-part process”<sup>190</sup>.

Among Polish media theoreticians, it is T. Goban-Klas who starts from the analysis of the etymology of the word “communication”. It comes from a Latin word “communicare” meaning to be in a relationship, to participate in something, to gather, however, modern term of communication refers to connection and intercommunication between people directly or through media<sup>191</sup>. W. Pisarek points out that communication should have a character based on partnership, without defining its sender and receiver. Essentially, it is interaction because the process is reciprocal. Each participant is a receiver and a sender at the same time<sup>192</sup>. E. Kulczycki deduces that there are two ways of arranging the meaning of communication. On the one hand, communication practices can be explained by psychological, sociological or economic factors, meaning that process of communication is reduced to the psyche of participants of interaction or economic conditions. On the other hand, it is assumed that communication is the first logical factor thanks to which all psychological, sociological or economic aspects can be understood<sup>193</sup>. M. Mrozowski defines communication as: „a kind of contact formed by senses, or adjusted tools between at least two persons, one of whom sends (a sender) to another (a receiver) conceptual content, with the usage of understood signs, or emotions with the intention to trigger specified reactions of the receiver”<sup>194</sup>.

Contemporary communication is associated with communicating at a distance, which is telecommunication. It comes from the Greek word 'tele' meaning far off and

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<sup>188</sup>Kincaid D. L. (1987): *Communication Theory. Eastern and Western Perspectives*. Academic Press Inc., California, p. 184.

<sup>189</sup>Turow J. (2014): *Media Today. Mass Communication in a Converging World*. Routledge Taylor and Francis Group, London and New York, p. 6.

<sup>190</sup>Lorimer R. (2001): *Mass Communication: Some Redefinitional Notes*. Canadian Journal of Communication, Vol. 27, No 1, p. 67

<sup>191</sup>Goban-Klas T. (2005): *Spółeczeństwo medialne*. PWN, Warszawa, p. 13.

<sup>192</sup>Pisarek W.: *Słownik terminologii medialnej*. TAIWPN Universitas, p. 98.

<sup>193</sup>Kulczycki E. (2012): *Teoretyzowanie komunikacji*. Wydawnictwo Naukowe IF UAM, Poznań, p. 15-16.

<sup>194</sup>Mrozowski M. (2001): *Media masowe: władza, rozrywka, biznes*. Oficyna wydawnicza ASPRA-JR, Warszawa, p. 14.

communication. Although it includes several ways of communicating, it is associated only with electronic communication. Both communication and telecommunication may occur between people, people and machines, and between machines. Both of them imply the act of distributing or exchanging information; however, telecommunication indicates the activity is undertaken between entities separated by a distance<sup>195</sup>. Act of communication can occur in different contexts. Fielding<sup>196</sup> enumerates them as: intrapersonal (communication with ourselves), interpersonal (communication between two people), small-group (communication among 3-12 people working together with a common goal), public (one-way formal communication) mass (transmission of a message to a mass audience), organisational (communication of the group of people who work together to reach specific goals), and intercultural (communication between people who belong to different cultures).

Due to the concern of the treatise, it is essential to define mass and mass communication. H. Blumer defines mass as a new kind of social collectivity, withstanding it with other collectiveness, especially groups, crowd and audience. Mass stands out in respect of social composition heterogeneity, members anonymity, weak interactions existence and limited experience between participants, who are constitutionally dispersed, anonymous and isolated, loose organization and lack of ability to common act<sup>197</sup>.

Definition of mass communication, concerned by the scientists as the most precise, was established in 1968 by M. Janowitz: "Mass communication comprises the institutions and techniques by which specialized groups employ technological devices (Radio, TV, Press, films) to disseminate symbolic content to large heterogeneous and widely dispersed audiences<sup>198</sup>". Another definition is given by Charles R Wright. According to him, mass communication is a special kind of communication involving distinctive operating conditions, primary among which are nature of the audience, of the communication experience, and of the communicator. Mass communication is directed toward a relatively large, heterogeneous and anonymous audience. It is organized communication characterized as public, rapid and transient<sup>199</sup>. Denis McQuail in his book *Towards*

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<sup>195</sup> Carne E. (1999): *Telecommunications Primer. Data, Voice and Video Communications*. Pearson, p. 2.

<sup>196</sup> Cleary S., ed. (2004): *The communication handbook*. Juta and Company Ltd., Lansdowne, p. 8.

<sup>197</sup> Goban-Klas T. (2004): *Media i komunikowanie masowe: Teorie i analizy prasy, radia, telewizji i Internetu*. PWN SA, Warszawa, s. 211.

<sup>198</sup> McQuail Denis (2007): *Teoria komunikowania masowego*. PWN, Warszawa, s. 72.

<sup>199</sup> Wright C.R. (1979): *Sociology of Mass Communication*.

[https://repository.upenn.edu/cgi/viewcontent.cgi?article=1093&context=asc\\_papers](https://repository.upenn.edu/cgi/viewcontent.cgi?article=1093&context=asc_papers) (visited 7 May 2018).

*Sociology of Mass communication* writes: “the term mass media indicates the entire systems within which messages are produced, selected, transmitted, received and responded to”<sup>200</sup>. Baran and Davies state: “When an organization employs technology as a medium to communicate with a large audience, mass communication is said to have occurred”<sup>201</sup>. According to J. R. Dominick “mass communication refers to the process by which a complex organization with the aid of one or more machines produces and transmits public messages that are directed at large, heterogeneous, and scattered audiences”<sup>202</sup>. He has made a comparison between different communication settings. He characterizes mass communication setting including its source, encoding message, channel, decoding, receiver, feedback and noise. Unlike interpersonal and machine-assisted communication, source of mass communication is an organization or single person who has little knowledge about a receiver. Encoding as well as decoding occurs by multiple stages. The message is public, the same for everybody, easily terminated and it can be expensive. It can be one or two channels, and more than one machine is interposed. There are large numbers of receivers, out of the physical presence of source; consequently, feedback is highly limited. Not only semantic and environmental noise is present, but mechanical too<sup>203</sup>.

McQuail and Windahl state: “the sender in mass communication is always part of an organized group and often a member of an institution which has functions other than communication. The receiver is always an individual but may often be seen by the sending organization as a group or collectively with certain general attributes. (...) The channel includes large-scale, technologically based distribution devices and systems. These systems still have a social component, since they depend on law, custom and expectation. The message in mass communication (...) is a mass-produced and infinitely repeatable symbolic structure”<sup>204</sup>. E. Carne wrote about mass communication as: “telecommunication in which information flows from a single site to a large number of sites simultaneously”<sup>205</sup>. Morreale S. P. et al. explain that mass communication “is the

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<sup>200</sup> [www-2] <http://learning-media.blogspot.com/2008/08/some-definitions-of-mass-communication.html> (visited 28 March 2018).

<sup>201</sup> Baran S. J., Davies D. K. (2010): *Mass Communication Theory. Foundations, Ferment and Future*. Sixth Edition. Wadsworth Cengage Learning, Boston, p. 5.

<sup>202</sup> Dominick J. R. (2004): *The Dynamics of Mass Communication. Media in the Digital Age*. Eight Edition. Mc Graw Hill, New York, p. 11.

<sup>203</sup> Ibidem, p. 14.

<sup>204</sup> McQuail D, Windahl S. (2013): *Communication Models for the Study of Mass Communication*. Routledge Taylor and Francis Group, London and New York, p. 6.

<sup>205</sup> Carne E. (1999): *Telecommunications Primer. Data, Voice and Video Communications*. Pearson, p. 2-3.

process of managing messages for the purpose of creating meaning in a large audience. What makes the communication mass is the large audience, one that typically will not be operating as a collective group. That is, mass audiences tend to consist of people who may have common reasons to be in a given audience for a message, but otherwise, they usually have relatively little opportunity to interact with the other members”<sup>206</sup>. This is a feature that distinguishes an audience from a group, and mass communication from group communication.

R. Lorimer denies previous definitions of mass communication as long as he realizes that their authors described what they saw in their times, not taking into account technological progress which allows interpersonal communication on a mass scale. Furthermore, he makes a distinction between mass communication and mass distribution which has been defined as mass communication improperly. From his point of view, classical definitions of mass communication are based on centralized production and widespread distribution. Therefore, Lorimer redefines mass communication in this fashion: “Mass communication is a state- and interstate-organized transmission of intelligence, including centralized mass information or entertainment dissemination (encompassing radio, television, newspapers, film, magazines, books, recorded and performed music, and advertising); decentralized information or entertainment dissemination (on the World Wide Web); and provision for decentralized media-based interaction on a mass scale (via, for example, telephone, the mail, e-mail, pagers, two-way radio, and fax)”<sup>207</sup>.

Mass communication is possible due to mass media which developed through time. Beginnings of mass communication date back prehistoric times, the times when genetically acquired reactions to sounds, smell and pictures meant communication. As time was passing humans learnt to use articulated speech aimed to convey appropriate and social knowledge to the new generation. The oldest in Europe Palaeolithic paintings discovered in 2012 in El Castillo cave in Northern Spain are forty thousand years old<sup>208</sup>. Several dozen millennia later, in the area of that time Mesopotamia, writing developed and it was evolving during next millenniums. Although the evolution of printing began in

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<sup>206</sup>Morreale S. P. et al. (2007): *Human Communication: Motivation, Knowledge, and Skills*. Thomson Wadsworth, p. 426.

<sup>207</sup> Lorimer R. (2001): *Mass Communication: Some Redefinitional Notes*. Canadian Journal of Communication, Vol. 27, No. 1, p. 69.

<sup>208</sup> [www-3] <http://www.bristol.ac.uk/news/2012/8560.html> (visited 20 March 2018).

ancient China<sup>209</sup>, long before Johan Gutenberg, Gutenberg's invention of print in the 15th century accelerated the development of civilisation, and it started the era of mass communication. Initially, it encompassed copying religious books, which was soon dominated by non-clerical subject matter. The emergence of political and theological pamphlets and leaflets was the next step aimed to press development. In the 17th century the first, mass in case of production and distribution, the newspaper appeared, and towards the end of the 19th century, the first film was projected. This interesting technical fact, affordably priced for everyone, became a tool for political propaganda. The beginning of the 20th century was the time of radio and television development. Likewise, in the earlier case, political control was imposed to a great extent. In the second half of the 20th century, Philips Company worked out cassette with magnetic type aimed to keep data. Commonly used for playing music, it became a distance learning tool, and soon it was changed by CD ROMs. Development of telematics media created better learning opportunities. The 21<sup>st</sup> century, the emergence of telematics, social media and new ideologies contributed to a new way of learning, called e-learning. Following the statement of R. Lorimer mass media today include centralized dissemination, decentralized dissemination, and provision for interaction on a mass scale.

To summarize, nowadays we can say about new trends in mass communication which transmuted from broadcasting into narrowcasting. Another words messages are no longer sent out indiscriminately to large audiences though they are sent out to large audiences but adapted to individuals or groups within that audience for whom the message has special relevance. The invention of the radio, satellite communications and digital transfer of information resulted in communication which is less dependent on proximity as information is available in real-time almost everywhere. Finally, convergence, which means that media technologies are integrated. Mobile phones are not used for telephoning only, but they also combine lots of different applications<sup>210</sup>.

There are numerous communication models developed by communication theorists. The author divided them into two subsections: traditional models (one-way communication) and modern models (two-ways communication).

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<sup>209</sup> Gunarante S. A. (2001): *Paper, Printing And The Printing Press. A Horizontally Integrative Macrohistory Analysis*. Gazette Vol. 63, Issue 6, pp. 459-479. Sage Publications.

<sup>210</sup> Morreale S. P. et al. (2007): *Human Communication: Motivation, Knowledge, and Skills*. Thomson Wadsworth, p. 427.

### 1.3.2.1. Form a sender to a receiver- traditional models of communication

Talking about the models, it is vital to explain what exactly the model is. Belgian scientist G. Fauconnier defines „model” as verbal or graphical presentation showing a process of communication in a schematic and simplified form. The primary communication model is based on three elements: a speaker, a channel, and a receiver. Communication process occurs only when all three components are present. Although most of the models share these essential elements, they differ in terms of how these elements interact.

The first model of mass communication was the model of all-powerful propaganda by S. Chakhotin. The author observed and analysed Hitler's behaviour and his influence on masses. He came to a conclusion that “all rational propaganda depends on a relatively small number of trenchant and concise formulae, which need hammering into the heads of masses after they have been brought into the state of super-impressionability<sup>211</sup>”. A message in propaganda is accompanied by a symbol which is perceived as a direct representation of an idea or doctrine. In turn, the idea or doctrine is man-made in order to stimulate one's activity and to polarize it in a precise direction<sup>212</sup>. Conforming to Chakhotin a propagandist, who is a sender, sends a message- a doctrine accompanied by meaningful symbols (e.g. graphics, beating the rhythm, emotions) via words written or spoken and masses (active and passive sorts) are receivers.

The model of communication designed in 1948 by Shannon and Weaver is called the transmission model. They were working for Bell Laboratories, and he observed signals transmission of radio and telephone technologies. Researchers structured this model based on the following elements: An information source, which produces a message. A transmitter, which encodes the message into signals. A channel, to which signals are adapted for transmission. A receiver, which 'decodes' (reconstructs) the message from the signal. A destination where the message arrives<sup>213</sup>. As time was passing the model evolved and Schramm emphasized in 1954 that both the sender and the receiver take turns playing the role of the encoder and the decoder when it comes to communication. In his model of shared experience, the process of communication includes coding, interpreting and decoding.

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<sup>211</sup> Chakhotin S. (1940): *The Rape Of The Masses. The psychology of totalitarian political propaganda.* George Routledge & Sons, Ltd., London, p. 121.

<sup>212</sup> Ibidem, p. 92-109.

<sup>213</sup> [www-4]: <https://www.communicationtheory.org/shannon-and-weaver-model-of-communication/> visited 26 March 2018).

A sender creates the message; the message is translated into a signal by the transmitter. The signal is adjusted to the channel leading to a receiver which reconstructs the message from the received signal. The message comes to the receiver, however, the signal is prone to the noise. The main issue of that model is the closeness of signals.

The most famous model of communications is that created by Lasswell in 1948, almost at the same time as Shannon and Weaver. In accordance with Lasswell, communication act consists of five elements: a communicator (who?), a message (says what?), a medium (in which channel?), a receiver (to whom?), and effect (with what effect?). The main concern of Lasswell's model is to discover what do means of communication do with people? He stated that there are three categories of specialists examining the process of communication. "One group surveys the political environment of the state as a whole, another correlates the response of the whole state to the environment, and the third transmits certain patterns of response from the old to the young. Diplomats, attaches, and foreign correspondents are representative of those who specialize on the environment. Editors, journalists, and speakers are correlators of the internal response. Educators in family and school transmit the social inheritance"<sup>214</sup>.

On the contrary to Lasswellian model envisaging communication to be purposive, a conceptual model of the total communication process by B. Westley and M. MacLean assumes that communication can also be non-purposive. The principal elements in the model are: As (communicators), Bs (the receivers), Cs (channel roles), X (the totality of objects and events "out here"), channels which include "gates" operated by Cs who in various ways alter messages, encoding (the process by which As and Cs transform Xs into X'S), and feedback (the means by which As and Cs obtain information about the effects of messages on B). A non-purposive message is transmitted to B either directly or by means of a C and without any communicator's intention to influence him. The absence of a communicator's intent to effect B converts his act into an X. When one says something he hopes to reach another person's ears, he is an A; but if one says it without such intent and it is transmitted to B, one's act must be conceived of as an X, the selection and transmission having been performed by a C. Feedback can also be non-purposive as

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<sup>214</sup> Lasswell H. D. (1948): *The structure and function of communication in society*. [in:] Lyman Bryson (ed.): *The Communication of Ideas*. New York: The Institute for Religious and Social Studies.

receivers' reaction to the message might be unintended, for instance, a receiver buys a product seen in advertising<sup>215</sup>.

K. Lewin paid attention to the area of a channel which transfers the message. He noticed that there are gates within the area of a channel and that within a group (a mass) there is a strategic part of the population - gatekeepers who have the power to decide which messages are going in and which are going out. This phenomenon reflects travelling of a news item through certain communication channels in groups and organisations. Forces in a gate segment vary, depending on who the gatekeeper is and on the total situation within a channel. The decision of gatekeepers is based on their ideology and the way they perceive a particular situation<sup>216</sup>.

E. Katz and P. Lazarsfeld are the authors of the two-step flow of communication model arisen after observation of decision making in the 1940 Presidential election campaign in the USA. They remarked that the media effect on the voters was weaker than social influences. People with less political knowledge or interest were likely to follow the opinion leaders as more valuable than political propaganda<sup>217</sup>. Katz and Lazarsfeld model is based on two processes: transferring the information (by media) and influencing attitude and consciousness of others (by opinion leaders)<sup>218</sup>.

J. W. Riley and M. W. Riley suggested that mass communication is a social process which influences as well as is influenced by the social environment. Their theory was based on observations of the primary groups and reference groups in the communication process, which often represent varied values. People belong to different groups, and they try to meet the demands and expectations of all of them. Media are factors which can enhance the influence of some groups<sup>219</sup>.

From Marshall McLuhan's point of view, "the medium is the message". In this statement, he meant how the media modify or disrupt the message when it is conveyed. According to McLuhan, medium do not transfer or embed information, but it is shaping it actively. Media are influencing personal, political, economic, aesthetic, psychological,

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<sup>215</sup> Westley B. H., MacLean M. S. (1957): *A Conceptual Model For Communications Research*. Journalism Quarterly No. 34, pp. 31-48.

<sup>216</sup> Lewin K. (1947): *Frontiers in group dynamics. II. Channels of Group Life; Social Planning and Action Research*. Human Relations Vol.1, Issue 2, pp. 143-153.

<sup>217</sup> Long J. M., Rutherford T. A., Wingenbach G. J. (2011): *Opinion Leaders' Influence on College Students' Perceptions of the National Animal Identification System*. The Texas Journal of Agriculture and National Resource, No. 24, pp. 18-27.

<sup>218</sup> Goban-Klas T. (2004): *Media i komunikowanie masowe. Teorie i analizy prasy, radia, telewizji i Internetu*. PWN, Warszawa, pp.59-60.

<sup>219</sup> Berger A. A. (1995): *Essentials of Mass Communication Theory*. Sage Publications, p. 68.

moral, ethical, and social aspects of humans' life. When we know the way media work as environments, we are able to understand social and cultural changes. In his statement: “All media are extensions of some human faculty— psychic or physical”<sup>220</sup> he claimed that media induce in people unique ratios of sense perceptions. The extension of any of the senses modifies the way people perceive the world.<sup>221</sup>

Models characterised above are referred to be variations of a transmission model. Another category is a ritual view of communication described by J. Carey. He did not negate communication as a transmission process, but he rather explained the depth of this process. The author of “A cultural Approach to Communication” says that a ritual view of communication is directed toward the maintenance of society in time and representation of shared beliefs. “In a ritual definition, communication is linked to terms such as sharing, participation, association, fellowship, and the possession of a common faith.” The ritual view of communication sees the original or highest manifestation of communication in the construction and maintenance of an ordered, meaningful cultural world that can serve as a control and container for human action. From Carey's point of view news reading and writing is not gaining information, but it is confirmation of a particular world view which gives life an overall form, order and tone. Ritual communication's role is to maintain the coherence of the group through language and other symbolic forms<sup>222</sup>.

E. Katz and J. Blumer take the media consumer rather than the media message at the starting point in their uses and gratifications approach<sup>223</sup>. According to their concept members of the audience are actively utilizing media contents; thus, they put messages to use, and that usage acts as an intervening variable in the process of effect. Individuals expect to experience some form of satisfaction of their needs through media use which are recognized as a diversion (escape from daily routine and problems, emotional release), personal relationship (substitution of companionship and social utility), personal identity (personal reference, reality exploration, and value reinforcement) and surveillance. Individuals are those who decide whether the communication process happens. The audience gratifications come from distinct sources: media content, exposure to the media

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<sup>220</sup> McLuhan M. , Fiore Q. (2001): *Medium is the message. An inventory of effects*. Ginko Press, p. 26.

<sup>221</sup> Ibidem, p. 41.

<sup>222</sup> Carey J. (2009): *Communication as Culture. Essays on Media and Society*. Revised edition. Routledge Taylor and Francis Group, New York and London, pp. 11-29.

<sup>223</sup> Katz E., Blumer J. (1975): *Uses of Mass Communication by the Individual*. [in:] Davison W. P., Yu F.T. (eds.): *Mass Communication Research. Major Issues and Future Directions*. Praeger Publishers, pp. 11-35.

as such, and the social context typifying the situation of exposure to different media. Those media that differ/are similar in their attributes are likely to serve different/ similar needs. It means that psychologically similar needs will be equally served by media with similar attributes. Regular consumption of the materials is the way the audience communicate the needs of producers. The question is, what comes first: supply or demand? The model supposes that “an individual whose sampling of media output is guided by prior motives that in turn, derive from the relevant psychological disposition and social roles”<sup>224</sup>.

A very different view of communication process was presented by S. Hall who thought of this process in terms of a structure produced and sustained through the articulation of linked but distinctive moments - production, circulation, distribution/consumption and reproduction. He argues that meaning structures of encoding (a source) and meaning structures of decoding (a receiver) may not be the same as the codes of encoding and decoding may not be perfectly symmetrical. It arises from the fact that any society has its own order of social life, economic and political power and ideology which prefer one semiotic domain over another, thus preferred meaning of a sender may vary from a preferred reading of a receiver. It is the explanation for misunderstandings and failure of taking meaning. Effective communication exchange should be based on limited parameters of encoding which enable correct decoding<sup>225</sup>.

With the emergence of new media, new communication models appeared. Definition of the term new media was described earlier, on page 46. Dutch experts of telecommunication J. L. Bordewijk and B. van Kaam<sup>226</sup> created new model four-part typology of information traffic: allocation, consultation, conversation and registration. Allocation is referred to as one-way communication. Information goes from the centre to many outlying receivers. This is the sender who determines the time and place of communication, for instance, narrowcasting. During the conversation, individuals are affecting each other, ignoring the centre or agents. They choose partners, time, place and the subject matter. Obviously, the centre or agents are needful, however, they do not play an active role in conversations, for example, teleconference, exchanging e-mails. The

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<sup>224</sup> Ibidem, p. 32.

<sup>225</sup> Hall S. (2005): *Encoding/decoding*. [in:] Hall S., Hobson D., Lowe A., Willis P. (eds.): *Culture, Media, Language. Working Papers in Cultural Studies 1972-1979*. Routledge, Taylor and Francis e-Library, pp. 117-127.

<sup>226</sup> Bordewijk J. L., van Kaam B. (1986): *Towards a New Classification of Tele-Information Services*. „Intermedia” Vol. 34, No. 1, pp. 16-21.

consultation covers searching for information in a database, such as opinions, adverts, notices. The receiver sets the time, place and the theme of communication. Registration is opposite to the consultation. Here, the centre demands specified information from the receivers. It often happens without the permission of the receivers. Actions performed by registration create a database of personal data, billings or measurement of television audiences.

### **1.3.2.2. Communication means sharing knowledge - modern models of communication**

New paradigms made communication a two-way process. Westley and MacLean noticed that communication begins when a person responds selectively to his/her physical surroundings<sup>227</sup>. In this process, there are four components: a communicator, a message, a mass communication channel and a member of the audience. Messages are selected by communicators and sent via a mass communication channel. All the members of the audience receive a message simultaneously and give feedback to communicators via a mass communication channel<sup>228</sup>.

C. E. Osgood and W. Schramm presented the circular model of communication which begin with receiving stimuli. “Each participant in the communication process sends as well as receives messages and as such encodes, decodes, and interprets the message. Thus, communication is a dynamic process in which there is an interactive relationship between the source and the receiver where a person may be a source one moment, a receiver the next and again a source the following moment”<sup>229</sup>.

Professor D. L. Kincaid, who followed the view of communication as a cyclical process, introduced the convergence model of communication, also known as interactive. “Convergence is the tendency for two or more individuals to move toward one point or for one individual to move toward another, and to unite in a common interest or focus”<sup>230</sup>.

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<sup>227</sup> [www-5] <https://www.communicationtheory.org/westley-and-macleans-model-of-communication/> (visited 25 May 2018).

<sup>228</sup> Baran S. J., Davies D. K. (2010): *Mass Communication Theory. Foundations, Ferment and Future*. Sixth Edition. Wadsworth Cengage Learning, Boston, p. 187.

<sup>229</sup> U. Yadava et. al. (2017): *Models of communication*. Indira Gandhi National Open University. <http://egyankosh.ac.in/bitstream/123456789/7156/1/Unit-2.pdf> (visited 28 May 2018).

<sup>230</sup> Kincaid D. L., Rogers E. M. (1981): *Communication networks*. Free Press, p. 65. <https://www.k4health.org/sites/default/files/Rogers%20and%20Kincaid%201981.pdf> (visited 24 May 2018).

The most important features here are sharing and feedback which makes a sender and a receiver both: producers and users of information.

Though the Internet and the digital age changed the communication paradigm. Professor J. L. Orihuela noticed openness of the mass communication system to a wide range of new players through interactivity (new relations with audiences), multimedia (new languages) and hypertext (a new grammar).

The user, not the audience, becomes the axis of a communication process. “As far as enterprises, institutions, administrations, organizations, groups, families and individuals start their own online presence, they become media by their own, and they also become sources for traditional media”<sup>231</sup>. Expressions such as *My favourites*, *My homepage*, *My daily visits* emphasise the strong position of the individual user. Users are both: consumers who choose, decide, search, define and configure, subscribe or unsubscribe the content, and producers who write, talk and film the content in the web environment. The term media needs to be redefined because of content authority. “The media convergence towards digital resets media identity, shifting from platforms to contents and outstanding brand image in relation to a type of content, not to a media format”<sup>232</sup>. Users access multi-platform services from a range of terminals according to their situation and needs, make the brand image the most valuable activity in a media company. Digitalization caused the disappearance of media distinctions related to use of single language (textual, audio, visual) and a new language called multimedia emerged as long as the text, audio, video, graphics, photos, and animation could be arranged together and interactively on a single media. Another change is connected with a frequency of updating inasmuch as traditional media were defined in relation to its time constraints (daily, weekly, monthly), online media are updated in real-time in order to survive in the new environment.

The following shift includes the overflow of information. Because of user scarcity, new skills and tools to manage data, news, and opinions have developed like popularity rankings, recommended reading, most viewed lists, trending topics. What is more, the agenda established by media editors does not exist any longer. A close peer review daily process and openness to comments from readers is the nature of social web publishing.

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<sup>231</sup> Orihuela J. L. (2017): *The 10 new paradigms of communication in the digital age*. <https://medium.com/@jlori/the-10-new-paradigms-of-communication-in-the-digital-age-7b7cc9cb4bfb> (visited 21 May 2018).

<sup>232</sup> Ibidem.

Ch. Anderson in his book “Free” writes that: “The near-zero marginal costs of digital distribution (that is, the additional cost of sending out another copy beyond the fixed costs of the required hardware with which to do it) allow us to be indiscriminate in what we use it for - no gatekeepers are required to decide if something deserves global reach or not”<sup>233</sup>. On the other hand, a problem of hate and coarse language, as well as fake news, made stakeholders take action. In consequence, initiatives concerning transparency, trust-enhancement, and media and information literacy had been taken. “Examples include initiatives to influence “findability”, privileging credible content in ranking algorithms, initiatives to identify and document disinformation sources, policies aimed at ensuring an enabling environment for news media and professional journalism, as well as investments in media and information literacy aimed at fostering the intelligibility of digital media. Initiatives more focused on containing disinformation include steps to limit its spread through online interactions (sharing, commenting, liking, etc.) and organized network structures (re-shares, re-posting, sometimes driven by automated or inauthentic accounts). Other initiatives are aimed at increasing transparency around disinformation delivered through advertising and sponsored content and include enforcing advertising policies”<sup>234</sup>. European Commission constituted a group of high-level experts whose task is to advise on policy initiatives to counter fake news and disinformation spread online and not to discredit freedom of expression at the same time. The policy is based on:

- enhancing transparency of the digital information ecosystem,
- promoting and sharpen the use of media and information literacy approaches to counter disinformation and help users navigate our digital information environment,
- developing tools for empowering users and journalists and foster a positive engagement with fast-evolving information technologies,
- safeguarding the diversity and sustainability of the European news media ecosystem, and
- calibrating the effectiveness of the responses through continuous research on the impact of disinformation in Europe and an engagement process that includes

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<sup>233</sup> Anderson Ch. (2009): *Free. The Future of a Radical Price*. Random House Business Books, London, p. 3.

<sup>234</sup> European Commission (2018): *A multi-dimensional approach to disinformation. Report of the independent High level Group on fake news and online disinformation*. Publication Office of the European Union, Luxembourg, p. 14.

predefined and time-framed steps combined with monitoring and reporting requirements<sup>235</sup>.

Popular communication models one-to-one and one-to-many are replaced by many-to-one and many-to-many. According to IGI Global Dictionary in many-to-many communication, “each participating person can post messages, and each person can receive messages. Consequently, a sender does not know who the recipients are (high anonymity) and, the recipients do not know who the sender of a message is (low identifiability)”<sup>236</sup>. Already in 1981 C. H. Stevens wrote about many-to-many communication. He distinguished three forms of many-to-many communication: inquiry networking, dialogue balloting and interactive graphics.<sup>237</sup>

The Digital Age and the extraordinary amount of data available make the media social managers of knowledge which is shared with an increasing number of new players. Orihuela says: “Today, the strategic mission of media is the information about the information: information intelligence, interpretation, filtering and searching combined with the challenge of new interactive multimedia narratives and delivered by a wide range of channels”<sup>238</sup>.

Recently, the idea of communication as a community has emerged. It is about coordinating our actions with others to bring about desirable goals. “Communication permeates our environment and creates the various communities we belong to. Moreover, different forms of communication create different forms of community”<sup>239</sup>. In the Community and Communication Model, community permeates our existence as members of society, organizations, groups, and relationships. Humans may belong to multiple communities simultaneously, and the way they communicate can create different types of community.

In work “Communication of Information” by Petra Zia Sluková we can find that “the process of sharing information can be perceived as providing, donating information, that

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<sup>235</sup> Ibidem, p. 35.

<sup>236</sup> IGI Global Dictionary, <https://www.igi-global.com/dictionary/many-to-many-communication/17839> (visited 21 May 2018).

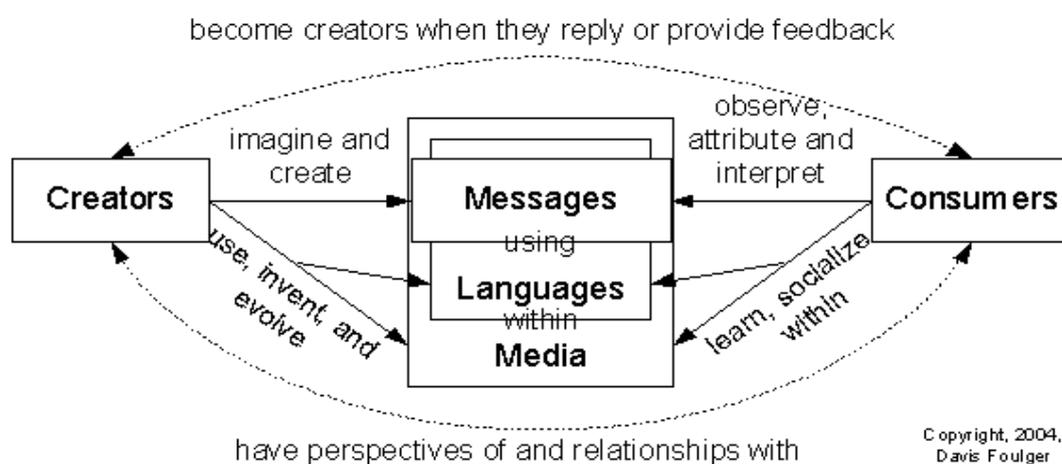
<sup>237</sup> Stevens Ch. H. (1981): *Many-to-many Communication*. Center for Information Systems Research Sloan School of Management Massachusetts Institute of Technology. [http://dspace.mit.edu/bitstream/handle/1721.1/48404/manytomanycommun00stev.pdfsequence=1&orig\\_in=publication\\_detail](http://dspace.mit.edu/bitstream/handle/1721.1/48404/manytomanycommun00stev.pdfsequence=1&orig_in=publication_detail) (visited 21 May 2018).

<sup>238</sup> Orihuela J. L. (2017): *The 10 new paradigms of communication in the digital age*. <https://medium.com/@jlori/the-10-new-paradigms-of-communication-in-the-digital-age-7b7cc9cb4bfb> (visited 21 May 2018).

<sup>239</sup> Morreale S. P. et al. (2007): *Human Communication: Motivation, Knowledge, and Skills*. Thomson Wadsworth, p. 12.

means communicating one’s personal intellectual capital to the others and collecting information, that is addressing the colleagues in the matter of sharing their intellectual capital”<sup>240</sup>.

In 2004 D. Foulger prepared the ecological model of the communication process. In this model, there are no senders and receivers but creators and consumers. “communication occurs in the intersection of four fundamental constructs: communication between people (creators and consumers) is mediated by messages which are created using language within media; consumed from media and interpreted using language”<sup>241</sup>.



Picture 2. An ecological model of the communication process by D. Foulger. Source: <http://davis.foulger.info/research/unifiedModelOfCommunication.htm>

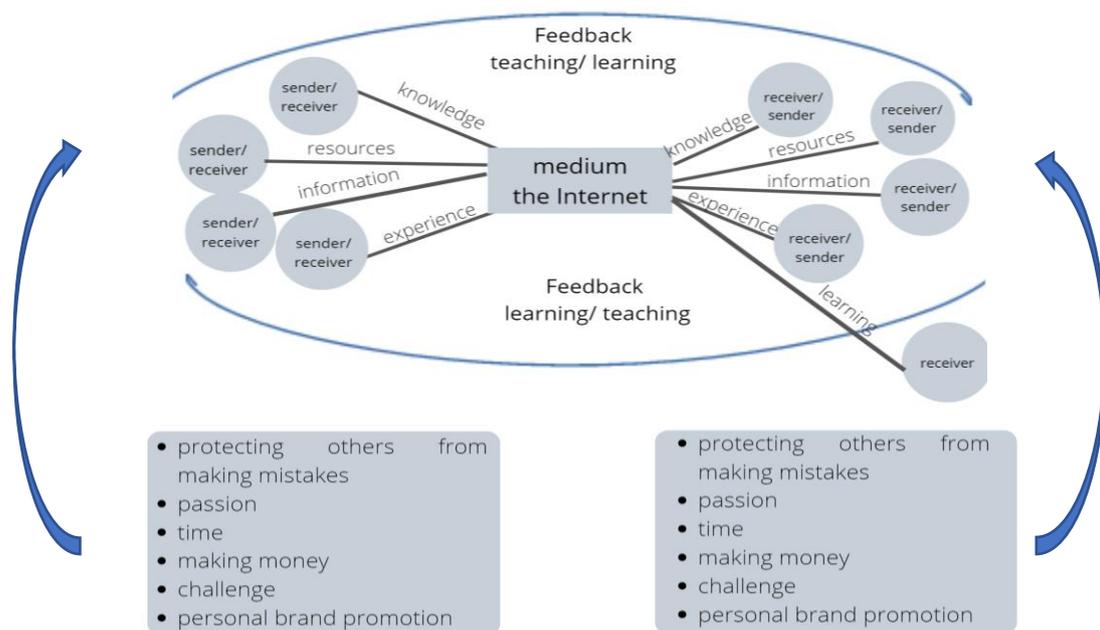
Messages are created and consumed using language which occurs within the context of media. People become creators when they reply, or supply feedback to other people and creators become consumers when they make use of feedback to adapt their messages to message consumers. Creators create messages within the context of their perspectives of and relationships with anticipated consumers of messages. They optimize their messages to their target audiences. Consumers of messages interpret those messages within the context of their perspectives of, and relationships with, creators of messages. Consumers make attributions of meaning based on their opinion of the message creator.

<sup>240</sup> Sluková P. Z. (2012): *Communication of Information*. Charles University in Prague Institute of Information Studies and Librarianship. [http://www.informacniveda.cz/dwn/1003/1172\\_Modul%20Communication%20of%20Information.pdf](http://www.informacniveda.cz/dwn/1003/1172_Modul%20Communication%20of%20Information.pdf) (visited 28 May 2018).

<sup>241</sup> Foulger D. (2004): *Models of the Communication Process*. <http://davis.foulger.info/research/unifiedModelOfCommunication.htm> (visited 29 May 2018).

That model illustrates the communication process in crowd learning, and it fits in the rules of Wikinomics which is broadly described in chapter 2. Creators share their knowledge via media with the consumers who modify it, add their own contribution, recommend, comment and share with other consumers. Consumers become creators by these actions, and creators become consumers as they use knowledge of other internet users. In accordance with Wikinomics, they are called prosumers, meaning that they are producers and consumers at the same time. One might ask why people share with each other. There is no one answer to that question. Research conducted by the author emerged the main motives.

After studying the subject literature and conducting her own research (desk research and Group Focus Test), the author proposes the Sharing Communication Model, which could be applied to the process of communication during crowd learning.



Picture 3. Sharing Communication Model. Source: the author's own work.

Senders and receivers refer to crowd learners who are producers and consumers of knowledge, experience, resources and information at the same time. Motivated by altruistic or not altruistic motives senders send messages via the internet and the process of teaching is happening. Receivers receive messages, and the process of learning is happening. In turn, receivers take the roles of senders, they give feedback, or they share their knowledge, experience, resources and information. The process of teaching occurs once

again but from the other side. Outside the two-way communication model, there is a receiver of the messages who does not give feedback. He is a passive receiver of others' knowledge, experience, resources and information. He is a learner but not a teacher; he is only a consumer but not producer, however, he has to be included in the model as he is a receiver of the messages sent by the senders, although it is only one-way communication in this case.

### **1.3.3. The new face of e-learning: Just-for-me, Just-in-time, Just enough.**

Globalisation and mediatization processes, as well as the development of ICT, have affected models of education. It is vital to emphasise once again a keyword -distance. Distance education is well known for many years. "Its basic concept is that teachers and students are in different places and they need some communication technology in order to interact with each other. Concepts of modern distance education date back to times of Jesus Christ who taught face-to-face, in groups which means that communication was synchronous. Later, St. Paul, whose community was dispersed, wrote letters to individual church groups in order to read them during the worship as individuals were illiterate and could not learn at home. Although the communication was asynchronous, it gave the beginning of distance education"<sup>242</sup>. In the 19<sup>th</sup> century correspondence study based on print technology appeared in Sweden (1833), Britain (1836), Germany (1856), USA (1883). Expansion of radio and television added audio-visual media to the courses, however, they had instructional character, its main use was to inform and visualize the content. In the early 1920s Government of Great Britain decided to use a radio to support distance education in small villages and towns. The idea was followed by other countries. In 1945 the first educational television was established in the USA. Technological and political progress in the second half of the 20<sup>th</sup> century accelerated the development of distance education. Telecommunication and audio-teleconferencing made an opportunity for teachers to interact with their students.

The term e-learning has been existing since 1999 but an early beginning of e-learning dates in 1924 when Sidney Pressey invented the "Automatic Teacher", the first device in electronic learning allowing students to tests themselves. In 1954 Harvard Professor BF

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<sup>242</sup> Przybyło S. (2018): *From correspondence distance learning to crowd learning via social media- a case study of Polish teachers of English groups on Facebook*. In: *Biuletyn Edukacji Medialnej* No.1/2018

Skinner created the “Teaching Machine” in order to use it in schools administer a curriculum of programmed instruction. Some years later, in 1960, the University of Illinois introduced for its students the first computer-based training program known as PLATO-Programmed Logic for Automated Teaching Operations, and soon it spread throughout the world<sup>243</sup>. In 1970s Professor Patrick Suppes from Stanford University offered his students first computerized courses. The School of Management and Strategic Studies at the Western Behavioral Sciences Institute in California introduced online-taught accredited degrees in 1981, and soon the trend was adopted by other institutions. Ten years later, in 1991, EKKO- the first learning management system enabling learners to collaborate by direct manipulation was developed by Norway's NKI Distance Education Network. DOS-based learning management systems appeared in 1994 thanks to Rory McGreal. The year 1996 was marked by the first fully web-based university – Jones International University and in 2000 University of Zurich, using the concept of blended learning, introduced OLAT, the first open-source Learning Management System. In the 2000’s, businesses began using e-learning to train their employees who had the opportunity to improve upon their industry knowledge base and expand their skill sets. At home, they were granted access to programs that offered them the ability to earn online degrees and expand knowledge<sup>244</sup>. One year later Microsoft released its first eLearning kit named Encarta Class Server. In 2012 MOODLE called Sugar Cube appeared in education and corporation worlds. From 2013 we can say about personalized learning environments, where users are allowed to personalize their learning space, store valuable materials and integrate with useful channels and social networks. 2014 was a year of mobile learning development. Leading sellers offered native browser apps for Android and iOS bringing fully mobile Learning Management System. During 2015 and 2016, many business functions were added to LMS, like direct payment and sharing options<sup>245</sup>. Dominant technologies of 2017 were the Cloud LMS, peer-to-peer and microlearning, gamification and mobile, 3D and VR. The newest trends of 2018 include Learning Management System (LMS) as a Performance Support Tool (PST), LMS with video support, LMS as a learning ecosystem, LMS compliant with xAPI, third-party/off-the-

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<sup>243</sup> Talent LMS: *The history of e-learning*. <https://www.talentlms.com/elearning/history-of-elearning> (visited 19 April 2018).

<sup>244</sup> Epignosis LLC(2012): *E-learning: Concepts, Trends, Applications*. Epignosis LLC, San Francisco.

<sup>245</sup> Finance Online: *The history of Learning Management Systems*. <https://learning-management-system.financesonline.com/> (visited 20 April 2018)

shelf content in LMS, LMS with deep learning, and assessment-based skill development through LMS<sup>246</sup>.

Until 1985 educational technology was focused on programming for building tools and solving problems, drill and practice, and computer-assisted-learning. From 1983 to 1990 computer-assisted-learning model changed into computer-based-training thanks to interactive multimedia courseware. Although constructivist influences began to appear in educational software design and use, passive learner models dominated as well as user-computer interaction. In 2001 American Society for Training & Development (ASTD) defined e-learning as “instructional content or learning experiences delivered or enabled by electronic technology that is designed to increase workers’ knowledge and skills so they can be more productive, find and keep high-quality jobs, advance in their careers, and have a positive impact on the success of their employees, their families, and their communities”<sup>247</sup>.

As time was passing e-learning became more and more interactive. Five years later the same institution defined e-learning as covering a wide set of applications and processes, such as web-based learning, computer-based learning, virtual classrooms and digital collaboration, including delivering the content via audio and videotape, satellite broadcast, interactive TV and CD ROM<sup>248</sup>.” Contents could be placed on the homepages and databases, but it was not easy to create one’s own content and share it with others. The typical Internet user browsed the web pages and downloaded content, but did not actively participate in the content-creation process<sup>249</sup>”. During 1995-2005, distributed constructivist and cognitivist model became common, courseware is no longer interactive multimedia, but online multimedia and courseware delivery is not only internet-based but also flexible. The year 2005 brings the era of the Web 2.0 and connectivism based on learning by sharing and creating knowledge via the Internet, and we can say about the third generation of e-learning. The learning in the Web 2.0 era emphasizes the active participation of Internet users and interaction among social communities, nonetheless, tools and services of the Web 3.0 would foster even more open approach to learning.

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<sup>246</sup> [www-6] E-learning Industry: *Top 7 Corporate Learning Management System Trends For 2018*. <https://elearningindustry.com/learning-management-system-trends-for-2018-7-corporate> (visited 20 April 2018).

<sup>247</sup> Pamfilie R., Orindaru A., Bumbac R. (2013): *Innovative e-learning benefits for universities and companies*. [https://www.researchgate.net/publication/264239608\\_Innovative\\_e-learning\\_benefits\\_for\\_universities\\_and\\_companies](https://www.researchgate.net/publication/264239608_Innovative_e-learning_benefits_for_universities_and_companies) (visited 16 July 2018).

<sup>248</sup> Ibidem.

<sup>249</sup> Bessenyei I. (2008): *Learning and Teaching in the Information Society*. In: Pintér R. (ed.): *Information Society From Theory to Political Practice.*, Budapest, p. 202.

Not only educational technology can be divided into stages but the development of distance education too. We can say about four stages: the first, up to 1970, when courses contents were delivered by regular mail, the second (1970-1980) was the time of Open Universities, the third (1980-1990) was the period of Video cassettes and TV, and the fourth stage connected with Technological evolution of digital equipment and software (1990-2000) made the era of e-learning<sup>250</sup>.

Some specialists view e-learning as online learning; they use these terminologies interchangeably. For instance, in the dictionary of The Online Learning Definitions Project published by International Association for K-12 Online Learning e-learning and digital learning and cyber education are referred to online learning<sup>251</sup>. Nevertheless, online learning is education that takes place over the Internet, just one type of distance learning<sup>252</sup>. Distance education may occur via the internet or not, that is why distance learning is not a synonym of e-learning. S. Naidu argues that these labels refer to slightly different educational processes and as such, they cannot be used synonymously with the term e-learning.

The simplest definition is given by W. Horton, who says “e-learning is the use of information and computer technologies to create learning experiences”<sup>253</sup>. OECD defines e-learning as the transition from just-in-case traditional education to just-in-time and just-for-me customized education possible due to new information and communication technologies<sup>254</sup>. As reported by S. Naidu e-learning is referred to the intentional use of networked information and communications technology in teaching and learning. “As the letter “e” in e-learning stands for the word “electronic”, e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or standalone computers and other electronic devices”<sup>255</sup>. According to R. Andrews and C. Haythornthwaite, essential components of ‘e’ are the computer hardware and software, but also the networking

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<sup>250</sup> dos Reis A. et al. (2013): *How Should we Teach, in the School of the Future?* In: E. Smyrnova-Trybulska (ed.): *E-Learning and Lifelong Learning*. University of Silesia, Katowice, pp. 13-38.

<sup>251</sup> International Association for K-12 Online Learning (2001): *The Online Learning Definitions Project*. [https://www.inacol.org/wp-content/uploads/2015/02/iNACOL\\_DefinitionsProject.pdf](https://www.inacol.org/wp-content/uploads/2015/02/iNACOL_DefinitionsProject.pdf) (visited 16 July 2018).

<sup>252</sup> Stern J.: *Introduction to Online Teaching and Learning*. <http://www.wlac.edu/online/documents/otl.pdf> (visited 16 July 2018).

<sup>253</sup> Horton W. (2006): *E-learning by Design*. A Wiley Imprint, San Fransisco, p. 1.

<sup>254</sup> OECD (2001): *E-Learning. The Partnership Challenge*. [https://www.oecd-ilibrary.org/education/e-learning\\_9789264193161-en](https://www.oecd-ilibrary.org/education/e-learning_9789264193161-en) (visited 16 July 2018).

<sup>255</sup> Naidu S. (2006): *E-Learning. A Guidebook of Principles, Procedures and Practices*. Commonwealth Educational Media Center for Asia, New Delhi, p. 1.

infrastructures that make it possible to collect and distribute data, information and knowledge to people at different times and locations. “Devices that permit access to these data streams now no longer need to be the fixed desktop computer. The mobility and multimedia capabilities afforded by laptops, palmtops (also known as Personal Digital Assistants, PDAs), mobile phones, and media players (e.g. MP3 players), shatter our notions of where and by what means ‘e’ activities can take place. Thus, in considering e-learning, we include a range of electronically networked Information and Communication Technology via which learning can take place”<sup>256</sup>.

NCSA (National Center for Supercomputing Applications) states “e-learning is the acquisition and use of knowledge distributed and facilitated primarily by electronic means. This form of learning currently depends on networks and computers but will likely evolve into systems consisting of a variety of channels, and technologies as they are developed and adopted. E-learning can take the form of courses as well as modules and smaller learning objects. E-learning may incorporate synchronous or asynchronous access and may be distributed geographically with varied limits of time”<sup>257</sup>. FAO (Food and Agriculture Organization of the United Nations) defines e-learning as „the use of computer and Internet technologies to deliver a broad array of solutions to enable learning and improve performance”<sup>258</sup>, and it refers to varied forms of learning, such as learning at home or learning at work through e-mentoring and e-coaching. Garrison and Anderson view e-learning as learning facilitated online through network technologies, activities conducted through electronic means online. They deliver a formal definition of e-learning defined as “electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge”<sup>259</sup>. From the author's point of view, e-learning is a long-term or short-term process of knowledge acquisition, whether professional or not, through electronically mediated asynchronous or synchronous communication delivered by electronic means online. The author distinguishes

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<sup>256</sup> Andrews R., Haythornthwaite C. (2007): *Introduction to E-learning Research*. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.222.7163&rep=rep1&type=pdf> (visited 16 July 2018).

<sup>257</sup> Wentling L. T. et al. (2001): *E-learning - A Review of Literature*. Knowledge and Learning Systems Group, University Of Illinois At Urbana-Champaign, NCSA. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.111.2829&rep=rep1&type=pdf> (visite 16 July 2018).

<sup>258</sup> Ghirardini B. (2011): *E-learning methodologies A guide for designing and developing e-learning courses*. FAO, p. 3.

<sup>259</sup> Garrison D. R., Anderson T. (2003): *E-learning in the 21st century. A framework for research and practice*. Routledge Falmer, Taylor & Francis Group, London and New York.

professional e-learning aimed to improve qualification and unprofessional e-learning used for satisfying personal needs, interests and hobbies.

Definitions discussed above suggest that e-learning can take varied forms. W. Horton distinguishes standalone courses, virtual-classroom courses, learning games and simulations, embedded e-learning<sup>260</sup>, blended learning, mobile learning and knowledge management, however, this is not the end. E-learning allows complete freedom as to how these experiences are formulated, organized, and created<sup>261</sup>. Algahtani classified types of e-learning based on the extent of their engagement in education. He divided e-learning into two basic types, consisting of computer-based and the internet based e-learning. The computer-based learning comprises the use of a full range of hardware and software generally that are available for the use of ICT and also each component can be used in either of two ways: computer-managed instruction and computer-assisted-learning. In computer assisted-learning, computers are used instead of the traditional methods by providing interactive software as a support tool within the class or as a tool for self-learning outside the class. In the computer-managed-instruction, however, computers are employed for the purpose of storing and retrieving information to aid in the management of education<sup>262</sup>.

By contrast, M. Głowacki divides forms e-learning unto the ways it is prepared. As a consequence, he distinguishes: ready-to-go (connected with general knowledge or skill), personalised (created by using ready elements but assorted in compliance with the clients' preferences) and dedicated (designed for a specific purpose)<sup>263</sup>.

S. Kuruliszwili distinguishes organised forms of vocational training with the use of e-learning and incidental e-learning described by the author as all spontaneous, informal and irregular forms of learning with the use of electronic media. He points incidental e-learning is a kind of self-education understood by learning which aims, content and conditions depend on the entity. Incidental e-learning rose in line with internet evolution. Learning in multiple areas of life, helping in solving every day and professional problems

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<sup>260</sup> The word "embedded" means integrated, linked or contextualized. When it comes to embedded learning it refers to learning activity which is performed while doing things opposed to learning. In other words it is integrating skill acquisition into day-to-day activities. The phenomenon is one of best practices to help unskilled workers to acquire valuable vocational skills.

<sup>261</sup> Horton W. (2006): *E-learning by Design*. A Wiley Imprint, San Fransisco, p. 2.

<sup>262</sup> Arkoful V., Abaidoo N.: (2014): *The role of e-learning, the advantages and disadvantages of its adoption in Higher Education*. In: International Journal of Education and Research, Vol. 2 No. 12 December 2014,(visited 16 July 2018).

<sup>263</sup> Głowacki M. (2012): *Wstęp do e-learningu*. Warszawa <http://www.mariuszglowacki.eu/wp-content/uploads/2014/01/Wst%C4%99p-do-e-learningu.pdf> (visited 16 July 2018).

is based on searching and perception of various materials available in various forms on the Internet. Content is not usually connected, comes from various sources, and the key to selection is page landing in the Internet search engine. The position in searching services determines popularity. Incidental e-learning incidental becomes a permanent form of expanding knowledge and acquiring skills. Kuruliszwili emphasises that incidental e-learning is now a dominant form of education in lifelong learning<sup>264</sup>. In his other work, he states that the need for solving a problem is the prime mover of learning. Permanent access to information and the ability to use them fast makes the process of problem-solving short<sup>265</sup>.

E-learning may use a variety of tools. M. Frania distinguishes eight groups of modern technological tools for learning: different kinds of blogs, webinars, MOOCs, tutorials, transmedia storytelling, Virtual Reality, wearable technology, and open badges, learning analytics, a collaborative assessment which are going to be characterised in the next step<sup>266</sup>.

Blogs are commonly used to gather information related to a particular topic. ‘Simplicity’ and ‘interactivity’ are two key elements that have contributed to blogs’ popularity. Blogs allow users to publish, archive and interact. Participants interact in their roles as blog writers, readers and reviewers; they write entries and respond to criticism from peers<sup>267</sup>. Franklin and van Harmelen give two examples of the educational uses of blogs: the first group of bloggers using their individual blogs to build up a body of interrelated knowledge via posts and comments. It may be a group of learners in a class, encouraged and facilitated by a teacher, or a group of relatively dedicated life-long learners. The other group consists of educators using a blog for course announcements, news and feedback to students<sup>268</sup>. W. Hong considers blogs in terms of advantages and disadvantages. He sees a great advantage in engaging people in knowledge sharing and reflection and attracting a large readership for the reason that blogs allow users and readers to respond, to create, and to connect instead of providing static information. On the other hand, we have to deal with disadvantages seen as inaccuracy of the information,

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<sup>264</sup>Kuruliszwili S. (2016): *Technologie informacyjne a andragogika – edukacyjne wyzwania współczesności*. Instytut Rozwoju Służb Społecznych, Warszawa.

<sup>265</sup>Kuruliszwili S. (2017): *Incidental e-learning versus self-education, incidental and con-nected learning – a description of a phenomenon*. Polish Journal Of Continuing Education no 4/2017, pp. 63-72.

<sup>266</sup> Frania M. (2017): *Nowe media. Technologie i trendy w edukacji*. Wydawnictwo Impuls.

<sup>267</sup> Li K., Bado N., Smith, J., Moore D. (2013): *Bloggng for Teaching and Learning: An Examination of Experience, Attitudes, and Levels of Thinking*. „Contemporary Educational Technology”, Vol. 4, No.3, pp. 172-186.

<sup>268</sup> Franklin, T., van Harmelen, M. (2007): *Web 2.0 for Learning and Teaching in Higher Education, Report*, The Observatory of borderless higher education, London.

intellectual property issues, and the volatile nature<sup>269</sup>. M. Frania proposes following categorisation of blogs in education: cooperation, community management, source of educational content, portfolio, outside communication, e-bibliography, photo gallery and private archive<sup>270</sup>.

The need for interaction and collaboration in online learning is fulfilled by webinars which are online seminars. Using virtual tools the educator meets learners online, they can interact with each other by video or audio, and the educator has a possibility to share his/her screen with the learner. By now, numerous studies have concluded that the synchronous (as in a real-time web conference) mode is better adapted to spontaneous, immediate interaction in online learning. "As a teaching strategy, the seminar allows for student preparation, discussion of one's problems and questions, sharing of common interests and concerns, consideration of alternative views and collaboration on solutions"<sup>271</sup>. Lately, in Poland I noticed the term "fejsbiniarium", in English we could say "facebinar" referring to a seminar on Facebook<sup>272</sup>.

Recent years we have observed growth in MOOCs (Massive Open Online Courses) which are free online courses available for anyone to enrol. MOOCs provide an affordable and flexible way to learn new skills, advance career and deliver quality educational experiences at scale. First MOOCs appeared in 2008, and in 2012 this phenomenon flourished. The major platforms are: Coursera, Udacity and edX. The greater part of the platforms are still based in the United States of America, but other parts of the world are quickly joining in<sup>273</sup>. They provide tools for social interaction in which learners help one another, exchange ideas and learn together in groups. The courses created in different countries are translated into English or other languages. They differ from open universities by the fact that they offer courses, not studies, not degrees. Currently, Young Science Foundation (Fundacja Młodej Nauki) in Poland is proposing initiative in order to

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<sup>269</sup> Hong W. (2008): *Exploring educational use of blogs in U.S. education*. "US-China Educational Review", Vol. 5, No. 10, p. 34.

<sup>270</sup> Frania M. (2017): *Nowe media. Technologie i trendy w edukacji*. Wydawnictwo Impuls.

<sup>271</sup> Power M., St-Jacques A. (2014): *The Graduate Virtual Classroom Webinar: A Collaborative and Constructivist Online Teaching Strategy*. „MERLOT Journal of Online Learning and Teaching”, Vol. 10, No.4, p. 684.

<sup>272</sup> [www-7] <https://www.facebook.com/helloeduation/videos/1811082255809184/> (published 25 February 2017, visited 1 May 2018).

<sup>273</sup> EPALE (2015): *MOOCs - a game shifter in adult learning*. <https://ec.europa.eu/epale/en/blog/moocs-game-shifter-adult-learning> (visited 3 April 2018).

create Polish platform of distance learning offering different types of courses - MOOCs and specialized courses dedicated to specified stakeholders<sup>274</sup>.

The next phenomenon is a tutorial, especially popular in informal education. It is based on traditional teaching methods like description, but their popularity comes from the student's role as a teacher. Anyone is able to instruct others how to manage with the problem, besides Frania says that it is more attractive for users than the written content because it is fast, easy to access and mostly for free<sup>275</sup>.

Transmedia storytelling is another interesting educational aspect. According to H. Jenkins "Transmedia storytelling represents a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience. Ideally, each medium makes its own unique contribution to the unfolding of the story"<sup>276</sup>. He claims that transmedia storytelling is the ideal aesthetic form for an era of collective intelligence since they also function as textual activators - setting into motion the production, assessment, and archiving information.

Virtual Reality (VR) which is produced by a combination of technologies that are used to visualize and provide interaction with a virtual environment was firstly used in professional training where a high level of simulations of real experience was required. Today VR is used in education. Scientists of the University of Gothenburg examined usefulness and effectiveness of Virtual Reality in learning. "Visual effects and 3D objects can explain certain topics where text can't. A mixture of both can help the students achieve better results, especially in science and engineering education. It can also increase the desire to learn for younger students with all the advancement in technology and the variety of educational applications in the market"<sup>277</sup>. M. Frania points out that today VR is not used in formal education, however, it is helpful in learning foreign languages, simulating physical and chemical experimentations<sup>278</sup>.

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<sup>274</sup> Fundacja Młodej Nauki (2018): *Polska Platforma MOOC*. <http://fnnn.org.pl/polska-platforma-mooc/> (visited 3 April 2018).

<sup>275</sup> Frania M. (2017): *Nowe media. Technologie i trendy w edukacji*. Wydawnictwo Impuls.

<sup>276</sup> Jenkins H. (2007): *Transmedia storytelling 101*. [http://henryjenkins.org/2007/03/transmedia\\_storytelling\\_101.html](http://henryjenkins.org/2007/03/transmedia_storytelling_101.html) (visited 1 May 2018).

<sup>277</sup> Hussein M., Nätterdal C. (2015): *The Benefits of Virtual Reality in Education*. Department of Computer Science and Engineering, Göteborg.

[https://gupea.ub.gu.se/bitstream/2077/39977/1/gupea\\_2077\\_39977\\_1.pdf](https://gupea.ub.gu.se/bitstream/2077/39977/1/gupea_2077_39977_1.pdf) (visited 1 May 2018).

<sup>278</sup> Frania M. (2017): *Nowe media. Technologie i trendy w edukacji*. Wydawnictwo Impuls.

In the future, we may count on a growing interest in wearable technology. Conforming to PwC<sup>279</sup>, “wearable technology refers to accessories and clothing incorporating computer and advanced electronic technologies. Examples of wearable technology devices include fitness trackers/bands, smart glasses, smartwatches, smart clothing, and other wearable devices”<sup>280</sup>. M. Frania enumerates the benefits of drones and 3D printers<sup>281</sup>. TATA Interactive Systems defines it as clothing and accessories that incorporate computer and advanced electronic technologies. It also stated: “wearable technology could easily become an extremely useful tool supporting learning at many levels but will undoubtedly create many challenges, including the privacy concerns that are already receiving abundant attention. The other thing that raises concerns in the education/learning space for wearables is of the “casualness” of the learning”<sup>282</sup>. T. Naga Shwathi describes it as a kind of technology that is worn by a user which is used in obtaining specific information. The research made with S. Lanka showed that the wearable devices save time and make the students feel more comfortable in learning<sup>283</sup>.

The last, but not least is an aspect of Open Badges. Originally a badge was a symbol or indicator of an accomplishment, skill, quality or interest. In a digitalized world a badge is an online record of achievements. The Mozilla Foundation says digital badges can support connected learning environments by motivating learning and signalling achievement both within particular communities as well as across communities and institutions. As long as models of education are changing and new skills and literacies are important in modern society badges can play a crucial role in the connected learning ecology by acting as a bridge between contexts and making these alternative learning channels, skills and types of learning more viable, portable and impactful. What is more, badges are a potentially limitless set of individual skills regardless of where each skill is developed, and the collection of badges can serve as a virtual resume of competencies and qualities for key stakeholders such as peers, schools or potential employers<sup>284</sup>. D.

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<sup>279</sup> PwC stands for PricewaterhouseCoopers. PwC is a multinational professional services network headquartered in London, United Kingdom. It is the second largest professional services firm in the world, and is one of the Big Four auditors, along with Deloitte, EY and KPMG.

<sup>280</sup> PwC (2016): *The Wearable Life 2.0 Connected living in a wearable world*. <https://www.pwc.se/sv/pdf-reports/the-wearable-life-2-0.pdf> (visited 1 May 2018).

<sup>281</sup> Frania M. (2017): *Nowe media. Technologie i trendy w edukacji*. Wydawnictwo Impuls.

<sup>282</sup> TATA Interactive Systems (2016): *Wearables in Learning. The brave new frontier*. [http://www.tatainteractive.com/pdf/Wearables\\_in\\_Learning\\_article.pdf](http://www.tatainteractive.com/pdf/Wearables_in_Learning_article.pdf) (visited 1 May 2018), p. 6.

<sup>283</sup> Naga Swathi T., Lanka S. (2015): *Wearable technology a new paradigm in Educational Universities*. International Journal on Computer Science and Engineering, Vol. 7, No.4.

<sup>284</sup> The Mozilla Foundation, Peer 2 Peer University, The MacArthur Foundation (2012): *Open Badges for Lifelong Learning. Exploring an open badge ecosystem to support skill development and lifelong*

Presant defines open badges as a micro-credential – portable record of learning, “a digital representation of an accomplishment, interest or affiliation that is visual, available online and contains metadata including trusted links that help explain the context, meaning, process and result of an activity. As an open artefact, the earner can present the badge in different contexts from which it was earned”<sup>285</sup>. He distinguishes different perspectives of open badges: technical description (a portable, smart graphic with an embedded description and links to supporting information), formative assessment (a reward for positive behaviour, a marker on a development path), and summative assessment (a micro-credential, a discrete record in a modular transcript). Microsoft has significant input in the field of open badges. It maintains education community of teachers around the globe by offering the possibility of collecting badges inter alia for demonstrated thought leadership in innovative learning with technology and desire to amplify one's reach and voice to all educators, demonstrated MIE Expert or Trainer achievements and dedicated time to work with Microsoft and educators to transform classroom learning, creating 10 lesson plans on the Microsoft Educator Community, combining content, pedagogy, and technology in exemplary ways to prepare students for success or participating in the online Microsoft Education Exchange<sup>286</sup>.

As a major component of the Web 2.0 social software emerged. In the 1960s an American psychologist and computer scientist J. C. R. Licklider was working on connecting people in order to boost their knowledge and their ability to learn using networked computing<sup>287</sup>. As a result, web-based communities have linked people around the world. Several years ago, some web projects and services became perceived as especially connective. They are called “social software”: media sharing services, social bookmarking and tagging services, content discovery services, wikis, blogs and microblogs and social networks.

Despite lots of different definitions, Mejias's definition deserves attention. He defines it as a software that allows people to interact and collaborate online or that aggregates the

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*learning for real results such as jobs and advancement.*

[https://wiki.mozilla.org/images/5/59/OpenBadges-Working-Paper\\_012312.pdf](https://wiki.mozilla.org/images/5/59/OpenBadges-Working-Paper_012312.pdf) (visited 1 May 2018), p. 5.

<sup>285</sup> Presant D. (2015): *Open Badges Making Learning Visible*. Learning Agents Inc.

<https://openbadgepassport.com/file/a/4/f/b/a4fbf40866d28c640f19c0001b879327d32b4b1725988a35b57a863714b553b3.pdf> (visited 1 May 2018).

<sup>286</sup> [www-8] <https://education.microsoft.com/badges-points-certificates/badges-and-points> (visited 1 May 2018).

<sup>287</sup> Alexander B. (2006) *Web 2.0: A New Wave of Innovation for Teaching and Learning?* „*Educause Review*”, Vol. 41, No 2, <https://er.educause.edu/articles/2006/1/web-20-a-new-wave-of-innovation-for-teaching-and-learning> p. 32–44 (visited 17 April 2018).

actions of networked users<sup>288</sup>. According to M. Matešić, K. Vučković and Z. Dovedan “Social media, also known as social software, appears as a special form of networked media. It is a set of tools, applications and/or services that enables its users’ online interaction, information (or knowledge) sharing and exchange of opinions”<sup>289</sup>. T. Anderson sees social software as “networked tools that support and encourage individuals to learn together while retaining individual control over their time, space, presence, activity, identity and relationship”<sup>290</sup>.

Social technologies give people new possibilities to help one another to learn and support networked individualism. Although people interact with others, they remain the centre of their social worlds by choosing the mode, the pace, the presentation format, the credential, and the degree of cooperative versus individual learning they wish to engage. J. Dron and T. Anderson say that the necessary knowledge or skills to solve the problem already exists in the mind of another person or resource. Learners' and educators' role is to provide tools, paths and techniques by which this knowledge can be approached, appropriated, constructed and re-constructed in order to meet individual and collective needs. Social media include: email, instant messaging, chat, video/online conferencing, social tagging, social, rating, screen sharing, shared whiteboard, web meeting, discussion forum, microblogging, social networking, social curation, social gaming, social buying and selling, file/ photo/video/presentation sharing, social bookmarking, crowdsourcing, crowdfunding, Q&A systems, reputation networks, collaborative filters and social recommenders, publications, scheduling, content management, location-based systems, learning management systems, immersive environments, MUD and MOOCs, reviews. They support all kinds of interaction: one-to-one (e.g. e-mail, phone, screen sharing), one-to-many (e.g. chat, video/audio conferencing, microblog), many-to-many (e.g. social tagging, discussion forum, web meeting) and many-to-one (e.g. social rating, social networking). The interaction may be synchronous, that is real-time communication (e.g. instant messaging, chat), asynchronous meaning viewed at a different time than it was posted (e.g. social tagging, microblog) or both (e.g. social networking, MOOCs).

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<sup>288</sup> Dron J., Anderson T. (2014): *Teaching crowds: learning and social media*, AU Press, Athabasca University, p.8.

<sup>289</sup> Matešić M., Vučković K., Dovedan Z. (2009): *Social software: teaching tool or not?* „INFuture2009: Digital Information and Heritage”. [https://bib.irb.hr/datoteka/433059.MM\\_KV\\_ZD-IN\\_Future.pdf](https://bib.irb.hr/datoteka/433059.MM_KV_ZD-IN_Future.pdf) (visited 19 April 2018).

<sup>290</sup> Anderson T. (2005): *Distance learning: Social software's killer app?* Paper presented at the ODLAA, Adelaide, Australia. [http://auspace.athabascau.ca/bitstream/2149/2328/1/distance\\_learning.pdf](http://auspace.athabascau.ca/bitstream/2149/2328/1/distance_learning.pdf) (visited 17 April 2018).

Communication can also be direct, like social networking or instant messaging and indirect as social tagging and rating. It is important to say that many tools can be used for a variety of purposes that allow them to belong to most categories.

Social software is one of the most essential means of enabling lifelong learning, and it contributed to formal and informal learning. First of all, social software helps build communities. Educators spread their insights created during a formal study to communities. Educational communities function regardless of time and place of study. They become the tools which forms, cements values, attitudes, connections as well as friendships. Students have an opportunity to learn acting as experts as members of learning communities are entitled to give and receive help from fellow members. Social software helps to create knowledge which is contextualized, made relevant and owned. As long as the information moves throughout the global community, it has to be comprehensible for the receivers in terms of a language, cultural marking, applicability and understandability. Nowadays, people are bombarded with information that is why the information must be relevant to a real concern. As was said above the knowledge is owned and this ownership is expressed in its capacity for recollection and application. The knowledge is valued when it is given away, shared, replicated and reapplied. Applying the information in different contexts enables its possessors to create new things and use in new ways.

Social software engages, motivates, and it is enjoyable. T. Panitz's research details 67 benefits from engaging in collective learning divided into categories: academic (promotion of critical thinking skills, involving students actively in the learning process, modelling appropriate problem-solving techniques, motivating students), social (building diversity understanding, developing learning communities, establishing a positive atmosphere), and psychological (increasing student self-esteem, reducing anxiety, developing a positive attitude towards teachers)<sup>291</sup>. Dron and Anderson point that time spent studying, the level of enjoyment and the quality of learning outcomes reflect engagement in the learning process.

It is important to say that social software is cost-effective in comparison to multimedia-enhanced forms of online learning. Most of the content is created by the users who select and annotate learning resources, make comments, discuss, debate, collaboratively create reports and presentations, and many more. Students may help one

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<sup>291</sup>Panitz T. (1999): *The Case for Student Centered Instruction via Collaborative Learning Paradigms*. <https://files.eric.ed.gov/fulltext/ED448444.pdf> (visited 18.April 2018).

another when a teacher is not present. In a social software context, transparency of the users and activities is the norm which gives opportunities for social capital development. Those community members who have contributed the most are given the authority and prestige within that community, and across their network, they may become experts and have a chance to develop their own brands.

Social software reduces the gap between formal and informal learning as long as its tools and contexts coordinate formal learning, workplace, family, community ideas, relations and activities. Social networking plays the role of a forum where jolts and triggers from occurrences in real life are discussed, assessed and reflected upon. It creates and builds up relationships among learners. Individuals and groups use relationships to achieve goals which are beyond their capacity to attain. Social software is accessible for everyone in terms of open access to sites, retrieving on a variety of devices and users with physical and mental constrain (e.g. using large print, audio format). It also combines audio, video and graphics. Due to the use of syndication, tagging and indexing authors of information and contribution can be searched, harvested and extracted.

E-learning is the future of education, especially vocational training. The goal of e-learning is to affect the construction of knowledge with reference to individual experience, practice and knowledge of the learner<sup>292</sup>. It meets the needs of an ever-growing population of students who cannot or prefer not to participate in traditional classroom settings. “These learners include those unable to attend traditional classes, who cannot find a particular class at their chosen institution, who live in remote locations, who work full-time and can only study at or after work, and those who simply prefer to learn independently”<sup>293</sup>.

E-learning saves money because the more people being trained and the more geographically dispersed they are, the greater the training costs are. With e-learning, the cost stays the same regardless of the number of people trained, and 100% of training money actually goes toward training, not on journey, accommodation and sustenance. Taking into consideration verbal garbage that takes place during traditional training, e-learning makes the training shorter. It also saves time devoted to the journey. E-learning allows making new hires productive as long as they do not burn time waiting for more instruction on their duties and responsibilities and keeps the employees productive. E-

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<sup>292</sup> [www-9] <http://elearning-conf.eu/docs/cp10/paper-27.pdf> (visited 16 July 2018).

<sup>293</sup> [www-10] <http://www.wlac.edu/online/documents/otl.pdf> (visited 16 July 2018).

learning allows students to learn at their own pace, and to choose content and tools appropriate to their differing interests, needs, and skill levels<sup>294</sup>.

O. Łodyga lists factors influencing the e-learning specificity: elimination of geographical barriers, time flexibility, access to individuals with health constraints, the development of self-education, self-discipline and strong motivation, personalization of education. Other factors, like the diversity of co-users and new social group creation, are equally important<sup>295</sup>. J. Korczak and D. Woźniak mention one more essential benefit, which is instant monitoring and feedback for teachers and students<sup>296</sup>. H. Agarwal and G. N. Pandey enumerate basic principles of e-learning. First of all, the study is a significant construction process. The knowledge is gained through learners' own experience with the unit they are studying. The link between a learner and external environment leads to the development of the knowledge. Secondly, a student is an active factor. The learning process and its result are affected by a student's cognitive structure. As long as each learner has its own experience and practical knowledge, the result of learning may vary between learners. That is why the focus of teaching appraisal should be on cognition process of the students not on the result of learning. Thirdly, a study is a real experience. The teacher's role is only to organize and prompt process of teaching, the learner is expected to understanding and utilizing the knowledge in real-world situations. E-learning becomes more and more popular due to its benefits in comparison to traditional learning: low-cost regarding money and time, flexible without the strict time and place limitations, and personalization of the material, chosen by the learner, not by a teacher<sup>297</sup>.

As reported by Bates, governments see e-learning as a knowledge-based industry using advanced educational systems to create educational products and services marketed intentionally. They also view e-learning as a way of improving the quality of education and producing skilled graduates able to use new technology in the new economy.<sup>298</sup>

In 2012 an American multinational corporation and technology company “Intel” did research concerning the positive impact of e-learning. “While conclusive,

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<sup>294</sup> [www-9] <http://elearning-conf.eu/docs/cp10/paper-27.pdf> (visited 16 July 2018).

<sup>295</sup> [www-11] [http://serwis-uslugirozwojowe.parp.gov.pl/files/Do\\_pobrania/28\\_12\\_2015/2/PARP-Olga\\_Lodyga.spr.pdf](http://serwis-uslugirozwojowe.parp.gov.pl/files/Do_pobrania/28_12_2015/2/PARP-Olga_Lodyga.spr.pdf) (visited 16 July 2018).

<sup>296</sup> Korczak J., Woźniak D. (2008): *Zastosowanie nowoczesnego e-learningu i multimediiów w edukacji*. Zeszyty Naukowe Instytutu Ekonomii i Zarządzania. <http://zeszyty.wne.tu.koszalin.pl/images/wydawnictwo/zeszyty/02/11.pdf> (visited 16 July 2018).

<sup>297</sup> Agarwal H., Pandey G.N. (2013): *Impact of E-Learning in Education*. „International Journal of Science and Research”, Vol.2, No 12.

<sup>298</sup> Bates A.W. (2005): *Technology, e-learning and distance education*. Routledge Taylor & Francis Group, New York.

longitudinal studies remain to be done, an emerging body of evidence suggests that e-learning can deliver substantial positive effects:

- Students are more engaged and able to develop the 21st century skills which are going to be discussed in chapter 2.2);
- Teachers have a more positive attitude toward their work and are able to provide more personalized learning;
- Family interaction and parental involvement may increase;
- Communities benefit from bridging the digital divide. Economically disadvantaged students and children with disabilities benefit particularly;
- Economic progress can result from direct job creation in the technology industry as well as from developing a better-educated workforce”<sup>299</sup>.

Bates says that businesses observe that the workforce is willing to learning continually and improve their skills without the high costs of travel and free time, consequently they see e-learning as a way of increasing competitiveness. OrbisResearch.com has published a new research report on “Global E-Learning Market Research Report and Forecast to 2017-2022”. We can read there, among other things: “According to Statistics MRC, the Global E-Learning Market is accounted for \$165.21 billion in 2015 and is expected to reach \$275.10 billion by 2022 growing at a CAGR of 7.5% during the forecast period. The key factors that are favouring the market growth are flexibility in learning, low cost, easy accessibility, increased effectiveness by animated learning. Moreover, escalation in a number of internet users and growing access of broadband pooled with mobile phones with online capabilities are also fuelling the market growth”<sup>300</sup>.

The benefits of e-learning have during the COVID-19 pandemic. The sudden closure of kindergartens, schools and universities in Poland showed that it is worth investing in e-learning. Overnight, educational institutions were forced to introduce remote learning immediately. It turned out that there is a chronic lack of equipment for each student and access to the Internet. Another problem was the lack of preparation of teachers for remote learning. Although the Ministry of Education left a lot of freedom for teachers to teach online, which might seem like a big advantage, with a lack of resources

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<sup>299</sup> Intel Corporation (2012): *The positive impact of e-learning-2012 update*.

[http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/The%20Positive%20Impact%20of%20eLearning%202012UPDATE\\_2%206%20121%20\(2\).pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/The%20Positive%20Impact%20of%20eLearning%202012UPDATE_2%206%20121%20(2).pdf) (visited 20 April 2018).

<sup>300</sup> Reuters (2017): *Global E-Learning Market 2017 to Boom \$275.10 Billion Value by 2022 at a CAGR of 7.5% – Orbis Research*. <https://www.reuters.com/brandfeatures/venture-capital/article?id=11353> (visited 20 April 2018).

and the ability to use ICT tools for teaching, it introduced chaos. Each school is managing in its way. In some schools the material is sent via e-mail or electronic logbook as a list of tasks to be done. In some schools, the lessons are held through multi-conferencing, but here, too, there is freedom of length and frequency. In addition, not all schools that provide lessons via video conferencing use the same application. Sometimes teachers within one school use several videoconferencing applications. On teacher's Facebook groups, the topic of remote teaching was discussed for many days. The wisdom of the crowd played an important role in quick adaptation to new conditions. Many teachers there have been gaining knowledge of how to work online. This illustrates how much Polish society needs further training with the use of ICT tools and what form of further training will be preferred in extreme conditions, but not only. The prolonged situation may cause that part of the society will learn to learn online, or will simply prefer to learn online.

Nevertheless, there are also some limitations concerning e-learning like the need for start-up funding, adequate time organizational preparedness, student readiness, differing stages of team development, crisis management, faculty learning curve, members with limited language skills, technical support, team effort, synchronous- or asynchronous-classroom contexts, costs, accessibility to course materials, delayed feedback, and evaluation and assessment<sup>301</sup>. As reported by S. Kuruliszwili e-learning is the form of learning with the highest dropout rates. It is caused by motivation decline and insufficient self-education skills and habit<sup>302</sup>. M. Ślusarczyk and M. Grabania came to similar conclusions. They stated that e-learning is associated with additional, quite often high cost, and a vast number of participants do not finish the course. Reasons might be connected with limited ICT skills, low quality and superficiality of the course. What is more, the atomization of knowledge may result in losing the context and emerging gaps in knowledge. Because of limited creditability in e-learning, there is a risk of facing a false expert<sup>303</sup>. The most significant disadvantages of e-learning come from the lack of personal contact, especially during technical failure. Preparing educational materials is time-consuming, besides they can be insufficient for a particular learner. Students have a more casual attitude for e-learning than for a traditional form of education. Finally, there is a

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<sup>301</sup> Appana S. (2008): *A Review of Benefits and Limitations of Online Learning in the Context of the Student, the Instructor, and the Tenured Faculty*. International Journal on E-learning Vol. 7 No. 1, pp. 5-22.

<sup>302</sup> Kuruliszwili S. (2016): *Technologie informacyjne a andragogika – edukacyjne wyzwania współczesności*. Instytut Rozwoju Służb Społecznych, Warszawa, p. 122.

<sup>303</sup> Ślusarczyk M., Grabania M. (2017): *E-learning współczesnym narzędziem nauczania*. Szybkobieźne Pojazdy Gąsienicowe. Vol. 46, No. 4, pp. 33-40.

risk of cheating the teacher by the student (e. g. by substituting another person, dishonest pass the assigned work, etc.)<sup>304</sup> and e-learning form of education increases a sense of remote feeling, isolation when learners are not active and may lead to piracy and plagiarism<sup>305</sup>.

To summarize, e-learning is being transformed due to the development of new media which make e-learning more and more attractive. As the Information Society needs to learn and upskill during the whole life, e-learning creates an opportunity, especially for adults, to gain knowledge and skills without wasting time and neglecting personal life. What is more, the newest technology and methodology encourages us to learn in a simple and pleasant way. From the author's point of view, inconveniences concerning e-learning can be narrowed by live meetings online and practicing deadlines.

#### **1.4. The Learning Society.**

The concept of the Learning Society emerged in the 1960s and 1970s with R. Hutchins who saw it as a society when everybody would have the opportunity to learn and develop themselves through part-time education, and T. Husen, who thought that such a society was possible as the computer revolution would make it possible for everyone to receive information and learn. E. Faure viewed it as a strategy to involve society as a whole as a participant and actor in education<sup>306</sup>. P. Jarvis defines the learning society as: “one in which the majority of social institutions make provision for individuals to acquire knowledge, skills, attitudes, values, emotions, beliefs and senses within global society”<sup>307</sup>.

The progress of humanity understood as economic prosperity, social well-being, personal fulfilment, and ensuring a sustainable planet, is possible due to learning. It is commonly known that learning is going to be more and more important to every person

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<sup>304</sup> Włodarczyk K. (2015): *E-learning jako element lifelong-learning. Przykład społeczeństwa polskiego*. Zeszyty Naukowe Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania Vol. 3, No. 39, pp. 397-409.

<sup>305</sup> Thanji M., Vasantha S. (2018): *A Study of Benefits and Limitations of eLearning- A Learner's Perspective*. International Journal of Pure and Applied Mathematics Vol. 118, No. 5, pp. 175-184.

<sup>306</sup> Faure E. et al (1972): *Learning to Be: The World of Education Today and Tomorrow, Report of the Edgar Faure Commission*. UNESCO, Paris.

<sup>307</sup> Jarvis P. (2007): *Globalization, Lifelong Learning and the Learning Society: Sociological Perspectives*. Lifelong Learning and the Learning Society Volume 2. Routledge Taylor and Francis Group, London and New York, p. 100.

across the globe. For this reason, it is vital to reengineer the whole learning approach. In accordance with CISCO<sup>308</sup>, traditional schools and universities will still play a vital role in education, however in a relatively smaller proportion. In its opinion “Learning needs to be organized on a different set of principles requiring a new learning system, one that is characterized by new ways of organizing learning, new forms of assessment and credentialing, different models of investment and funding, and a fit-for-purpose infrastructure. We call this the Learning Society”.<sup>309</sup>

The Learning Society is a society which is self-conscious about education in its lifelong meaning. In that sense, the Learning Society is not only aware of the educational significance of its institutions potential but also of the social environment which shapes life by optimizing resources to the maximum. Here, education stays derived from state institutions and becomes a component of everyday human life. In the Learning Society, an individual has freedom of a range and mode of learning<sup>310</sup>.

Nowadays, globalization and new patterns of working and living call for specialists, who are not only knowledgeable but also have a set of the 21<sup>st</sup>-century skills described precisely later. All societies need to be economically active throughout their lives. It means that a renewed and repurposed investment in the earliest years of learning is as important as a lifelong learning infrastructure. Lifelong learning is strongly enabled by new technologies which improve access, intensify and spread the process of knowledge creation, enable the creation of communities of connected learners of all ages regardless of geography.

How people learn nowadays, and how has the process of learning changed? Above all, effective learning is based on the learner's prior knowledge regardless of its accurateness, and students learn from themselves through dialogue, interaction, experimentation, and risk-taking in safe environments. Motivation and emotional aspects are critical determinants of effective learning. There are multiple ways of learning leading to the achievement of the goals as different learners prefer different kinds of gaining

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<sup>308</sup> Cisco Systems, Inc. is an American multinational technology conglomerate headquartered in San Jose, California, in the center of Silicon Valley, that develops, manufactures and sells networking hardware, telecommunications equipment and other high-technology services and products. Through its numerous acquired subsidiaries, such as OpenDNS, WebEx, Jabber and Jasper, Cisco specializes into specific tech markets, such as Internet of Things (IoT), domain security and energy management.

<sup>309</sup> Cisco Systems (2010): *The Learning Society*. Cisco Public Information, p. iii, [https://www.cisco.com/c/dam/en\\_us/about/citizenship/socio-economic/docs/LearningSociety\\_WhitePaper.pdf](https://www.cisco.com/c/dam/en_us/about/citizenship/socio-economic/docs/LearningSociety_WhitePaper.pdf) (visited 28th March 2018)

<sup>310</sup> Maniak G. (2015): *Kształcenie przez całe życie – idea i realizacja. Polska na tle unii europejskiej*. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, nr 214. [https://www.ue.katowice.pl/fileadmin/\\_migrated/content\\_uploads/10\\_12.pdf](https://www.ue.katowice.pl/fileadmin/_migrated/content_uploads/10_12.pdf) (visited 10th May 2019).

knowledge which should be integrated whole, not divided into different subjects, consisting of a myriad of facts, problems, dimensions, and perceptions. To fulfil the demands of the new society and realize the learning potential of every part of society and every part of the globe, Cisco designed a set of principles. The Learning Society engenders a culture of learning throughout life, aims to develop motivated, engaged learners who are prepared to conquer the unforeseen challenges of tomorrow as well as those of today, takes learning to the learner, seeing learning as an activity, not a place, believes that learning is for all, that no one should be excluded, recognizes that people learn differently, and strives to meet those needs, cultivates and embraces new learning providers, from the public, private, and NGO sectors, develops new relationships and new networks between learners, providers, funders, and innovators, provides the universal infrastructure they need to succeed—still physical but increasingly virtual, supports systems of continuous innovation and feedback to develop knowledge of what works in which circumstances.

In 1995 C. Hughes and M. Tight suggested that the learning society is a myth as nothing like a learning society actually exists and neither is there a prospect of one emerging in the foreseeable future<sup>311</sup>. A year later J. Delors called the Learning Society “the necessary Utopia”<sup>312</sup>, and we heard from Europe's *White Paper on Education and Training* that “the learning society will not come about overnight. It cannot come about by declaration. It has to emerge from an outgoing process”<sup>313</sup>. UNESCO, OECD as well as national governments, has been taking steps to improve learning policies for several decades. They set up goals for the next years. Are we already the Learning Society, the Learning Society characterized by P. Jarvis as “a society in which people are enabled, even encouraged, to learn, but they have to take responsibility for that learning; it is the individuals who learn and not the society, and that society may be changed, even transformed, as a result of the learning of members of its population.”<sup>314</sup>? A. Popescu answers the question in that way: “although the necessity for a learning society was recognized by most developed countries as a policy agenda, it seems that the learning

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<sup>311</sup> Hughes C., Tight M. (1995): *The myth of the Learning Society*. British Journal of Educational Studies. Vol. 43, No. 3, pp. 290-304.

<sup>312</sup> Delors J. (1996): *Learning: the treasure within; report to UNESCO of the International Commission on Education for the Twenty-first Century*. UNESCO Publishing.

<sup>313</sup> European Union (1996): *White Paper on Education and Training. Towards the Learning Society*. [http://europa.eu/documents/comm/white\\_papers/pdf/com95\\_590\\_en.pdf](http://europa.eu/documents/comm/white_papers/pdf/com95_590_en.pdf) (visited 11th February 2019).

<sup>314</sup> Jarvis P. (2007): *Globalization, Lifelong Learning and the Learning Society: Sociological Perspectives . Lifelong Learning and the Learning Society Volume 2*. Routledge Taylor and Frnacis Group, London and New York, p. 100.

society is not adopted by individuals in itself”<sup>315</sup>. That means we are still under construction. P. Jarvis claims that „it is not a society which is learning, it is the changing structures and situations within which we live that cause us all to learn”<sup>316</sup> and the case of the COVID-19 pandemic is the best example of that.

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<sup>315</sup> Popescu A. (2011): *The Learning Society as a Key for Development*. Proceedings of Administration and Public Management International Conference “State Reform: Public Administration and Regional Development”.

<sup>316</sup> Jarvis P. (2007): *Globalization, Lifelong Learning and the Learning Society: Sociological Perspectives . Lifelong Learning and the Learning Society Volume 2*. Routledge Taylor and Frnacis Group, London and New York, p. 106.

*“Adult education must not be regarded as a luxury for a few exceptional persons here and there, nor as a thing which concerns only a short span or early adulthood, but it is a permanent national necessity, an inseparable aspect of citizenship, and therefore should be both universal and lifelong”.*

British Adult Education Committee  
of the Ministry of Reconstruction 1919: 5<sup>317</sup>.

## **2. Information Society as the environment stimulating the vocational development**

The arrival of the post-industrial age changed economic and social organization. Information and technological development made more and more professions no longer needed, but new professions emerged. The thing is that soft skills tend to be at least as important as hard skills. New millennium meant new learning challenges, and now, twenty years later, these challenges evaluate. The author is going to present different frameworks of 21st Century Skills during the last two decades and trends for the future. The chapter also discusses learning demands and opportunities of the Information Society and explains why learning through the whole life is so significant. As it was said earlier, post-industrial age changed the economy and put information as a social good in the centre. The author is going to bring closer foundations and evaluation of Wikinomics as a mass and spontaneous cooperation and its significance for e-learning and lifelong learning. As nothing is perfect, the critique of Wikinomics is also going to be discussed. By the reason that Wikinomics is based on exchanging knowledge, the author raises the issue of Knowledge Management which is concerned with knowledge sharing, transfer of knowledge, diffusion of knowledge and knowledge creation and presents theories of sharing knowledge.

In the next step, the author is going to present the lifelong learning idea with its historical background, which is strictly connected with vocational training and adult

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<sup>317</sup> Jarvis P. (2009): *The Routledge International Handbook of Lifelong Learning*. Routledge, London and New York, p.16.

education. Finally, non-formal and informal education are going to be discussed. The author is going to make a comparison between these two kinds of learning and explain activities included in each form of learning. All these issues are aimed to show the significance of informal learning for lifelong learning.

## 2.1. The 21<sup>st</sup>-century skills

Already before 2000, it was noticed that globalisation and great innovations in technology had been affecting the lives of individuals as well as societies. People's competencies cannot be reduced to their vocational skills but they have to include social relations, personal development and cultural and human values as the internationalisation of work is leading to greater integration of labour markets across national boundaries and this has strong implications for economic, social and cultural identities. On the one hand, global competition, communication networks, rapid investment flows and technological innovations had brought success to some enterprises. On the other hand, inequalities had widened, and poverty persisted in vast segments of society. Intensifying competition around the world brought a new level of insecurity where people were dissatisfied because of lack of jobs, poor salaries, growing disparities and increasing costs of basic social services. In order to avoid the future scenario of millions of people moving from one part of the globe to another, from one continent to another and within countries, to find food and work opportunities, UNESCO developed *Adult learning and challenges of the 21<sup>st</sup> century* and took action including the following issues: 1. democracy and cultural citizenship, 2. the quality of adult learning, 3. literacy and basic education, 4. empowerment of women, 5. world of work, 6. environment, health, population, 7. media, culture, 8. economics of adult learning, 9. international cooperation<sup>318</sup>.

D. Bourn, C. Dede and S. Z. Salas-Pilco compared common interpretations of the 21<sup>st</sup>-century skills in order to find their essence. Do the 21<sup>st</sup>-century skills mean the same for all? C. Dede observed that much educational reform failed because people use the same definitions, but mean different things<sup>319</sup>.

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<sup>318</sup> UNESCO (1999): *Adult learning and the challenges of the 21st century: a series of 29 booklets documenting workshops held at the Fifth International Conference on Adult Education*. Hamburg.

<sup>319</sup> Dede C. (2010): *Comparing Frameworks for 21st Century Skills*. [in:] Bellanca J., Brandt R. (eds): „21st Century Skills: Rethinking How Students Learn”. Solution Tree Press, p. 1.

S. Z. Salas-Pilco analyses lists of the 21<sup>st</sup>-century skills chronologically. She starts from an initial framework prepared by OECD entitled *Definition and Selection of Competencies: Theoretical and conceptual foundations* (DeSeCo). DeSeCo identified three broad categories:

- using tools interactively (use language, symbols and text interactively, use knowledge and information interactively, use technology interactively),
- interacting in heterogeneous groups (relate well to others, cooperate, manage and resolve conflicts),
- acting autonomously (act within the big picture, which means to understand and consider the wider context of their decisions and actions, form and conduct life plans and personal projects, assert rights, interests, limits and needs).

In the next step, she goes through the National Educational Technology Standards for Students, NCREL and Metiri Group, Key competencies in Europe by European Community, Partnership for 21<sup>st</sup>-century skills, Framework based on the organization for economic cooperation and development countries, Summarized framework by Trilling and Fadel, Assessment and teaching of 21<sup>st</sup>-century skills (ATCS), 21st-century competencies by Hewlett Packard and the 21<sup>st</sup>-century competencies by the government of Singapore. She concluded that the most frequently mentioned competencies were: communication and collaboration, citizenship and social responsibility, information and research skills, and digital literacies<sup>320</sup>.

After comparing different points of view, we could say that 21<sup>st</sup>-century skills are skills for post-industrial and knowledge-based societies. What is more, there are differences in perceiving 21st century skills by Americans and Europeans. In North America, the expression “21<sup>st</sup>-century skills” referred to all aspects of education, training and learning and was seen as a way of emphasising more general skills. In Europe, although changing skills needs were recognised, policymakers still tended to focus discussions on technical and vocational skills with a direct link to employment.

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<sup>320</sup> Salas-Pilco S. Z. (2013): *Evolution of the framework for 21st century competencies*. Knowledge Management & E-Learning: An International Journal, Vo. 5, No. 1, pp. 10- 24.

General categories		Communication & Citizenship & social Information, skills & Digital literacies	Creativity & innovation	Critical thinking	Sociocultural sensitivity	Autonomy & leadership	Learning to learn & Productivity	Entrepreneurship	Life & career	Math & Science
Framework										
1.	DeSeCo/OECD 1997-2003	✓	✓	✓	✓				✓	
2.	NETS-S/ISTE 1998-2007	✓	✓	✓	✓	✓				
3.	NCREL & Metiri Group 2003	✓		✓	✓			✓		
4.	European Community 2006	✓	✓		✓		✓	✓		✓
5.& 6.	P21, 2007 & Trilling and Fadel, 2009	✓	✓	✓	✓	✓	✓	✓	✓	
7.	OECD countries 2009	✓	✓	✓						
8.	ATCS 2010	✓	✓	✓	✓	✓	✓	✓		✓
9.	Hewlett Packard 2010	✓	✓	✓	✓	✓	✓	✓	✓	
10.	21st Century Competencies	✓	✓	✓		✓	✓	✓		

Figure 4. Comparison among frameworks according to general categories. S. Z. Salas-Pilsco (2013).

Purely American view is presented by Partnership for 21<sup>st</sup>-Century Skills. It is an organization which serves as a catalyst for 21<sup>st</sup>-century learning by building collaborative partnerships among education, business, community, and government leaders so that all learners acquire the knowledge and skills they need to thrive in a world where change is constant, and learning never stops<sup>321</sup>. The Partnership developed a unified, collective vision for learning known as the Framework for 21<sup>st</sup>-Century Learning. It describes the skills, knowledge and expertise students must master to succeed in work and life; it is a blend of content knowledge, specific skills, expertise and literacies. Initiatives for the 21<sup>st</sup> century contain:

- the key subjects (English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics),

<sup>321</sup> [www-12] Partnership for 21st Century Skills: <http://www.p21.org/about-us/our-mission> (visited 5 April 2018).

- learning and innovation skills (creativity and innovation, critical thinking and problem solving, communication and collaboration),
- life and career skills (flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility),
- information, media and technology skills (information literacy, media literacy, ICT literacy)<sup>322</sup>.

The American Management Association states that 50 years ago, it was enough to master the “Three Rs” (reading, writing, and arithmetic). Today if students want to compete in this global society, they must also be proficient in the “four Cs” known as communication, creation, critical thinking, and collaboration<sup>323</sup>. B. Trilling and C. Fadel extended them to even “seven Cs”: Critical Thinking and Problem-solving, Creativity and Innovation, Collaboration, Teamwork and Leadership, Cross-cultural Understanding, Communication and Media Fluency, Computing and ICT Fluency, Career and Learning Self-reliance, and three “R” skills referring to Reading, wRiting and aRithmetic<sup>324</sup>.

In 2008, three large technology corporations (Cisco, Intel and Microsoft) became concerned about the skills of students graduating from school and university because graduates were entering the workforce with skills that did not prepare them for employment in a digital age. The companies diagnosed an urgency focus on 21<sup>st</sup>-century skills because of changing workplace requirements<sup>325</sup>. They work together on a project called ATC21S<sup>326</sup>. ATC21S defines ten 21st-century skills into four broad categories. These have been grouped under the acronym KSAVE: knowledge, skills, attitudes, values and ethics. In P. Griffin and E. Care's view “the KSAVE model was treated as an overarching framework within which the skills and developing requirements of the twenty first century were considered by the five white paper writing teams. Raizen’s team focused on four broad categories of skills: ways of thinking (creativity, critical thinking,

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<sup>322</sup> Partnership for 21st Century Skills (2015): *P21 Framework Definitions*.

[http://www.p21.org/storage/documents/docs/P21\\_Framework\\_Definitions\\_New\\_Logo\\_2015.pdf](http://www.p21.org/storage/documents/docs/P21_Framework_Definitions_New_Logo_2015.pdf) (visited 9 July 2017).

<sup>323</sup> NEA: *Preparing 21st Century Students for a Global Society. An Educator’s Guide to the “Four Cs”*. National Education Association, p. 5.

<sup>324</sup> Trilling, B., Fadel, C. (2009): *21st century skills: Learning for life in our times*. CA: Jossey-Bass, San Francisco, p. 175-177.

<sup>325</sup> Griffin P., Care E. (eds.) (2015): *Assessment and Teaching of 21st Century Skills Methods and Approach*. Springer.

<sup>326</sup> ATC21S stands for Assessment and Teaching of 21st Century Skills. It is a project of Cisco Systems Inc., Intel Corporation and Microsoft Corp. focused on defining those skills and developing ways to measure them in order to Transform Education for the 21st Century.

problem-solving, decision-making, learning and innovation), ways of working (communication and collaboration), tools for working (information and communications technology and information literacy), living in the world (citizenship, life and career, and personal and social responsibility)<sup>327</sup>.

OECD, which is an international organisation including North America and Europe, defines skills and competences of 21st century in such a way: “those skills and competencies young people will be required to have in order to be effective workers and citizens in the knowledge society of the 21st century”<sup>328</sup>. Presented by OECD framework for 21<sup>st</sup>-century skills is thought of three dimensions: information, communication, ethics and social impact, and they all are divided into sub-dimensions.

<b>dimension</b>	<b>sub-dimensions</b>	<b>skills</b>
information	Information as a source: selecting, evaluating and organising information	<ul style="list-style-type: none"> <li>• information literacy</li> <li>• research and inquiry</li> <li>• media literacy</li> </ul>
	Information as a product: the restructuring and modelling of information and the development of ideas (knowledge)	<ul style="list-style-type: none"> <li>• creativity and innovation</li> <li>• problem solving</li> <li>• decision making</li> </ul>
communication	Effective communication	<ul style="list-style-type: none"> <li>• Information and media literacy</li> <li>• critical thinking</li> <li>• communication</li> </ul>
	Collaboration and virtual interaction	<ul style="list-style-type: none"> <li>• collaboration/team working</li> <li>• flexibility</li> <li>• adaptability</li> </ul>
Ethics and social impact	Social responsibility	<ul style="list-style-type: none"> <li>• critical thinking</li> <li>• responsibility</li> <li>• decision making</li> </ul>
	Social impact	<ul style="list-style-type: none"> <li>• digital citizenship</li> </ul>

Table 2. The 21st Century Skills, according to OECD. Source: OECD (2009): 21st century skills and competences for new millennium learners in OECD countries. Directorate for Education. Working paper no 41, p. 8.

<sup>327</sup>Griffin P., Care E. (eds.) (2015): *Assessment and Teaching of 21st Century Skills Methods and Approach*. Springer, p. 7.

<sup>328</sup>OECD (2009): *21st century skills and competences for new millennium learners in OECD countries*. Directorate for Education. Working paper no 41, p. 8.

Broadband Commission for Sustainable Development enumerates three kinds of skills required for digital society and economy: basic functional digital skills connected with accessing and engaging with digital technologies, generic digital skills associated with using digital technologies in meaningful and beneficial ways and higher-level skills referred to using digital technology in empowering and transformative ways.

Basic functional skills are elementary skills enabling individuals to begin to use digital technologies by operating devices, connecting to the internet, setting up accounts and profiles, accessing information and resources. Such skills require a range of psychomotor skills such as the manual dexterity required to use keypads, and the gestural skills required to operate touch-screen technologies. There is also growing importance of visual literacy, defined as the ability to make sense of and respond to visual cues and representations embedded in software and applications, as well as content created by other users. We need to be aware of the fact that these basic skills and competencies are continually changing very fast.

Generic digital skills are seen as intermediate skills and competences required to make use of digital technologies in beneficial ways. This kind of skills influences the basis of national plans and strategies for 'digital skills' and 'digital strategies'. In other words, they are the basis of most users' everyday engagements with digital technologies.

Higher-level skills include advanced skills that form the basis of specialist ICT occupations and professions. These jobs require skills that result from advanced education and training, as well as extensive self-tuition and practical experience. These are high-level technical skills that are not developed through everyday technology use: in programming languages, data analysis, processing and modelling skills, and so on<sup>329</sup>.

Australian researchers S. Lamb, Q. Maire, E. Doecke prepared Future Frontiers Analytical Report where they state that as technology reduces the need for workers to complete routine, manual tasks there will increased focus on people solving more strategic problems and thinking creatively<sup>330</sup>. They presented 21<sup>st</sup>-century skills in the following order:

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<sup>329</sup> The Broadband Commission for Sustainable Development (2017): *Working Group on Education: Digital skills for life and work*. <http://broadbandcommission.org/Documents/publications/WG-Education-Report2017.pdf> (visited 29 March 2018).

<sup>330</sup> Lamb S., Maire Q., Doecke E. (2017): *Key Skills for the 21st Century: an evidence-based review*. State of New South Wales Department of Education.

<b>1. critical thinking</b>
It refers to the ability to assess the value of a claim or information and come to a conclusion about what to believe or to do about it. It entails a judgement or evaluation for analysing claims, arguments and evidence and for making inferences using deductive and inductive reasoning to solve a problem or make a decision.
<b>2. creativity</b>
A skill sitting at the intersection between the individual and society. Creative skills can be restricted to specific social contexts.
<b>3. metacognition</b>
A complex skill comprising both cognitive self-knowledge and active cognitive self-monitoring.
<b>4. problem solving</b>
Traditionally it is seen as having three main components involving: the selection of strategies to solve a given problem, the application of strategies to this problem, and the monitoring of the strategies used to solve the problem.
<b>5. collaboration</b>
It is conceived as a social skill, alongside assertiveness, responsibility and empathy.
<b>6. motivation</b>
The impetus to engage in purposive behaviour. It is shaped by the perception of self and the task or problem at hand.
<b>7. self-efficacy</b>
A belief in one's own ability to do or complete something and can be expressed with the statement 'I can do it'.
<b>8. conscientiousness</b>
A diligent behaviour based on self-control and application to a given problem, task or activity.
<b>9. grit or perseverance</b>
Grit can be defined as commitment and perseverance in learning tasks and activities (long-term goals) despite difficulties or obstacles. Perseverance can be conceptualised as a dimension of conscientiousness.

Table 3. 21st Century Skills based on Lamb S., Maire Q., Doecke E. (2017).

We reached the year 2020. The World Economic Forum is talking about the Fourth Industrial Revolution, which represents a fundamental change in the way people live, work, and relate to one another. It is the world, influenced by technology, in which devices start to communicate with a human in an intelligent way<sup>331</sup>. Its concept is a transformation from mass production to small, individualized products, internet diagnosis and intelligent service<sup>332</sup>. The set of current jobs and competences is going to evaluate and change in order to meet the demands of the modern world. According to the Insight Report *The Future of Jobs Report 2018* four specific technological advances: ubiquitous high-speed mobile internet, artificial intelligence, widespread adoption of big data analytics, and cloud technology are set to dominate the 2018–2022 period as drivers positively affecting business growth. It is predicted that across all industries, by 2022, the cluster of emerging professions is set to increase its share of employment from 16% to 27% of the total employee base, whereas the employment share of declining roles is set to decrease from currently 31% to 21%. While some professions become redundant (routine-based, middle-skilled white-collar roles), people need to re-skill or up-skill to take into account a new set of skills and professions. World Economic Forum analysed future job trends and proposed a set of new skills of the 21st century<sup>333</sup>.

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Analytical thinking and innovation	Manual dexterity, endurance and precision
Complex problem-solving	Active learning and learning strategies	Memory, verbal, auditory and spatial abilities
Critical thinking and analysis	Creativity, originality and initiative	Management of financial, material resources
Active learning and learning strategies	Technology design and programming	Technology installation and maintenance
Creativity, originality and initiative	Critical thinking and analysis	Reading, writing, math and active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership and social influence	Quality control and safety awareness
Reasoning, problem-solving and ideation	Emotional intelligence	Coordination and time management
Leadership and social influence	Reasoning, problem-solving and ideation	Visual, auditory and speech abilities
Coordination and time management	Systems analysis and evaluation	Technology use, monitoring and control

Table 4. Comparing the top 10 skills demand 2018 vs 2022. Source: World Economic Forum (2018)

<sup>331</sup> Gałuszka D., Ptaszek G., Żuchowska-Skiba D. (2016): *Technologiczno-społeczne oblicza XXI wieku*. Libron, Kraków, p. 15.

<sup>332</sup> Mamak-Zdanecka M. (2016): *Kompetencje cyfrowe w warunkach czwartej rewolucji przemysłowej*. [in:] Gałuszka D., Ptaszek G., Żuchowska-Skiba D. (eds): *Technologiczno-społeczne oblicza XXI wieku*. Libron, Kraków, p. 257-259.

<sup>333</sup> World Economic Forum (2018): *The Future of Jobs Report*. Centre for the New Economy and Society. [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs\\_2018.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf) (visited 25 February 2019).

The conclusion is that “the evolution and changes of the framework across time show the tendency of moving from core competencies to a broader range where some competencies are mentioned explicitly to highlight more actual needs”<sup>334</sup>. As time is passing the list of the 21<sup>st</sup>-century skills will always be changing, and even the most desired and modern profession will need improvement leading to specialization. That is why soft skills are so significant. They enable humans to update their knowledge and to learn new skills and literacies, and to adapt to changing work market and conditions. In order to elaborate that statement, the author will use a teaching profession as an example. Graduation from the university is the beginning of teacher education, not the end. New technology and new competences coming to school force the staff to learn new skills. It is a teacher who has to learn first to teach students. Moreover, the development of new methods of teaching and support led to different specializations like coaching or distance/remote education.

M. Mamak-Zdanecka observed Polish market and assumed that it is going to be personnel reduction among office and administration workers. New jobs, however, are going to demand advanced ICT skills. Lack of fluent ICT skills may result in personal and professional development constraint. Media literacy which is not developed constantly is not going to be sufficient, in consequence, it can lead to secondary social stratification<sup>335</sup>. M. Szpunar considers the digital division of society in two aspects: inequality in access (so-called digital divide) and incapacity of using the global web. She indicates the presence of the digital divide on a macro scale (between countries) and a micro scale (between the country's regions). Poland remains an adequate example of that phenomenon. Polish society is called the three-speed society where the following classes are found: farming (with culture and peasant's mentality, industrialised in a low level), industrial sector, and post-industrial and information sector<sup>336</sup>.

Although the industry can reduce the cost of technology (hardware and software) and the school can teach new technologies, the gap will still remain because of the time needed to fill it. The process of evolution and ageing of technology is so fast that not many people are able to follow it abreast. According to U. Eco's vision of society, it is

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<sup>334</sup> Salas-Pilsco S. Z. (2013): *Evolution of the framework for 21st century competencies*. Knowledge Management & E-Learning: An International Journal, Vo. 5, No. 1, p. 21.

<sup>335</sup> Mamak-Zdanecka M. (2016): *Kompetencje cyfrowe w warunkach czwartej rewolucji przemysłowej*. [in:] Gałuszka D., Ptaszek G., Żuchowska-Skiba D. (eds): *Technologiczno-społeczne oblicza XXI wieku*. Libron, Kraków, p. 265-268.

<sup>336</sup> Szpunar M. (2005): *Cyfrowy podział - nowa forma stratyfikacji społecznej*. [in:] Kleban J., Wiczerzycki W. (eds) *Era społeczeństwa informacyjnego. Wyzwania, szanse, zagrożenia*, Poznań, pp. 97-107.

going to be formed into three classes: at the lowest level, a class of proletarians who do not have access to computers and depend entirely on audiovisual communication, on the secondary level, the petty bourgeoisie who can use the computer passively, and the nomenclature which knows how to use the computer to perform analyses, how programs work, how to distinguish valuable information from those that do not contribute anything<sup>337</sup>.

The most significant factor influencing the stratification of society is people's attitude towards technological changes. Approval, indifference or resistance to them can become an important determinant of a place in the new social ladder. Democratic societies may hinder the development of the information society as democracy requirements (including politicians' need to seek for the votes), may mean delaying or even failing to change the interests of certain groups. We cannot forget about factors independent of the individual, affecting one's place on the social ladder: a place of living, the financial cost of the newest technology, age and psychological factors<sup>338</sup>. Many digital divides have motivation problems. They are not only 'have-nots' but also 'want-nots'<sup>339</sup>. They bring forth harm critical areas such as educational advantages, future employment and earnings, opportunities for social and civic involvement, and equity and civil rights issues. The lack of a solution to this problem can lead to long-term social, political, and economic cost to all. For instance, in America, the Internet is an important part of health care, and minorities are becoming a well-educated and skilled majority of the population which means that Americans are afraid of their economic health and competitiveness in the world<sup>340</sup>.

Probable consequences of social stratification might endanger the dynamics of development of different economies, and that may interfere positive trends of development of the world as the unity. Too low level of stratification of society signals exaggerated activity of the state concerning the elimination of stratification, which may result in dying out of competitiveness and consequently affect the development

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<sup>337</sup> Eco U. (2002): *Nowe środki masowego przekazu a przyszłość książki*. [in:] Hopfinger M.: *Nowe media w komunikacji społecznej XX wieku*. Oficyna Naukowa, Warszawa, pp. 527-528.

<sup>338</sup> Bulik J. (2011): *Podział klasowy Społeczeństwa Informacyjnego*. *Zagadnienia Informatyki Naukowej* No 1, pp. 3-19.

<sup>339</sup> Van Dijk J. (2006): *Digital divide research, achievements and shortcomings*. *Poetics* Vol. 34, Issues 4-5, pp. 221-235.

<sup>340</sup> Boone M., La Velle Hendricks M., Waller R. (2014): *Closing the Digital Divide and its Impact on Minorities*. *The Global E-Learning Journal*, Vol. 3, Issue 1.

possibilities of a given society. On the other hand, a too high level is going to lead to political and social instability, poverty generation and exclusion<sup>341</sup>.

All in all, acquiring and updating 21<sup>st</sup>-century skills, other words lifelong learning, will guarantee a better position on a social ladder. Media literacy, which is one of the most important skill, provides access to the public sphere and information. Permanent improving skills and qualification will help to avoid social exclusion, poverty and insecurity. It will increase our competitiveness and give opportunities to find a new or better job. Although different reasons for digital divide (socioeconomic status, class background, gender, age, ethnicity, levels of education, geographical location and cultural capital) individuals have opportunities to upskill and update knowledge by chances made by governments and organizations. The author's idea to design a crowd-learning platform in a native language is going to make lifelong learning more common among Polish society, more flexible and available for everyone.

## **2.2. Wikinomics and its significance for e-learning**

In 2004 Web 2.0 started<sup>342</sup>. It was the time when a static portal as a popular format of the web had finished, and a form of an interactive platform appeared. The term Web 2.0 was coined to distinguish this new web from the old one, named then Web 1.0. At the beginning of Web 1.0, the roles of producers and consumers were clearly determined. A small number of paid writers created web pages for a large number of readers; however, Web 2.0 made consumers not-so-silent partners, they have a new role- participation. From that moment, they can not only read a web but use a platform. Anyone who can type and has access to the web can participate as a writer, a producer, a seller, a buyer or as a gangster. Among the Web 2.0 services, individual knowledge emerged, cross-linked and networked, thus resulting in ever-new possibilities<sup>343</sup>.

Shortly, New Web means community, participation, and partnership. This new global co-operation is called Wikinomics. According to Cambridge Business English Dictionary Wikinomics is “a description of the way the relationship between businesses and markets

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<sup>341</sup> Krzyminiweska G. (2013): *Nierówności a rozwój społeczny świata*. Studia Ekonomiczne No. 139, pp. 50-59.

<sup>342</sup> All Web technologies were discussed in chapter 1.3.1.

<sup>343</sup> Grinnel C. K. (2009): *From Consumer to Prosumer to Producer: Who Keeps Shifting My Paradigm? (We Do!)*. „Public Culture”, Vol 21 (3), pp. 577- 598.

has changed because of a much greater involvement of customers and users directly with products or companies. This is a combination of the words *wiki* and *economics*”<sup>344</sup>. D. Pieter writes about Wikinomics as “the new economy as a result of this new and unprecedented sharing desire. It is the economy of the committed individual, who is the main driving force behind his own development”<sup>345</sup>. Conforming to the authors of “The Wikinomics Playbook: Mass Collaboration in Action” Wikinomics is not a technology, but it is a permission setting. Everyone can edit. There are many reasons why companies should use Wikinomics. Wiki combines the talents of experts, retired CEOs, tinkering genius amateurs, obsessive overachieving bloggers, crowd-sourced investigators, hardcore Web users, physically distant scholars, and articulate early adapters to solve a problem or build a public access treasury of information. It improves collaboration within and beyond corporate boundaries and firewalls and across time-zones. Wikis make the opportunity for unanticipated users to contribute those who are normally regarded as the subject matter experts. Not only certain so-called qualified people can participate in particular work tasks but unanticipated players too. They can bring in unexpected perspectives, ideas, and connect different knowledge points together. Moreover, a wiki workplace provides tremendous flexibility of the participant’s time management which is a complete necessity in the present-day world. For the reason that people can contribute to problem-solving, solutions can be created through a process of co-creation. As a consequence of co-creating, a vision or a solution, the necessity of facilitating “buy-in” can be removed as there is no need for people to “buy-in” to something that they helped shape, form and create<sup>346</sup>.

The first innovators connected with the idea of Wikinomics were entrepreneurs who opened their secret business data, and they used the wisdom of the crowd to expand their economic activity: Rob McEwen, the general manager of Goldcorp Inc., A.G. Lafley the general manager of Procter & Gamble shared their companies' database and invited people to present their ideas and propositions of solution. It was shocking and risky in those days, however, it did work. As it was written by D. E. Kalisz „The wisdom of crowd theory suggests that a collective can solve a problem better than most of the members in

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<sup>344</sup>Cambridge Business English Dictionary <https://dictionary.cambridge.org/dictionary/english/wikinomics> (visited 25 April 2018).

<sup>345</sup>Pieter D. (2010): *Wikinomia, czyli rewolucja nowej gospodarki wiedzą i innowacją*. „Chowanna”, No. 2, p. 177.

<sup>346</sup>Ariyur K. Azpura- Linares F., Bekel J. et al. (2008): *The Wikinomics Playbook: Mass Collaboration in Action*. Creative Commons: Attribution Non-Commercial Share-Alike, p. 7. <http://www.wikinomics.com/the-wikinomics-playbook-2008.pdf> (visited 26th April 2018).

a group can by acting alone”<sup>347</sup>. People began to create web content, share their ideas, modify the content, enjoy, earn and learn. According to Tapscott and Williams, the central concepts of Wikinomics include:

- Openness, which provides for not only open standards and content but also financial transparency and an open attitude towards external ideas and resources;
- Peering, which replaces hierarchical models with a more collaborative forum. Tapscott and Williams cite the development of Linux as the "quintessential example of peering”;
- Sharing, which is a less proprietary approach to (among other things) products, intellectual property, bandwidth, scientific knowledge;
- Acting globally, which involves embracing globalization and ignoring "physical and geographical boundaries" at both the corporate and individual level<sup>348</sup>.

Wikinomics can contribute to education as everyone has something to teach, something unique based on one's experience. Ariyur K. Azpura-Linares et al. emphasise there are no limits regarding the number of students and teachers. Knowledge is created through interaction, discussion and exchanging information when students play the role of a teacher. Teachers have the opportunity to create and share teaching resources around the world, pick and choose what they exactly need. Their role is changing from instructors to facilitators, and peer-to-peer learning is more frequent. Collaborative learning encourages students to analyse, evaluate, and create. As a result, the learning process is more effective<sup>349</sup>.

Tapscott and Williams write about our society as the New Alexandrians who collect knowledge in a way that was not possible in the times of ancient Greeks, in bits. They are individuals as well as companies and organizations which recognize the power and importance of openness in today's economy. New Alexandrians are building rich collaborative environments and open knowledge infrastructures of all kinds, including open standards, open-content initiatives, open scientific networks, and open research-and-development consortium. Collaborative science is accelerating scientific discovery and

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<sup>347</sup> Kalisz D.E. (2015): *Crowd learning: Innovative harnessing the knowledge and potential of people*, [in:] Tiwari S.R. ed. "Innovative Management Education Pedagogies for Preparing Next- Generation Leaders". IGI Global.

<sup>348</sup> Tapscott D., Williams A.D. (2006): *Wikinomics. How mass cooperation changes everything*. Portfolio, Penguin Group Inc.

<sup>349</sup> Ariyur K. Azpura- Linares F., Bekel J. et al. (2008): *The Wikinomics Playbook: Mass Collaboration in Action*. Creative Commons: Attribution Non-Commercial Share-Alike, p.7. <http://www.wikinomics.com/the-wikinomics-playbook-2008.pdf> (visited 26th April 2018).

learning. Open access publishing, new web services, and collaboration on a great scale make unlimited opportunities for individuals to help solve global civilization problems like AIDS or global warming. As long as people self-organize into large-scale networks, the ability to find, retrieve, sort, evaluate, and filter the wealth of human knowledge is enhanced, and it is going to improve. We witness a new scientific paradigm called the age of collaborative science characterized by:

- ” the rapid diffusion of best-practice techniques and standards;
- the stimulation of new technological hybrids and recombinations;
- the availability of just-in-time expertise and increasingly powerful tools for conducting research; faster positive feedback cycles from public knowledge to private enterprise, enabled by more nimble industry-university networks; and
- increasingly horizontal and distributed models of research and innovation, including greater openness of scientific knowledge, tools, and networks”<sup>350</sup>.

On the contrary, Van Dijck and Nieborg claim that Web 2.0 and Tapscott and William's Wikimonics are manifestos celebrating a perfect match between producers and users, commerce and commons, creativity and consumerism. Manifestos which are in fact idealistic fairy tales. The authors point out that all users are not equally creative and are not created equal by conscripting Forrester survey of American adult online consumers, according to which only 13% are actual creators. The majority of users are those who watch or download content contributed by others. The term „user” can be misleading as it is needed to distinguish active and passive users. Not all users have equal motivations for use either. Van Dijck and Nieborg claim that users look primarily for entertainment and their activity is a communal effort towards a shared cause, very often driven by hierarchization<sup>351</sup>.

Finally, benefits for users are not universal. According to authors, we have to distinguish users of commercially driven online communities and not-for-profit, community-based exchange sites. They also negate the term *co-creation* explaining that most e-communities are in fact gently disguised entertainment platforms or product-exchange markets where people gather to find somebody, something or something to do. In so doing, they carelessly form attractive profiling communities for advertisers who do

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<sup>350</sup> Ibidem, p. 156.

<sup>351</sup> Van Dijck J., Nieborg D. (2009): *Wikinomics and its discontents: a critical analysis of Web 2.0 business manifestos*. New media and society. Vol 11(4), pp. 855–874.

not have to look for grassroots groups affiliated with products or services. Instead, they take the guesswork out of marketing by letting customers create online brand communities which then serve as marketing niches or free service support. Every active and passive user provides valuable information about themselves and their preferred interests, and for Google, co-creation is less significant than information about people's connection. Connectivity wins over collectivity<sup>352</sup>. Many researchers are sharing that opinion, for instance, H. Kajino et al. mention that the quality of the data obtained from crowd workers varies from person to person, so it is needed to combine crowd generated data with expert generated data<sup>353</sup>.

Bas Wisselink, a public speaker, writer and educator in Bitcoin and open blockchain technology, emphasise that crowds are not always wise. He agrees with J. Surowiecki's list of characteristics for a Wise Crowd which is a diversity of opinion, independence of members from one another, decentralization, effective ways to aggregate opinion. However, he emphasises that without these, they are unwise crowds, and at worst, a mob<sup>354</sup>. C. R. Sunstein says the crowd is wise under certain conditions - first when each person is more likely than not to be correct, and second - when majority response is right<sup>355</sup>. These opinions are confirmed by researchers J. Lorenz and colleagues from ETH-Zurich. They demonstrate experimental evidence that even mild social influence can undermine the wisdom of crowd effect. Firstly, the evidence is that the aggregate of many people's estimates tends to be closer to the true value than all of the separate individual or even expert guesses. However, social influence affects individual estimating and has an impact on the statistical aggregate and the resulting collective wisdom of the respective crowd. Wisdom of crowds depends on people making totally independent judgements, which remains a hard thing to achieve in today's world of social media. Secondly, the financial reward for correctness improves the wisdom of crowds. If people are guaranteed prize for correctness, they use the information of others only for enhancing their estimates and not for conforming with others. Thirdly, the confidence effect reflects opinion convergence boosts individuals' confidence in their estimates despite a lack of collective

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<sup>352</sup> Ibidem.

<sup>353</sup> Kajino H. et al. (2012): *Learning from Crowds and Experts*. AAAI Workshops, North America, July. 2012. Available at: <https://www.aaai.org/ocs/index.php/WS/AAAIW12/paper/view/5257> (visited 19 September 2019).

<sup>354</sup> Wisselink B. (2018): *The Wisdom of Crowds: not as easy as you think*. <https://baswisselink.com/articles/the-wisdom-of-crowds-not-as-easy-as-you-think/> (visited 1st October 2019).

<sup>355</sup> Sunstein C. R. (2006): *When Crowds Aren't Wise*. Harvard Business Review, September 2006. <https://hbr.org/2006/09/when-crowds-arent-wise> (visited 1st October 2019).

improvements in accurateness. Taking these into account, the wisdom of crowds can work for opinions or attitudes for which no predefined correct answers exist<sup>356</sup>.

Nevertheless, everything has to start somewhere, which means that knowledge may be created only with a gift of knowledge provided by someone at the beginning. Then the core gathers contributors and developers. What is more, crowds are intelligent only when their members have a range of views and enough self-confidence and independence to voice their opinions<sup>357</sup>.

Scientists who are working on crowdsourcing, which is also based on the wisdom of crowds, emphasise the existence of inaccurate and weak crowd members<sup>358</sup>. M. Liu et al. mention that individual differences among workers in terms of background, knowledge, and expertise, crowdsourced labels may be noisy and poor in quality<sup>359</sup>. T. Tian, Y. Zhou and J. Zhu try to deal with low-quality workers by introducing verification tasks. Comparing the responses of web workers with the ground truths on the selected tasks can help select the most valuable verification tasks. “Learning from crowds with selective verification is also viewed as a combination of the postprocessing and pre-processing crowdsourcing approaches. The postprocessing approach collects noisy labels from multiple workers and then infers the truths. The pre-processing approach first does qualification tests on workers; then only the qualified workers are allowed to participate in the regular tasks”<sup>360</sup>. Different researchers developed several effective learning-from-crowd methods to infer correct labels from noisy crowdsourced labels, just like T. Tian, Y. Zhou and J. Zhu who proposed introducing verification tasks. M. Liu et al. introduced a semi-supervised learning algorithm that is capable of selecting the most informative instances and maximizing the influence of expert labels<sup>361</sup>.

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<sup>356</sup> Lorenz J. et al. (2011): *How social influence can undermine the wisdom of crowd effect*. PNAS Vol. 108, No. 22, pp. 9020-9025. <https://doi.org/10.1073/pnas.1008636108> (visited 1st October 2019).

<sup>357</sup> Leadbeater C. (2007): *We-Think. Why Mass Creativity Is the Next Big Thing*. <http://charlesleadbeater.net/wp-content/uploads/2010/01/We-Think-ChapterThree.pdf> (visited 17.04.2018).

<sup>358</sup> Zhang J. et al. (2015): *CEKA: A Tool for Mining the Wisdom of Crowds*. Journal of Machine Learning Research No. 16, pp. 2853-2858.

<sup>359</sup> Liu M. et al. (2017): *Improving Learning-from-Crowds through Expert Validation*. Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence. Main track, pp. 2329-2336. <https://www.ijcai.org/proceedings/2017/0324.pdf> (visited 23September 2019).

<sup>360</sup> Tian T., Zhou Y., Zhu J. (2018): *Selective Verification Strategy for Learning from Crowds*. In Thirty-Second AAAI Conference on Artificial Intelligence. <http://ml.cs.tsinghua.edu.cn/~tian/papers/CrowdV.pdf> (visited 23rd September 2019).

<sup>361</sup> Liu M. et al. (2017): *Improving Learning-from-Crowds through Expert Validation*. Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence. Main track, pp. 2329-2336. <https://www.ijcai.org/proceedings/2017/0324.pdf> (visited 23September 2019).

Another issue is concerned with the term *knowledge*. In accordance with Polish PWN Dictionary, knowledge is the result of all the possible acts of knowing. It is not only scientific knowledge but also every kind of information, opinion and belief, which is attributed to cognitive or practical value<sup>362</sup>. There are three kinds of knowledge described by E. Bollsani and C. Bratlanu: experimental, skills and claims. Experiential knowledge is that we get from the direct connection with the environment, through our sensory system, and it is processed by the brain. Skills mean knowledge about how to do something (know-how). It is based on experiential knowledge, but it is a well-structured and action-oriented knowledge we get by repeatedly performing a certain task and learning by doing it. Knowledge claims are what we know, or we think we know<sup>363</sup>. Isn't the knowledge just data or information? E. Karaś and A. Piasecka-Głuszak state that knowledge is between information and wisdom. They invoke to I. Nonaka and H. Takeuchi according to whom the information has to be widespread to become knowledge, but primarily it has to be up-to-date, comprehensible for receivers, legible, accurate, easy to use, connected with the present and directed to the future, and it has to come from reliable source<sup>364</sup>. As it was said by I. Nonaka, N. Konno and R. Toyama “Information is a flow of messages, while knowledge is created by that very flow of information and is anchored in the beliefs and commitment of its holder”<sup>365</sup>. According to the researchers, knowledge is „a dynamic human process of justifying personal belief toward the ‘truth’”<sup>366</sup>. Knowledge is explicit, embodied by words and numbers and shared in the form of data, scientific formulae, specifications, manuals, etc., still knowledge is also tacit, highly personal, rooted in an individual’s action and experience, as well as in the ideals, values, or emotions, which makes it difficult to verbalise and formalize.

Knowledge is an indispensable resource to create value for the next generations, that is why Knowledge Management discipline developed. Knowledge Management is concerned with issues like knowledge sharing, transfer of knowledge, diffusion of knowledge and knowledge creation. A. Kankanhalli, B. Tan and K. Wei spotlight that

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<sup>362</sup> Słownik PWN: wiedza <https://encyklopedia.pwn.pl/haslo/3995573/wiedza.html> (visited 3rd October 2019).

<sup>363</sup> Bolisani, E., Bratianu, C. (2018). *The elusive definition of knowledge*. [in:] Bolisani, E. Bratianu, C.: „Emergent knowledge strategies: Strategic thinking in knowledge management”. Springer International Publishing, pp.1-22.

<sup>364</sup> Karaś E., Piasecka-Głuszak A. (2013): *Zarządzanie wiedzą- dlaczego tak ważne?* Management Sciences Vol. 4 No.17, pp. 45- 60.

<sup>365</sup> Nonaka I., Konno N., Toyama R. (2001): *Emergence of Ba*. [in:] Nonaka I., Nishiguchi (eds.): „Knowledge Emergence. Social, Technical, and Evolutionary Dimensions of Knowledge Creation”. Oxford, p. 13.

<sup>366</sup> op. cit., p. 14.

knowledge sharing is typically defined in two ways depending on the perspective toward knowledge. „Researchers who view knowledge as an object tend to use the term knowledge transfer while others who see knowledge as a process use the term knowledge sharing<sup>367</sup>”. Terms of knowledge sharing and knowledge transfer may sometimes be used interchangeably. However, the major distinction between knowledge sharing and knowledge transfer is that transfer implies focus, a clear objective, and unidirectionality, while knowledge may be shared in unintended ways multiple directionally without a specific objective<sup>368</sup>. The process of knowledge diffusion is defined as a learning process with key importance in decision-making. It addresses various issues concerning the process of expansion of an idea across a given population. This process involves individuals, groups, and organizations with their structural complexity and dynamics of adoption<sup>369</sup>.

Knowledge creation is possible due to both types of knowledge: explicit and tacit, which interact with and change into each other in the humans' creative activities. Following to that view, knowledge creation is a process of interaction between two types of knowledge, between interactions among individuals with different types and contents of knowledge. Effective knowledge creation depends on some factors. Firstly, the creation of knowledge is based on one's observations of the world, and these observations always depend on one's feelings and beliefs. That is why knowledge creation is not a compilation of facts but a unique human process. Secondly, as it was said earlier, knowledge can be explicit, formulated and written on paper, and tacit, which is based on one's senses and skills. In order to make use of tacit knowledge, knowledge enabling is required, which means creative source. Thirdly, effective knowledge creation depends on an enabling context which is shared space that fosters emerging relationships. Japanese call it “ba”- physical, virtual or mental context or all of them. We can say about five knowledge enablers: instilling a knowledge vision, managing conversations, mobilizing knowledge activists, creating the right context and globalize local knowledge. Finally, knowledge creation consists of five steps: sharing tacit knowledge, creating concepts, justifying concepts, building a prototype, and cross-levelling knowledge. Creating the right context,

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<sup>367</sup> Kankanhalli A., Tan B., Wei K (2006): *Knowledge Producers and Prosumers*. [in:] D. G. Schwartz (ed.) “Encyclopedia of Knowledge Management”. Herslen, London, p. 459.

<sup>368</sup> King W. R. (2006): *Knowledge Sharing*. [in:] D. G. Schwartz (ed.) *Encyclopedia of Knowledge Management*. Herslen, London, p. 493.

<sup>369</sup> Christozov D. and Toleva-Stoimenova S. (2013): *Knowledge Diffusion via Social Networks: The 21st Century Challenge*. International Journal of Digital Literacy and Digital Competence, IGI Global, Vol. 4, No. 2, p. 1.

that is a caring atmosphere and good relations, make the process of distrust fear disappear, stimulating sharing knowledge and knowledge creation<sup>370</sup>.

An interesting question arises here: why do crowds collaborate? Why do skilled people, with busy lives, give their time for free to mass collaborative efforts, only to give way the fruits of their labour? C. Leadbeater states that for the majority, the main motivation is recognition, a minority are driven by altruistic motives, and some see their involvement as a way to get a better job. Success can be gain under that certain fulfilled conditions. Firstly, the project must be exciting, intriguing and challenging by enough people with the time, means and motivation to contribute. Secondly, communication and working tools should be contributed. Thirdly, experimentation must cheap and feedback fast. What is more, the product should benefit from extensive peer review in order to correct errors and verify good ideas. It is vital to break tasks down into modules around which small, close-knit teams can form allowing a range of experiments to run in parallel. Of course, clear rules should be established for how the modules for fitting the modules together and separating good ideas from the bad. Last but not least, ownership of the project must have a public component; any other way the sharing of ideas will not make sense. We can distinguish three levels of crowd collaboration: low, medium and full. Leadbeater recognizes blogging, photo sharing (Flickr) and video sharing (YouTube) as low on collaboration because they allow a mass of participants to connect with an audience and one another, however, there is relatively little collaborative creativity. Social networking like MySpace, Amazon and Technorati help one another find interesting material on the web that is why he classifies them into the medium category. He sees full collaboration as the deliberate and organised combination of contributions from a mass of distributed and independent participants, exemplified by an operating system Linux, Oh My News, the South Korean citizen journalist news service and mass computer games<sup>371</sup>.

The same question was answered by the part of the OECD Directorate for Education and Skills-Centre for Educational Research and Innovation. Its researchers after looking at institutions in Australia, Canada, Denmark, France, Greece, Japan, Mexico, Sweden, Spain, the UK and the USA put arguments into categories: push-concerning gains to be

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<sup>370</sup> von Krogh G., Ichijo K., Nonaka I. (2000): *Enabling Knowledge Creation. How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation*. Oxford University Press, pp. 5-10.

<sup>371</sup> Leadbeater C. (2007): *We-Think. Why Mass Creativity Is the Next Big Thing*.

<http://charlesleadbeater.net/wp-content/uploads/2010/01/We-Think-ChapterThree.pdf> (visited 17.04.2018).

achieved by open sharing of software, scientific articles and educational materials and pull- referring to threats or negative effects that might appear if software developers, scientists and educationalists do not share their work openly. On the push side, there is a risk of a software monopoly to be overused. For this reason, we should support the open-source software movement. It is said that if universities do not support the open sharing of research results and educational materials, traditional academic values will be increasingly marginalised by market forces. On the pull side, there is a number of possible positive outcomes from open sharing: more people are involved in problem-solving, which means rapid quality improvement and faster technical and scientific development. Decentralized development increases quality, stability and security. Free sharing of software, scientific results and educational resources reinforces societal development and diminishes social inequality. Motives of individuals are recognized as altruistic or community support reasons which give personal satisfaction to know that one's materials are available and used all over the world, personal non-monetary gain referring to reputation within the open community, commercial reasons connected with creating an open content version of the material, which may be a strategy for enhancing the final commercial product and the last one, it is not worth the effort to keep the resource closed<sup>372</sup>.

N. Scalter sees a similarity between organizational and individual motives which calls them: altruistic motivations, commercial motivations and transformational motivations<sup>373</sup>. He noticed that advocates of open educational resources (OPRs) are motivated by the possibilities of providing educational content freely to people who would not have the opportunity to access it in a different way. OERs are especially valuable in developing nations where university places are limited and the costs of journal subscriptions and books prohibitive. In many countries, rural communities and women have little access to higher education but increasing access to the Internet resulting in new possibilities to learn at home online. Individual learners are able to benefit by connecting to others in networks organised around the resources. What is more, students have a greater number of resources available to them, they do not have to purchase books, and what is the most important, they are encouraging habits of independent, self-regulated learning, autonomy

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<sup>372</sup> Centre for Educational Research and Innovation (2007): *Giving knowledge for free. The emergence of open educational resources*. OECD.

<sup>373</sup> Scalter N. (2009): *The Organisational Impact of Open Educational Resources*. [in:] Ehlers U., Schneckenberg D. (eds.): *Changing Cultures in Higher Education: Moving Ahead to Future Learning*. Springer. <http://oro.open.ac.uk/18765/2/BC228F30.pdf> (visited 27 April 2018).

and self-reliance. Universities are sharing their courses freely, and educational content is more likely to enhance its branding leading to partnerships and funding. Transformational motivations occur when institutions wish to experience a “feel-good-factor”. Higher quality products have a chance to be created in situations in which people know that their colleagues can potentially view their content. Another benefit comes from receiving procedures back enhanced by others and that the input of other experts from around the World could transform the way content is produced.

D. C. Brabham points extrinsic and intrinsic motivators for participation in content creation. Extrinsic motivations are connected mainly with the bounty, which might be the money, prizes, cultural capital, developing one's creative skills or the opportunity for eventual freelance design work, building portfolio for future employment. Intrinsic motivation is connected with the pleasure found in doing hobbies, addiction to the intense relationship with the crowd (seeing one's subs get scored and commented on becomes addicting), the love of community understood as friendship made through the media, or to pass the time when bored. Nevertheless, motivators are always different for each user<sup>374</sup>.

A. Kankanhalli, B. Tan and K. Wei explain motives for sharing knowledge by Public Goods Theory. Knowledge shared is referred to be a public good that is, nonexcludable (as other repository users who did not contribute to its production are not prevented from access to the knowledge.), non-rival (even if one consumer uses the knowledge, it still remains available to others) and exhibiting jointness of supply (it costs as much to produce for use by one person as for use by many). The thing is that all members of the community stand to gain if everyone contributes; however, individually, members are better off free-riding on the contributions of others<sup>375</sup>.

Another study mentioned by these researchers is Expectancy Theory according to which individuals contribute knowledge based on their expectancy of certain benefits. It might be an organizational commitment, organizational instrumentality (the belief that sharing knowledge will produce organizational gain), or connective efficacy (the belief that the repository can be used to reach other people).

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<sup>374</sup> Brabham D. C. (2010): *Moving the crowd at Threadless*. Information, Communication & Society, Vol.13, No.8, pp. 1122-1145. <http://dx.doi.org/10.1080/13691181003624090> (visited 30 September 2019).

<sup>375</sup> Kankanhalli A., Tan B., Wei K (2006): *Knowledge Producers and Prosumers*. [in:] D. G. Schwartz (ed.) “Encyclopedia of Knowledge Management”, Herslen, London, pp. 459-467.

The third view is called Technology Adoption Theory, which states that sharing knowledge through technology depends on the attitude toward the technology, subjective norms, and perceived behavioural controls.

The authors also describe newer theories explaining knowledge contribution: Social Exchange Theory and Social Capital Theory. Social Exchange Theory is based on doing others a favour with a general expectation of some future return but no clear expectation of exact future return. Knowledge contributors share their knowledge with no exact expectation of future return and knowledge seekers consume knowledge without the certainty of when they will reciprocate in the future; therefore, long-term relationships are created. Resources play roles of costs and benefits. Resources given away during social exchange can be seen as costs while resources received as a result of a social exchange or can be seen as benefits. According to the social exchange theory, people behave in ways that maximize their benefits and minimize their costs. Finally, Social Capital Theory which emphasizes the resources (social capital) embedded within networks of human relationships. The theory posits that social capital provides the conditions necessary for knowledge transfer to occur. There are three key aspects of social capital defining the context for knowledge transfer: trust, norms, and identification. Trust is explained as the belief that the intended action of others would be appropriate from our point of view, and it remains a key contextual factor affecting cooperation and the effectiveness of knowledge transfer. A norm is represented by a degree of consensus in the social system. Pro-sharing norms enhancing knowledge transfer are norms of teamwork, collaboration and sharing, willingness to value and respond to diversity, openness to conflicting views, and tolerance for failure. The first two norms can create an atmosphere where people are motivated to share knowledge as an accepted common practice, and the last three reduce the risks of sharing in order to promote knowledge sharing<sup>376</sup>.

Increasing expense and tighter copyright restriction make people need an alternative. Waiting results in a market where profit is the greatest focus of education, not learning that is why people should share educational content. Digital resource sharing doesn't add costs because digital resources can be duplicated without additional expense. Open resources make opportunities to add commercial value in the future and have an impact on the quality of educators' resources shared, and also they make the market more

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<sup>376</sup> Ibidem.

competitive<sup>377</sup>. Education is directly linked to the quality of life because an expensive education market limits the ability for those most in need to improve the quality of their life. We should take into an account that open education is democratic as long as publishers do not longer choose and select which concepts and ideas are published. Siemens refers to building and spiralling knowledge. New knowledge is always built on initial knowledge. The freedom of sharing digital content makes a chance for experimentation and creation, which is especially important for universities and colleges. There is no one person who is an expert in all areas; consequently, we need diverse skillsets. The heart of an open education market is the formation of communities of practice which consist of educators linked and connected with others in similar fields from around the world, sharing and improving on each other work. Above all, open education means that learning materials must be free for others to use and integrate in the manner they choose; however, some type of commercial economy is needed to fund and support certain activities. Educators spending time by creating resources should have the option of earning an income based on that effort.

Web 2.0 users want free content, and nobody wants to pay, even a few cents. At the same time, she advises keeping a level head in this. Web 2.0 turns inactive consumers into active ones that create content for free, but later they may have to buy that content back, with time, money and energy<sup>378</sup>.

Web 2.0 made passive consumers of knowledge active participants in creating and sharing knowledge. The concept of Wikinomics perceived as a new economy based on knowledge and experience of individuals is the perfect environment to learn. Wikinomics' society is compared to ancient Alexandrians who had collected the most incredible compilation of works. On the contrary, it is said that Wikinomics is a utopian, idealistic dream rather than a real state. The truth lies in the middle, and it is strictly connected with the term knowledge, as one might say that only valuable knowledge brings benefits. Following the statement that “knowledge is every kind of information, opinion and belief which is attributed to cognitive or practical value”, when knowledge finds appreciation of the audience, it is valuable for their members. In that case, the number of the audience does not matter, but the fact that knowledge has got the audience, and it is valuable for

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<sup>377</sup> [www-13] Siemens G. (2003): *Why We Should Share Learning Resources*.

[http://www.elearnspace.org/Articles/why\\_we\\_should\\_share.htm](http://www.elearnspace.org/Articles/why_we_should_share.htm) visited (27 March 2018).

<sup>378</sup> Grinnell C. K. (2009): *From Consumer to Prosumer to Producer: Who Keeps Shifting My Paradigm? (We Do!)*. Public Culture Vol.21(3), pp. 577–598.

their members. Secondly, it is not necessary to always create new knowledge and then share it. As it was said earlier, information which is spread becomes knowledge. Nevertheless, we need to have general knowledge in order to be able to develop it, for instance, knowledge of how to use media for sharing our knowledge. There are different theories about the motives of sharing knowledge. According to the researchers, most of the people who share their knowledge are far from being selfless; they expect to satisfy their needs or some benefits. However, knowing their motives, we can better stimulate them and in the future, develop our social capital and shape the Social Capital Culture in our society.

## **2.3. Learning begets learning - adult education and lifelong learning in Europe.**

### **2.3.1. Historical background of vocational education and training.**

According to Eurostat „Lifelong learning is the lifelong, voluntary and self-motivated pursuit of knowledge for personal or professional reasons. The overall aim of learning is to improve knowledge, skills, and competences. The intention to learn distinguishes learning activities from non-learning activities such as cultural activities or sports activities”<sup>379</sup>. The concept of lifelong learning dates back to the second half of the 20<sup>th</sup> century when the learning society emerged. In 1957 P. Drucker formulated an idea of advanced training and, in 1968, the principle of continuing education to train the knowledge worker<sup>380</sup>. Lifelong learning is strictly connected with adult education and vocational training; that is why all of these issues are going to be elaborated. Conforming to Eurydice, there are significant discrepancies among different countries in lifelong learning participation. Scandinavian countries are at the forefront of adult education. Among factors influencing participation in lifelong learning, the most important are: level of education, employment status, occupational category, age and skills. The problem is that in some countries, including Poland, the adults who need the education and training the most, learn the least. To show how big this difference is, Eurydice compared

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<sup>379</sup> Eurostat, *Glossary: Lifelong learning*, [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Lifelong\\_learning](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Lifelong_learning) (20 February 2018).

<sup>380</sup> Karpov A. O. (2016): Education in the Knowledge Society: *Genesis of Concept and Reality*. International Journal of Environmental & Science Education 2016, Vol. 11, No. 17, pp. 9949-9958. <https://files.eric.ed.gov/fulltext/EJ1119352.pdf> (visited 26 October 2018).

Scandinavian countries to Poland. In Norway, participation in education and training remained 50.9%, in Poland, only 9.8%<sup>381</sup>.

European Centre for the Development of Vocational Training deals with Vocational Education and Training (VET) defined as the preparation of individuals for a vocation or a specialised occupation and so is directly linked with a nation's productivity and competitiveness. VET is restricted to non-university education. CEDEFOP made a classification of VET into two categories:

- IVET (Initial vocational education and training) which refers to general or vocational education and training carried out in the initial education system, usually before entering working life,
- CVET (Continuing vocational education and training) which is defined by the area of education or training that comes in after entry into working life and aims to help people to improve or update their knowledge and/or skills, acquire new skills for a career move or retraining and continue their personal or professional development. Continuing education and training is part of lifelong learning and may encompass any kind of education: general, specialised or vocational, formal or non-formal, etc.<sup>382</sup>

Traditionally, all of the European countries have always depended on their relationships with one another as productive partners and competitors. Relationship between nations was shaped by factors like common borders and exchange of goods. Industrial Revolution and industrialisation were the most influential factors of the genesis of VET. Industrial Revolution induced economic and technological transformations including change of the social structure, social interaction, lifestyles, political systems, type of settlement and landscapes. During that time, the system of 'replenishing human resources' underwent radical restructuring in all European countries. Although industrialisation brought globalisation which unified everything among nations, it did not produce one uniform vocational training model<sup>383</sup>. Across European countries, VET is shaped by widely different cultural and social-class values of vocational training status in society. As a result,

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<sup>381</sup> European Commission/EACEA/Eurydice (2015): *Adult Education and Training in Europe: Widening Access to Learning Opportunities. Eurydice Report*. Luxembourg: Publications Office of the European Union. <https://eurydice.org.pl/wp-content/uploads/2015/02/179EN.pdf> (visited 25 October 2018).

<sup>382</sup> CEDEFOP (2011): The benefits of vocational education and training. Research Paper No 10. Publications Office of the European Union, Luxembourg. [http://www.cedefop.europa.eu/files/5510\\_en.pdf](http://www.cedefop.europa.eu/files/5510_en.pdf) (visited 18 October 2018).

<sup>383</sup> Hanf, G. (2002). *Introduction*. [in:] CEDEFOP: *Towards a history of vocational and educational training in Europe in a comparative perspective: Proceedings of the first International Conference, Florence, Volume I* [http://www.cedefop.europa.eu/files/5153\\_1\\_en.pdf](http://www.cedefop.europa.eu/files/5153_1_en.pdf).

the role of VET, as an organised form of education, differs from one country to another. W. Dietrich-Greinert distinguished three structural models of vocational training in Europe:

- type A - market/liberalist model: the economy takes priority from a cultural perspective. Training is regulated primarily by market forces. The functional needs of the company or the actual job are the leading didactic principle (UK, US);
- type B - bureaucratic/school model: politics take priority from a cultural perspective. Training is primarily regulated by bureaucratic control. The academic principle is the main didactic tenet (France, Scandinavia);
- type C - dual model: society takes priority from a cultural perspective. Training is primarily regulated by dual control, i.e. a combination of market and bureaucracy. The vocational principle is determining didactic orientation (Germany, Switzerland)<sup>384</sup>.

The issue of vocational training appeared for the first time after II World War when serious economic and social problems emerged from high unemployment to housing shortages, from questions of health to educational systems requiring radical reform. Italy faced the problem concerning the presence of a great surplus of manpower, especially in the impoverished and backward regions of southern Italy. Emigration to Western Europe and integration was seen as the remedy for that problem. On the one hand, the Marshall Plan placed emphasis on new forms of industrial relations, and modernisation highlighted the role of the economic and social forces in the construction of an affluent society and the desirability of up-to-date vocational training that would enable the labour force to adapt to a modern economic system, whose point of reference was the United States. These factors influenced the European integration in 1950<sup>385</sup>. In 1957 When the Treaty of Rome was signed, it was noticed that a common policy for vocational training should be developed. European Economic Community Treaty provided a solid legal base for a Commission initiative directed towards establishing a common policy on vocational training for the workers of the Member States. The main aims were higher productivity and greater economic integration as well as the moral and material advancement of workers in order to associate them in a positive way with the process of integration and its institutions. Of course, reactions from the governments were naturally very different.

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<sup>384</sup>Ibidem, p. 26.

<sup>385</sup>Varsori A. (2004): *Vocational education and training in European social policy from its origins to Cedefop*. Vocational Training European Journal. No 32 May-August 2004/II, pp. 63-76.

At a meeting with Ministers of Labour in 1963, there were two opposing ideas, one of them ruling out the competence of the Community institutions for the formulation and application of vocational training policies (presented by France and Germany), the other affirming that competence (strongly presented by Italy). As a result, the compromise formula was put forward to the effect that the Commission could present its proposals to the Council in the first instance and, ‘depending on the circumstances’, to the Member States as well.

In 1960 the Council decided to accelerate the implementation of the Treaty of Rome, and vocational training was chosen to be taken ahead of schedule. The Commission planned to design a common vocational training policy binding all the Member States. A year later an advisory committee on vocational training, consisting of an equal number of representatives of the competent national authorities, trade unions and employers’ associations, with the task of assisting the Commission in its action in this field was created. The European Parliament came out in full support of the idea of a leading role for the Commission in the sphere of common vocational training policies, including its right of initiative. Of course, reactions from the Governments were naturally very different. At a meeting with Ministers of Labour in 1963, there were two opposing ideas, one of the rulings out the competence of the Community institutions for the formulation and application of vocational training policies (presented by France and Germany), the other affirming that competence (strongly presented by Italy). As a result, the compromise formula was put forward to the effect that the Commission could present its proposals to the Council in the first instance and, ‘depending on the circumstances’, to the Member States as well. The word ‘proposals’ was seen as less binding and of more limited legal scope than the word ‘measures’. On 18th December 1963, the Council approved the statutes of the Advisory Committee on Vocational Training.

In 1964 the Commission drafted an Action Programme on common vocational training policy offering all young people of the Community, and when necessary adults, an appropriate opportunity for training. In order to make it possible a set of short - term (promotion of the use of the potential resources of manpower within the Community, the transfer of workers from sectors in which there was a surplus of labour towards those where there were shortages) and long-term actions (developing training structures, programmes and methods, particularly in developing regions and those at risk of economic decline) was planned. It is vital to say that in 1964 there was a serious shortage of skilled

manpower in some of the European countries. The first vocational training involved Italian workers aged up to 35 who were prepared to seek employment in the building, metallurgical and hotel industries in a Member State other than their own<sup>386</sup>.

Finally, in 1965 the Commission adopted the Action Programme, and in March 1966 the Parliament gave its favourable opinion. The first vocational training involved Italian workers aged up to 35 who were prepared to seek employment in the building, metallurgical and hotel industries in a Member State other than their own. For the next several years the Commission action ultimately came to a true impasse because of a dispute about the chosen method of selection of the industries to focus by the Commission. The persisting shortage of skilled labour in the industry in every Member State and the existence of pockets of long-term unemployment, at a time when unemployment rates were generally falling, forced Ministers to compromise.

In 1970 the Commission suggested developing statistical instruments, intensifying the exchange of information and experience, improving the coordination of research undertaken by the Member States and setting up a European Institute for the scientific study of vocational training. France proposed that common actions be conducted in sectors which by their nature required international cooperation or had particularly close associations with Community policies and they were accepted in full by the Commission:

- language learning for emigrant workers;
- the production of special teaching instruments (such as computers and simulators);
- collaboration on or the exchange of radio and television programmes;
- the development of Community programmes for training in trades in which new problems are arising in connection with technological developments (such as information technology, numerical control machine tools, etc.).

Although the programme was seen as modest and limited, mainly consisting of promoting cooperation and the exchange of ideas and information among the Member States, it is going to be integrated into a future plan of action for the purpose of implementing the common vocational training policy, including it in the framework of the social action programme<sup>387</sup>.

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<sup>386</sup>Petrini F. (2004): *The common vocational training policy in the EEC from 1961 to 1972*. Vocational Training European Journal. No 32 May-August 2004/II, pp. 45-54.  
<http://www.cedefop.europa.eu/files/32-en.pdf>

<sup>387</sup>Petrini F. (2004): *The common vocational training policy in the EEC from 1961 to 1972*. Vocational Training European Journal. No 32 May-August 2004/II, pp. 45-54.  
<http://www.cedefop.europa.eu/files/32-en.pdf>

In 1975 European Centre for the Development of Vocational Training (Cedefop) was established. Its main objectives were: publication of a bulletin, collecting and processing documentation, disseminating existing information and launching studies on subjects. 1980s economic crisis and the growing number of unemployed made the European Community attempt to develop more effective action in vocational training, and the Commission, therefore, focused on two subjects: the link existing between new technologies and vocational training, and the suggestion that a project should be launched that would promote the harmonisation of vocational qualifications.

1980s economic crisis and the growing number of unemployed made the European Community attempt to develop more effective action in vocational training, and the Commission, therefore, focused on two subjects: the link existing between new technologies and vocational training, and the suggestion that a project should be launched that would promote the harmonisation of vocational qualifications. In 1989 a ‘task force’ for human resources, education, training and youth was set up by the Commission. Cedefop (European Centre for the Development of Vocational Training established in 1975 as a statistical instrument) launched Community programmes like Socrates, Petra, Leonardo, Phare and concentrated on its studies and research activities. Nowadays, Cedefop is a consolidated component of the EU panorama and manages to play an autonomous role in European policies on vocational education and training, both nationally and at Community level<sup>388</sup>. It supports the development of European vocational education and training (VET) policies and contributes to their implementation. The agency is helping the European Commission, EU Member States and the social partners to develop the right European VET policies.

As it was stated earlier, VET is recognised slightly different among countries although there is one European policy concerning this issue. Most countries show a different conception of VET. A list of different concepts is presented in the table below.

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<sup>388</sup>Varsori A. (2004): *Vocational education and training in European social policy from its origins to Cedefop*. Vocational Training European Journal. No 32 May-August 2004/II, pp. 63-76.

## Overview of different VET conceptions prevalent in Europe

VET conception	Explanatory notes
<p><b>1. VET understood as work-based/dual initial training</b></p> <p>identified in Denmark, Germany, Hungary, Austria (apprenticeship) and Slovakia (apprenticeship); and to some degree in Iceland and UK-England (apprenticeship)</p>	<p>VET is considered to be based on practical knowledge and ‘learning by doing’ for young people (recognised as apprentices) to become members of an occupation/profession (initiation) with distinct occupational or professional ethos and occupational rights. Substantial contribution by companies (financially and as a place of learning, equal or more important than the school) and strong coordination between employers (and trade unions) are presupposed in this conception of VET. It is associated with the middle level of education without or with restricted access rights to higher education. An employer perspective is dominant in so far as the VET’s main purpose is to secure the supply of skilled labour and to foster business innovation and growth.</p>
<p><b>2. VET understood as initial vocational education</b></p>	<p>VET is understood as a particular part of initial education, where schools financed and governed by the State are the main place of learning and learners are regarded as students. Despite the large variations within this type, two patterns can be distinguished.</p>
<p><b>2a. Vocationally oriented school education</b></p> <p>identified in Belgium-Flanders, Bulgaria, Spain, Malta, Austria (school), Romania and Slovenia, and to some degree in The Czech Republic, Estonia, Latvia, Lithuania, Slovakia (school), Sweden (school)</p>	<p>‘Vocationally oriented school education’ which is discipline-based, mainly takes place in classrooms (although there are work-based elements as well) and teacher-student relations are the normal case. VET is not necessarily occupation-specific, but can also aim at broader vocational fields, is targeted at middle and higher levels (ISCED-11 levels 3-5), addresses young people (15-19), and provides access to higher education. Individual or societal perspectives are more evident, for instance,</p>

	individual progression and personal growth is rated more important than securing the supply of skilled labour.
<p><b>2b. Varied occupation-oriented upper and post-secondary education</b></p> <p>identified in Croatia, Cyprus (IVET),Luxembourg, Netherlands, Poland and Portugal; and to some degree in Greece, Ireland (VE), Norway, Sweden (post-sec.)</p>	<p>A broad range of more occupation-specific education, also addressing young adults (18-24) for which securing the supply of skilled labour and entry into working life is rated higher. It is more diverse than type 2a in many other aspects: levels of education span from low to high, and so do skill levels (semi-skilled workers and skilled workers); types of providers, instructions and learning approaches can be diverse. School-based and work-based options may form part of one system.</p>
<p><b>3. VET understood as further training</b></p> <p>identified in UK-England, Ireland (VT) and Cyprus (CVET)</p>	<p>VET is understood as mainly further on-the-job training for all age groups (but with high shares of older learners) at various levels (including lower levels, such as ISCED-11 level 2) to become semi-skilled, skilled workers or professionals (with no specific occupational rights) offered by a wider range of further and higher education providers. Programmes for the unemployed or second chance programmes form part of this understanding. Entry into working life or employability is seen as more important than occupational identity. Employers' views dominate, and VET is regarded as a means to secure the supply of skilled labour and promote innovation and economic growth.</p>
<p><b>4. VET understood as (part of) lifelong learning</b></p> <p>identified in France and Finland; and to some degree in, Ireland (VT), Greece, Croatia, Italy and Luxembourg</p>	<p>VET is understood as the (organised) coexistence of a diverse set of learning approaches (disciplinary- or experienced-based), learning sites, education and skill levels addressed (semi-skilled, skilled and professional), age groups, the status of learners (apprentices or students), types of providers (school, companies, higher education), types of instructors</p>

	(teachers, trainers, masters), as regards the learning outcomes (both occupation-specific and broader vocational field-oriented, but also pre-vocational) and types of qualifications (occupational, educational). Consequently, VET is associated with various (also more balanced) purposes including equity and inclusion, and IVET and CVET form part of one conception of VET in the form of lifelong learning.
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Table. 7. The changing nature and role of vocational education and training in Europe. Source: Cedefop (2017): Vol. 2 Results of a survey among European VET experts. Publications Office of the European Union, Luxembourg, pp. 28-29.

Summing up, vocational education and training in the past provided general education and prepared learners for a clearly defined trade or profession. Nowadays, there is an emphasis on developing action competence, meaning developing capacities for dealing with certain work or life situations in which the ability to apply knowledge and solve practical problems is central. Vocational education and training is also aimed to prepare individuals to actively shape their personal and professional lives and take part in society in a self-guided manner<sup>389</sup>. In the European Union, around 75 million people, nearly a third of the working population, have low levels of or no qualification. Around 15% of young people leave school without any qualifications. People need the right qualifications to find jobs. Those with low levels of or no qualification are nearly three times more likely to be unemployed than those with high qualifications. Enterprises need people with the skills required to compete and provide high-quality goods and services. Europe’s strategy for 2020 is a route for smart, sustainable and inclusive economic growth through knowledge and innovation, which sets an employment rate target of 75%. The success of this strategy depends on the skills of Europe’s workforce<sup>390</sup>.

Benefits coming from VET are located not only in individuals but also in economic and social aspects. The main effects of VET include wages which depend on the type of education and training people participated in and its duration. Acquiring new skills and

<sup>389</sup> Viertel E. (2009): *Teaching and learning in modern vocational education and training systems*. INFORM, No. 2, September 2009. European Training Foundation. [https://www.etf.europa.eu/sites/default/files/m/C12578310056925BC12577310045ECFA\\_NOTE7WEHL9.pdf](https://www.etf.europa.eu/sites/default/files/m/C12578310056925BC12577310045ECFA_NOTE7WEHL9.pdf) (visited 12 November 2018).

<sup>390</sup> <http://www.cedefop.europa.eu/en/about-cedefop> (visited 24 October 2018).

competences can extend professional opportunities at the micro-level. Micro and macro effects are related: high labour-market participation implies a low rate of unemployment and can have favourable consequences for national competitiveness and GDP growth<sup>391</sup>.

### 2.3.2 Lifelong learning in Europe.

Increasing interest and necessity of the lifelong learning development marked the year 1996 as the European Year of Lifelong Learning. That idea became one of the perspectives of the European Union<sup>392</sup>. The Initial phase of lifelong learning development was the Bologna Process aimed to introduce a more comparable, compatible and coherent system for European higher education, and to promote the mobility of students, teachers and researchers; and ensure high-quality learning and teaching. Key focus areas of the process included lifelong learning, employability, funding, degree structures, international openness, data collection and quality assurance<sup>393</sup>.

In 2000 The European Council held in Lisbon marked a decisive moment for the direction of policy and action in the European Union. It concluded that Europe indisputably moved into the Knowledge Age, with all that this will imply for cultural, economic and social life. Patterns of learning, living and working are being changed apace. This meant not simply that individuals must adapt to change, but equally that established ways of doing things must change too. To put lifelong learning into practice, the key messages were worked out, suggesting that a comprehensive and coherent lifelong learning strategy for Europe should aim to:

- guarantee universal and continuing access to learning for gaining and renewing the skills needed for sustained participation in the knowledge society;
- visibly raise levels of investment in human resources in order to place a priority on Europe's most important asset – its people;

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<sup>391</sup> European Centre for the Development of Vocational Training (2011): *The benefits of vocational education and training*. Luxembourg, Publications Office of the European Union. [http://www.cedefop.europa.eu/files/5510\\_en.pdf](http://www.cedefop.europa.eu/files/5510_en.pdf) (visited 22 October 2018).

<sup>392</sup> Grotowska-Leder J. (2014): *Rzecz o kształceniu dorosłych. Lifelong learning w Polsce, w perspektywie Unii Europejskiej*. "Acta Universitatis Lodzianis Folia Sociologica" No. 50. <http://dspace.uni.lodz.pl:8080/xmlui/bitstream/handle/11089/6996/07grotowska-leder.pdf?sequence=1&isAllowed=y> (visited 7 January 2019).

<sup>393</sup> [www-14] <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=LEGISSUM%3Ac11088> (visited 7 January 2019).

- develop effective teaching and learning methods and contexts for the continuum of lifelong and life-wide learning;
- significantly improve the ways in which learning participation and outcomes are understood and appreciated, particularly non-formal and informal learning;
- ensure that everyone can easily access good quality information and advice about learning opportunities throughout Europe and throughout their lives;
- provide lifelong learning opportunities as close to learners as possible, in their communities and supported through ICT - based facilities wherever appropriate<sup>394</sup>.

In the post-modern era with a globalised, knowledge-intensive economy, technological change is continually reshaping the labour market. Skills-based technological changes, globalisation and the growing influence of the financial sector on the economy demanded high-skilled workers and jobs with non-routine tasks. As a consequence, the emphasis has been put on the wages of high-skilled workers, raising at the same time the wage gap between high- and low-skilled workers. That is why individuals with low levels of educational attainment and skills are increasingly penalised. Because a country's prosperity depends on how well it equips individuals of all backgrounds with the skills to obtain decent jobs, equitable learning opportunities need to be made available for everyone throughout life. Although European countries have made progress in providing educational and skills development opportunities to disadvantaged individuals, only a few of them have been successful in providing lifelong learning opportunities. Most have offered sporadic interventions at certain stages of life, rather than continued support over the course of an individual's lifespan<sup>395</sup>.

The first organised movements advocating and promoting adult learning in the out-of-school environment were noticed in the 19th century in Denmark, and soon they spread out the Scandinavia. They were not aimed to prepare adults for their working tasks, but their intention was to give the new employees access to culture, endowing them with the knowledge and insight needed to take their destiny in their own hands, vis-à-vis their employers and vis-à-vis administration and bureaucracy. Those days workers showed little initiative or even interest in adult education as a way of maintaining or improving professional qualifications, and the only reason to adapt learning activities to work was

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<sup>394</sup> Commission Of The European Communities (2000): *A Memorandum on Lifelong Learning*. Brussels. <http://uil.unesco.org/i/doc/lifelong-learning/policies/european-communities-a-memorandum-on-lifelong-learning.pdf> (visited 4 December 2018).

<sup>395</sup> OECD (2017): *Educational Opportunity for All: Overcoming Inequality throughout the Life Course*. OECD Publishing, Paris.

the ability of workers to defend their interests. New circumstances in Europe: industrialisation, the creation of massive housing complexes for industrial workers, the great economic crisis in the 20s and 30s of the 20th century and the return of millions of demobilised young people from the war in Anglo-Saxon countries caused the need and development of adult education. A great number of young people who returned from the war came back to formal education after the interruption of the war years. It was an entirely new situation for the universities which had to deal with students whose experience, family situation and age differed from that of their customary clientele. In addition to that, those who returned had to be made familiar with new techniques and competencies, due to the fantastic technological progress that had been achieved during the war period. As a consequence adult and further education expanded enormously<sup>396</sup>.

The concept of lifelong learning dates back to the second half of the 20th century when the learning society emerged. Three major lifelong learning paradigms were developed by the Council of Europe (“Permanent Education”<sup>397</sup>), UNESCO (“Learning to Be”<sup>398</sup>) and the OECD (“Recurrent Education: a strategy for lifelong learning”<sup>399</sup>). The Council of Europe's three policy principles were “equalisation”, “participation” and “globalization”. Permanent education was aimed to promote equality of educational opportunity, organised with the full agreement and participation of the participants and it was expected to bring together theory and practice, knowledge and competence, learning and doing. UNESCO witnessed a rapidly widening educational gap between a growing part of younger generations and a largely illiterate adult population. Its concept was based on a “new humanism” that is rooted in man’s innate desire to learn, and that makes it possible to work towards a new, more humane society. OECD’s “Recurrent Education: a strategy for lifelong learning” defined recurrent education as a strategy, the essence of which consists in spreading educational lower case opportunities over the individual’s lifetime, in such a way that they are available when needed. The recurrent education paradigm was an alternative to the ever-lengthening period of initial education that kept young people in school and away from “real” life until at least late adolescence. Its concept was inspired by the wish to break the cycle of uninterrupted initial education and also by

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<sup>396</sup> Kallen D. (1996): *Lifelong-learning in retrospect*. European Journal of Vocational Training, Cedefop, No. 8/9. <http://www.cedefop.europa.eu/files/8-9-en.pdf> (visited 2nd November 2018).

<sup>397</sup> Council of Europe (1970): *Permanent Education*. Strasbourg.

<sup>398</sup> Faure E. et. al. (1972): *Learning to be. The world of education today and tomorrow*. Unesco, Paris.

<sup>399</sup> Kallen D., Bengtsson J. (1973): *Recurrent education. A strategy for lifelong learning*. Centre for Educational Research and Innovation, Paris.

the massive evidence of its ineffectiveness and its rising cost with disappointingly low returns<sup>400</sup>.

Globalization and the growth of the fast-changing knowledge economy mean that people need to upgrade their skills throughout their adult lives to cope with modern life, both in their work and in their private lives. These days, there is an increasingly important basic skill in the ever-changing technological universe: the ability to learn and adapt to the needed new skills and training<sup>401</sup>. By the reason that varied countries define the term of lifelong learning in a different way, the author follows the definition popularized by Eurostat: „Lifelong learning (LLL) is the lifelong, voluntary and self-motivated pursuit of knowledge for personal or professional reasons. The overall aim of learning is to improve knowledge, skills, and competences.

The intention to learn distinguishes learning activities from non-learning activities such as cultural activities or sports activities”<sup>402</sup>. Learning activities are:

- purposeful (aimed to improve behaviour, information, knowledge, understanding, attitude, values or skills);
- ongoing (not incidental or random organised, and in principle don't have a minimum duration);
- independent of whether they are formal or not (this includes different types of learning, such as apprenticeships, second-chance schools, on-the-job or off-the-job education and training, self-learning etc.);
- independent of their source of funding (whether that's the private sector, the public sector or the individual);
- independent of their mode of delivery (whether traditional or modern)<sup>403</sup>.

In LLL, learning takes place in various environments, and it is not only limited to the formal education system. European Union says about the complementarity of formal, non-formal and informal learning. An essential prerequisite for lifelong learning is a smooth progression with no dead ends, meaning the transition from school to work and in the

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<sup>400</sup> Ibidem.

<sup>401</sup> Laal M. (2011): *Lifelong learning: What does it mean?* Procedia - Social and Behavioural Sciences 28 (2011), pp. 470 – 474.

<sup>402</sup> EUROSTAT, *Glossary: Lifelong learning*,

[http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Lifelong\\_learning](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Lifelong_learning) (20 February 2018).

<sup>403</sup> EUROSTAT (2016): *Classification of Learning Activities. Manual*. Publications Office of the European Union, Luxembourg. <https://ec.europa.eu/eurostat/documents/3859598/7659750/KS-GQ-15-011-EN-N.pdf/978de2eb-5fc9-4447-84d6-d0b5f7bee723> (visited 31 October 2018).

transition of the next step between work and education. Learning activities of adults allow to reducing existing educational gap<sup>404</sup>. Lifelong Learning includes education of people of all ages, from the cradle to the grave, and it strictly connected with adult learning which” comprises all learning activities undertaken throughout life (after the end of initial education) with the aim of improving knowledge, skills and competences, within personal, civic, social, and employment-related perspectives”<sup>405</sup>. Statistical organisations include people aged 25-64. Learning activities are understood by the European Commission as any activities of an individual organised with the intention to improve their knowledge, skills, and competences and they are defined within a document named “Classification of Learning Activities (CLA)” in order to be universal in nature and applicable in all countries, irrespective of their development level or education and learning system. The two main criteria distinguishing learning activities from non-learning activities are as follows: the learning activity must be intentional (as opposed to random learning) and organised in some way, including by the learner him-/herself. CLA proposed the following categories, classes and sub-classes for the classification of learning activities<sup>406</sup>.

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<sup>404</sup> Saar E., Ure O. B., Holford J. (eds) (2013): *Lifelong Learning in Europe. National Patterns and Challenges*. Edward Elgar Publishing Limited, Cheltenham, p. 2-3. <https://www.e-elgar.com/shop/eep/preview/book/isbn/9780857937360/> (visited 28 October 2018).

<sup>405</sup> Eurostat: (2019): *Statistics Explained*. Adult Education Survey methodology. <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/44915.pdf> (visited 10 October 2019).

<sup>406</sup> EUROSTAT (2016): *Classification of Learning Activities. Manual*. Publications Office of the European Union, Luxembourg. <https://ec.europa.eu/eurostat/documents/3859598/7659750/KS-GQ-15-011-EN-N.pdf/978de2eb-5fc9-4447-84d6-d0b5f7bee723> (visited 31 October 2018).

Codes	Broad categories / classes / sub-classes	Explanatory notes
1.	<b>Formal education</b>	It refers to institutionalised learning activities, which are made up of structured hierarchical programmes with the following specificities: a chronological succession of levels and grades, admission requirements, formal registration and recognition by the relevant national education or equivalent authorities.
2.	<b>Non-formal education</b>	It refers to institutionalised learning activities which are made up of structured hierarchical programmes not recognised by the relevant national education or equivalent authorities.
2.1	Non-formal programmes	The programme is non-formal if it is not recognised by the relevant national education or equivalent authorities.
2.2.	Courses	They are typically subject-oriented, taught by one or more people specialised in a specific field or fields. They may take place in one or more settings/environments.
2.2.1.	Courses conducted via classroom instruction (including lectures)	Learning organised for a group of people in a classroom. It is built around a teacher/tutor/instructor passing on knowledge with the intention of providing instructions and educating.
2.2.2.	Combined theoretical-practical courses (including workshops)	All courses that combine classroom instruction (theoretical) with practice in real or simulated situations. It includes vocational apprenticeships, except those covered by formal education.
2.2.3.	Courses conducted through open and distance education	Courses which are similar to face-to-face courses, i.e. they may have elements such as a curriculum, registration, tutoring and even tests, but take place via postal correspondence or electronic media, linking the instructor/teacher/tutor with students who are not in the same place.
2.2.4.	Private tuition (private lessons)	Planned series of (supplementary) learning experiences offered by experts or others who act as experts, selected to deepen knowledge or skills, to learn more intensively, usually undertaken by only one or very few learners. Typically, the tutor (a physical person) is also the education 'provider' with education as their 'core activity'.

2.3.	Guided-on-the-job training	Planned periods of training, instruction or practical experience, using normal tools of work, either at the immediate place of work or in a work-situation, with the presence of a tutor. It is usually organised by the employer to make it easier for (new) staff, including transferred, re-hired and seasonal/temporary staff, to adapt to their (new) jobs.
2.4.	Other not specified elsewhere	This sub-category includes non-formal education activities which cannot be classified as one of the other broad categories. These may be activities very specific to a country or activities that are new on the market.
<b>3.</b>	<b>Informal learning</b>	Informal learning activities are not institutionalised. They include a less structured set of single learning activities. They can take place almost anywhere: within the family, with friends, at work, etc.
3.1.	Taught learning	Concerns any taught courses that were meant to lead to qualifications or any taught courses designed to help you develop skills that you might use in a job. Learning which has involved working on your own from a package of materials provided by an employer, college, commercial organisation or other training provider. It also might be any other taught course, instruction or tuition.
3.1.1.	Coaching / informal tuition	This includes a very wide range of learning experiences that are organised but not institutionalised, offered by experts or others who act as experts, selected to deepen knowledge or skills or learn more intensively, undertaken by one or very few learners. It also includes activities designed to assist and support individuals in other processes of learning.
3.1.2.	Guided visits	This includes a very wide range of organised events designed to pass on information within a predetermined limited period of time in a specific location. The location is the principal element of presenting the subject matter that the learner intends to learn about, and the keyway in which the provider passes on information. The key criterion for deciding whether such an activity is a learning activity or not is whether there is

		a predetermined learning objective prior to the visit.
3.2	Non-taught learning	Studying for qualifications without taking part in a taught course, time spent keeping up to date with developments in the type of work one does without taking part in a taught course. It is trying to improve your knowledge about anything or teach yourself a skill without taking part in a taught course.
3.2.1.	Self-learning	It is carried out by an individual on their own. It involves the use of one or more of the learning media presented in the classification of learning media, which may be combined with certain learning tools. Self-learning can take place in private, in public and in job-related settings/environments.
3.2.2.	Learning-group	Participation in all kinds of informal groups where there is no instruction. It can take place in private, in public and job-related settings/environments. The learners may communicate face-to-face or remotely. Distance group discussion channels include postal correspondence and electronic means.
3.2.3.	Practice	It typically involves the implementation or repetition of knowledge, methods, rules or instructions related to a subject, with the intention of improving personal performance in a specific area. It can be done in any setting/environment conducive to practising the subject matter. This can be in private, in public and in job-related settings/environments.
3.2.4.	Non-guided visits	This includes any visit undertaken with the predetermined purpose to learn, without the intervention of a guide. Tools like printed visitors' guides, brochures or pre-recorded audio guides may be used for this type of learning.

Table 5. Classification of learning activities Source: EUROSTAT (2016): Classification of Learning Activities. Manual. Publications Office of the European Union, Luxembourg; Beinart S., Smith P. (1997): National Adult Learning Survey Social and Community Planning Research, p. 79.

The need for lifelong education is today stronger than ever. Lifelong learning is seen as a solution to the particular changes of the contemporary age that must be overcome,

and it is used as a means promoting changes within socio-political systems, education and training institutions and in our understanding as citizens within society. As K. Nicoll and A. Fejes said “if nations do not join the race for a learning society, then all may be lost”<sup>407</sup>. Conforming to “European Report On Quality Indicators Of Lifelong Learning” the principal aims of lifelong learning are:

- “to build an inclusive society which offers equal opportunities for access to quality learning throughout life to all people, and in which education and training provision is based first and foremost on the needs and demands of individuals,
- to adjust the ways in which education and training is provided and at the same time to ensure that people’s knowledge and skills match the changing demands of jobs and occupations, workplace organisation and working methods and,
- to encourage and equip people to participate in all spheres of modern public life, especially in social and political life at all levels of the community, including at European level”<sup>408</sup>.

Lifelong learning and adult learning bring plenty of benefits differently characterized by researchers. European Commission carried out the BeLL project<sup>409</sup> (The Benefits of Lifelong Learning) between 2011 and 2014 among 10 European countries investigating the benefits to learners of participation in organised non-formal, non-vocational, voluntary adult education in Europe. The researchers identified three important themes:

- Bundles of benefits, because when participants spoke of benefits, they spoke of several of them *together*, describing ‘bundles of benefits.’
- Taking control of one's life by the fact that participants spoke of these bundles or cycles as something they had initiated for themselves, as a way to take control of their lives. This is expressed as control not just over how they spend at least some of their time, but who they spend it with.
- Choosing how to be old as a key aspect of this control was expressed in terms of making choices of how to be old<sup>410</sup>.

D. S. Hildebrand enumerates five benefits that lifelong learning conceives. It sharpens the mind, the confidence, the interpersonal skills, the career opportunities, the ability to

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<sup>407</sup> Nicolle K., Fejes A. (eds) (2008): *Foucault and Lifelong Learning. Governing the subject*. Routledge Taylor and Francis Group, London and New York, p. 2.

<sup>408</sup> European Commission (2002): *European Report On Quality Indicators Of Lifelong Learning*. Directorate-General for Education and Culture, Brussels, p. 5.

<sup>409</sup> [www-15] <http://www.bell-project.eu/cms/> (visited 31 October 2018)

<sup>410</sup> Daliviigkas N. (2014): *Benefits of Lifelong Learning – BeLL*. <https://ec.europa.eu/epale/en/resource-centre/content/benefits-lifelong-learning-bell> (visited 31 October 2018).

communicate. D. Mascle also noted five advantages concerning lifelong learning: the prospect of a fatter pay check, the enhanced self-esteem when reaching for new horizons, the freedom given to adult learners, the shift of schooling to a 24/7 model and long-distance or online methods and making the scholarship a habit<sup>411</sup>.

UNESCO in its third Global Report on Adult Learning and Education (GRALE III) gives examples of Adult Learning and Education benefits noticed among different countries. In Europe ALE brings economic benefits for employers, in China, physical exercise and musical activities have helped older adults improve their mental health and resilience, in the United States of America, ALE has led to better environmental behaviour and improved literacy, and in the Philippines, ALE programmes to promote breastfeeding and infant nutrition have helped reduce infant mortality<sup>412</sup>.

Two key aspects need to be considered when examining the evidence for the effects of adult learning. First, there are both direct and indirect effects. Next, the effects vary according to level: from an individual, through a household, to community/organisation, and finally to the overall population. He organised benefits into three categories: health, employment, and social and community which the author presented below in the form of schemes<sup>413</sup>.

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<sup>411</sup> Laal M. (2012): *Benefits of lifelong learning*. Procedia - Social and Behavioral Sciences No. 46, pp. 4268 – 4272. <https://core.ac.uk/download/pdf/82285919.pdf> (visited 2nd November 2018).

<sup>412</sup> UNESCO (2016): *3rd Global Report on Adult Learning and Education. Key Messages and Executive Summary*. UNESCO Institute for Lifelong Learning, Hamburg. <http://unesdoc.unesco.org/images/0024/002459/245917e.pdf>

<sup>413</sup> Schuller T. (2017): *What are the wider benefits of learning across the life course?* Future of Skills & Lifelong Learning Foresight, Government Office for Science, London. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/635837/Skills\\_and\\_lifelong\\_learning\\_-\\_the\\_benefits\\_of\\_adult\\_learning\\_-\\_schuller\\_-\\_final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/635837/Skills_and_lifelong_learning_-_the_benefits_of_adult_learning_-_schuller_-_final.pdf) (visited 31st October 2018).

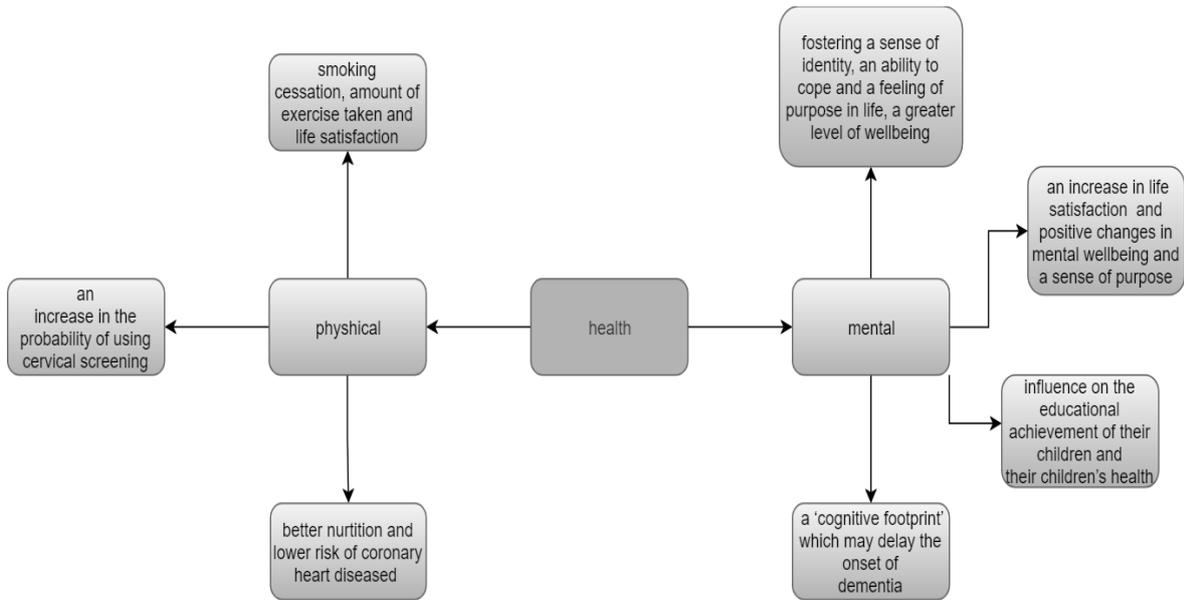


Figure 5. Health benefits based on Schuller T. (2017): What are the wider benefits of learning across the life course? Future of Skills & Lifelong Learning Foresight, Government Office for Science, London.

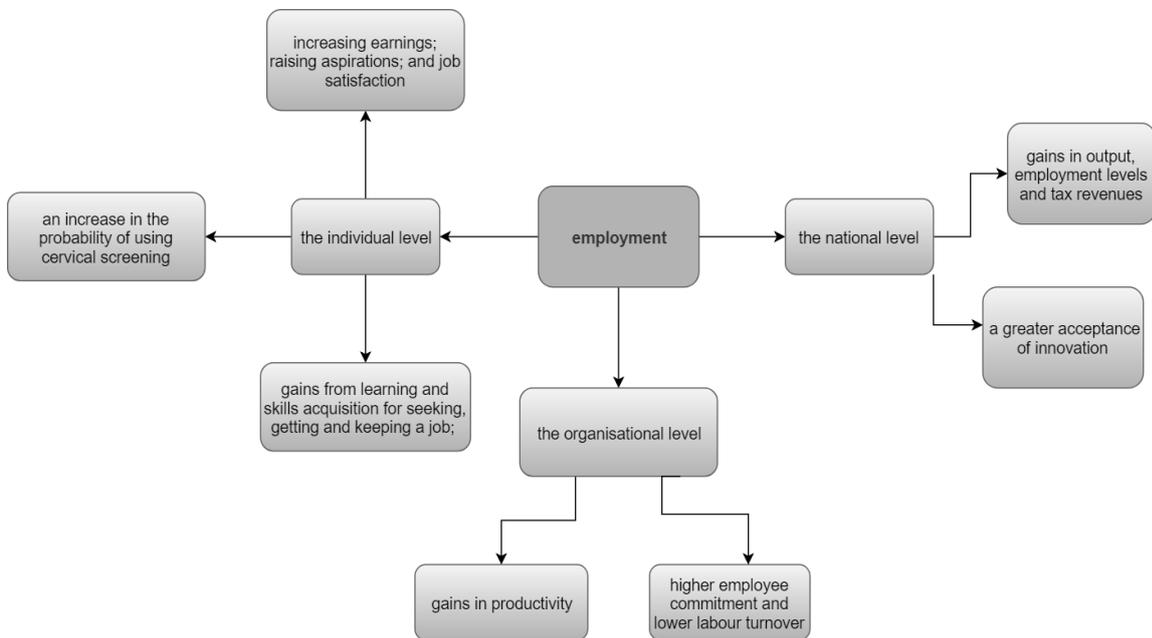


Figure 6. Employment benefits based on Schuller T. (2017): What are the wider benefits of learning across the life course? Future of Skills & Lifelong Learning Foresight, Government Office for Science, London.

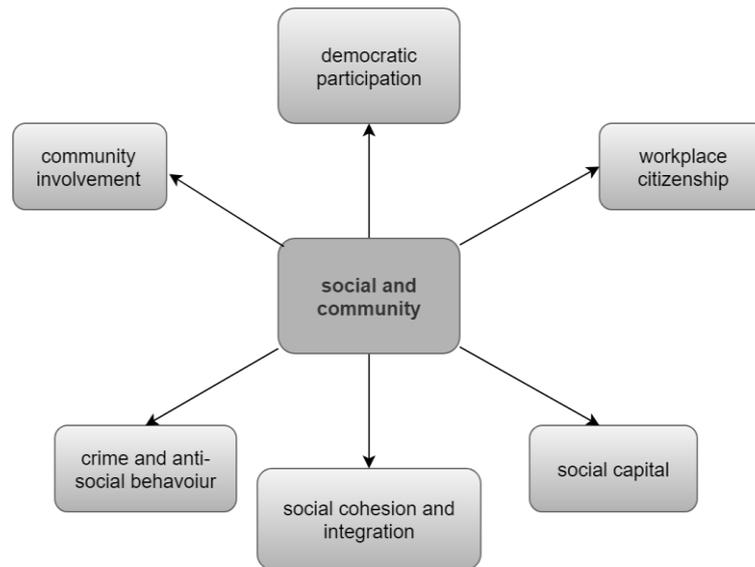


Figure 7. Social and community benefits based on Schuller T. (2017): What are the wider benefits of learning across the life course? Future of Skills & Lifelong Learning Foresight, Government Office for Science, London.

There are different models explaining why some people participate in adult learning, and others do not. We can share them into three categories: the first based on socio-economic and cultural dimension, second based on the psychological dimension and third focusing on socio-demographic dimension. G. S. Becker, the winner of the Nobel Prize in Economy, is the author of the human capital theory based on socio-economic dimension. He claims that people can invest in educational activities with the aim of increasing their productivity and skills, which, in consequence, have a positive impact on a person's daily life<sup>414</sup>. Desjardins et al. popularize model of inequality in which adults who are not highly skilled are unemployed and are over the age of 45 have fewer chances to become adult learners<sup>415</sup>.

<sup>414</sup> Boeren E., Nicaise I., Baert H. (2010): *Theoretical models of participation in adult education: the need for an integrated model*. International Journal of Lifelong Education, Vol. 29, No. 1(January-February 2010), pp.45-

61 .[https://www.researchgate.net/publication/248983127\\_Theoretical\\_models\\_of\\_participation\\_in\\_adult\\_education\\_The\\_need\\_for\\_an\\_integrated\\_model](https://www.researchgate.net/publication/248983127_Theoretical_models_of_participation_in_adult_education_The_need_for_an_integrated_model) (visited 28 October 2018).

<sup>415</sup> Boeren, E, Nicaise, I & Baert, H (2012): *Adult learners' satisfaction and its relation to characteristics of the individual and the educational institution* Pedagogies, vol 7, no. 2, pp. 132-149 Available from: [https://www.researchgate.net/publication/254308649\\_Adult\\_learners'\\_satisfaction\\_and\\_its\\_relation\\_to\\_characteristics\\_of\\_the\\_individual\\_and\\_the\\_educational\\_institution](https://www.researchgate.net/publication/254308649_Adult_learners'_satisfaction_and_its_relation_to_characteristics_of_the_individual_and_the_educational_institution) (accessed 28 October 2018).

Socio-psychological theories of the 20<sup>th</sup> century are presented by I. Azjen and M. Fishbein, K. Rubenson, P. Cross, O. Darkenwald and S. Merriam. In the 21<sup>st</sup> century H. Baert, K. De Rick, and K. Van Valckenborgh present a more comprehensive model integrating different elements of the other models into one coherent model. Psychologically inspired strand sees participation as an outcome of a disposition towards participation. I. Azjen and M. Fishbein proposed a model in which behaviour is the outcome of an intention towards that behaviour. This intention is a function of attitudinal (i.e. beliefs and evaluation of the behaviour) and normative considerations (i.e. beliefs of others and motivation to comply with these beliefs). K. Rubenson's expectancy valence starts with psychological theories of motivation. He refers to work of theorists like K. Lewin, E. Tolman, D. McCellan and J. Antkinson explaining human behaviour in terms of the interaction between the individual and the environment. Other words, the interaction between one's acquired experience and a way of perceiving and experiencing it. The valence refers to the importance of the likely outcomes of participation: "valence is concerned with effect and can be positive, indifferent, or negative. Its strength depends on the anticipated consequences of participation. For example, participation in adult education can lead to higher pay, but it can also mean seeing less of the family"<sup>416</sup> and the expectancy refers to the likelihood of achieving outcomes: "If the individual does not perceive himself as able to participate successfully or if there seems to be no reward for doing so- the resultant force is zero, and there is no motivation to participate."<sup>417</sup>

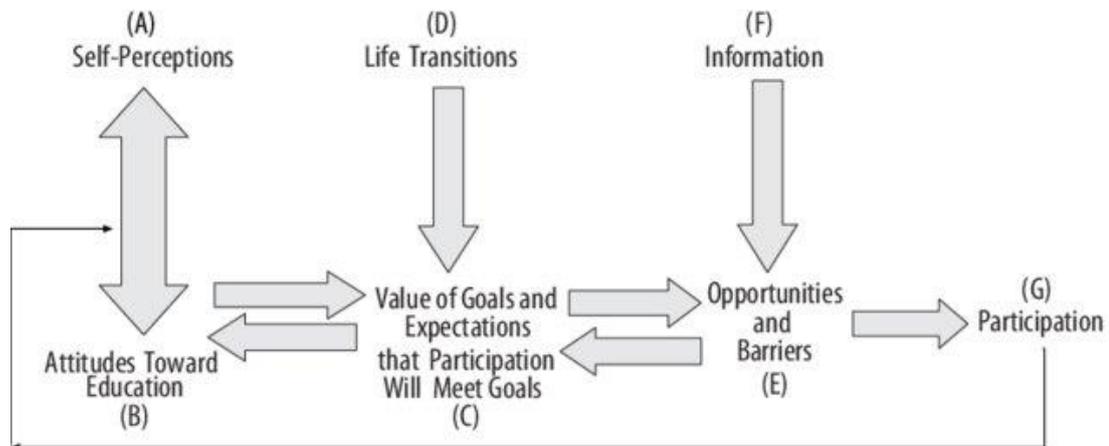
Cross's chain-of-response model (illustrated at the next page) puts an emphasis on psychological and environmental variables. It begins with one's self-perception and attitudes toward education. Then the model moves on to external factors, including opportunities and barriers. The third phase consists of expectations and the values attached to participation. In keeping with the model, factors like life transitions, information, opportunities and barriers further influence whether or not a person participates in adult education. Finally, the significance of obstacles depends on how strong an interest the individual has in learning.

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<sup>416</sup> Jarvis P., Griffin C. (eds) (2003): *Adult and Continuing Education. Major Themes in Education. Volume 4: Teaching, Learning and Research*. Routledge Taylor and Francis Group, p. 44.

<sup>417</sup> Ibidem.

### Chain-of-response model, P. Cross (1981)



Picture 4. Chain-of-response model. Source: Boeren, E. (2009): Adult education participation: the Matthew principle. [in:] *Filosofija- Sociologija*, vol 20, No. 2, p. 159.

O. Darkenwald and S. Meriam developed Psychological Interaction Model which is similar to Cross' model in that it conceptualises participation as a function of internal and external stimuli, however, they put an emphasis on the importance of socio-economic status as a result of the initial individual and family characteristics and the preparatory education and socialisation for later participation in adult education and training. At the centre of Baert, De Rick, and Van Valckenborgh's model is the individual and a chain of responses starting with the perception of a(n) (educational) need which is influenced by the individual's biography including socio-demographic, psychological, and educational characteristics, and living conditions. This perception of an educational need, jointly with attitudinal and normative considerations, influences an educational demand and ultimately, educational participation. Present educational participation equally depends on attributes pertaining to the fields of adult education and lifelong learning (i.e., characteristics of the learning process, structural/organisational context, and cultural context)<sup>418</sup>. Analysing socio-psychological factors determining participation in lifelong learning the author wants to take notice of well-known, developed in the 1960s, Maslow's Need Hierarchy of Human Needs. Maslow claimed there is a hierarchy of human needs, each of which must be satisfied, although not completely, before the next level asserts itself. The needs of human beings could be distinguished and prioritized into five levels in which all the basic lowest

<sup>418</sup> Cincinnato S., De Wever B., Valcke M. (2014): *The Learning Divide in Formal Adult Education: Why do low-qualified adults participate less?* Conference paper: Local Change, Social Actions and Adult Learning: Challenges and Responses At: Lisbon, Portugal.

needs are at the bottom, and the needs concerned with human being's highest potential are at the top. In rising order, these needs are identified as physiological, safety, belongingness and love, esteem, and self-actualization. There are different opinions approving and discrediting that theory, nevertheless, this means that an educational experience has to guarantee a number of conditions<sup>419</sup>. If the basic needs like shelter, food, health, sleeping are not satisfied, then self-development cannot be realized as all efforts are focused on these basic needs. One's behaviours will be concentrated on meeting the needs in the lowest order, and then will progress to higher orders as needs are satisfied<sup>420</sup>.

Socio-demographic dimension of participation in lifelong learning bases on the fact that for most people, learning patterns change with age. Firstly, in many countries, there is a very traditional way of perceiving life courses, so there is a period in which we learn, during childhood, and then there is a period in which we work and form our families<sup>421</sup>. For majority employment-related motivations to learn decline with age. People in later working life and retirement do not feel the 'need' for qualifications, which are primarily designed for labour market entry<sup>422</sup>. We must not forget about the fact that European society is ageing and the condition mentioned above is going to continue.

B. Worek also explains factors determining adults participation in education. The first reason she mentions is when adults notice the sense and the need of learning by themselves, when someone else encourages and motivates them or when they see benefits coming from learning, however, not necessarily financial. The second factor includes access to necessary resources, like time, money and information which allow to find the appropriate offer and take part in a piece of training. The third issue is connected with difficulties and obstacles, for example, the necessity of taking care of a family member or health problems<sup>423</sup>.

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<sup>419</sup> Bullock I. et. al. (2016): *Pocket Guide to Teaching for Clinical Instructors*, 3rd edition. John Wiley & Sons, Ltd, pp. 1-10.

<sup>420</sup> Burlison S. E., Thoron A. C. (2014): *Maslow's Hierarchy of Needs and Its Relation to Learning and Achievement*. The Institute of Food and Agricultural Sciences, <https://edis.ifas.ufl.edu/pdffiles/WC/WC15900.pdf> (visited 31st October 2018).

<sup>421</sup> Chłoń-Domińczak, A. (2012): *The Necessity of Lifelong Learning*. Interview with Sigrun Matthiesen. Berlin: Population Europe. <https://www.population-europe.eu/policy-insights/necessity-lifelong-learning> (visited 31st October 2018).

<sup>422</sup> McNair S. (2009): *Demography and Lifelong Learning. IFLL Thematic Paper 1*. National Institute of Adult Continuing Education, Leicester. <https://www.learningandwork.org.uk/wp-content/uploads/2017/01/Demography-and-Lifelong-Learning-Thematic-Paper-1.pdf> (visited 31st October 2018).

<sup>423</sup> Worek B. (2019): *Uczące się społeczeństwo. O aktywności edukacyjnej Polaków*. Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków, pp. 37-67.

As was stated by OECD a broader conception of lifelong learning requires countries to improve access to early childhood education, to improve young people's motivation to learn and their capacity to learn independently, and to address learning deficiencies in adults, as well as to focus on achievement standards and to try to raise the level of competence for all. "Young people need to be better motivated within the school and encouraged to complete upper-secondary education. (...) Adults too need to be motivated by teaching them in distinctive ways by making learning more convenient for them and by attracting those who have been put off learning but more generally by developing a learning culture"<sup>424</sup>.

The former president of the European Commission, Jean-Claude Juncker, emphasised the need for increased support for the development of skills and strengthening of lifelong learning within the European Union. The European Commission called for a renewed European Agenda for Adult Learning within the Europe 2020 strategy which views education as a key priority area and calls for at least 15% of its adults engaging in lifelong learning by 2020<sup>425</sup>.

For the last century, there were different reasons for participating in lifelong learning: comeback from the war, access to the culture or preparing adults for performing work tasks. Although reasons for lifelong learning have changed, the aim remained the same: upgrading skills throughout the life to cope with the modern world. Besides, upskilling is not the only outcome of lifelong learning. It brings a variety of benefits which were divided into three categories: health, employment, and social and community which means that upgrading skills which have an impact on many aspects of life, not only work. The term of the modern world is similar to the term of new media; it will always be modern for the current generation; consequently, each generation will have to deal with technological development and participate in lifelong learning. The idea of lifelong learning consists of learning in different environments: formal, non-formal and informal. Although formal education is the base which allows learning more, all types of learning should be present in humans' lives as they have slightly different function and allow individuals to adjust kind of learning to individual needs and individual current situations.

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<sup>424</sup> OECD (2001): *Lifelong Learning for all policy directions*. pp. 14-15.

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/cote=DEELSA/ED/CERI/CD\(2000\)12/PART1/REV2&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/cote=DEELSA/ED/CERI/CD(2000)12/PART1/REV2&docLanguage=En) (visited 12 November 2018).

<sup>425</sup> European Association for the Education of Adults (2018): *Adult Education And Sustainability*. EAEA, Brussels p. 5. [https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability\\_paper\\_final\\_9\\_2018.pdf](https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability_paper_final_9_2018.pdf) (visited 12 November 2018).

The collation based on Eurostat publication prepared by the author in the form of the chart let clarify and made readers sure what actions are the learning actions as well as it presented a variety of and flexibility of learning activities.

As the author mentioned earlier, there are different reasons why adults do not participate in lifelong learning. They include motivational factors, preparatory education for later participation in adult education, individual's biography including socio-demographic, psychological, and educational characteristics, and living conditions and finally the Hierarchy of Human Needs. Having known these factors and types of educational activities, we are able to make society aware of the importance of lifelong learning. Informal learning is given very little significance, however, we have got the easiest access to it, and it is the most flexible form of learning. If the society knows what kinds of educational activities are, how flexible they can be and how to take part in them, it will have a chance to manage it consciously.

### **2.3.3. The significance of non-formal and informal learning for lifelong education**

Adults who learn lifelong take up activities in all stages of their lives in order to deepen their knowledge, skills, competences and other attributes. Dynamically changing reality poses challenges in the form of the need to enrich human capital already possessed and to acquire a new one. The framework of policy for lifelong learning encompasses activities supporting learning at all stages of life, both in the formal, non-formal and informal system<sup>426</sup>. A billionaire businessman and EdTech investor Mark Cuban, explained that as an employer he desires the best prepared and qualified employees. The way they have acquired their knowledge is less important than the ability to do the job. He wants the best and brightest staff, not a piece of paper<sup>427</sup>.

UNESCO characterises non-formal education as institutionalized, intentional and planned by an education provider. It is alternative and/or a complement to formal education within the process of the lifelong learning of individuals. "It is often provided to guarantee the right of access to education for all. It caters for people of all ages, but

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<sup>426</sup> Szulc-Obłoz A. (2017): *Kształcenie osób dorosłych w Polsce jako forma inwestycji w kapitał ludzki*. Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu, No 489, pp. 405- 415. [www.dbc.wroc.pl/Content/39387/SzulcObloza\\_Kształcenie\\_Osob\\_Doroslych\\_w\\_Polsce\\_Jako\\_Forma\\_2017.pdf](http://www.dbc.wroc.pl/Content/39387/SzulcObloza_Kształcenie_Osob_Doroslych_w_Polsce_Jako_Forma_2017.pdf) (visited 8 November 2017).

<sup>427</sup> Degreed (2015): *The Growth of Informal Learning and the Opportunity It Creates*. Degreed.

does not necessarily apply a continuous pathway-structure; it may be short in duration and/or low intensity, and it is typically provided in the form of short courses, workshops or seminars. Non-formal education mostly leads to qualifications that are not recognized as formal qualifications by the relevant national educational authorities or to no qualifications at all. Non-formal education can cover programmes contributing to adult and youth literacy and education for out-of-school children, as well as programmes on life skills, work skills, and social or cultural development”.

On the other hand, informal learning includes “forms of learning that are intentional or deliberate but are not institutionalized. They are less organized and structured than either formal or non-formal education. Informal learning may include learning activities that occur in the family, in the workplace, in the local community, and daily life, on a self-directed, family-directed or socially-directed basis”<sup>428</sup>. Non-formal and informal adult learning plays a significant role in social inclusion, active citizenship, as well as personal development and well-being.

Even though lifelong learning accepts all forms of learning, informal learning remains special because an individual has total control over the learning process and its results by choosing learning forms that suit him/her best at a particular time. Characteristics of informal learning include implicit, unintended, opportunistic and unstructured learning and the absence of a teacher. 70- 75% of an individual's knowledge is acquired through informal education. We need formal education as a starting point for getting all other knowledge which is continually gained throughout life and whose function is an adaptation to current living conditions. Informal learning is based on conversation, social interactions and team projects in which learning is a part of the interaction between people. There are two models of informal learning: face-to-face (events and team projects) and virtual (web-based collaborative spaces)<sup>429</sup>. Another finding shows that each hour of formal learning gives rise to four hours of informal learning a 4:1 ratio.

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<sup>428</sup> UNESCO: *Glossary: informal learning* <http://uis.unesco.org/en/glossary> (visited 8 November 2018).

<sup>429</sup> Pozgaj Z. (2008): *Informal Learning in Lifelong Education*. 31st International Convention MIPRO 2008 in Opatija, Croatia, <http://journals.sfu.ca/onlinejour/index.php/i-jet/article/viewFile/612/593> (visited 6th November 2018).

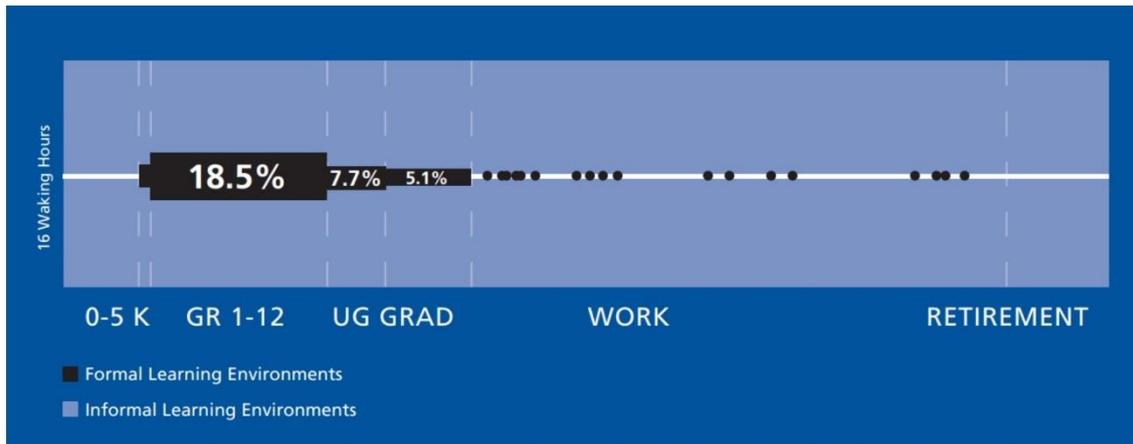


Figure 8. Estimated time spent in formal and informal learning environments source: Center for Multicultural Education (2007): Learning in and out of school in diverse environments. Life-long, Life-wide , Life- deep. University of Washington, Seattle, p. 9.

Informal learning is largely invisible, as much of it is either taken for granted or not recognized as learning. The resultant knowledge is regarded as part of one's general capability, rather than something that has been learned and finally, discourse about learning is dominated by codified, propositional knowledge, so respondents often find it difficult to describe more complex aspects of their work and the nature of their expertise. People suppose that working and learning are two separate activities that never overlap, but in fact, most workplace learning occurs on the job rather than off the job<sup>430</sup>.

K. Głabicka enumerates kinds of non-formal and informal education forms of learning. She includes workshops and seminars in the workplace, courses after work, training organized by the employer with the instructor, private lessons and courses with the teacher, guided on the job training, open and distance education to forms of non-formal activities. Informal forms are associated with learning events, activities on a self-directed, family-directed or socially directed basics.

To make a clear distinction between non-formal and informal education, the author prepared the following juxtaposition based on many different sources used in the work.

<sup>430</sup> Eraut M. (2004): *Informal learning in the workplace*, *Studies in Continuing Education*, 26:2, 247-273, DOI: 10.1080/158037042000225245 (visited 6th November 2018).

	<b>Non-formal education</b>	<b>Informal education</b>
<b>methods</b>	Vertical relation similar to academic studies. Courses can interlace with the practice. Mentoring can appear during practice.	Interactive relation between students and their environment. Learning through practice. Peer education and mentoring is used.
<b>environment</b>	The setting is outside dedicated learning institutions, most often in places where learning is not the primary business.	Anywhere
<b>content</b>	Practical skills determined by education authorities.	Content chosen by a student. There is no formula, apart from gaining specific experience.
<b>certificate</b>	A certificate is issued at the end of the course after positive verification of knowledge and practical skills. It is based on criteria defined by education authorities.	Lack of a certificate.
<b>duration</b>	Usually short duration, up to several years after graduation from school.	Lifelong
<b>costs</b>	Tuition, transport, accommodation, purchase of learning materials, time and psychological loss related to stress.	Difficult to measure, time is the main cost.
<b>advantages</b>	It is short but it provides practical skills used at work. Certification in a form of vocational training diploma.	Accessible during all stages of life. A kind of second chance for youths with littler opportunities.
<b>disadvantages</b>	Not chosen by students but imposed in advance by the education authority. Changing labour market makes these qualifications out of date. Not always recognised in European countries.	Lack of formal validation

Table. 6. Characteristic features of non-formal learning and informal learning. Source: the author's own work.

The development of the learning society and knowledge-based economy affect the level and the quality of worker qualifications as well as employers' demands. Education and

level of these qualifications determine success when it comes to meeting the challenges of global competition. Lifelong learning becomes an inevitable element of the career; that is why the issue of employee qualifications is getting more and more important. As was reported by Ż. Goździk, formal education system has a relatively high poor pace of adaptation to the needs of changing economies.

Consequently, it causes the increase of the role of informal education which in a much more flexible way, reacts to new one's challenges. Thus, complementing the growing gap in educational needs, and statistical data confirm the growing role of this form of education. The level of the country's economic development influences interest in non-formal education. Economically developed countries are characterized by a higher proportion of employees using informal education. Formal education is, without any doubt very important and allows to develop specific knowledge of a worker or to change qualifications when needed. Nevertheless, it is not sufficient when it comes to effective discharging specific tasks at work. In that situation, employers organise additional training and graduates take up educational activities in order to gain more detailed knowledge. Forms of training mentioned above are usually organised within the informal education system. They do not increase their formal employee qualifications but provide it with more detailed knowledge, which results in better matching of the candidate to the requirements of the labour market. Fast generated specialist knowledge also outdates fast, so there is a high need for continuous updating. Another issue is the interdisciplinarity of new professions. Nowadays, an employee's knowledge should not be based on one area only but different ones. Informal education enables relatively quick and effective knowledge acquisition in the fields for one's completely new and necessary for the development of one's professional career. The role of informal education is strongly emphasised by employers and employees as well as bodies responsible for forming individual policies at the state and international level<sup>431</sup>.

As non-formal and informal education have complicated nature, they meet important challenges. They were broadly discussed in the paper prepared by the European Association for the Education of Adults which will be brought closer in the following section <sup>432</sup>. The first challenge is a lack of public funding and privatisation and

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<sup>431</sup>Goździk Ż. (2003): *Edukacja nieformalna a potrzeby rynków pracy w państwach członkowskich Unii Europejskiej*. Acta Universitatis Lodziensis, Folia Oeconomica 170, p. 133- 154.

<sup>432</sup>European Association for the Education of Adults (2018): *Adult Education and Sustainability*. Brussels. [https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability\\_paper\\_final\\_9\\_2018.pdf](https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability_paper_final_9_2018.pdf) (visited 12 November 2018).

commercialisation of education. Adult education programmes and providers remain ill-funded by the reason that the adult education sector is increasingly affected by cuts in government budgets. Also private and commercialised education, which importance has been increasing recently, often employs low-paid trainers or teachers cutting on costs wherever it is possible (which results from the Public Procurement Act). As a result, private service providers in adult education tend to offer education services of lower quality than public services. At the same time, programmes offered by private providers are less accessible as they often require high fees for course enrolment; therefore, they exclude those from more disadvantaged backgrounds.

The second challenge is the marginalisation of non-formal adult education. Despite research studies concerning non-formal education (e.g. BELL which was mentioned earlier), non-formal adult education has stepped to the background. Large numbers of unemployed in many European countries and many vacancies for specialised jobs made upskilling and reskilling for employability a priority of the European institutions and governments at the national level. For this reason, most policy-making in adult education shifted its focus to Vocational Education and Training (VET).

International competition and standardisation in education is the third challenge. Statistics on educational attainment have led to strong international competition and standardisation in education which is contradictory to the fact that educational outcomes in adult education need to be assessed on an individual level as adult students come with very different backgrounds and educational experience as well as expectations concerning their learning achievements.

The significant challenge is the measurability of participation and success in adult education on the grounds that it has a large influence on projects and policies in order to decide on (further) financial and/or technical support. In a case of adult education, quantitative data does not always capture the whole picture of human, social, economic or ecological development that adult education triggers, therefore it is often based on qualitative data, gathered by in-depth interviews, observations or ethnographies with a narrative or biographic approach. To gain the confidence of the benefits of adult education, formal and non-formal education sectors have to team up and cooperate to prove the benefits empirically.

The last challenge is the neglect of literacy. It was assumed that literacy was a skill acquired at the primary school level or after a certain number of years in the education system. Because of the very high rates of participation in primary education in many

countries and the average years of schooling were growing worldwide, the conclusion was drawn that literacy was achieved in most countries. Unfortunately, new studies (e.g. PIAAC<sup>433</sup>) have shown that many people have problems with reading and writing, even after attending school at the primary and secondary level. Literacy and illiteracy are a continuum, though. Illiteracy can mean that people can read and write, but do not understand the full meaning of a text they have read, or are only able to write a meaningful text themselves that is why it should be included in Sustainable Development Goals 2030<sup>434</sup>.

To conclude, vocational training and lifelong learning are strictly connected. Both of them are addressed to adults after finishing formal education, and they have got the same goal: to upgrade skills and professional qualifications. Although their history starts at different times, the reasons remain similar; comeback from the war and shortage of qualified workers. As the issue concerns adults who have to work, who are in different stages of life, have different duties, participation in learning has to be flexible, accessible and not so demanding as at school. For that reason, non-formal and informal education is significant. Types of education and educational activities were broadly discussed in order to show their great variability and prove that everyone can participate in lifelong learning, adjusting the type of education or educational activity to one's possibilities and individual predispositions. Z. Pozgaj states: "The main advantage of informal learning regarding other forms of learning is the freedom of choice when it comes to the learning process itself. One chooses for oneself what, when, where, with whom and in what way will they learn. There is no pressure, and no deadlines for acquiring new knowledge and skills, only one's own pleasure. That is also the greatest value of informal learning"<sup>435</sup>. Modern world offers limitless opportunities of learning. Thanks to Web 2.0, gaining knowledge is easier than ever. New media and technology foster an immediate exchange of information and feedback. Crowd learning in which anyone can be a teacher, anyone can share own knowledge and experience, anyone has something to offer, is a part of informal education

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<sup>433</sup> PIAAC stands for The programme for the International Assessment of Adult Competencies. It developed and conducts the Survey of Adult Skills. The survey measures adults' proficiency in key information-processing skills - literacy, numeracy and problem solving in technology-rich environments - and gathers information and data on how adults use their skills at home, at work and in the wider community.

<sup>434</sup> The 2030 Agenda for Sustainable Development Goals was adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.

<sup>435</sup> Pozgaj Z. (2008): *Informal Learning in Lifelong Education*. 31st International Convention MIPRO 2008 in Opatija, Croatia, p. 4 <http://journals.sfu.ca/onlinejour/index.php/i-jet/article/viewFile/612/593> (visited 6th November 2018).

which in a broader sense is a part of vocational training, and all of these constitute lifelong learning. The potential of crowd learning is like a rough diamond today, which can shine tomorrow, and the process of grinding should be based on creating opportunities for society to allow them to fully use their potential. A crowd-learning platform is one of these opportunities, especially in Poland, the number of adults taking part in lifelong learning is low.

## **2.4 A growing presence and importance of the media for lifelong learning participation.**

### **2.4.1. Lifelong learning in Europe through the eyes of UNESCO.**

GRALE, known as The Global Report on Adult Learning and Education, provides a clear and comprehensive picture of a condition of adult learning and education around the world. Four reports have been published since 2009. GRALE monitors whether the UNESCO Member States are putting their international Adult Learning and Education commitments into practice. The reports combine survey data, policy analysis, and case studies to provide policy-makers and practitioners with sound recommendations and examples of good practice. They present strong evidence on how Adult Learning and Education can help countries address current and future challenges, including the Sustainable Development Goals as well as the importance of media and information technologies for distance learning, Adult Learning and world of work.

In the first report from 2009, we can find that lifelong learning remains more of a vision than a reality. It was stated that overall participation rates in adult education in most countries are low, and there are very significant inequalities of access and participation both within and between nations. Large differences in adult education participation between countries at different development stages were expected; however, variation between countries at the same development stage suggested that participation is not only a function of income level (per capita GDP), but a consequence of other factors, particularly the impact of public policy. It was noticed that Nordic countries were significantly higher than countries with similar levels of per capita GDP such as Australia, Belgium, Canada, France, Germany, Switzerland, the United Kingdom and the United States of America. While New Zealand, Slovenia, the Czech Republic and Portugal had similar income levels, participation rates were considerably higher in the first two than in

the latter two countries. National Reports led to highlight several factors determining participation in lifelong learning:

- the degree to which public policies are supportive of adult education,
- the extent to which governance and provision structures foster and promote adult participation in education and learning opportunities at work,
- how much communities attach social value to adult learning and education,
- the level of political commitment to diverse learning cultures and regard for learning as a means to improve social cohesion<sup>436</sup>.

Adult learning and education bring social benefits by creating more democratic, peaceful, inclusive, productive and healthy societies. In order to gain the benefits coming from adult education, policies must be backed by appropriate resources, however, the chronic under-investment in adult learning and education remains complaint in most countries of the world. GRALE recommended increasing governmental funds for lifelong learning policy.

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<sup>436</sup> UNESCO (2009): *Global Report on Adult Learning and Education*. UNESCO Institute for Lifelong Learning, Hamburg. <http://unesdoc.unesco.org/images/0018/001864/186431e.pdf> (visited 4 December 2018).

**Table 4.2**  
Participation by adults in formal or non-formal education and training,  
by country, gender and age, 2007 (percentages)

Country	Sex			Age		
	Male	Female	Total	25-34 years	35-54 years	55-64 years
Austria	44.0	39.9	41.9	47.1	45.7	25.4
Bulgaria	37.9	35.0	36.4	44.7	39.7	20.3
Cyprus	43.0	38.2	40.6	53.2	41.1	20.1
Estonia	36.9	46.7	42.1	52.5	42.6	27.5
Finland	48.9	61.3	55.0	66.0	58.6	37.8
France	36.4	33.8	35.1	48.2	35.9	16.2
Germany	48.3	42.4	45.4	53.3	48.7	28.2
Greece	14.3	14.6	14.5	22.7	14.0	5.1
Hungary	8.3	9.6	9.0	15.8	9.0	2.5
Italy	22.2	22.2	22.2	30.5	23.0	11.8
Latvia	25.9	39.0	32.7	39.0	34.3	21.8
Lithuania	28.7	38.7	33.9	42.7	35.1	19.0
Norway	53.3	55.9	54.6	65.0	55.5	41.2
Poland	21.3	22.4	21.8	34.1	20.7	6.8
Slovakia	45.3	42.8	44.0	51.0	48.3	23.8
Spain	30.8	31.0	30.9	39.7	30.8	17.0
Sweden	70.8	76.1	73.4	81.0	76.4	60.7
United Kingdom	47.2	51.3	49.3	58.8	50.3	37.0
<b>EU average</b>	<b>36.1</b>	<b>35.4</b>	<b>35.7</b>	<b>44.7</b>	<b>37.2</b>	<b>21.6</b>

Table 8. Participation by adults in formal or non-formal education and training by country, gender and age in 2007, Eurostat (2009).

The second GRALE Report from 2012 focused on the existence of laws, legal regulations or other public policy measures/initiatives with a primary focus on supporting lifelong learning. Countries from Europe and North America comprised the majority of those with national lifelong learning strategies. At the same time, it should be noted that in this region, lifelong learning strategies mainly focused on adult continuing learning and education, often with a view to vocational upgrading. Many of these policies, particularly in Eastern European countries, came into existence between 2005 and 2007 (for example, in Bulgaria, Cyprus, the Czech Republic, Estonia, Latvia and Lithuania). The problem was that many of the measures reported by countries as lifelong learning policies in fact either made no explicit reference to lifelong learning or did not include a lifelong learning perspective. For example, the national education act dealing with formal education was often mentioned as an instrument of lifelong learning policy. In many other cases,

measures focusing on non-formal, adult or continuing education or vocational training were classified under the category of lifelong learning. In some cases, the policy classified as lifelong learning was the same as the one indicated as an adult education policy.

While the first report only mentions the development of modern technologies that are changing the world of education and work, the second report stresses that “our understanding of the world is increasingly mediated by the written word, in both print and digital forms”<sup>437</sup>. Therefore, the abilities to read and the need to select and use knowledge from a range of sources (including online sources) is a challenge for those who have poor reading and writing skills. Here, the term literacy refers not only to ability to read and write but also to media literacy which is a basic skill enabling participation in lifelong learning.

Referring to the first GRALE which documented the chronic under-investment in adult learning and education in most countries of the world, the second GRALE report indicated that very few countries have committed even one per cent of their gross national product, with even less in some developing countries. The evidence from the national progress reports suggested that adult education remained a low priority for investment for governments and international development assistance alike. That situation was caused by external and systematic factors. Firstly, since 2000 when the Millennium Development Goals (MDGs)<sup>438</sup> included only two of the Education for All (EFA) Goals – those promoting universal primary schooling and gender parity at school. While there had been real progress in addressing these two EFA goals, investment in youth and adult education had been neglected. Secondly, the global financial crisis of 2008 and 2009 affected the global economy. Thirdly, difficulties in managing cross-departmental financial agreements and coordinating investment of the private sector and civil society organisations foreclosed representation of the full investment picture, since few of social policies were able to take into account the contributions made by the private sector, CSOs or ministries other than the ministry of education.

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<sup>437</sup> UNESCO (2013): *2nd Global Report on Adult Learning and Education. Rethinking Policy*. UNESCO Institute for Lifelong Learning, Hamburg, p. 17.  
<http://unesdoc.unesco.org/images/0022/002224/222407E.pdf> (visited 6 December 2018).

<sup>438</sup> Millennium Development Goals (MDG) - The 2010 MDG Summit concluded with the adoption of a global action plan - Keeping the Promise: United to Achieve the Millennium Development Goals-- and the announcement of a number of initiatives against poverty, hunger and disease. In a major push to accelerate progress on women's and children's health, a number of Heads of State and Government from developed and developing countries, along with the private sector, foundations, international organizations, civil society and research organizations, pledged over \$40 billion in resources over the next five years.

In May 2009, the European Council adopted a renewed set of benchmarks for adult participation in lifelong learning by 2020. Although the former benchmark of a 12.5 per cent participation rate in adult lifelong learning has not been reached in many countries in the region, a higher benchmark of 15 per cent of adults participating in lifelong learning was established. Table 9. indicates that the average participation rate in the region decreased from 9.3 per cent in 2009 to 8.9 per cent in 2011.

Researchers indicate four factors determining participation in lifelong learning: situational barriers (those arising from one's situation in life), institutional barriers (practices and procedures that hinder participation), dispositional barriers (attitudes and dispositions towards learning) and informational barriers (lack of information on education, learning opportunities and benefits). Although these factors differ among countries, there are some regularities.

1. The socio-economic background is a key predictor of participation in adult education and training. People with more social, economic and cultural capital tend to participate more than those with less.
2. Prior learning plays a large part in determining participation. People who continued in initial education until age 21 or later are far more likely to participate in adult education than those who left school at an earlier age.
3. A gender gap in participation is narrowing and moving towards parity. Men are more likely to learn at work or independently, and women are more likely to learn within either publicly funded or community facilities.
4. The older people are, the less likely they are to participate in learning. People aged 17–54 participate for work or career reasons, while those over 65 tend to participate for personal and leisure interests.
5. Many people are at risk of being excluded from the use of information and communication technologies (ICT) and other social media. In order to make equitable access for all, Member States agreed on removing these “barriers to participation” that prevent people from learning which was hurdles and a multi-layered process<sup>439</sup>.

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<sup>439</sup> UNESCO (2013): *2nd Global Report on Adult Learning and Education. Rethinking Policy*. UNESCO Institute for Lifelong Learning, Hamburg. <http://unesdoc.unesco.org/images/0022/002224/222407E.pdf> (visited 6 December 2018).

**Table 5.4**  
Percentage of the population aged 25–64 participating in adult education in Europe

	2009			2011			Changes (2009–2011)					
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Low educated	Unemployed	
<b>EU</b>												
<b>(27 countries)</b>	<b>9.3</b>	8.4	10.2	<b>8.9</b>	8.2	9.6	<b>-0.4</b>	-0.2	-0.6	3.9	9.1	
<b>Austria</b>	13.8	12.8	14.7	13.4	12.2	14.5	-0.4	-0.6	-0.2	4.1	18.6	
<b>Belgium</b>	6.8	6.4	7.2	7.1	6.7	7.4	0.3	0.3	0.2	3.1	8.9	
<b>Bulgaria</b>	1.4	1.3	1.5	1.2	1.2	1.2	-0.2	-0.1	-0.3	:	:	
<b>Cyprus</b>	7.8	7.8	7.8	7.5	7.2	7.8	-0.3	-0.6	0.0	(1.3)	6.9	
<b>Czech Republic</b>	6.8	6.5	7	11.4b	11.2b	11.6b	4.6	4.7	4.6	2.8b	7.5b	
<b>Denmark</b>	31.2	25.3	37.2	32.3	25.6	39	1.1	0.3	1.8	23.4	35.1	
<b>Estonia</b>	10.5	7.6	13.2	12	9.2	14.5	1.5	1.6	1.3	:	(8.5)	
<b>Finland</b>	22.1	18.5	25.9	23.8	19.9	27.7	1.7	1.4	1.8	10.7	19.7	
<b>France</b>	5.7	5.3	6.1	5.5	5.2	5.9	-0.2	-0.1	-0.2	2.5	5.2	
<b>Germany</b>	7.8	7.8	7.7	7.8	7.9	7.7	0.0	0.1	0.0	3.1	5.1	
<b>Greece</b>	3.3	3.2	3.3	2.4	2.6	2.3	-0.9	-0.6	-1.0	0.4	2.7	
<b>Hungary</b>	2.7	2.5	3	2.7	2.6	2.9	0.0	0.1	-0.1	0.5	2.0	
<b>Italy</b>	6	5.6	6.4	5.7	5.3	6	-0.3	-0.3	-0.4	1.2	5.5	
<b>Ireland</b>	6.3	5.7	7	6.8	6.3	7.2	0.5	0.6	0.2	2.8	6.4	
<b>Latvia</b>	5.3	3.6	6.9	5	3.8	6.1	-0.3	0.2	-0.8	:	(4.0)	
<b>Lithuania</b>	4.5	3.6	5.4	5.9	4.6	7.1	1.4	1.0	1.7	:	(3.5)	
<b>Luxembourg</b>	13.4b	13.4b	13.5b	13.6	14.2	13	0.2	0.8	-0.5	(4.5)	(15.3)	
<b>Netherlands</b>	17	16.5	17.5	16.7	16.5	16.9	-0.3	0.0	-0.6	10.5	17.3	
<b>Malta</b>	6.1	5.9	6.3	6.6	6.3	6.9	0.5	0.4	0.6	3.3	:	
<b>Poland</b>	4.7	4.3	5.1	4.5	4	5	-0.2	-0.3	-0.1	(0.8)	4.8	
<b>Portugal</b>	6.5	6.2	6.8	11.6b	11.1b	12.1b	5.1	4.9	5.3	8.0b	17.1b	
<b>Romania</b>	1.5	1.3	1.6	1.6	1.6	1.5	0.1	0.3	-0.1	(0.3)	(1.5)	
<b>Slovakia</b>	2.8	2.2	3.3	3.9	3.4	4.4	1.1	1.2	1.1	:	1.7	
<b>Slovenia</b>	14.6	12.9	16.4	15.9	13.7	18.2	1.3	0.8	1.8	(3.3)	16.4	
<b>Spain</b>	10.4	9.6	11.3	10.8	10	11.6	0.4	0.4	0.3	4.6	13.2	
<b>Sweden</b>	22.2p	16.1p	28.5p	25	18.4	31.9	2.8	2.3	3.4	16.9	40.4	
<b>United Kingdom</b>	20.1	16.8	23.3	15.8p	14.0p	17.5p	-4.3	-2.8	-5.8	7.2p	14.8p	

b=break in series      p=provisional      i=see metadata      u=unreliable

Table 9. Percentage of the population aged 25–64 participating in adult education in Europe. Source: UNESCO (2013).

The Third GRALE report from 2016 welcomed readers to the world of adult learning and education responding to major processes of transformation. It also emphasised the great potential of information and communication technologies in promoting inclusion and equity by providing adults with access to learning opportunities, including people with disabilities and marginalised or disadvantaged groups. Rapid media development, longer life expectancy and mass migration demanded to develop new skills and provide an unprecedented range of opportunities to learn. It meant that governments and communities need to continue to care about and invest in Adult Education and Learning. The third

Global Report on Adult Learning and Education reasserted the importance of Adult Education and Learning both as a value in itself and as a valuable tool in addressing current challenges. It reminded readers that education helps both individuals and societies to achieve their goals. GRALE III was aimed to monitor progress on ALE, make a case for ALE and promote activities and to identify trends and explore solutions.

GRALE II indicated great under-investment in Adult Education and Lifelong Learning. Evidence showed that countries had made some progress towards achieving their target of devoting 6% of GNP to education.

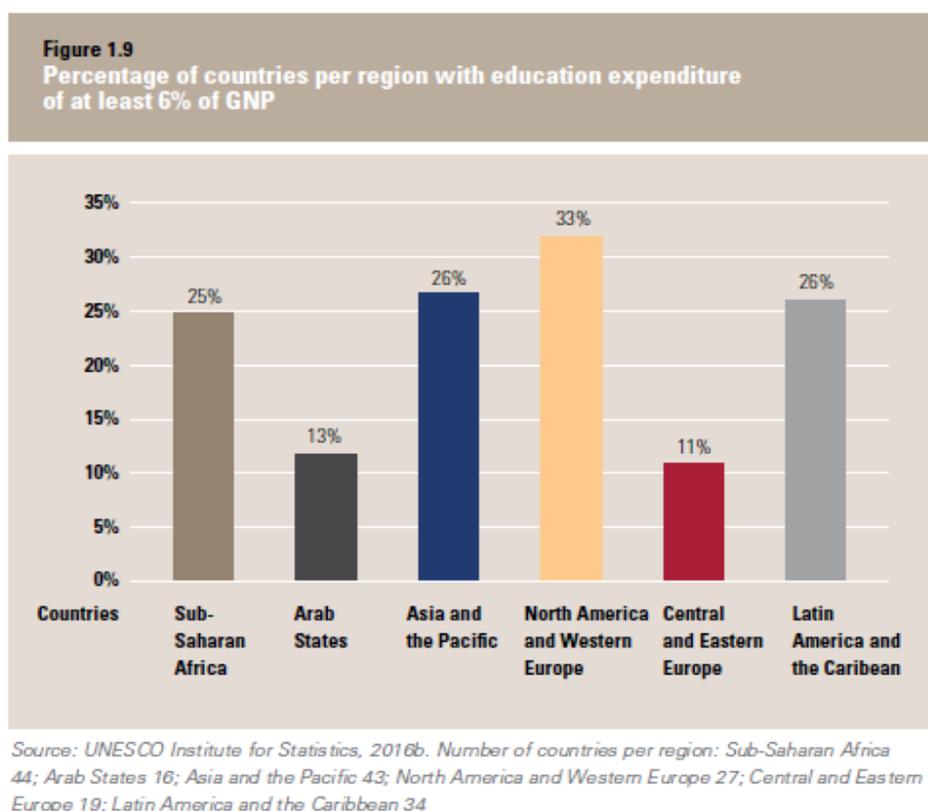


Figure 9. Percentage of countries per region with education expenditure. Source: UNESCO (2013).

There is a visible disproportion in investment among Western and Eastern Europe. 33% of countries in North America and Western Europe already devote at least 6% of their GDP to education, whereas only 11% of countries in Central and Eastern Europe do so.

For GRALE III, countries reported on whether the participation rate for the overall adult population has increased, decreased or remained unchanged since 2009, or whether they do not have this information. The table below shows that 60% of 126 countries reported that the overall participation rate has increased since 2009, whereas 13% reported

it as unchanged. Only 7% of countries reported a decrease since 2009. 19% of countries globally reported that they do not know the changes in the overall participation rate in ALE. 50% of participating countries reported an increase since 2009 in the participation of young people who are not in education, employment or training. Likewise, 50% of participating countries reported an increase in the participation of adults seeking recognition of prior learning, in particular non-formal or informal learning. The participation rates of adults with low levels of literacy and basic skills were also reported as having increased. Overall, these trends reflected an increased focus on young adults, in particular those not in employment, and on adults with low basic skills. The overall gender gap had been narrowing, however some evidences evidence suggested that gender differences in ALE may be course-specific and may thus influence learners' future choices.

- In 44% of participating countries, women participated more in non-formal education than men. In 9% of countries, men participated more in non-formal education, and in 23% of countries, participation was equal by gender. In 24% of countries, this information could not be provided.
- 58% of countries indicated that more women than men participated in literacy programmes.
- In 54% of countries, more men than women participate in technical and vocational education and training<sup>440</sup>.

In 2015 UNESCO adopted “The Recommendation on Adult Learning and Education” which supports the Education 2030 Framework for Action, reflects global trends, and will guide the transformation and expansion of equitable learning opportunities for youth and adults. It takes a comprehensive and systematic approach to Adult Education and Learning, defining three key domains of learning and skills: literacy and basic skills; continuing education and vocational skills; as well as liberal, popular and community education and citizenship skills. It also describes five transversal areas of action: policy; governance; financing; participation, inclusion and equity; and quality<sup>441</sup>.

GRALE IV was going to provide a comprehensive update of the progress being made in and state of the art of ALE worldwide, identifying how it contributes to

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<sup>440</sup> UNESCO (2016): *Third Global Report on Adult Learning and Education (GRALE 3)*. UNESCO Institute for Lifelong Learning. <http://uil.unesco.org/adult-education/global-report/third-global-report-adult-learning-and-education-grale-3> (visited 6 December 2018).

<sup>441</sup> UNESCO (2016): *Recommendation on Adult Learning and Education*. United Nations Educational, Scientific and Cultural Organization and UIL. <http://unesdoc.unesco.org/images/0024/002451/245179e.pdf> (visited 7th December 2018).

Sustainable Development Goal (SDG) 4 on education and other SDGs, however, the research results are not as accurate and detailed as it was expected. The conclusion drawn from the report is that while the potential is widely recognized, adult learning and education remains low on the agenda of most Member States - participation is uneven, progress inadequate and investment insufficient. If we don't change direction, we will not meet the targets of SDG 4. But it is not just about achieving goal number 4. Failure to achieve educational objectives will put other goals at risk. The Focus of GRALE IV is equity. It is clear that who takes part in adult learning, and who does not, has consequences. The way people make their lives is changing so much that in many countries people are now talking about a "fourth industrial revolution", which is characterized by automation, digitization, the growth of platform employment and the application of artificial intelligence.

Recommendation on Adult Learning and Education is strictly connected with Information and Communication Technologies (ICTs) which are perceived as great potential or improving access by adults to a variety of learning opportunities and promoting equity and inclusion. Digital media, social media and ICTs provide numerous learning opportunities with the reduction of the dependence on traditional formal structures of education and permitting individualized learning. What is more, they facilitate access to education for marginalized and disadvantaged groups.

Although the overall participation rate in GRALE IV is much higher than in GRALE III, the researchers emphasise that as much as 20% of Member States (39 countries) did not participate in GRALE IV due to conflicts or fragile political situations which could affect the results of the survey. Nevertheless, 66% of countries made significant progress in ALE policies, especially in sub-Saharan Africa, the Arab States and in low-income countries, and nearly 30% of countries reported no changes since 2015. Countries taking part in the survey were asked about progress in disaggregated categories of the policy listed in the GRALE IV survey as:

- Implementing legislation,
- Developing and implementing policies,
- Developing concrete and specific plans,
- Involving stakeholders,
- Improving recognition, validation and accreditation (RVA) of non-formal and informal learning.

The most significant progress was reported in involving stakeholders (86% of countries), followed by developing concrete and specific plans (82%), the lowest level progress in disaggregated categories of ALE was in recognition, validation and accreditation (RVA) of non-formal and informal learning (66%).

The case of Poland was highlighted in the field of increasing stakeholder involvement as the example of best practices: “Poland reported working with sectoral skills councils in the fields of health, construction, finance, tourism, fashion, internet technology and the automotive industry, including electro-mobility. The aim of these councils is to enhance cooperation between educational institutions and the labour market so that competencies possessed by adults (employees) meet employers’ needs. Poland also reported that Local Centres of Knowledge and Education, being established in underdeveloped areas of the country, connect ALE provision with the needs of the local community. As part of the civic education path of the National Programme for Supporting the Development of Civil Society, support for folk universities is another strategic approach of Poland to increase stakeholder involvement. The National Network of Folk Universities, which consists of non-profit organizations that offer ALE in rural areas based on the principles of Nicolaus Grundtvig, aims to develop folk universities as centres for ALE”<sup>442</sup>. What is more, new skills councils were established to help coordinate the learning system: the Stakeholder Council of Integrated Qualification System, the Programme Council on Competences, and sectoral councils<sup>443</sup>. One of the key findings of GRALE III related to the lack of funding for ALE. Most countries declared a planned increase in ALE funding in response to the GRALE III survey, however, this intention has not been put into concrete action. A lack of financial support will result in preventing adults from taking part in ALE and constraining stakeholders and providers in creating and implementing high-quality learning provision. What is more, reduced financial injections in ALE systems are likely to hit socially disadvantaged adults.

When it comes to participation in ALE, rates remain uneven and progress insufficient. On one hand, some experienced regression and, on the other hand, progress has been made for some groups, especially women. There is a strong tendency to the exclusion of vulnerable groups in many parts of the world (ethnic minorities, migrants,

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<sup>442</sup> UNESCO (2019): *4th Global Reporting on Adult Learning and Education. Leave no one behind: participation, equity and inclusion*. UNESCO Institute for Lifelong Learning, Bremen, p. 36.

<sup>443</sup> *Ibidem*, p. 44.

refugees, older adults, the low-skilled, people with disabilities, and people living in remote and rural areas). Many countries are taking steps to improve media education among adults.

In general, over half of the countries surveyed reported an increase in the overall participation rate. As it was expected, purposeful informal learning dominated (61%). Some 43% mentioned non-formal learning and 6% had been involved in formal learning. Due to the lack of many Member States' administrative data, it was impossible to present a very detailed participation rate of every country. We can only base on regional data. In Sub-Saharan Africa, the increase was the highest ( 72% of countries noticed progress), 67 % of countries in the Arab States reported improvements. Central and Eastern Europe and Latin America and the Caribbean were somewhere in between, with 58% and 60%, respectively. The lowest proportion of countries noticing progress included North America and Western Europe and Asia and the Pacific (38% and 49%, respectively).<sup>444</sup>

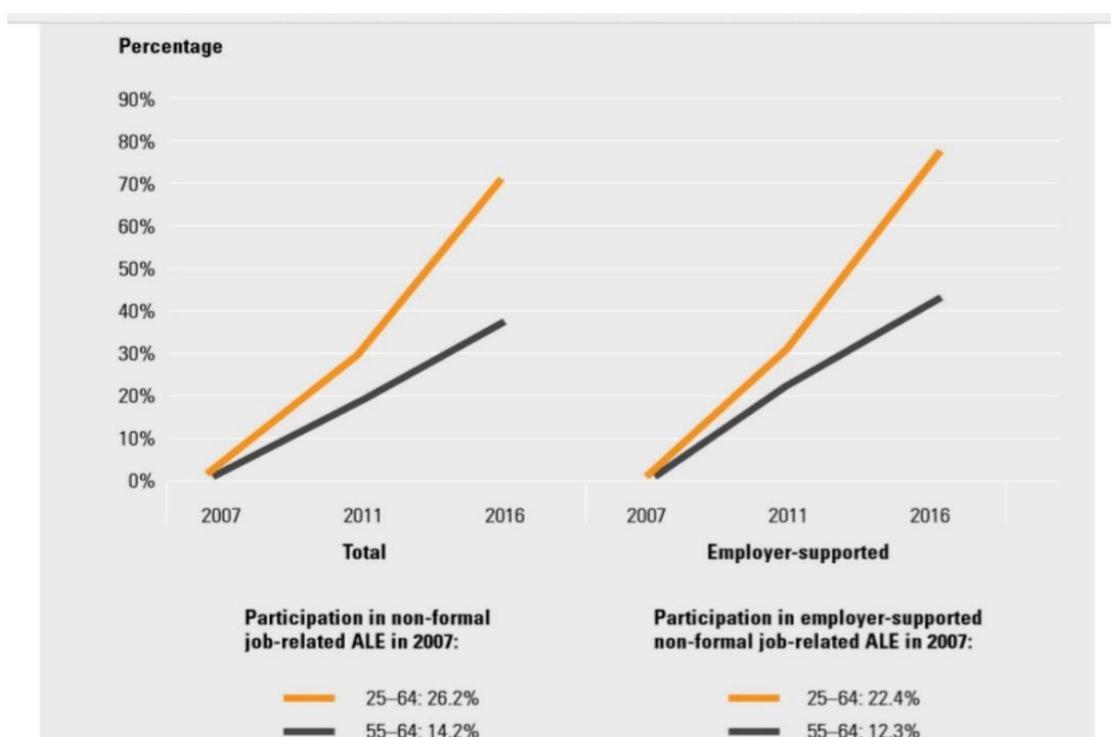


Figure 10. Increase in participation from 2007–2016 in non-formal job-related and employer-supported ALE in the EU. Source: UNESCO (2019).

<sup>444</sup> Ibidem, p. 109.

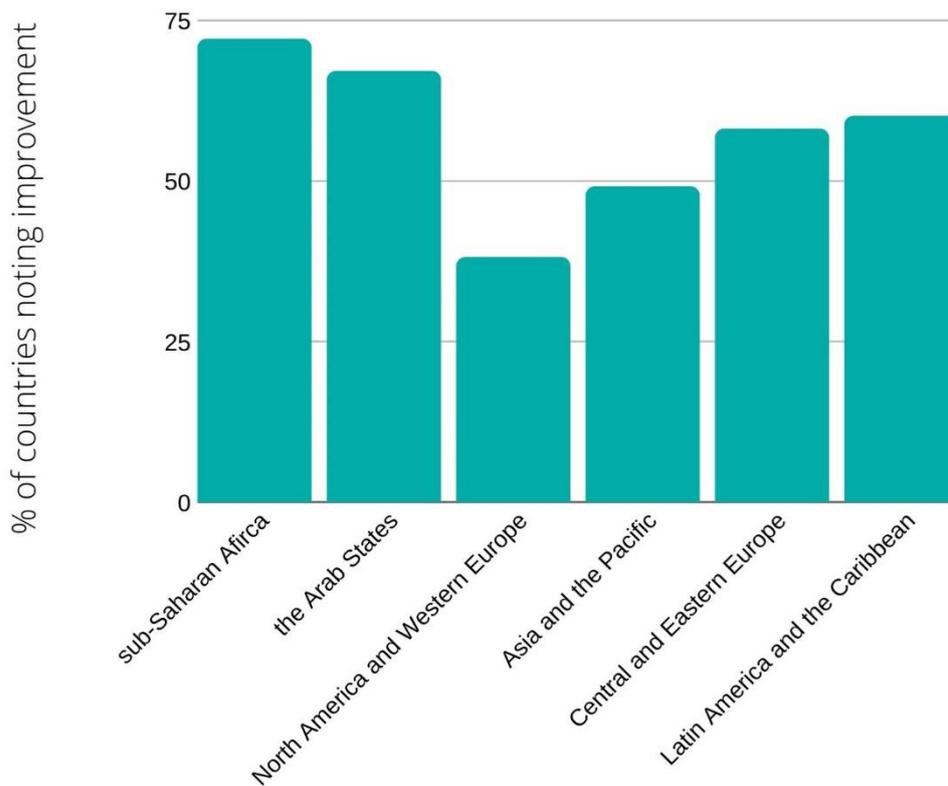


Figure 11. Regional rates of countries noticing an improvement in participation in ALE between 2015-2018. Source: the author's work based on *4th Global Reporting on Adult Learning and Education. Leave no one behind: participation, equity and inclusion*. UNESCO Institute for Lifelong Learning, p. 109.

In order to improve participation in ALE, we need to handle many factors. Firstly, foster awareness among the citizens of the role ALE can play in bettering their personal life and the lives of others. Secondly, implement proper financial resources and thirdly, reduce various barriers (among these are a better use of ICTs, which would have to include resources for infrastructure and integrating basic and vocational education). The most difficult seems awareness and shaping lifelong learning behaviour. The allocation of resources (by the State) may be the factor that is easiest to deal with. It is important that resources are allocated wisely, to activities that will actually benefit, for example, overcoming barriers to participation in lifelong learning. The most difficult thing may be to develop a lifelong learning habit. In the author's opinion, the student who goes to the next stage of education is waiting for its completion as if to deal with a certain problem. Therefore, from the earliest stages of education, awareness of the importance of lifelong learning and positive habits should be developed.

#### **2.4.2. Lifelong learning in Europe through the eyes of OECD (Organisation for Economic Co-operation and Development).**

Since 1998 OECD has been conducting annual Education at a Glance which looks at who participates in the education, what is spent on it, how education systems operate and the results achieved. Although reports are published every year, not all the issues cover participation in lifelong learning. It is vital to say that two publications refer to one explored year. That is why the author decided to take into account issues published in 2005 and 2006, 2011 and 2012, 2014 and 2015, 2016 and 2017. As a consequence, the years 2003, 2007, 2012 and 2015 are going to be explored, but not compared since indicators are not exactly the same in all the issues.

As it was stated in “Education at a Glance 2006” the ageing of the population and the skill-intensity bias in labour demand in OECD economies – associated with new technologies, globalisation and organisational change – were among the key reasons why lifelong learning occupies a prominent position in today’s policy foreground. Many observers also held that changes in workplace organisation were leading to shifts in the demand for different types of skills, underpinning the importance of continuing education and training<sup>445</sup>.

“Education at a Glance 2005” has shown that adult education and training is:

- Increasing due to new and increasingly complex work tasks and because of job mobility;
- More common in large firms, the public sector and in sectors such as business services, banking or finance;
- Usually for full-time or more established workers in a firm;
- Industrial restructuring limited job opportunities for workers with skills that became obsolete by new technologies.
- More prevalent for management and senior posts than for non-executive or unskilled jobs;
- More often occurring for young and mid-aged workers rather than older workers;
- Generally as accessible to women as to men; and

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<sup>445</sup> OECD (2006): *Education at a Glance, OECD Indicators 2006*. OECD Publishing. <https://www.oecd-ilibrary.org/docserver/eag-2006-en.pdf> (visited 14 December 2018). expires=1544762723&id=id&accname=guest&checksum=EF51A102C58029A95CCE764D46F7E4A A

• Likely to increase in line with the level of initial qualifications: training leads to training. Adults with tertiary qualifications were, in all countries, significantly more likely to participate in non-formal job related to continuing education and training than adults with lower educational attainment. In all countries, workers in upper-tier service industries were more likely to participate in non-formal job-related continuing education and training than workers in other industries. The variation of participation in training according to the age of the participants was also well established: in most countries, non-formal learning in the labour force declined with age, although the extent of the decline varied across countries.

The knowledge society demands more continuous development of skills and competencies during the working years. This was confirmed by the significantly higher participation rates of workers in upper-tier service industries in all countries<sup>446</sup>.

**Chart C5.1. Expected hours in non-formal job-related training (2003)**

*This chart shows the hours that people in different countries can expect to spend in non-formal job-related education and training over the course of a typical working life.*

There are major differences across countries in the time that individuals can expect to spend in non-formal job-related education and training over a typical working life.

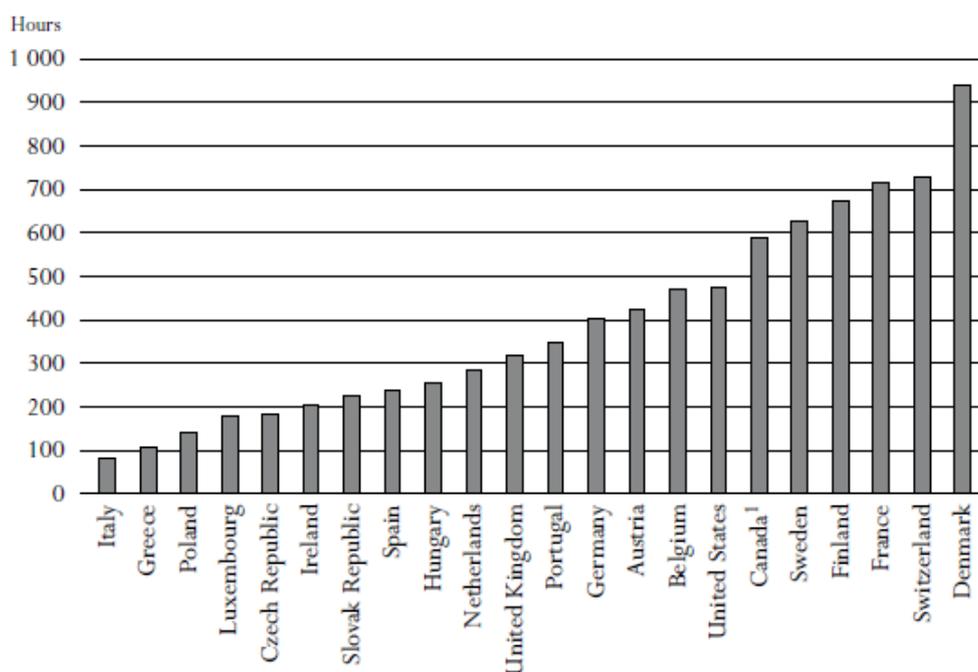


Figure 12. Expected hours in non-formal job-related training. Source: OECD (2005).

<sup>446</sup>OECD (2005): *Education at a Glance. OECD Indicators 2005*. OECD Publishing. <https://www.oecd-ilibrary.org/docserver/eag-2005-en.pdf> (visited 12 December 2018).

Adults with higher levels of educational attainment – whether upper-secondary and post-secondary non-tertiary education or tertiary-level education – were more likely to participate in non-formal job-related continuing education and training than adults with lower educational attainment. There was substantial cross-country variation in participation rates in non-formal job-related continuing education and training. In the OECD, four countries – Denmark, Finland, Sweden and the United States – took the lead, with more than 35% of the population between 25 and 64 years of age have participated in some type of non-formal job-related continuing education and training over the previous 12 months. The participation rate was lower than 10% in Greece, Hungary, Italy, the Netherlands, Poland, Portugal and Spain. Between these two extremes, the incidence of participation in education and training varied greatly; for example, the figure was about 11 % in the Czech Republic and Ireland, but up over twice this rate in Canada and the United Kingdom.

**Chart C6 1. Rate of participation of the labour force in continuing education for all levels of education (2003)**

*This chart shows the percentage of 25-to-64-year-olds in the labour force who participate in continuing non-formal job-related education and training. The height of the bars indicates significant variation across countries in the extent to which workers undertake continuing education and training.*

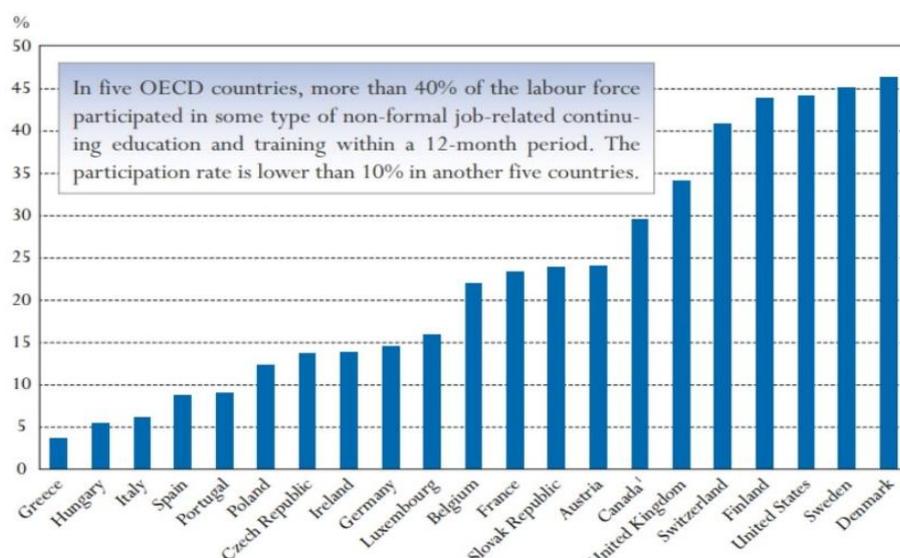


Figure 13: Rate of participation of the labour force in continuing education for all levels of education in 2003. Source: Education at a Glance 2005 OECD Indicators: OECD Indicators, p. 310

As it was stated in “Education at a Glance 2011” Adult learning, as part of lifelong learning, is considered crucial for coping with the challenges of economic competitiveness and demographic change, and for combating unemployment, poverty

and social exclusion, which marginalise a significant number of individuals in all countries.

Across the OECD, more than 40% of adults participated in formal and/or non-formal education in a given year. The proportion ranged from more than 60% in New Zealand and Sweden to less than 15% in Greece and Hungary. On average, in the OECD area, an individual could expect to receive 988 hours of instruction in non-formal education during one's working life, of which 715 hours were instruction in job-related non-formal education.

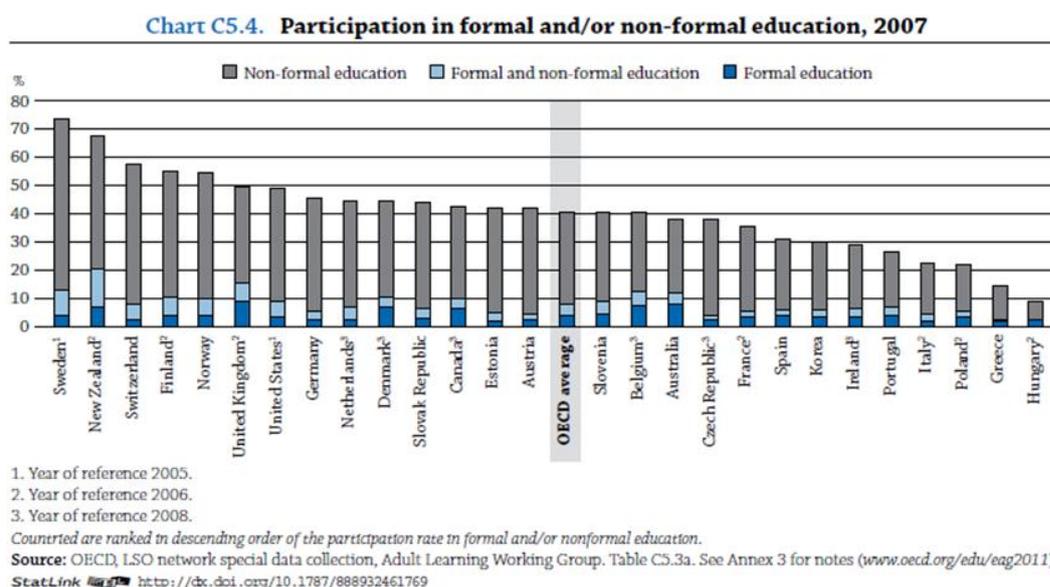


Figure 14. Participation in formal and/or non-formal education in 2007, OECD (2011).

Overall, 27% of adults in OECD countries had looked for information on learning possibilities in the preceding 12 months, and 87% of those seeking information found some. In all countries, only a small minority of 25-64 year-olds attends institutions of formal education. Across OECD countries, an average of 8% of adults participated in formal education. On average, half of the participants in formal education also participated in non-formal education. Like in the former reports adults with higher levels of educational attainment were more likely to participate in formal and non-formal education than adults with lower levels of attainment. They could also expect to receive more hours of instruction in non-formal education during their working lives. On average, in OECD countries, individuals with a tertiary education received three times as many hours of instruction in non-formal education as those with low levels of education. What

is more, in most OECD countries, the number of expected instruction hours in job-related non-formal education rose fairly linearly as one moved from lower to higher levels of education. Some adults used the formal education system to acquire additional skills. They tended to be young and highly educated. Half of the adults who had participated in formal education had also engaged in non-formal education activities. In OECD countries, almost 75% of the expected instruction hours were in job-related non-formal education. Men received about 10% more instruction hours in job-related non formal education over their working lives than women.

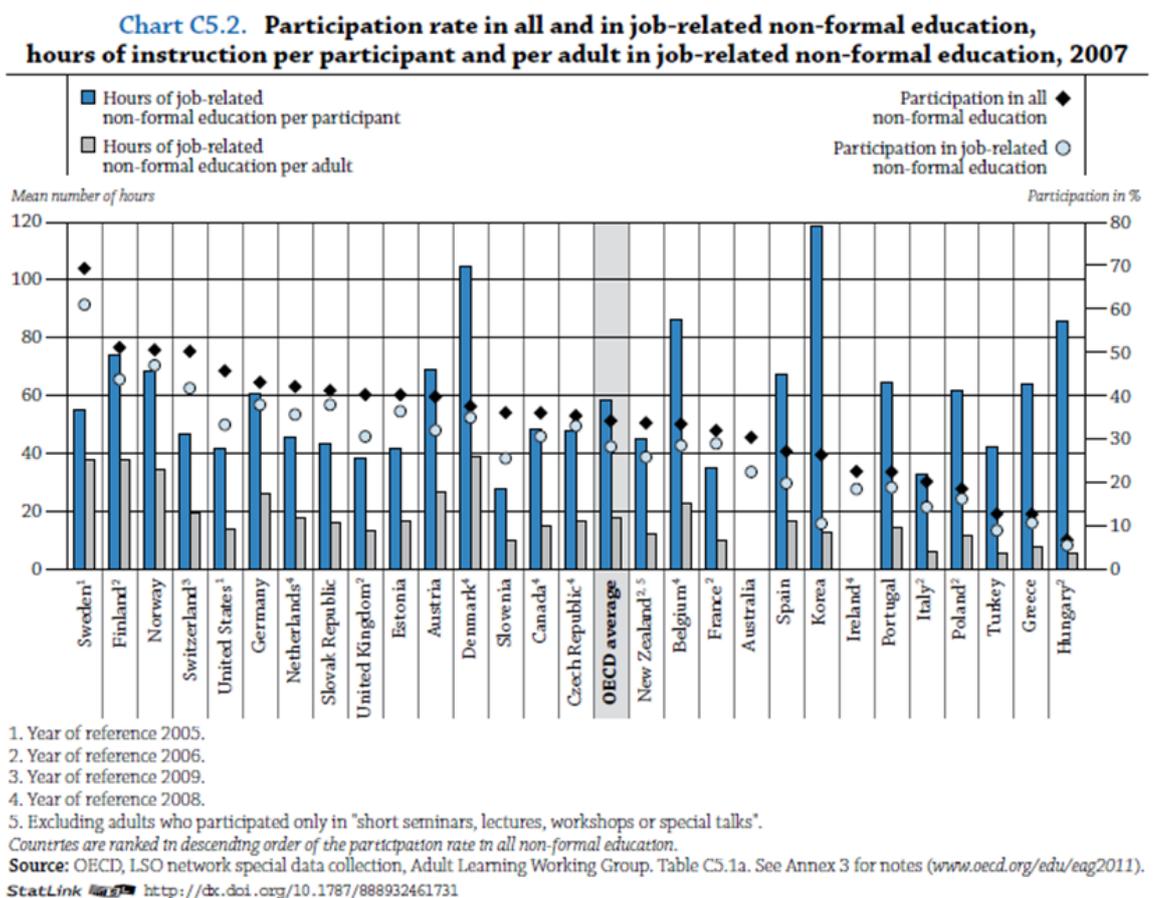
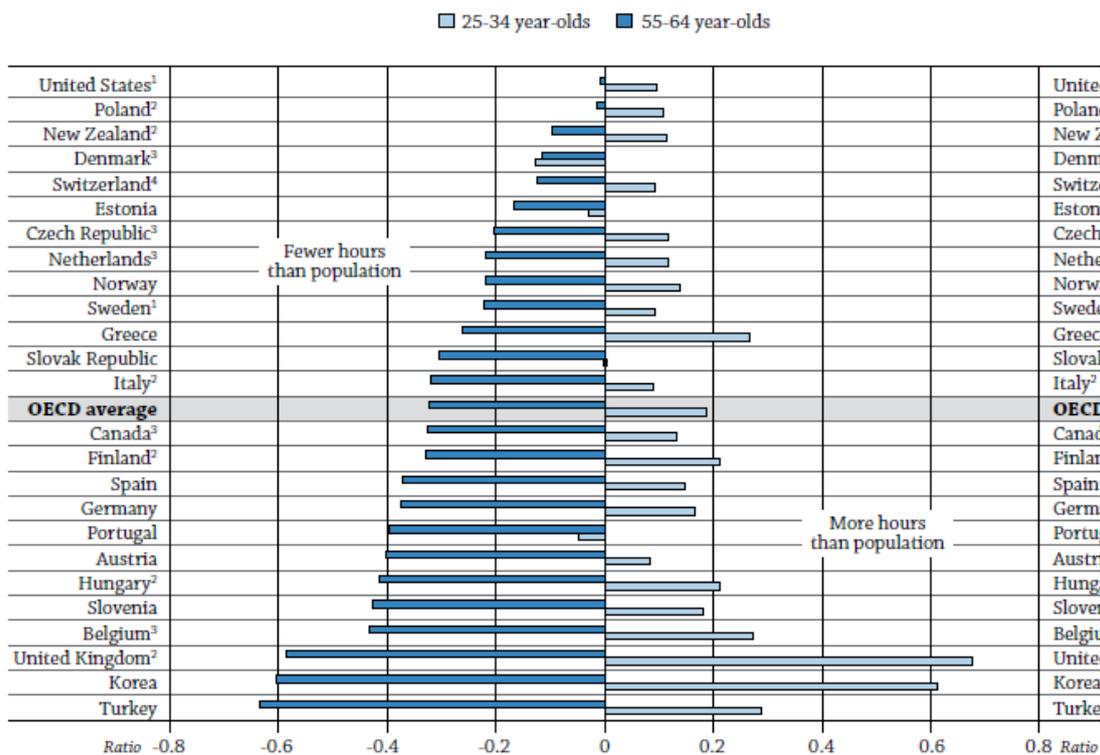


Figure 15. Participation rate in job-related non-formal education in 2007, OECD (2011).

“Education at a Glance 2012” emphasised an important issue: participation in Adult Learning for 65-74 year-olds. In an ageing society, individuals increasingly need to stay in employment well into their sixties or seventies. Using, updating and acquiring skills remains important into retirement age as a means to promote active citizenship and

social participation beyond the workplace. In 2007, the participation of 65-74 year-olds in formal and/or non-formal learning ranged from more than 20% in the United Kingdom and the United States to 4% in Spain. In all six countries for which data are available, older women participate more often in formal and/or non-formal education than men of the same age<sup>447</sup>.

**Chart C6.3. Ratio of mean hours per participant of job-related non-formal education by age group, to total population (25-64 year-olds) (2007)**



1. Year of reference 2005.
2. Year of reference 2006.
3. Year of reference 2008.
4. Year of reference 2009.

Countries are ranked in descending order of the ratio for 55-64 year-olds.

Source: OECD, Table C6.8, available on line. See Annex 3 for notes ([www.oecd.org/edu/eag2012](http://www.oecd.org/edu/eag2012)).

StatLink <http://dx.doi.org/10.1787/888932663435>

Figure 16. Ratio of mean hours per participant of job-related non-formal education, OECD (2007).

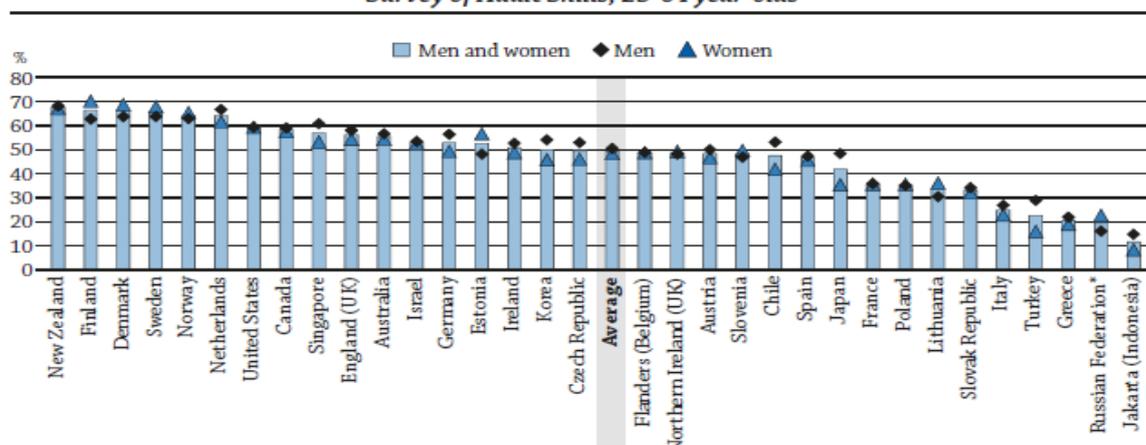
The context of the report “Education at a Glance 2016” referred to an important role of adult learning in helping to develop and maintain key information-processing

<sup>447</sup> OECD (2012): *Education at a Glance: OECD Indicators*. OECD Publishing. <http://dx.doi.org/10.1787/eag-2012-en> (visited 17 December 2018).

skills, and to acquire other knowledge and skills throughout life. Lifelong learning can also contribute to non-economic goals, such as personal fulfilment, improved health, civic participation and social inclusion. Social integration requires that individuals have the basic skills and knowledge needed to exercise their rights and responsibilities as citizens and enjoy the benefits of community life. The large variation in adult learning activities and participation among OECD countries at similar levels of economic development suggested significant differences in learning cultures, learning opportunities at work and adult-education systems.

The participation research was conducted across OECD countries and sub-national entities that participated in the Survey of Adult Skills. 50% of all adults participated in formal and/or non-formal education in a given year. In the majority of OECD countries, the participation rate in formal and/or non-formal education was about the same for women and men. The participation rate is higher for adults with greater levels of proficiency, higher education, and a high index of readiness to learn<sup>448</sup>.

**Figure C6.1. Participation in formal and/or non-formal education, by gender (2012 or 2015)**  
Survey of Adult Skills, 25-64 year-olds



**Note:** Chile, Greece, Israel, Jakarta (Indonesia), Lithuania, New Zealand, Singapore, Slovenia, Turkey: Year of reference 2015. All other countries: Year of reference 2012.

\* See note on data for the Russian Federation in the *Methodology* section.

Countries and subnational entities are ranked in descending order of the percentage of 25-64 year-old men and women who participate in formal and/or non-formal education.

**Source:** OECD, Table C6.2. See Annex 3 for notes ([www.oecd.org/education/education-at-a-glance-19991487.htm](http://www.oecd.org/education/education-at-a-glance-19991487.htm)).

StatLink <http://dx.doi.org/10.1787/888933398735>

Figure 17. Participation in formal and/or non-formal education by gender. Source: OECD (2016).

<sup>448</sup> OECD (2016): *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris. <http://dx.doi.org/10.187/eag-2016-en> (visited 18 December 2018).

The report “Education at a Glance 2017” spotlights the barriers of adult education participation. Across OECD countries and economies that participated in the Survey of Adult Skills (PIAAC), about half of adults (25-64 year-olds) participated in adult education, and most of them opt for non-formal education. On average, 35-64 year-olds who lived in households with young children were more likely to participate in adult education than those who did not. Among younger adults (25-34 years of age) the pattern reversed: 51% of those living with young children participated compared to 67% of those who did not. In the majority of OECD countries and economies, adults who volunteer at least once a month participate more in formal and/or non-formal education than adults who do not volunteer. In countries with a low overall participation rate in adult education, volunteers tended to participate more than non-volunteers. On average across OECD countries and economies, 24% of adults wanted to participate in learning activities in the 12 months preceding the survey in which they had not yet enrolled.

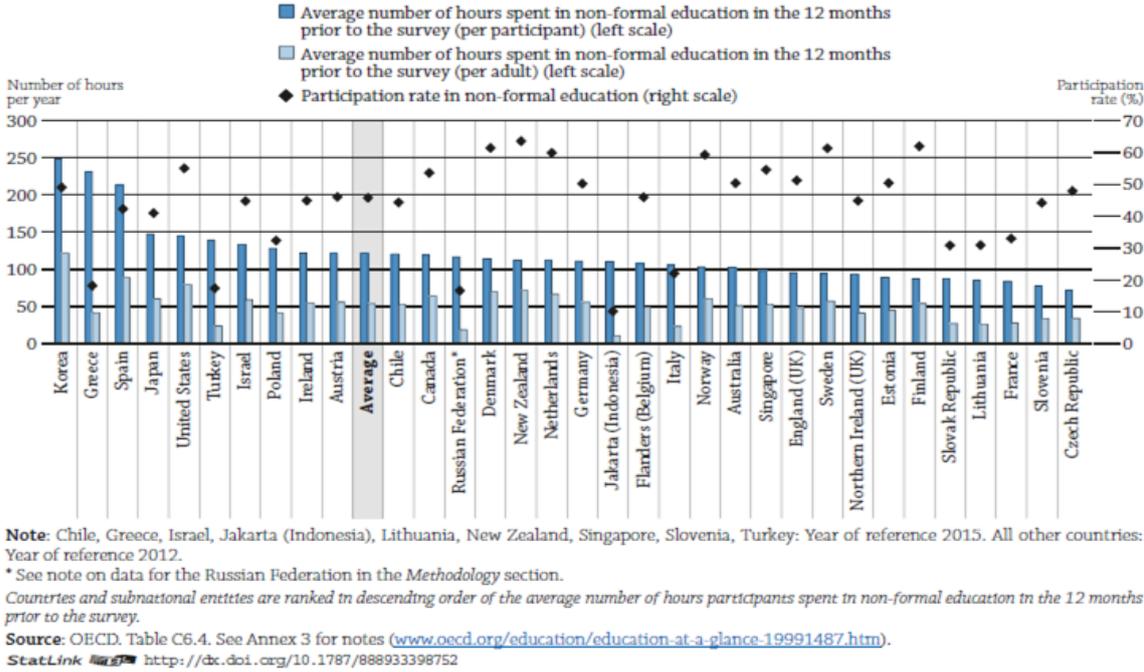
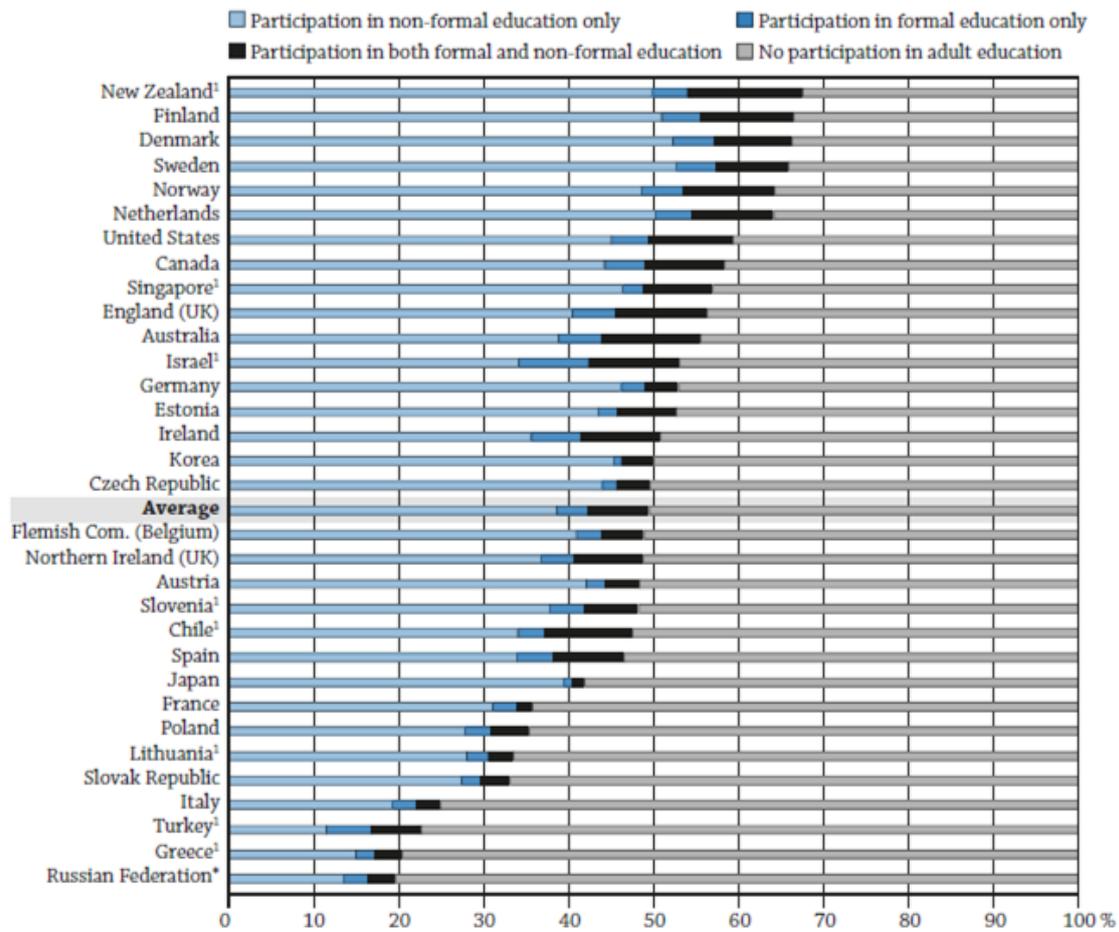


Figure 18. Hours in non-formal education per participant and per adult and participation rate in non-formal education (2012 or 2015), Source: OECD (2016).



1. Reference year is 2015; for all other countries and economies the reference year is 2012.

\* See note on data for the Russian Federation in the Source section.

Countries and economies are ranked in descending order of the share of the population participating in formal and/or non-formal education.

Source: OECD (2017), Table C6.1a. See Source section for more information and Annex 3 for notes ([www.oecd.org/education/education-at-a-glance-19991487.htm](http://www.oecd.org/education/education-at-a-glance-19991487.htm)).

StatLink <http://dx.doi.org/10.1787/888933558515>

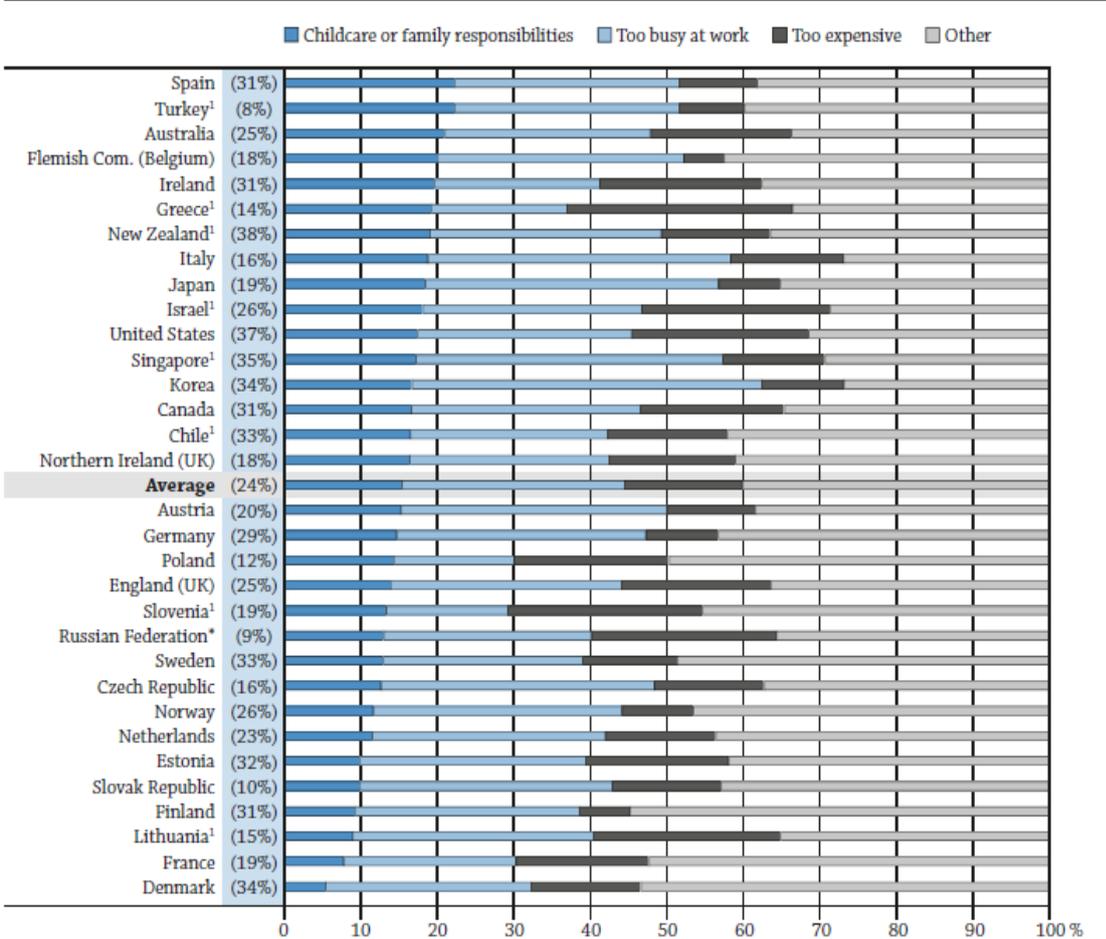
Figure 19. Participation in formal and/or non-formal education by gender. Source: OECD (2017).

Among these potential participants, the most common reason for not enrolling was that they were too busy at work (29%). Cost (too expensive) and family responsibilities were the next most common reasons, both cited by 15% of potential participants. Social participation in the form of volunteering at least once a month was associated with higher participation in adult education among inactive, older or low-educated adults – a group which generally had low participation rates<sup>449</sup>. The graph below emphasises the significance of non-formal education, as it is the most frequent form of

<sup>449</sup> OECD (2017): *Education at a Glance 2017: OECD Indicators*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/eag-2017-en> (visited 18 December 2018).

adult education. Among the most common obstacles in adult education were mentioned: childcare and family responsibilities, too busy at work and too expensive cost of learning.

**Figure C6.2. Barriers to participating in formal and/or non-formal education (2012 or 2015)**  
*Survey of Adult Skills (PIAAC), 25-64 year-olds*



**Note:** Percentage in parentheses represents the share of 25-64 year-olds who wanted to take part in (more) learning activities but did not start.  
 1. Reference year is 2015; for all other countries and economies the reference year is 2012.  
 \* See note on data for the Russian Federation in the *Source* section.  
 Countries and economies are ranked in descending order of the share of adults citing childcare or family responsibilities as a reason for not taking part in learning activities.  
**Source:** OECD (2017), Table C6.1b. See *Source* section for more information and Annex 3 for notes ([www.oecd.org/education/education-at-a-glance-19991487.htm](http://www.oecd.org/education/education-at-a-glance-19991487.htm)).  
**StatLink** <http://dx.doi.org/10.1787/888933558534>

Figure 20. Barriers to participating in formal and/or non-formal education. Source: OECD (2017).

To conclude, lifelong learning is seen as an important aspect of the modern economy. It helps adults to develop and maintain key information-processing skills, and acquire other knowledge and skills throughout their lives. Workers need to adapt to changes in the course of their careers as the skills demanded by the labour market change. Lifelong

learning can also contribute to non-economic goals, such as personal fulfilment, improved health, civic participation and social inclusion. Educational activity, whether formal or non-formal, of European adults, is raising. It had risen more than twice from 23% in 2003 to 50% in 2015, and numbers of hours devoted by adults to learning per year had risen from 18 in 2007 to 51 in 2015. About half the adult population participates in education and learning activities, but the level varies significantly between countries. Participation in adult education is positively associated with educational attainment and proficiency levels in key skills. Low levels of participation can be related to different structural barriers such as lack of time due to overloaded work schedules, childcare or family responsibilities, or the difficulties of combining learning opportunities with the challenges of work-family time patterns. However, the survey results suggest that a lack of desire for more education is more strongly related to lower participation than these structural barriers. In other words, before looking at the structural barriers to participation in adult learning, efforts should be made towards promoting a culture of continuous learning. The role of media and new technology is enormous as financial or psychological cost of mobility can be moderated through the use of the Internet and digital tools like email or social media platforms. Consequently, many barriers concerning participation in lifelong learning can be removed<sup>450</sup>.

#### **2.4.3. Lifelong learning in Europe through the eyes of the European Commission.**

“The Europe 2020 strategy is the EU's agenda for growth and jobs for the current decade. It emphasises smart, sustainable and inclusive growth as a way to overcome the structural weaknesses in Europe's economy, improve its competitiveness and productivity and underpin a sustainable social market economy”<sup>451</sup>. Lifelong learning is one of the targets of this approach as it is crucial for maintaining good health, remaining active in the community and being fully included in all aspects of society. Moreover, it helps to improve and develop skills, adapt to technological developments, advance a career or return to the labour market (upskilling and reskilling). Adult education and training covers

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<sup>450</sup> OECD (2014): *Learning Begets Learning: Adult Participation in Lifelong Education*. Education Indicators in Focus, No. 26, OECD Publishing, Paris, <https://doi.org/10.1787/5jxsvvmr9z8n-en>. (visited 19 December 2018).

<sup>451</sup>[https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy\\_en#howisthestrategymonitored](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy_en#howisthestrategymonitored) (visited 19 December 2018).

the longest time span in the process of learning throughout a person's life. After an initial phase of education and training, continuous, adult learning is necessary for improving and developing skills, adapting to technical developments, advancing careers or returning to the labour market. Adult participation in learning is also crucial for providing Europe with a highly qualified labour force. ET 2020 (Education and Training) aims to foster European cooperation in education and training, providing common strategic objectives for the EU and its Member States up to 2020. It covers the areas of adult participation in learning and mobility; quality and efficiency of education and training; equity, social cohesion and active citizenship; and creativity, innovation and entrepreneurship at all levels of education and training<sup>452</sup>. In 2011 European Union adopted "Council Resolution on a renewed European agenda for adult learning" to continue, complement and consolidate work in the field of adult learning under the four strategic objectives identified by the Council in the ET 2020 strategic framework. Priority areas were focused on making lifelong learning and mobility a reality, improving the quality and efficiency of education and training, promoting equity, social cohesion and active citizenship through adult learning, enhancing the creativity and innovation of adults and their learning environments, and improving the knowledge base on adult learning and monitoring the adult-learning sector<sup>453</sup>. The ET 2020 framework includes the target to increase the share of 25 - to 64-year old adults participating in learning to 15%. According to Eurostat in 2017, this rate stood at 10.9%, having increased only very slowly over the four preceding years.

Noticeable increases were only observable between 2002 and 2005 and from 2012 to 2013. The short-term growth between 2013 and 2017 amounts to just 0.5% per year on average, which is not fast enough to reach the target of 15% by 2020<sup>454</sup>. Women are more likely to participate in adult learning than men. In 2017, the share of adult women engaged in learning was nearly 2 percentage points higher than that of men (11.8% compared with 10.0%).

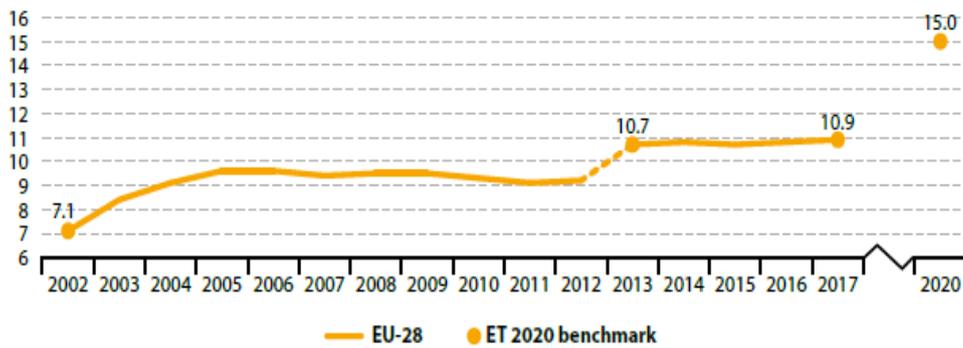
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<sup>452</sup> Eurostat (2018): *Smarter, greener, more inclusive? Indicators to support Europe 2020 strategy*. Publications Office of the European Union, Luxembourg, pp. 87-103. <https://ec.europa.eu/eurostat/documents/3217494/9087772/KS-02-18-728-EN-N.pdf/3f01e3c4-1c01-4036-bd6a-814dec66c58c> (visited 20 December 2018).

<sup>453</sup> *Council Resolution on a renewed European agenda for adult learning*. Official Journal of the European Union. Information and Notices C 372, Vol. 54, December 2011. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2011:372:FULL&from=PL> (visited 2 January 2019).

<sup>454</sup> Eurostat (2018): *Sustainable development in the European Union. Monitoring report on progress towards the SDGS in an EU context*. Luxembourg, Publications Office of the European Union. <https://ec.europa.eu/eurostat/documents/3217494/9237449/KS-01-18-656-EN-N.pdf/2b2a096b-3bd6-4939-8ef3-11cfc14b9329> (visited 20 December 2018).

**Figure 4.11: Adult participation in learning, EU-28, 2002-2017**  
(% of population aged 25 to 64)

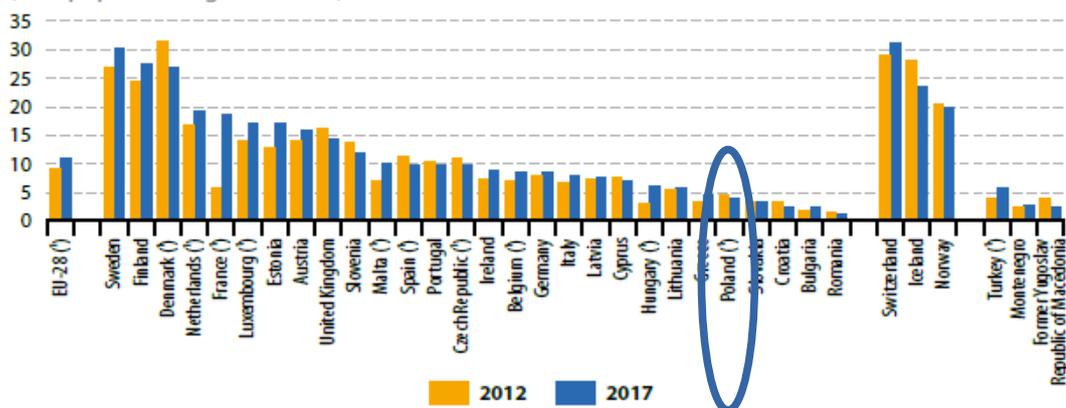


Note: Breaks in time series in 2003, 2006 and 2013.  
Source: Eurostat (online data code: [sdg\\_04\\_60](#))

Figure 21. Adult participation in learning., 2002-2017. Source: Eurostat (2018) Sustainable development in the European Union. Monitoring report on progress towards the SDGs in an EU context. Luxembourg, Publications Office of the European Union, p. 96.

At the other end of the range, there were 46 regions in the EU where the participation rate for adult learning was less than 5.0 %. They included all six regions from Bulgaria, all eight regions in Romania, both regions in Croatia, 13 of the 16 regions in Poland, 10 of the 13 regions in Greece, three of the four regions in Slovakia, and three of the seven regions in Hungary. These 45 regions from eastern and southern Europe were joined by Belgium, which was the only region in western Europe to record a rate below 5.0 % .

**Figure 4.12: Adult participation in learning, by country, 2012 and 2017**  
(% of population aged 25 to 64)



(\*) Break(s) in time series between 2012 and 2017.  
Source: Eurostat (online data code: [sdg\\_04\\_60](#))

Figure 22. Adult participation in learning, by country. Source: Eurostat (2018): Sustainable development in the European Union. Monitoring report on progress towards the SDGs in an EU context. Luxembourg, Publications Office of the European Union, p. 96.

#### 2.4.4. Lifelong learning and adult education in Poland.

Poland is a country with rich traditions of adult education. A. Stopińska-Pająk presented the concept of lifelong learning as a not new phenomenon in Poland<sup>455</sup>. Yet in the 15<sup>th</sup> century, S. Marycjusz from Pilzno proclaimed that people must learn and it is better to learn late than never. Adult education institutions appeared in the 19<sup>th</sup> century as a result of the industrial revolution<sup>456</sup>. P. Błędowski and M. Nowakowska write about the first form of informal adult education which took place during the partitions of Poland. It was conducted in an informal and secret way, by organizing the so-called “tajne komplety”. These were classes organized for a small number of people in places where they could participate in the education process without any fear for their own safety (e.g. in private apartments). In 1882 self-education courses for women appeared and three years later they were remoulded into secret university and available for both, men and women. At the beginning of the 20th century, after strikes and demonstrations, Polish people were allowed to organise legal education (although controlled by the invaders). So-called University for All was aimed to eliminate illiteracy and low level of workers knowledge. The partitions period negatively influenced the level of education of Poles; meanwhile, the reconstruction of the Polish state-required having well-qualified employees in various industry sectors. A significant role in the education of adults was played out of school during this time forms of learning, organized by organizations such as the Society of the Workers' University (TUR) established in Warsaw in 1923. Its main goal was the education of workers and popularization of self-education.

The II World War and Nazi occupants abolished education in Poland. They germanised and remained only primary and vocational schools. Polish society was forced once again to organise secret education for all levels. The time after the war was not also untroubled. The new Polish authorities have begun the reconstruction of the Polish education system, at the same time making efforts to transfer the content in schools and educational institutions in line with communist ideology. All educational institutions were

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<sup>455</sup> Stopińska-Pająk A. (2015): *Polskie tradycje instytucji edukacji dorosłych w kontekście uczenia się całościowego*. Rocznik Andragogiczny 2015, No. 22. [cejsh.icm.edu.pl/cejsh/element/bwmeta1.element...eb63.../10058-25235-1-SM.pdf](http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element...eb63.../10058-25235-1-SM.pdf) (visited 2 January 2019).

<sup>456</sup> Grotowska-Leder J. (2014): *Rzecz o kształceniu dorosłych. Lifelong learning w Polsce, w perspektywie Unii Europejskiej*. Acta Universitatis Lodzianensis Folia Sociologica No. 50, 2014. <http://dspace.uni.lodz.pl:8080/xmlui/bitstream/handle/11089/6996/07grotowska-leder.pdf?sequence=1&isAllowed=y> (visited 7 January 2019).

strictly subordinated to central administrative guidelines. It is worth to mention that these educational institutions for adults have limited their activities to pass only the most elementary knowledge and skills necessary to professional work.

The year 1989 brought significant changes in the sphere of science and education of adults in Poland. The collapse of the communist system and numerous economic and social processes (privatization, rising unemployment, the democratization of the rules of social life) changed the mentality of Polish society. People began to recognize the necessity and benefits of raising the level of their own education, acquiring new and improving their professional qualifications. Dynamic development of the educational services market and Poland's integration with the structures of the European Union, clearly harmonized and unified activities and concepts related to adult education<sup>457</sup>. Nowadays *kształcenie ustawiczne* in Poland is regulated by the Polish Constitution of 2 April 1997<sup>458</sup> and 1991 Polish Education System Act<sup>459</sup>. For several years now, changes in education have been observed due to the mediatization process. A new form of learning - distance learning - has become very popular. Remote learning is possible in larger academic centres, but also in companies - public and private. In the time of the COVID-19 pandemic, most of the courses, not only connected with obligatory education, but also with upskilling, took place online.

When it comes to definitions of lifelong learning, we can be confused as in Poland function many terms and definitions concerning adult education policy. Just in 2013 efforts were taken to root terms relevant to European ones. In that year the government adopted new strategic documents: "The Perspective of Lifelong Learning" and "Strategy for the Development of Human Capital", in which basic concepts of policy for lifelong learning were defined<sup>460</sup>. According to the bills *kształcenie ustawiczne*, refers to the education of people (who has finished their compulsory education) at schools for adults as well as completing general knowledge, skills and qualifications in extracurricular

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<sup>457</sup> Błędowski P., Nowakowska M. (2010): *Prosta sprawa- kwalifikacje to podstawa. Poradnik Podstawy Kształcenia Ustawicznego*. Wydawnictwo Ego, Łódź.

[http://www.cedego.pl/pliki2/kwalifikacjetopodstawa\\_poradnik\\_kształcenia\\_ustawicznego.pdf](http://www.cedego.pl/pliki2/kwalifikacjetopodstawa_poradnik_kształcenia_ustawicznego.pdf) (visited 3 January 2018).

<sup>458</sup> *Konstytucja Rzeczypospolitej Polskiej z dnia 2 kwietnia 1997 r.*

<https://www.sejm.gov.pl/prawo/konst/polski/kon1.htm> (visited 2 May 2020).

<sup>459</sup> *Ustawa z dnia 7 września 1991 r. o systemie oświaty*. Dz. U. 1991 Nr 95 poz. 425.

<http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU19910950425/U/D19910425Lj.pdf> (visited 2 May 2020).

<sup>460</sup> European Commission (2015): *EACEA National Policies Platform, Eurydice, Poland*. [https://eacea.ec.europa.eu/national-policies/eurydice/content/adult-education-and-training-56\\_pl](https://eacea.ec.europa.eu/national-policies/eurydice/content/adult-education-and-training-56_pl) (visited 4 January 2019).

forms of education. Adult Education also known as Education and Training for Adults is the second issue, however, it does not have a full definition by the reason that results from a very broad conceptual scope of this education and the lack of the possibility of assigning education and training so understood or a significant part of it to a single administrative structure. Education and Training for Adults may be organised in the work environment as practical learning, as well as in organized forms of activity of citizens' communities. "Strategy for the Development of Human Capital" defines lifelong learning as learning in different forms and places (in a formal and informal context) at all stages of life<sup>461</sup>. Statistics Poland (GUS) describes lifelong learning, also called *edukacja całościowa*, as the participation of people aged 25-64 in learning and vocational training<sup>462</sup>. Vocational training refers to professional improvement, and it is defined by B. Baraniak as “systematic updating, upgrading, deepening and completing knowledge and skills in order to adjust to changing demands of workstation because of scientific, technological, organizational and economic and progress of the society”<sup>463</sup>.

<i>Kształcenie ustawiczne</i> defined in Poland	Adult Education promoted in the UE
It refers to adults who: <ul style="list-style-type: none"> <li>• have finished their compulsory education and continue learning in educational institution, practical education centres, centres of vocational training and further training</li> <li>• attend to schools for adults</li> </ul>	It refers to adults who: <ul style="list-style-type: none"> <li>• have finished initial education, no matter how long it lasts</li> </ul>
Attention is focused on: <ul style="list-style-type: none"> <li>• youth, the most frequently up to 24</li> <li>• attending institutions of the education system</li> </ul>	Attention is focused on: <ul style="list-style-type: none"> <li>• people between 25 and at least 65</li> <li>• learning in different forms and places</li> </ul>

Table 10. Range of concepts “kształcenie ustawiczne” and “adult education”. Source: Perspektywa uczenia się przez całe życie.

<sup>461</sup>Ministry of Work and Social Policy (2013): *Strategia Rozwoju Kapitału Ludzkiego 2020*. Warszawa. [http://kigeit.org.pl/FTP/PRCIP/Literatura/007\\_2\\_Strategia\\_Rozwoju\\_Kapitału\\_Ludzkiego\\_2020.pdf](http://kigeit.org.pl/FTP/PRCIP/Literatura/007_2_Strategia_Rozwoju_Kapitału_Ludzkiego_2020.pdf) (visited 4 January 2019).

<sup>462</sup><http://stat.gov.pl/metainformacje/slownik-pojec/pojecia-stosowane-w-statystyce-publicznej/2565,pojecie.html>

<sup>463</sup>Baraniak B. (2013): *Koncepcja dokształcania i doskonalenia zawodowego w ujęciu Tadeusza W. Nowackiego wciąż aktualna we współczesnych realiach rynku pracy*. ANNALE S U N I V E R S I T A T I S M A R I A E C U R I E - S K Ł O D O W S K A L U B L I N - P O L O N I A. Vol. 26, No. 1-2, p. 53. <https://journals.umcs.pl/j/article/viewFile/1128/910> (visited 18 October 2018)

The idea of lifelong learning refers to adults, however, it is the most important for those over 40 years old by the reason that their professional knowledge and skills downgrade and modernisation of life needs adaptation activities. Estimation of a number of adults in Poland participating in lifelong learning is possible due to the research and analysis made by GUS (Statistics Poland) Eurostat and independent research project “Diagnoza Społeczna” conducted by Rada Monitoringu Społecznego. The research examined many aspects of people’s lives, including access to ICTs and using them for various reasons.

#### 2.4.5. Lifelong learning in Poland, according to Statistics Poland (GUS).

Statistics Poland prepared three reports of “Adult Education Survey” on the basis of Commission Regulation (EU) No. 823/2010 of 17 September 2010 implementing Regulation (EC) No. 452/2008 of the European Parliament and of the Council, concerning the production and development of statistics on education and lifelong learning, as regards statistics on the participation of adults in lifelong learning. The research included population aged between 25-64, and it was conducted in 2006, 2011<sup>464</sup> and 2016<sup>465</sup>. As can be seen from the data below, the number of adults participating in learning has increased from 35,5% to 43,3% during 10 years.

year	Participation in general	Participation in formal education	Participation in non-formal education	Participation in informal education
2006	Men 35,4%	Men 4,8%	Men 18,2%	Men 24,8%
	Women 36,2%	Women 6,2%	Women 18,9%	Women 26,0%
2011	Men 39,5%	Men 4,5%	Men 20,6%	Men 28,3%
	Women 40,4%	Women 6,2%	Women 21,4%	Women 29,7%
2016	Men 42,5%	Men 3,5%	Men 23,1%	Men 30%
	Women 44,0%	Women 5,2%	Women 22,8%	Women 31,9%

Table 11. Adult participation in learning in Poland between 2006 and 2016 by gender. Source: GUS (2018)

<sup>464</sup> GUS (2013): *Kształcenie dorosłych 2011*. Zakład Wydawnictw Statystycznych, Warszawa. [http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/2/4/ksztalcenie\\_doroslych\\_2011.pdf](http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/2/4/ksztalcenie_doroslych_2011.pdf) (visited 8 January 2019).

<sup>465</sup> GUS (2018): *Kształcenie dorosłych 2016*. [http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/3/1/ksztalcenie\\_doroslych\\_2016.pdf](http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/3/1/ksztalcenie_doroslych_2016.pdf) (visited 8 January 2019).

The figures reveal that the number of adults participating in non-formal and informal education increases with time in contrast to formal education which has decreased by 1% and it remains 4,4%. The preferable form of education is unchangeably informal education (31%).

year	Participation in general	Participation in formal education	Participation in non-formal education	Participation in informal education
2006	35,8%	5,5%	18,6%	25,4%
2011	40%	5,4%	21%	29%
2016	43,3%	4,4%	22,9%	31%

Table 12. Adult participation in learning in Poland between 2006-2016. Source: GUS (2018)

The statistics show that women are those who participate more frequently (44% compared to men 42,5%) as well as townspeople (48% compared to those living in a country 35%).

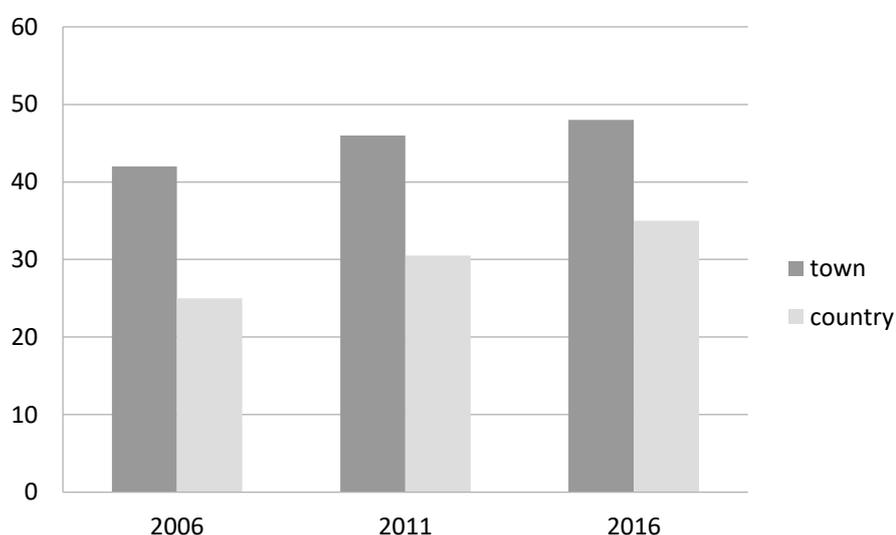


Figure 23. Participation in learning in Poland by place of living. Source: GUS (2018).

The decrease by 3,4% of well-educated adults participating in learning had been noticed, and it equals 69%. At the same time, the percentage of people with lower education level participating in learning has increased.

Education	Participation in general		Participation in formal education		Participation in non-formal education		Participation in informal education	
	2006	2016	2006	2016	2006	2016	2006	2016
higher	72,4%	69,0%	18,8%	13,2%	43,0%	41,4%	53,1%	49,2%
post-secondary	50,3%	49,0%	12,2%	5,5%	23,5%	24,2%	34,5%	34,8%
technical secondary	41,6%	42,5%	7,8%	6,3%	18,6%	18,5%	28,3%	29,4%
general secondary	57,8%	53,6%	34,9%	27,3%	20,1%	19,7%	36,0%	31,9%
VET	24,1%	25,2%	2,6%	1,7%	9,9%	8,6%	16,5%	18,8%
primary and lower secondary	29,4%	34,7%	19,4%	23,8%	10,8%	9,0%	16,4%	19,5%

Table 13. Adult participation in learning in Poland in 2006 and 2016 by the level of education, source: GUS (2013, 2018).

Participation in adult education decreases with age. Adults over 50 tend to do not engage in formal education. Although the percentage of people learning in their 50s and 60s has increased the most (by more than 10 per cent), this age group characterises by low participation in adult education (about 31%). The most numerous group of adults participating in learning includes people aged 25-39. From the figures, it is apparent that generally, more than 50% take part in adult education.

age	Participation in general		Participation in formal education		Participation in non-formal education		Participation in informal education	
	2006	2016	2006	2016	2006	2016	2006	2016
25-29	50,3%	53,5%	18,1%	16,3%	26,6%	27,8%	32,2%	35,4%
30-34	44,4%	49,8%	8,1%	6,0%	25,4%	28,6%	30,4%	35,8%
35-39	42,7%	53%	6,4%	3,5%	24,9%	29,6%	29,5%	35%
40-44	38,3%	48,3%	4,6%	3,7	20,8%	27,2%	26,8%	34,1%
44-49	33,9%	41,1%	2,0%	2,8%	18,0%	22,6%	24,3%	28,8%
50-54	28,3%	38,5%	0,9%	.	13,4%	21,4%	21,8%	28,2%
55-59	22,3%	33,9%	0,2%	.	8,6%	16,8%	18,5%	25,7%
60-64	16,0%	22,4%	-	.	3,5%	5,2%	14,7%	20,0%

Table 14. Adult participation in learning in Poland by the age range in 2006 and 2016. Source GUS (2013, 2018).

Several significant results concerning non-formal education were described in “Kształcenie Dorosłych 2016”. Firstly, a particularly high level of participation in non-formal education included respondents with pedagogical education (43,9%), declaring education related to health and social care (39.5%) and ICT technologies (39.3%). Secondly, men participate more frequently in this form of education than women (except people with pedagogical education as this profession is performed mainly by women). Thirdly, townspeople tend to participate more than those living in a country. People with higher education make up 57% of all non-formal education participants at the age of 25-64, and 1.5% are respondents with at most lower secondary education. The results of the study demonstrate that slightly more than half of those in training were people aged 25-39. Among older age groups, there was a tendency to decrease participation in non-formal education with the age of respondents, from 14.6% in the range of 40-44 years to only 5.2% for people aged 60-64. The percentage of university graduates among those who were in education was the highest for people from younger age groups (particularly high among 30-34-year-olds- 65.0%), which was mainly a reflection of a higher level of education noted among young people. In the non-formal system, mainly employed people were trained- 92.5%, compared to 2.6% of the unemployed and 4.9% professionally passive. 58.4% of employees aged 25-64 had a university diploma. This phenomenon was a reflection of the general differentiation in the level of education of the studied population in terms of status on the labour market.

Education in a non-formal system can take various forms of activity: courses, including online courses, seminars, workshops, private lessons, etc. Most of the participants aged 25-64 (over 60%) took only one of the above-mentioned educational activities during the 12 months preceding the survey. It can be seen from the results of the research, that the higher the level of education of respondents, the more willing they were to take more initiatives to learn. 48.1% of all participants aged 25-64 participated in two or more activities in the field of non-formal education with higher education, with only 19.7% of people with basic vocational education and 2.7% with completed education at the lower secondary level. Definitely, the most important reason for undertaking further education was the improvement of the quality of performed work, mentioned by 56.6% of respondents. Other motives that were directly related to the work and career of the respondents were also important, such as the action forced by the employer or institution (e.g. obligatory health and safety courses and fire safety) or improvement of career prospects (important for over one-quarter of non-formal education participants). At the same time, a large percentage of

people pointed for the reasons for starting education resulting from personal reasons, mainly related to deepening one's interests (30.8%) and the possibility of using skills in everyday life (17.2%). This phenomenon may indicate that among a significant number of respondents, personal reasons interlock with economic factors caused by competition on the labour market inducing specific activities in the area of continuous improvement of knowledge.

When it comes to informal education, women's activity is slightly higher than men's. The vast majority of adults participating in self-education are townspeople, despite the fact that disparities between a town and a country have decreased during the last ten years. It is worth to notice that in the 25-54 age range, the third examined person participated in self-education, in the group of people aged 60-64, a participant in training in the informal system was almost every fourth respondent. The most willing to take up education in this form were people with higher education- nearly half of people taking part in the last edition of the Education study adults with a university diploma were educated in an informal system. Analysis of participation in non-formal education in terms of labour market status indicates that over two-thirds of self-educated people are employed. Adults declaring their participation in non-formal education acquired knowledge in a variety of ways. The study distinguished the following groups of methods for acquiring knowledge:

- using the help of family members, friends, co-workers,
- use of books, trade magazines and other printed materials,
- use of computer programs, the Internet,
- use of a TV set or radio,
- guided tours to museums, historical, industrial or natural objects,
- visits to educational centres (including libraries).

For the vast majority of respondents, regardless of gender and place of living, the most frequently used method of self-education was the use of computer programs or the Internet (84.5%). The second most popular source of knowledge were books, trade magazines and other materials printed, used by 80.1% of learners. Nearly half of people drew knowledge from family members, friends and co-workers, and 38.3% used television and radio programs for this purpose, with mass media as 45.0% of self-educated residents of rural areas and 34.9% of urban residents treated sources of knowledge. Every person gained knowledge during visits to educational centers. For 22.0% of respondents, guided tours were the source of knowledge to museums and other types of facilities. A feature that

clearly determined the choice of self-education method was the age of the respondents. It can be noticed that young people were much more eager to learn from computer programs and the Internet.

age	using the help of family friends, co-workers,	use of books, trade magazines and other printed materials	use of computer programs, the Internet,	use of a TV set or radio	guided tours to museums, historical, industrial or natural objects	visits to educational centres
25-29	48,6%	79,6%	91,9%	29,0%	17,5%	33,7%
30-34	44,7%	78,5%	93,8%	31,9%	16,4%	26,2%
35-39	51,1%	79,8%	90,1%	34,6%	21,0%	26,9%
40-44	45,1%	79,0%	89,1%	34,5%	22,7%	28,7%
45-49	44,0 %	81,8%	83,5%	40,8%	23,2%	30,3%
50-54	48,4%	82,9%	80,0%	45,7%	21,8%	26,8%
55-59	43,2%	80,1%	71,9%	51,3%	20,6%	25,9%
60-64	39,0%	79,9%	62,6%	54,4%	25,9%	26,5%

Table 15. Adults aged 18-69 who used self-education according to the methods used and age in 2016. Source: GUS (2018).

Having Analysed the group of people participating in non-formal education, the author noticed that the choice of self-education method also depended on the level of education of the respondents. The greatest diversity was observed when using a TV set or radio. Among people with higher education, 27.5% of them preferred this method, while the number of people with basic professional education was more than twice higher, and it equals 60.8%. In turn, people with higher education used books, magazines and other printed materials to a greater extent (87.5%) than graduates of basic vocational schools (66.1%). The share of adults using for educational purposes computer and the Internet among people with higher education was over 90%, while among respondents with basic vocational and lower secondary and lower vocational education reached 66.4% and 74.4%, respectively. This may indicate to a still existing problem of digital exclusion of

a large part of the Polish population with a lower level of formal education obtained. These data also show the huge contribution of the media, especially digital ones, to lifelong learning and their diversity and flexibility. Thanks to the media, everyone, regardless of the level of education, can gain knowledge by choosing a tool that suits one's needs and abilities. Computer literacy and ICT skills are also important factor counteracting digital exclusion and, to some extent, social exclusion.

Another important issue is the knowledge of foreign languages. 44% of adults aged 25-69 know one foreign language but only 10,1% declare fluent knowledge of a foreign language. A high level of foreign language skills is declared by young people living in urban areas. Among people who know at least two foreign languages, most people declared knowledge of the first foreign language and a second one at the elementary level. The most frequent languages are English, French, German. For this reason, a leading language of the future crowd-learning platform should be native (Polish).

<b>Adults familiar with foreign languages</b>				
<b>age</b>	<b>1</b>	<b>2</b>	<b>3 and more</b>	<b>none</b>
25-29	53,8%	27,4%	3,0%	15,8%
30-34	53,1%	22,6%	3,9%	20,4%
35-39	49,4%	21,2%	3,3%	26,1%
40-44	43,2%	19,9%	3,2%	33,8%
45-49	39,4%	18,1%	2,9%	39,6%
50-54	40,6%	15,1%	2,4%	42,0%
55-59	40,0%	14,4%	2,0%	13,6%
60-69	36,3%	12,8%	1,6%	49,3%

Table 16. Adults with the ability to speak foreign languages in 2016. Source: GUS (2018).

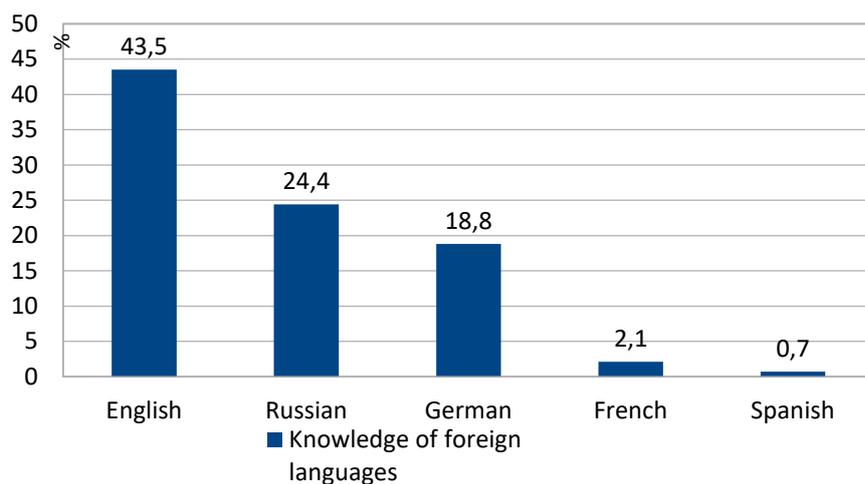


Figure 24. Percentage of adults with the knowledge of a specific foreign language. Source: GUS (2018).

#### 2.4.6. Lifelong learning in Poland according to Rada Monitoringu Społecznego.

Rada Monitoringu Społecznego is a research team under the guidance of prof. Janusz Czapiński<sup>466</sup>. Since 2000 the team have been trying to supplement the diagnosis based on institutional indicators with comprehensive data on households and attitudes, the state of mind and the behaviour of people forming these households. It is the diagnosis of the conditions and quality of life of Poles in their own report. Social Diagnosis is one of the four largest European social panel research projects, alongside German, British and Swiss.

Participation in adult education is significantly reduced among people aged 25-29. This age group is characterized by the highest female fertility, which may limit their educational activity and increase the motivation of men to work that brings income at the expense of their educational activity. On the other hand, the declining trend recorded since 2009, when the percentage of educational services was 18% stopped. Territorial differences in educational activity in this age group remained, especially in the urban-rural approach, but the mutual relations between indicators for cities have changed to small towns disadvantage.

People aged 30-39 are more than four times less likely to use various services education compared to people aged 25-29. Data from the last edition of Social Diagnosis indicate a deterioration in the use of educational services- educationally active was only

<sup>466</sup> Prof. Janusz Czapiński deals with social psychology and psychology of social change (macropsychology). Since 1991, in cooperation with economists, sociologists, demographers and statistics, he has been conducting research on the quality of life of Poles in the period of social change. Author of several concepts dedicated to the emotional and cognitive mechanisms of adaptation.

about 3 per cent towards almost 5 per cent in 2013. The upward trend was halted in almost all categories of a place of residence except for cities with 100,000 to 200,000 inhabitants. The largest decrease was recorded in the smallest towns and villages. The percentage of women active in education in this age group was 3%, and it was close to the percentage for men.

Over the age of 39, education activity has invariably been disappearing for many years- only about 1.5 percent of people are active in education. Among the students over the age of 24, the importance of educational services in the out-of-school mode, organized in the form of courses and training both at work and outside, financed from various sources, is increasing.

The process of improving the qualifications of adults is still selective due to age, gender, place of residence, education and status on the labour market. The results of the next rounds of Social Diagnosis indicate that lifelong learning for adults which is considered to be one of the basic conditions for increasing employability is still small in Poland, and positive trends observed in 2009 were reversed in the following years. What is more, the study of determinants of educational decisions, implemented in 2014 and 2015, indicates the decline in participation of people aged 25- 64 in non-formal education. Despite the significant improvement in the level of education of Polish people, there are still significant differences in generation, between inhabitants of urban and rural areas, between working, unemployed and economically inactive. The spread between the demand for educational services and the pattern of educational activity of distinguished groups of people indicates the necessity of constant intensification of the lifelong learning process in Poland. It is necessary to develop various forms of completing education and raising qualifications (evening, extramural or correspondence training, postgraduate studies, courses and training) and activities to increase the use of educational services. This applies in particular people of immobile age.

Educational status	year	Place of living		
		Urban areas	Rural areas	In general
Adults aged 25-29 making use of the educational services provided in school and out-of-school mode	2015	17,5%	9,2%	13,8%
	2013	16,3%	8,5%	13,3%
	2011	15,1%	9,0%	15,1%
	2009	22,4%	11,4%	18,4%

	2007	22,5%	8,5%	17,2%
	2005	18,5%	8,9%	14,1%
	2003	15,5%	7,6%	12,7%
	2000	12,8%	7,1%	11,4%
Adults aged 30-39 making use of the educational services provided in school and out-of-school mode	2015	4,4%	1,6%	3,3%
	2013	5,8%	2,7%	4,7%
	2011	6,0%	1,9%	4,3%
	2009	8,2%	3,8%	6,2%
	2007	6,6%	2,5%	7,0%
	2005	7,0%	1,8%	5,0%
	2003	7,2%	3,2%	5,4%
	2000	3,5%	0,3%	2,3%
Adults over 39 making use of the educational services provided in school and out-of-school mode	2015	2,1%	0,8%	1,5%
	2013	2,0%	0,8%	1,6%
	2011	1,9%	0,5%	1,3%
	2009	1,9%	0,9%	1,5%
	2007	2,6%	1,1%	1,9%
	2005	1,5%	0,9%	1,3%
	2003	1,6%	0,6%	1,2%
	2000	0,7%	0,3%	0,6%

Table 17. Population in households by educational status and place of living (interest people of a given age and place of living making use of the specific educational service), 2000-2015. Source: *Social Diagnosis 2015*.

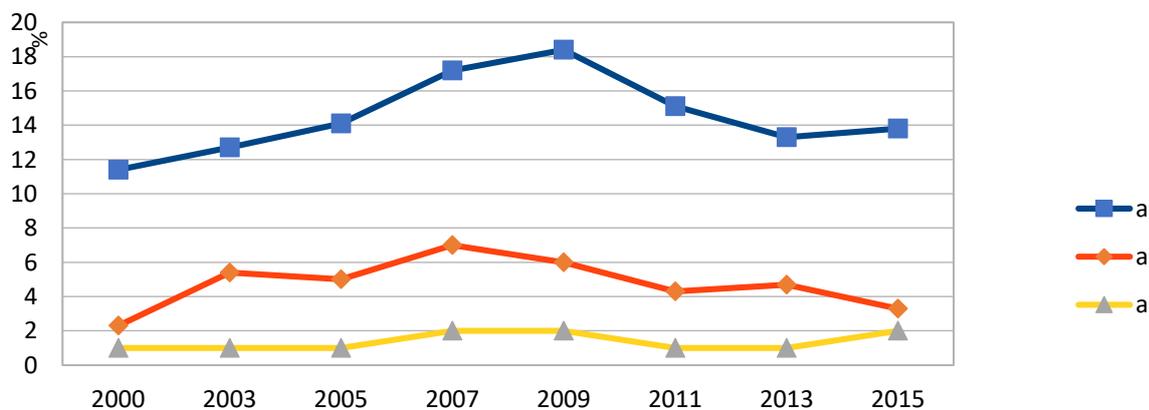


Figure 25. Participation in adult education through time. Source: *Social Diagnosis 2015*.

### 2.4.7. Lifelong learning in Poland according to European research

Data coming from Eurostat show that the percentage of adults taking part in lifelong learning during last 16 years oscillate between 3,5% and 5%<sup>467</sup>.

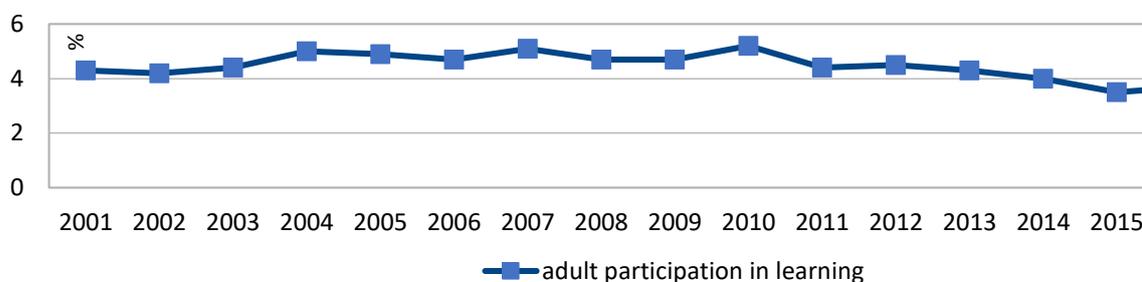


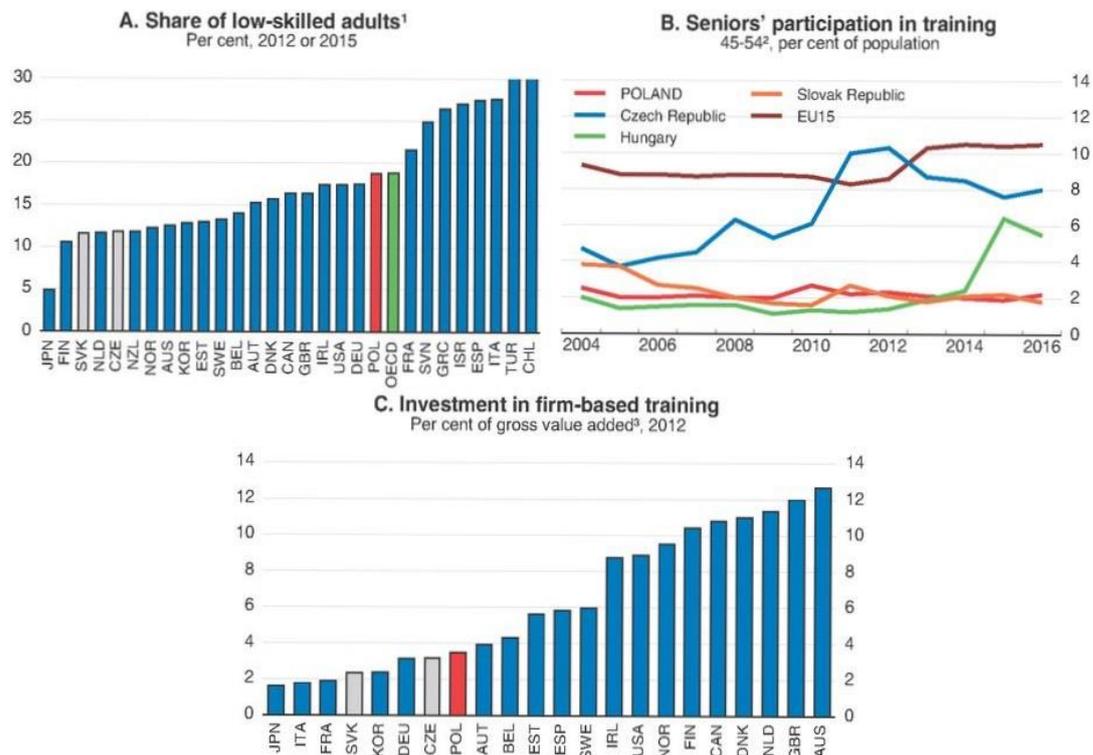
Figure 26. Adult participation rate in lifelong learning between 2001 and 2017. Source: Eurostat (2018).

Conforming to OECD participation in adult learning is low, in particular among those who need it most, older workers and adults with low educational attainment. The share of firms that send their staff on training is also much lower than in other European countries.

Many workers in Poland do not engage in training because they do not see benefits for their labour market situation. It turns out that more than 60% of adults do not want to participate in training in comparison to 40% of average in European countries. Moreover, 75% of Polish companies state that they cannot find personnel with skills corresponding to their needs<sup>468</sup>.

<sup>467</sup> Eurostat (2018): *Participation rate in education and training (last 4 weeks) by sex and educational attainment level*. <http://bit.ly/eurostat2018> (visited 15 January 2019).

<sup>468</sup> OECD (2018): *OECD Economic Surveys: Poland 2018*, OECD Publishing, Paris. [https://dx.doi.org/10.1787/eco\\_surveys-pol-2018-en](https://dx.doi.org/10.1787/eco_surveys-pol-2018-en) (visited 15 January 2019).



1. Share of adults scoring below level 2 in the PIAAC reading proficiency scale.
2. Percentage of individuals having had training in the 4 weeks preceding the survey.
3. Firms' investment in formal and on-the-job training.

Source: OECD (2016), *Skills Matter: Further Results from the Survey of Adult Skills*, OECD Skills Studies, OECD Publishing, Paris; Eurostat (2017), "Education and Training Statistics", Eurostat Database; OECD (2016), *OECD Science, Technology and Industry Scoreboard* (database).

StatLink  <http://dx.doi.org/10.1787/888933688722>

Figure 27. Undeveloped lifelong learning in Poland, Source OECD (2018).

According to the latest data coming from "Education and Training Monitor 2018 Poland Factsheet" conducted by the European Commission, in the majority of benchmarks set for 2020, Poland has good performance or fast development. The early school leavers, tertiary attainment and employment of recent graduates' benchmarks have already been reached. The benchmarks for early childhood education and care and the share of low achievers are almost reached, but participation in adult learning remains fairly limited.<sup>469</sup> In 2017 it was only 4,0%. The newest data show that the year 2018 was slightly more optimistic for Poland as it reached 5,5%<sup>470</sup>. As it was stated earlier, the EU's Benchmark 2020 is an average of at least 15% of adults (age group 25-64) participating

<sup>469</sup> European Commission (2018): *Education and Training Monitor 2018 Poland Factsheet*.

[https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-factsheet-2018-poland\\_en.pdf](https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-factsheet-2018-poland_en.pdf) (visited 2 January 2019).

<sup>470</sup> Eurostat (2019): *Participation rate in education and training (last 4 weeks) by sex and educational attainment level*. [bit.ly/eurostat2018](http://bit.ly/eurostat2018) (visited 22 March 2019).

in formal or non-formal learning. Informal learning was excluded from the research. Only some countries reached that benchmark at a national level. The most progress was observed in Estonia, Hungary and Luxembourg. Poland remains in a group of countries with the lowest indicators<sup>471</sup>.

## Key indicators

		Poland		EU average	
		2014	2017	2014	2017
<b>Education and training 2020 benchmarks</b>					
Early leavers from education and training (age 18-24)		5.4%	5.0%	11.2%	10.6%
Tertiary educational attainment (age 30-34)		42.1%	45.7%	37.9%	39.9%
Early childhood education and care (from age 4 to starting age of compulsory primary education)		87.1%	93.1%	94.2%	95.3%
Proportion of 15 year-olds underachieving in:	Reading	10.6%	14.4%	17.8%	19.7%
	Maths	14.4%	17.2%	22.1%	22.2%
	Science	9.0%	16.3%	16.6%	20.6%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)		75.6%	82.1%	76.0%	80.2%
Adult participation in learning (age 25-64)		4.0%	4.0%	10.8%	10.9%
Learning mobility	Degree mobile graduates	:	0.9%	:	3.1%
	Credit mobile graduates	:	:	:	7.6%

Table 19. Poland Factsheet. Source: EC: Education and Training Monitor 2018.

<sup>471</sup> European Commission (2018): *Education and Training. Monitor 2018. EU Targets for 2020*. [http://ec.europa.eu/education/sites/education/files/document-library-docs/2018-et-monitor-leaflet\\_en.pdf](http://ec.europa.eu/education/sites/education/files/document-library-docs/2018-et-monitor-leaflet_en.pdf) (visited 15 January 2019).

## 6. Adult participation in learning

**BENCHMARK 2020:** An average of at least 15% of adults (age group 25-64) should participate in formal or non-formal learning [1].

**BEST EU PERFORMERS:** Sweden, Finland, Denmark  
**MOST PROGRESS 2014-2017:** Estonia, Hungary, Luxembourg

	2017 Total	Trend	2017		
			ISCED 0-2	ISCED 3-4	ISCED 5-8
<b>EU</b>	<b>10.9</b>	<b>0.1</b>	<b>4.3</b>	<b>8.9</b>	<b>18.6</b>
Belgium	8.5	1.1	3.2	6.0	13.7
Bulgaria	2.3	0.2	:	1.9	4.1
Czech Republic	9.8	0.2	3.1	7.7	17.6
Denmark	26.8	-5.1	17.3	24.4	33.9
Germany	8.4	0.4	4.5	7.3	12.5
Estonia	17.2	5.6	7.0	12.3	26.1
Ireland	8.9	2.1	3.1	7.1	12.7
Greece	4.5	1.3	0.7	4.6	7.7
Spain	9.9	-0.2	3.5	10.4	16.7
France	18.7	0.3	7.7	15.1	29.8
Croatia	2.3	-0.5	(0.6)	1.9	4.5
Italy	7.9	-0.2	2.0	8.9	18.3
Cyprus	6.9	-0.2	(1.0)	4.7	11.4
Latvia	7.5	1.9	3.2	5.8	11.5
Lithuania	5.9	0.8	:	3.1	10.0
Luxembourg	17.2	2.7	6.0	13.8	25.7
Hungary	6.2	2.9	2.8	4.9	11.5
Malta	10.1	2.7	3.7	13.0	23.0
Netherlands	19.1	0.8	9.5	18.4	26.2
Austria	15.8	1.5	6.6	11.7	26.6
Poland	4.0	0.0	1.2	2.1	8.6
Portugal	9.8	0.2	4.1	11.5	20.4
Romania	1.1	-0.4	:	0.9	2.7
Slovenia	12.0	-0.1	2.9	8.4	21.4
Slovakia	3.4	0.3	:	2.6	6.7
Finland	27.4	2.3	13.8	23.4	35.0
Sweden	30.4	1.2	20.5	25.4	39.2
UK	14.3	-2.0	6.0	12.2	20.1
Iceland	23.6	-2.7	12.8	22.0	30.5
Norway	19.9	-0.2	13.3	16.3	25.8
Switzerland	31.2	0.7	10.1	25.1	43.9
MK*	2.3	-0.9	(0.2)	3.0	3.9
Turkey	5.8	0.1	2.8	8.4	13.8

**A CLOSER LOOK:** In several countries the gap between average population and adults with disadvantaged status has been increasing. Effective support for adults with low basic skills or low qualifications should start from skills validation schemes, including skills assessment, guidance support and outreach campaigns. Second chance education can also support low-skilled adults in further learning.

### General notes:

The percentage point trends and progress shown in this leaflet are calculated with 1-decimal figures and do not exclude any intermediate breaks in series.

( ) – low reliability

: – data either not available or not reliable due to very small sample size

b – break in time series

\*MK – Former Yugoslav Republic of Macedonia

Member States that have reached EU benchmark at national level for the given year

ISCED: International Standard Classification of Education (2011)

- 0 Early childhood education
- 1 Primary education
- 2 Lower secondary education
- 3 Upper secondary education
- 4 Post-secondary non-tertiary education
- 5 Short-cycle tertiary education
- 6 Bachelor's or equivalent level
- 7 Master's or equivalent level
- 8 Doctoral or equivalent level

For further descriptions, analysis and notes see the Education and Training Monitor 2018 ([ec.europa.eu/education/monitor](http://ec.europa.eu/education/monitor))



[ec.europa.eu/education/monitor](http://ec.europa.eu/education/monitor)

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Table 18. Adult participation in learning. Source: European Commission (2018).

After analysing different sources of data concerning adult participation in learning, a question appears: Why are they so different? Polish statistics come 43,3% (GUS) and 18,6% (RM) in comparison to European ones- 4,0%. How is that possible? The first reason is that Polish statistics include population aged 18-69 and European statistics include adults aged 25-64. According to Polish law, citizens become adults at the age of 18, that is why they are encompassed within statistics. However, the youngest adults aged 18-24 learn the most because the majority of them complete their initial education. For this cause, we should regard European statistics as more reliable.

The second reason includes different time span of the research. Polish data is based on the last 12 months' time in comparison to European data – last four weeks. From the author's point of view, that time span may be for estimating the real scale of participation in adult learning because of varied forms of informal learning and lack of consciousness of learning activities taken by respondents. Twelve weeks' time could be optimal. Nevertheless, European statistics should be seen as more reliable and comparable between countries.

To conclude, comparing all the reports, we see increasing media significance for adult education and lifelong learning participation. At first, the presence of the media was only mentioned. In each subsequent report, their presence became more significant, the opportunities they created were greater, and the consequences resulting from a lack of access to digital media were more serious. Information and Communication Technologies provide various innovative possibilities for lifelong learning, reducing the dependence on traditional formal structures of education and permitting individualized learning. Adult learners can access learning opportunities anytime and anywhere using mobile devices, electronic networking, social media, as well as online courses. ICTs also have a significant capacity to facilitate access to education for people with disabilities, allowing them to integrate more fully into society and other marginalised or disadvantaged groups. Many countries promote media awareness of adult education programmes. Numerous initiatives have also been taken to use digital media to increase the effectiveness and accessibility of education and information facilities.

### 3. Innovative practices based on the wisdom of the crowd as methods of gaining knowledge in the Information Society

Probably humans have used the wisdom of the crowd for ages, however, historically documented outset of this phenomenon dates back at the beginning of XVIII century when Great Britain focused on navy development to protect the country from mainland Europe invasion and to provide the control over world trade trails and numerous British colonies. The crucial problem was to set precise localization of a ship. To manage the problem, the British Parliament announced a competition for citizens constituted by *the Longitude Act*, for the best method of defining precise ship localization on the sea. First prize was from 10 to 20 thousand pounds; however, a partial contribution was also awarded, appropriately lower sum. The first crowdsourcing act was finished by the invention of chronometer. In modern times the wisdom of the crowd exploded together with the Internet development<sup>472</sup>.

In the 1930s, Lev Semyonovich Vygotsky developed a theory claiming that the development depends on the interaction with people and tools that have been created by culture to shape their vision of the world<sup>473</sup>. J. Roschelle writes about Vygotsky's emphasize on the role of social process in learning according to whom, designers enable groups of learners to do more complex activities than they could handle individually<sup>474</sup>.

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<sup>472</sup> Milewski F. (ed.) (2015): *Thum jako źródło wiedzy i kapitału. Polska Agencja Rozwoju Przedsiębiorczości*. Warszawa, p. 5-6.

<sup>473</sup> Zhou M., Brown D. (2015): *Educational Learning Theories. Education Open Textbooks*. Galileo University of Georgia, Book 1, p. 30.

<sup>474</sup> Rochelle J. (1995): *Learning in Interactive Environments: Prior Knowledge and New Experience*. <http://www.astc.org/resource/education/priorknw.htm> visited (4 May 2018).

Wisdom of the crowd gave the beginning of many interesting and innovative practices in business and education.

The 21<sup>st</sup> century was called “the Mobile Age” by M. Sharples, J. Taylor and G. Vavoula as people throughout the world are learning in new ways due in part to the proliferation of mobile technologies and media. Learning resources are ‘just there’, ready at hand, with users of devices forming complex patterns of mobility, interaction and collaboration. New learning in the Information Society is personalised, learner-centred, situated, collaborative, ubiquitous and lifelong and it is converging with a new technology which is personal, user-centred, mobile, networked, ubiquitous and durable. The authors emphasise mobile networked technology enables society to gain and share information wherever a need appears, rather than in a fixed location. That is why they see it as the Mobile Age. Furthermore, they point new learning is based on conversation and communication. As a teacher is no longer the one who knows, and students may also contribute, the process of learning is based on conversation. When a teacher and a learner are in different places, mobile technology makes communication and conversation possible. From that point of view, the Mobile Age convention seems very accurate<sup>475</sup>.

Mobile learning is a kind of a bridge which joins formal and informal learning. Applications on mobile devices can supplement formal learning by widening the knowledge, illustrating or experiencing. The use of mobile technology supports informal learning which is more powerful and passionate than curriculum learning, and it is not only limited to hobbies and life skills. Most things we do every day is learnt outside the school. Applications which were created to make everyday use are modified and used for learning, for instance, social media. Since they are constantly developed to improve our lives, we have to learn how to use them; thus mobile learning also supports lifelong learning<sup>476</sup>. However, it is not the only reason. Mobile learning materials are accessible anytime and anywhere, especially for learners who are constantly on the move, provide

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<sup>475</sup> Sharples M., Taylor J., Vavoula G. (2015): *A Theory of Learning for the Mobile Age*. [in:] Haythornwaitie C. et al (eds.)(2016): *The SAGE Handbook of E-learning Research*. 2<sup>nd</sup> edition, SAGE Publications Ltd., pp.63-81.

<sup>476</sup> McQuiggan S. et al. (2015): *Mobile Learning. A handbook for Developers, Educators, and Learners*. Wiley, pp. 237- 254.

assessment and feedback without learner's embarrassment. It makes a learner responsible for his learning<sup>477</sup> and provides positive learning experiences<sup>478</sup>.

Mobile learning gives some more opportunities. Firstly, it eliminates the risk of exclusion from affordable, high-quality learning experiences in remote communities. Secondly, it provides learners with access to their accumulated knowledge and resources despite changes in technology. Thirdly, it can be integrated into a context of existing practices, beliefs and experiences. For example, in fast-developing countries (like Asia and Africa) mobile learning helps to bypass the establishment of costly education infrastructure and provides chances to develop culturally relevant and contextually based learning materials to support and supplement new curriculum development. On the contrary, in developed regions (like Europe and America) mobile learning is emerging as a new and innovative response to outdated approaches to curriculum delivery to younger generations called “digital natives”<sup>479</sup>.

In this chapter, the author is going to present both different and similar learning approaches. The aim of the chapter is to distinct crowd-learning from other known practices, present previous, however limited, as it is a quite new field, knowledge and to point its specific features and benefits. What is more, the presentation of crowd-learning platforms across the world is going to be made in order to familiarize readers with varied forms and platforms functionalities.

### **3.1. Learning through co-operation: collaborative and collective learning**

Collaborative and collective learning needs to be defined in detail by the reason that the term „collaborative learning” does not exist in Polish dictionary. Before the World War II the verb „collaborate” (Pl “*kolaborować*”) meant cooperation in general in Polish, as well as in other countries, however, today it has a negative association. That condition appeared during the II World War when collaboration signified political and economic

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<sup>477</sup> Bringula R. et al. (2017): *Learner-Interface Interactions with Mobile- Assisted Learning in Mathematics: Effects on and Relationship with Mathematics Performance*. International Journal of Mobile and Blended Learning. Vol. 9, No 1, pp. 34- 36.

<sup>478</sup> Daesang K. et. al. (2017): *Mobile Assisted Language Learning Experiences*. International Journal of Mobile and Blended Learning. Vol. 9, No 1, p. 53.

<sup>479</sup> Pulla S. (2017): *Mobile Learning and Indigenous Education in Canada: A Synthesis of New Ways of Learning*. International Journal of Mobile and Blended Learning. Vol. 9, No 2, pp. 39-59.

cooperation with Nazi occupants<sup>480</sup>. Other words, it means cooperation with an enemy. It is interesting that in some countries the same term changed connotations and in other not. Philologists indicate that words which sound foreign and strange tendency to take pejorative meaning. To explain it we have to begin with the figure of French Marshall Philippe Pétain who was collaborating with Nazi occupants during World War II. He was said to be a German marionette, and he is the most famous example of act of collaboration. Thus, the word "collaborate" is known and familiar in French, but surprisingly, it is not pejorative. Philologists assume that languages in which words sound foreign and strange tend to assign them pejorative connotation. Thus, Germanic languages sustained favourable meaning of collaboration as it sounded familiar, in comparison to Slavic languages which evolved in the opposite direction<sup>481</sup>.

In many countries, collaboration means a synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem<sup>482</sup>. To collaborate means at least to cooperate (in the sense of pursuing a goal that is assumed to be shared), but also working together in a more or less synchronous way, in order to gain a shared understanding of the task<sup>483</sup>.

The idea of collaborative learning appeared in the 1950s and 1960s thanks to the efforts of British teachers and researchers who studied the interaction of medical students. It was concluded that the medical students who learned to make a diagnosis as a group reached to a good medical judgement faster than individuals working alone. Transformations of society in the 1970s facilitated specific studies concerning conditions under which working together was the most effective, in comparison with working alone. It was stated that effectiveness of learning outcomes and the quality of problem solutions depends on other variables, such as the type of task, the age of participants, the number of, members in the group, differences in prior knowledge and gender.

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<sup>480</sup> Doroszewski W. (red.): *Słownik Języka Polskiego*. PWN.

<https://sjp.pwn.pl/doroszewski/kolaborowac;5440595.html> (visited 14 November 2018).

<sup>481</sup> Bańko M. et al. (2016): *Nie całkiem obce. Zapożyczenia wyrazowe w języku polskim i czeskim*. Wydawnictwa Uniwersytetu Warszawskiego, Warszawa, p. 96-97.

<sup>482</sup> Roschelle, J., Teasley, S.D. (1995): *The construction of shared knowledge in collaborative problem solving*. [in:] O'Malley C. (Ed.) *Computer Supported Collaborative Learning*, Berlin: Springer Verlag, pp. 69-97.

<sup>483</sup> Baker M. J. (2015): *Collaboration in Collaborative Learning*. *Interaction Studies: Social Behaviour and Communication in Biological and Artificial Systems*, 16(3), 451-473. November 2015. Special issue on "Coordination, Collaboration and Cooperation: Interdisciplinary Perspectives". [https://www.researchgate.net/publication/288886296\\_Collaboration\\_in\\_collaborative\\_learning](https://www.researchgate.net/publication/288886296_Collaboration_in_collaborative_learning) (visited 15 November 2018).

Collaborative learning was regularly associated with the idea of working in a group or team in the '80s and '90s of the 20<sup>th</sup> century; nevertheless, the idea gains a new impetus. The term “collaboration” displaced the most traditional term “cooperation”. N. D. Roselli refers to cooperation as a division of functions based on the distribution of the task which would lead to the second stage of assembly group, and he sees collaboration as a collective process from the beginning, where all of them are jointly involved for task performance<sup>484</sup>. Collaborative learning is also defined as an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product<sup>485</sup>. According to J. M. Gerlach collaborative learning is “based on the idea that learning is a naturally social act in which the participants talk among themselves.”<sup>486</sup> In addition, collaborative learning is described as a situation in which the expected occurrence of specific forms of interaction between people that trigger learning mechanisms, but there is no guarantee of expected interaction.

To this end, conditions are designed to increase the likelihood of expected interactions, such as creating situations, setting rules for participants, dividing roles, building scaffolding (learning process under guidance), monitoring and facilitating<sup>487</sup>. Collaborative learning is said to take place when students work together to achieve common goals<sup>488</sup>.

A group and a learning situation in collaborative learning are characterized in the following way: Students working together are equal in terms of their statuses and rights to mediate in the interaction; however, they cannot be equal in terms of prior knowledge. Group work is organised by requiring the groups to work on and elaborate a solution to the problem. The design of effective collaboration situations requires developing tasks whose achievement makes it necessary to work together, given that the problem cannot

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<sup>484</sup> Roselli N. D. (2016): *Collaborative learning: Theoretical foundations and applicable strategies to university*. Universidad San Ignacio de Loyola, Vicerrectorado de Investigación y Desarrollo, Ene.-Jun. 2016, Vol. 4, N° 1: pp. 219-280. <http://dx.doi.org/10.20511/pyr2016.v4n1.90> (visited 14 November 2018).

<sup>485</sup> Laal M., Laal M. (2012): *Collaborative learning: what is it?* Procedia - Social and Behavioral Sciences No. 31 (2012), pp. 491 – 495.

<sup>486</sup> Gerlach, J. M. (1994). *Is this collaboration?* [in:] Bosworth, K., Hamilton, S. J. (Eds.), *Collaborative learning: Underlying processes and effective techniques, New directions for teaching and learning*, No. 59.

<sup>487</sup> Dillenbourg P. (1999): *What do you mean by collaborative learning?* [in:] Dillenbourg P. ed. „Collaborative-learning: Cognitive and Computational Approaches”. Oxford: Elsevier, p. 1-19.

<sup>488</sup> Barkley, E.F., Cross, K.P., Major, C.H. (2005): *Collaborative Learning Techniques: A Handbook for College Faculty*. San Francisco: Jossey-Bass.

be solved alone. Collaboration is most likely only be applicable to certain specific phases of group work as there are periods during which students are not attending to each other or to a joint task focus, with each student working individually on a subtask. The extent to which a known procedure exists for solving the problem in another issue as the solution procedure may be commonly known (mathematics) or largely explanatory where there is no given procedure. Baker emphasises that finding a solution or answer to the question is not the only aim of the learning outcome. The aim could be learning in the sense of co-elaborating and appropriating task-related conceptual understanding. The last feature of the collaborative group is changing role of the teacher who becomes a facilitator of the activity creating students' working groups, organising their work by providing task instructions and educational materials or supports, and evaluating the students' work, handed in at the end of the working session. Teachers are not expected to intervene in a continuous manner during the work of the groups<sup>489</sup>.

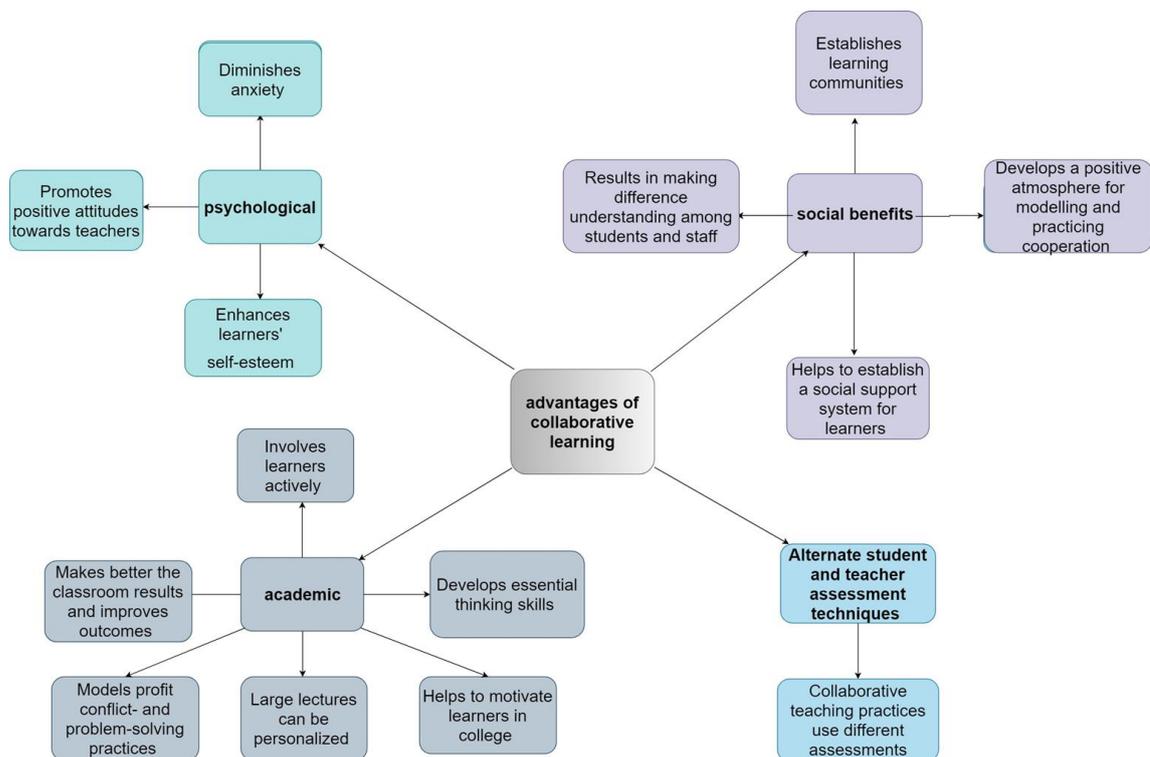


Figure 28. Advantages of collaborative learning. Author's own work based on Laal M. et al. (2014)<sup>490</sup>.

<sup>489</sup> Baker M. J. (2015): *Collaboration in Collaborative Learning*. Interaction Studies: Social Behaviour and Communication in Biological and Artificial Systems, 16(3), 451-473. November 2015. Special issue on "Coordination, Collaboration and Cooperation: Interdisciplinary Perspectives". [https://www.researchgate.net/publication/288886296\\_Collaboration\\_in\\_collaborative\\_learning](https://www.researchgate.net/publication/288886296_Collaboration_in_collaborative_learning) (visited 15 November 2018).

<sup>490</sup> Laal M., Zhina Khattami-Kermanshahi M., Laal M. (2014): *Teaching and education: collaborative style*. Procedia - Social and Behavioral Sciences No. 116, pp. 4057 – 4061. <https://www.sciencedirect.com/science/article/pii/S1877042814009070> (visited 19 November 2018).

Collaborative learning happens when the following conditions are fulfilled: positive interdependence, considerable interaction, individual accountability, social skills and group processing. Advantages of collaborative learning were arranged by researchers in four categories: social, psychological, academic and alternate student and teacher assessment techniques<sup>491</sup>.

As it was stated by B. McLaren “collaborative learning groups can range from a pair of students (called a dyad), to small groups (3-5 students), to classroom learning (25-35 students), on to large-scale online learning (hundreds or even thousands of students). Dyads and small groups are the group size where students are most likely to have an opportunity to contribute and where creating interdependence is most easily arranged”<sup>492</sup>. Technology gave learners the opportunity to connect remotely and collaborate on a larger scale. The Learning Sciences exploring how technology can best support collaborative learning led to the emergence of its subfield – Computer-Supported Collaborative Learning (CSCL) which is one of the most promising ideas to improve teaching and learning with the help of modern information and communication technology. CSCL refers to all levels of formal education from kindergarten through graduate study as well as informal education, for instance, in museums. The idea of CSCL in education is not based on ready software but on the development of new software and applications that bring learners together, and that can offer creative activities of intellectual exploration and social interaction. Moreover, CSCL stresses collaboration among the students, so that they are not simply reacting in isolation to posted materials. The learning takes place largely through interactions among students. Students learn by expressing their questions, pursuing lines of inquiry together, teaching each other, and seeing how others are learning. In addition, computer support of learning does not always take the form of an online communication medium. It can involve a computer simulation of a scientific model or a shared interactive representation. It could be said that CSCL bonds together three methodological traditions: experimental, descriptive, and iterative design<sup>493</sup>.

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<sup>491</sup> Ibidem.

<sup>492</sup> McLaren B. (2014): *What Happens When We Learn Together. A Research-Based Whitepaper on the Power of Collaborative Learning*. Wiley, p.3. <https://www.cs.cmu.edu/~bmclaren/pubs/Wiley-CollaborativeLearningWhitePaper-2014.pdf> (visited 15 November 2018).

<sup>493</sup> Stahl G., Koschmann T., Suthers D. (2006): *Computer-Supported Collaborative Learning*. [in:] Sawyer R. K. (ed.): *The Cambridge Handbook of The Learning Sciences*. Cambridge University Press, pp.409-425.

All the people possess intelligence, however, it does not arise only within human brains but also in groups of people. This is Collective Intelligence – individuals acting together to combine their knowledge and insight. It emerges from the group, it does not reside within any individual members<sup>494</sup>. J. M. Leimeister decomposed the term collective intelligence. He sees “collective” as a group of individuals who are not required to have the same attitudes or viewpoints. Different members can reveal different perspectives and approaches, leading to better explanations or solutions to a given problem. “Intelligence” refers to the ability to learn, to understand, and to adapt to an environment by using own knowledge<sup>495</sup>.

The dictionary of Polish language defines collectivism in sociological terms as a stand based on holistic criteria, opposing individualism. Cambridge English Dictionary specifies collectivism in the following way: “a political system in which a country's land and industry are owned and managed by a government or by all of its citizens together”.<sup>496</sup> In the vocabulary of synonyms, the collective is group, common, crowd<sup>497</sup>. The encyclopaedia of management defines the term 'collectivism' as an idea opposite to individualism, consisting of close identification with a group, community or community of people<sup>498</sup>. In economic terms, it is an economic management system based on socialized, common means of production<sup>499</sup>. Thus we can assume the keyword of collectivism is community. H. Jenkins marks his reflections on collective intelligence based on the definition of its author P. Levy: "the ability of virtual communities to raise the level of knowledge and expertise of their members, often through cooperation and debates conducted on a large-scale"<sup>500</sup>. Collective intelligence is the integration of dispersed knowledge of people connected via the Internet. H. Jenkins, quoting Levy, writes: "On the Internet, people benefit from the common goal and the implementation of

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<sup>494</sup> Crowdoscope (2015): *Collective Intelligence: An Overview*. Crowdoscope Ltd., London. <https://www.crowdoscope.com/pdf/Crowdoscope%20-%20Collective%20Intelligence%20-%20An%20Overview.pdf> (visited 21 November 2018).

<sup>495</sup> Leimeister J. M. (2010): *Collective Intelligence*. Business & Information Systems Engineering, No 2(4), pp. 245-248. [https://www.researchgate.net/publication/220618525\\_Collective\\_Intelligence](https://www.researchgate.net/publication/220618525_Collective_Intelligence) (visited 22 November 2018).

<sup>496</sup> Cambridge Dictionary: collectivism. <https://dictionary.cambridge.org/dictionary/english/collectivism> (visited 9 February 2020).

<sup>497</sup> Słownik synonimów, <https://synonim.net/synonim/kolektywny#g9676> (visited 23 March 2018).

<sup>498</sup> Encyklopedia Zarządzania, <https://mfiles.pl/pl/index.php/Kolektywizm> (visited 23 March 2018).

<sup>499</sup> Słownik Języka Polskiego, <https://sjp.pl/kolektywizm> (visited 23 March 2018).

<sup>500</sup> Jenkins H. (2007): *Kultura konwergencji. Zderzenie starych i nowych mediów*. Wydawnictwa Akademickie i Profesjonalne, Warszawa, p. 265.

common assumptions gained in some area of expertise. > Nobody knows everything, but everyone knows something>”<sup>501</sup>.

Collective intelligence is said to be “an interconnected group of people and computers, collectively doing intelligent things. Google harvests knowledge generated by millions of people creating and linking Web pages and then uses that knowledge to answer queries in ways that often seem amazingly intelligent”<sup>502</sup>. However, are they really so intelligent or just seem? Creators of Google wanted to minimize wrong and not accurate findings to zero; thus, they equipped the search engine with an intelligent system of web pages rating (Page Rank) on the grounds of the number of the connected links. Algorithms are responsible for searching so accurate information. They get into a relationship with internet users, prompt the most exact findings and suggest what should engage them<sup>503</sup>.

In Wikipedia, thousands of people around the world have collectively created a large intellectual product of high quality with almost no centralized control and with mostly volunteer participants. They finely define collective intelligence as groups of individuals acting collectively in ways that seem intelligent. Collective intelligence has multidisciplinary character and it is related to many other fields. It overlaps with the subset of computer science that involves intelligent behaviour by groups of people, computers, or both. Collective intelligence overlaps with cognitive science when there is an explicit focus on how intelligent behaviour arises from groups of individuals people (as in group memory, group problem solving, and organizational learning). It focuses on the subset of network science that involves intelligent collective behaviour. Collective intelligence also overlaps with the parts of biology that focus explicitly on group behaviour that can be regarded as intelligent. Sociology, political science, economics, social psychology, anthropology, organization theory, and law overlap with collective intelligence only when there is a focus on overall collective behaviour that can be regarded as more or less intelligent<sup>504</sup>.

Collective knowledge is the stockpile of knowledge of practitioners conceived as the total collection of three constituents: culture, institutions and technology. According to W.

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<sup>501</sup> Jenkins H. (2007): *Kultura konwergencji. Zderzenie starych i nowych mediów*. Wydawnictwa Akademickie i Profesjonalne, Warszawa, p.31.

<sup>502</sup> Malone T. W., Bernstein M. S. (2015): *Handbook of Collective Intelligence*. The MIT Press, Cambridge, Massachusetts, London, England, p. 1.

<sup>503</sup> Ptaszek G. (2019): *Edukacja Medialna 3.0. Krytyczne rozumienie mediów cyfrowych w dobie Big Data i algorytmizacji*. Wydawnictwo Uniwersytetu Jagiellońskiego, p. 88-91.

<sup>504</sup> Malone T. W., Bernstein M. S. (2015): *Handbook of Collective Intelligence*. The MIT Press, Cambridge, Massachusetts, London, England.

Fu, H. Lo and D. Drew, collective knowledge is created, accumulated and refined in collective learning. Learning networks mediate collective learning, which in turn creates collective knowledge. The researchers consider collective learning as “the expansion of individual learning in a massive, interactive manner occurring in a large group of practitioners linked for some common purposes”<sup>505</sup>. R. C. Anderson defines collective learning as “the ability to share information so efficiently that the ideas of individuals can be stored within the collective memory of communities and can accumulate through generations. The appearance of a species capable of collective learning marks a tipping point in the history of the biosphere, after which the very rules of change begin to change”<sup>506</sup>. According to the Encyclopaedia of Networked and Virtual Organizations collective learning is “the process through which different actors develop a collective mind which concerns how they use their own network and interactions as culture-based contextual conditions for everyday learning processes including opportunities to use their concrete experiences, knowledge, and skills. It involves horizontally based cooperation between different actors in a local or organizational setting or the mobilization of resources in a broader context as such to initiate a learning-based process of innovation and change”<sup>507</sup>. Collective knowledge is assigned to a group operating in the same social network, having common values and life goals. The holders of collective knowledge are characterized by the desire to improve and develop the same professional competences and the same criteria for assessing the quality of knowledge<sup>508</sup>.

The mechanism of collective learning is described as a synthesis of four modes of human interaction: socialization, externalization, combination and internalization. Admittedly, collective learning model can be applied for collective learning in different fields and industries.. Socialization refers to the process of exchange in tacit knowledge by sharing experiences. Frequently, friendship is a facilitator of socialization. Externalization refers to the conversion of tacit knowledge to explicit knowledge by

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<sup>505</sup> Fu W., Lo H., Drew D. (2006): *Collective learning, collective knowledge and learning networks in construction*. Construction Management and Economics, Vol 24, No 10, pp. 1019-1028. (visited 27 November 2018).

<sup>506</sup> Anderson R. C. (2016): *Berkshire Encyclopaedia of Sustainability*. Berkshire Publishing Group, <http://www.oxfordreference.com/view/10.1093/acref/9780190622664.001.0001/acref-9780190622664-e-874> (visited 25 November 2018).

<sup>507</sup> De Noronha Vaz M. T., Fernandes S., De Noronha Vaz E. (2008): *E-Learning Tool for Regional Development*. [in:] Putnik G. D., Cruz-Cunha M. M. (eds.) *Encyclopedia of Networked and Virtual Organizations*. IGI Global. pp. 467-474. <https://www.igi-global.com/dictionary/collective-learning/4486> (visited 25 November 2018).

<sup>508</sup> Fazłagić J. A. (2008): *Wiedza kolektywna na przykładzie polskiej oświaty*. „E-mentor” vol. 23, No. 1. <http://www.e-mentor.edu.pl/artukul/index/numer/23/id/505> (visited 23 March 2018).

collective activities, which are commonly organized in the form of meetings, workshops, forums, etc. Combination denotes the synthesis of explicit knowledge by incorporating domains of knowledge into an integrated set of explicit knowledge. Internalization refers to the conversion of explicit knowledge into tacit knowledge. Learning by doing polishes an individual's skill over time<sup>509</sup>.

So far, a range of collective knowledge behaviours was described differently by many researchers. A. J. Sellen, R. Murphy and K. L. Shaw describe a range of collective knowledge behaviours as browsing, finding information and resources, communicating with others, information gathering and housekeeping and transacting with others<sup>510</sup>. A. Littlejohn, C. Milligan and A. Margaryan enumerate: individuals consume, connect, create and contribute to the collective knowledge and see these four knowledge behaviours as intertwining activities rather than discrete linear steps. They explain shortly but carefully collective behaviours: “to consume collective knowledge, individuals need to be able to identify and source knowledge residing within the collective. To enable an individual to find relevant knowledge, the knowledge base must be transparent and accessible. The individual continually elaborates and refines his/her view of the collective knowledge by connecting to knowledge resources, people, discussions and other knowledge bases. He or she may also contribute to the collective knowledge, through creating, sharing and feeding knowledge back into the collective”<sup>511</sup>.

Three forms of collective learning were highlighted: learning in networks, learning in teams and learning in communities. The similarities concern social learning perspectives and contexts for learning. The differences refer to how the intentions and outcomes of the collective affect the learning practices within the group. The main difference noticed by the researchers is within the learning intention that the groups have. Members of a network share a common interest, exchange ideas, and help each other by calling on one another when they have a problem to solve or something to offer. Participation is

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<sup>509</sup> Fu W., Lo H., Drew D. (2006): *Collective learning, collective knowledge and learning networks in construction*. Construction Management and Economics, Vol 24, No 10, pp. 1019-1028.

<sup>510</sup> Sellen, A.J., Murphy, R. M., & Shaw, K. (2002): *How knowledge workers use the Web*. Proceedings of CHI 2002, Minneapolis, MN New York: ACM Press, pp. 227-234. <https://www.microsoft.com/en-us/research/uploads/prod/2016/08/knowledger-workers-and-the-web-02-.pdf> (visited 27 November 2018).

<sup>511</sup> Littlejohn A., Milligan C., Margaryan A. (2011): *Collective Learning in the Workplace: Important Knowledge Sharing Behaviours*. International Journal of Advanced Corporate Learning. Vol 4, No 4, pp. 26-31. [https://www.researchgate.net/publication/220619949\\_Collective\\_Learning\\_in\\_the\\_Workplace\\_Important\\_Knowledge\\_Sharing\\_Behaviours](https://www.researchgate.net/publication/220619949_Collective_Learning_in_the_Workplace_Important_Knowledge_Sharing_Behaviours) (visited 27 November 2018).

voluntary, and people have a great deal of personal freedom. Individuals within the network frequently meet person-to-person; however, the whole network rarely meets.

Networks facilitate individual collaboration and leave it to the individuals to determine the content and form of knowledge sharing. In comparison, learning in teams has a more structured pattern. Teams are initiated or created around a certain task or problem that has to be solved so characteristic of learning in teams is the temporary nature of teams. De Laat and P.R.J. Simons distinguish two kinds of teams: learning teams (professional related collective learning) and working teams (organisation related collective learning).

The shape and membership of community emerge in the process of activity, as opposed to being created to carry out a task. It emerges around a topic of interest shared by voluntary members. It can be characterized as an informal group that rises from spontaneous interaction between persons as they talk, joke and associate with one another. In communities, the intention to learn is based upon individuals who have a certain learning goal for themselves but come together to learn as a group to help out each other. Members share insights, negotiate and create knowledge together. Membership is voluntary, and people stay a member as long as they are interested in the theme that is discussed within the community.

There are two kinds of communities. In a professional context, they refer to communities of learners (profession-related collective learning), in work settings, they refer to communities of practice (organisation-related collective learning). Organisation-related collective learning refers to the processes and intended outcomes of the learning at the workplace or within an organisation. Groups decide to collaborate in learning, focusing on common learning activities and processes or on common outcomes related to their work. Profession-related collective learning consists of professionals working in different organisations but sharing the same profession who decide to learn together from their different practices. They don't have a common interest in one organisation, their interest is in learning<sup>512</sup>.

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<sup>512</sup> De Laat M., Simons P. R. J. (2002): *Collective Learning: Theoretical Perspectives and Ways To Support Networked Learning*. European Journal for Vocational Training, No 27, pp. 13-24.

## Different types of collective learning

	implicit	explicit
Individual outcomes	networking	Learning team
Collective organisational outcomes	Working team	Community of practice
Collective professional outcomes	Working team	Community of learners

Table 20. Different types of collective learning. Source: De Laat M., Simons P. R. J. (2002): *Collective Learning: Theoretical Perspectives and Ways To Support Networked Learning*.

ICT plays an important role in collective learning for several reasons. It brings people together without the time and place constraints, stimulates workers to share and create knowledge, organises and coordinates learning and also updates knowledge based upon new experiences. J. M. Leimeister enumerates kinds of new applications and user-generated content. Firstly, technologies enable users to interact and design web applications without programming skills led to vast, previously unknown amounts of user-generated content. Secondly, users are able to engage themselves more critically and more directly in activities on the Web, providing them with collective power (e.g. product ratings, influencing public opinion). Thirdly, ICT enables masses to achieve common goals through participation and collaboration on the Web – goals that no single individual or organization could achieve alone (e.g. the role of user-generated content and its recombination during natural catastrophes). A main competitive advantage for companies is the knowledge, that is why companies see potential in the collective for improving their creativity and innovation capabilities in the areas: decision support, open innovation, crowdsourcing and social collaboration<sup>513</sup>.

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<sup>513</sup> Leimeister J. M. (2010): *Collective Intelligence*. Business & Information Systems Engineering, No 2(4), pp. 245- 248. [https://www.researchgate.net/publication/220618525\\_Collective\\_Intelligence](https://www.researchgate.net/publication/220618525_Collective_Intelligence) (visited 22 November 2018).

### 3.2. Incorporating learning activities in everyday life - community embedded learning

The word embedded means integrated, linked or contextualized. When it comes to embedded learning, it refers to learning activity which is performed while doing things opposed to learning. In other words, it is integrating skill acquisition into day-to-day activities. In accordance with IGI Global's Dictionary community-embedded learning (CEL) is “the learning developed by each individual student who is embedded in a local physical community while at the same time creating shared knowledge in an online learning community”<sup>514</sup>. M. M. Kazmer writes: “Community-embedded students form an online learning social world in which members communicate with one another and share activities, technology, and space. Students in the e-learning social world create friendships, provide emotional support, work together, study together, and develop future professional networks”<sup>515</sup>. Lessons learned on specific projects frequently are shared informally between members of the community, and specific innovations employed in projects become part of the folklore of the community<sup>516</sup>. This phenomenon is one of the best practices to help unskilled workers to acquire valuable vocational skills<sup>517</sup>. The research performed by M. Kazar pointed out five major types of transfer of community embedded learning<sup>518</sup>.

The first one is the transfer of community knowledge to the social world. It means that individual learners provide their knowledge and information to other individuals and to the learning world. This phenomenon makes each learner contribute to the evolving knowledge of the learning social world. In turn, each student uses the knowledge in a local community, and local community influences what experience every learner has to bring to encourage the knowledge of all students.

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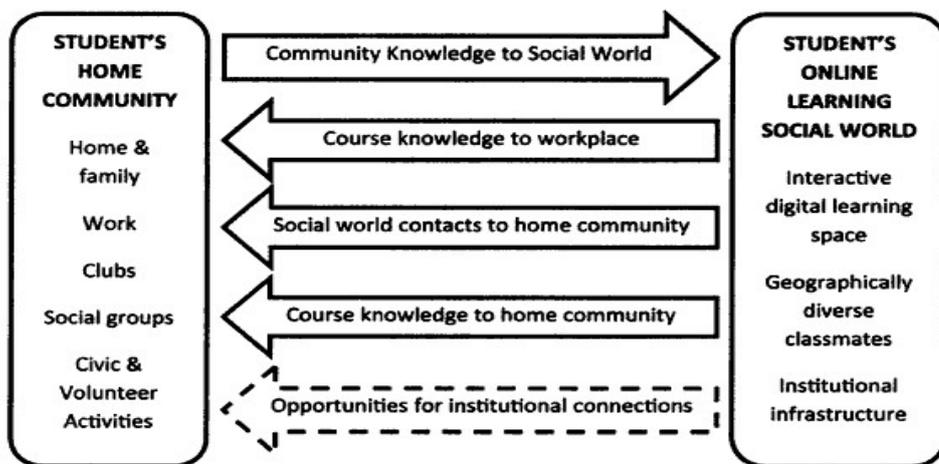
<sup>514</sup> IGI Global <https://www.igi-global.com/dictionary/online-learning-community/4775> (visited 28 November 2018).

<sup>515</sup> Kazmer M. M. (2007): *Community-embedded Learning*. [in:] Andrews R., Haythornwaite C. The SAGE Handbook of E-learning Research. SAGE Publications, p. 313.

<sup>516</sup> DeFillippi R. J., Arthur M. B. (2002): *Project-Based Learning , Embedded Learning Contexts and the Management of Knowledge*. [https://www.researchgate.net/publication/254118473\\_Project-Based\\_Learning\\_Embedded\\_Learning\\_Contexts\\_and\\_the\\_Management\\_of\\_Knowledge](https://www.researchgate.net/publication/254118473_Project-Based_Learning_Embedded_Learning_Contexts_and_the_Management_of_Knowledge) (visited 29 November 2018).

<sup>517</sup> Forbes Brand Voices (2012): *Embedded Learning: Integrating Skill Acquisition Into Day-to-Day Activities*. <https://www.forbes.com/sites/sap/2012/09/13/embedded-learning-integrating-skill-acquisition-into-day-to-day-activities/#44d4846638cd> visited 16 April 2018.

<sup>518</sup> Kazmer M. *Community Embedded Learning*, [http://www.mkazmer.org/kazmer\\_embedded\\_learning\\_lq.pdf](http://www.mkazmer.org/kazmer_embedded_learning_lq.pdf) (visited 17 April 2018).



Picture 5. Information Transfer paths identified in Kazmer's theory of Community-Embedded Learning (2005) source: Most L. R. (2011): Hands on from a Distance: The Community-Embedded Learning Model Contextualizes Online Student Coursework. Journal of Education for Library and Information Science Vol. 52, No. 4, p. 296.

The second is the transfer of course knowledge to the workplace. In distributed interactive learning, students share their knowledge and ideas with each other as an elemental part of the class. Learners transfer their course knowledge back to their workplaces, implement theory from the practicum to the real job.

The third transfer is referred to as social world contacts to home community, meaning the connection of indirect contacts shared from the community to community through the students' social world. As learners are connected to the communities of all the other students, they pass any associated profits back to their own communities. Assistant students share not only knowledge and experience but also their own home, work, family communities, which expand the bunch of information available to all the learners.

The fourth transfer is from course knowledge to the home community. This kind of transfer brings educational benefits beyond even the acknowledged clientele served by the student's workplace. The nature of this knowledge is varied. It can be subject knowledge based on course content or non-subject knowledge, for example, students who use ICT for learning a subject also frequently learn a lot about technology. The coursework not only helps in day-to-day job functions but also in shaping the larger institutional setting in which students work – as well as in their family, for instance, by increasing income.

The fifth and last transfer indicates institutional connections. The link between the learning social world and the local community of the learner is that of institutional

connections. Community-embedded learners provide higher learning institutions with opportunities to build relationships with communities. The individual learner stays in one community, and the institution does not. This absence reveals an opening, or a potential for a relationship to be faked if the institution of higher education wants to build ties to a distant locality. If they do, potential opportunities include person-to-person contacts between online learners and their local co-workers, friends, family, and acquaintances. Another opportunity is connected with institution-to-institution contacts, for example, between the educational institution and a library system, school system or municipality. Such connections might contribute to continuing professional development of other types of training for employees.

In R. Andrews' opinion "All of these types of transfer occur when students frequently interact with one another and with their teachers, mainly in the e-learning mode, using many technologies to communicate individually and in groups. Learners also communicate with others locally using a combination of face-to-face and mediated communication"<sup>519</sup>.

Community-embedded learning is associated with many cognate areas. It is related to the Community of Practice (CoP) as learning is both created and applied in a community setting. The difference between these two terms is the framework. In CEL, not all the learning comes from within a specific CoP, but also knowledge comes from the outside via course work and from the application of new knowledge in the local community. CEL is linked with reality-based learning which applies to the many kinds of learning initiatives that involve real-world application and settings, including action learning, service learning, community-based learning, problem-based learning, problem-centred learning and e-learning. At last, it is related to community informatics which broadly covers the use of communication technologies to support community activities and meet community objectives. This focus on technology use emerges in particular as community networks can be used to span the 'digital divide' and create e-learning opportunities for individuals who otherwise would not have educational access. Community informatics focuses on lifelong learning rather than a degree- or course-based education which is physically and conceptually based in communities of learners.

Talking about community-embedded learning, it is vital to indicate benefits and drawbacks. Firstly, community-embedded students build collaborative course knowledge

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<sup>519</sup> Andrews R., Haythornthwaite C. (2007): *The SAGE Handbook of E-learning Research*. Sage Publications, p. 313.

in addition to learning the basic materials delivered as part of the curriculum. Learners bring their own knowledge, share it together, combine it with the course materials, and come away with more knowledge than they could have if each individual had worked solely with the course materials. People learning at a distance are able to extend their experience beyond national boundaries and incorporate materials provided by students who actually live in a variety of global contexts.

The second advantage of CEL is that the learning-based social worlds created using ICT turn into professional networks that can continue to rely on ICT to provide wider access to dormant relationship ties. When a close relationship occurs in a transient or temporary setting, we can observe a shift when the relationship changes because the participants no longer belong to the setting that fostered their close interaction. As a consequence participants no longer interact regularly, but instead, they feel comfortable contacting one another only as needed, relying on their shared friendship history to provide a basis for sporadic interactions in the future. Drawbacks of community-embedded learning involve community resistance to change, limited world view, forced interactivity and the tunnel vision. Learners engaged in CEL, separated physically from the support of fellow classmates, may encounter resistance to change among the members of their local communities. It might turn out that individual learners are trying to implement what they learn within the community encounter the resistance of community members who are reluctant to change. While gaining from interacting via ICT with other learners from a variety of cultural, geographical, and professional settings, students do not gain perspective from time away from home, or from living in the academic environment, they lose distance. Forced interactivity means that some learners simply do not find that interactivity as a successful mode of learning. They prefer to stay alone and choose e-learning form. Finally, community-embedded learners have tunnel vision in the online classroom and pay attention only to those things that they already think they need to know, ignoring other topics at the same time<sup>520</sup>.

The issues discussed in this chapter indicate a discrepancy between crowd-learning and collaborative learning. Summing up, all of the issues mentioned: collective learning, collaborative learning and community-embedded, learning are propositions or options of realisation of crowd-learning.

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<sup>520</sup> Kazmer M. M. (2007): *Community-embedded Learning*. [in:] Andrews R., Haythornwaite C. *The SAGE Handbook of E-learning Research*. SAGE Publications, pp. 313-327.

### 3.3. Differences between crowd-learning and other types of learning.

From a historical point of view, learning was always with the crowd and from the crowd: music, stories, dances, customs, tools and methods. Writing, on the one hand, supported one-to-one communication as it was an interaction between a writer and a reader. Still, on the other hand, it influenced one-to-many communication. Although the invention of the telegraph, the telephone and fax made communication across vast distances almost as easily as local conversations, it remained one-to-one. The development of mass media strengthened one-to-many communication. Recent years history has come full circle. The emergence of cyberspace made many-to-many communication possible. Cyberspace encompasses all previous innovations and supports one-to-one, one-to-many, and many-to-many communications at the same time, using the same low-cost tools, it supports dynamic collective knowledge generation<sup>521</sup>.

J. Dron and T. Anderson developed a guiding heuristic for learning and education used to help make sense of the changing social patterns in learning that cyberspace has engendered. They evolved from illustrates three kinds of aggregation of learners in either formal or informal learning. Another word they extracted three types of crowd: groups, networks, and sets. Their model is about collections of *learners* and how they benefit from one another's knowledge and actions.

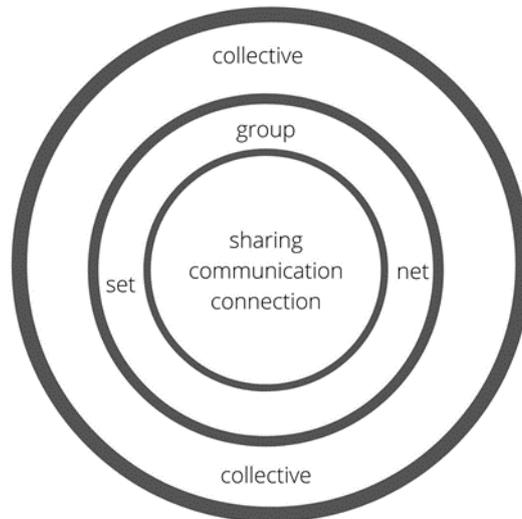
Groups usually have lines of authority and roles, with implicit and/or explicit rules that govern behaviour and structure. They are structured around particular tasks or activities that may be term-based or ongoing, and institute various levels of access control to restrict participation, review of group artefacts, or transcripts to members, providing a less public domain. Groups often have schedule: members frequently use and create opportunities to meet face-to-face or online through synchronous activities, and their modes of interaction are typically many-to-many or one-to-many.

Nets (networks) consist of nodes- such as people, objects, or ideas- and edges, the connections between them. Networks connect distributed individuals and groups of individuals, one node and edge at a time. They are not designed from the top down. Instead, they evolve through our many and varied interactions with others. Entry and exit to networks is usually simple- we connect in some way with another person, or we don't:

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<sup>521</sup>Dron J., Anderson T. (2014): *Teaching Crowds: Learning And Social Media*. AU Press, Athabasca University.

although we might occasionally cut our ties with other individuals, for the most part, it is enough to simply not engage with someone for them to drift out of our network. Sets are made up of people who are bound together by commonalities or shared interests. Although sets involve interactions with others, they are typically impersonal or even anonymous. Set modes of interaction are typically one-to-many and many-to-one, though they can enable many-to-many engagement.



Picture 6. Social Forms for learning: sets, nets, and groups by J. Dron and T. Anderson.

What is more, the “pure” forms of sets, nets, and groups may be mixed in different proportions to combine their features, producing some of the social, organizational forms: group-net which is Community of Practice, group-set referring to Community of Interest, and set-net making the circle. According to Dron & Anderson „collectives are the machine- and/or human-aggregated results of the *activities* of a collection of individuals. Collectives achieve value by extracting information from the individual, group, set, and network activities of people, and then using that information to perform some action. Typically in cyberspace, these activities are aggregated by software and the results presented through computer interfaces, but humans can intentionally perform the aggregation role too. However, there is a need to be no external agent involved for a collective to form: the individuals who form the crowd may themselves perform the aggregation, leading to emergent behaviours of the crowd. Collectives behave as active agents within a system in ways that are analogous to the agency of human beings: in fairly

predictable ways they make choices, value statements, expressions of belief, and act to bring about changes in the behaviour of others”<sup>522</sup>. In the absence of a formal teaching or cognitive presence, collectives often play that role.

The aim of the elaboration is to emphasise that crowd-learning, which is the main issue of this work, is something more than group work and it cannot be identified with collective or collaborative learning. Collective and collaborative learning are related to crowd-learning, but the terms are not identical.

The definition of crowd-learning interconnects inevitably with the term "crowd". A sociologist G. Le Bon defines crowd as the collection of any individuals, regardless of their nationality, sex, religion and coincidence, which gathered them<sup>523</sup>. Its characteristic feature is the purpose of the assembly. The Information Society brought new kind of crowd, meaning e-crowd. C. Russ writes about e-crowds: “gather virtually, behave and act collectively and produce effects and phenomena which would not be possible without the Internet<sup>524</sup>”. He also compares it with the real crowd: The origin of the “Online Crowds” can be found in the laws and mechanisms of the “Real Crowds”, but varies in speed, size and scope”<sup>525</sup>. E-crowds are viewed as a subtype of virtual consumer communities characterized by a low concentration of collective innovation, dispersed among a large number of contributors and their intentional collaboration on a particular project <sup>526</sup>. C. Stage defines e-crowds as “the affective unification and relative synchronization of the public in relation to a specific online site”<sup>527</sup>. From these definitions, the most significant terms which need to be remembered are: the purpose of the assembly, virtual gathering, acting and producing effects collectively.

The phenomenon of e-crowd and the development of new media, especially social media, led to emerging of crowd-learning, which is a relatively new concept and the amount of literature is not satisfying yet. It derives from the crowdsourcing phenomenon, made of „connection of English words: crowd and outsourcing, which is using external

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<sup>522</sup>Dron J., Anderson T. (2014): *Teaching Crowds: Learning And Social Media*. AU Press, Athabasca University, p.84.

<sup>523</sup> Le Bono G. (1997): *Psychologia thumu*. Wydawnictwo PAVO, Warszawa, p. 12.

<sup>524</sup>Russ, C. (2007): *Online Crowds – Extraordinary Mass Behavior on the Internet*, I-MEDIA '07 and I-SEMANTICS '07 conferences, p. 65, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1620803](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1620803) (visited 2 May 2018).

<sup>525</sup> Ibidem, p. 68.

<sup>526</sup> Kozinets, R.V., Hemetsberger, A., Schau, H.J. (2008): *The Wisdom of Consumer Crowds: Collective Innovation in the Age of Networked Marketing*, Journal of Macromarketing, Vol. 28, No. 4, pp. 339–354.

<sup>527</sup> Stage, C. (2013): *The online crowd: a contradiction in terms? On the potentials of Gustave Le Bon's crowd psychology in an analysis of affective blogging*, Distinktion: Scandinavian Journal of Social Theory, Vol. 14, No. 2, p. 216.

resources. The process comes from free innovation sector, and it describes outsourcing of tasks and creative processes to masses of Internet users. Within crowdsourcing, there are many categories like crowdfunding (common project financing by the community), co-creation (common, prolific working) and micro-tasking (doing minor tasks by a society which are part of a bigger project)”<sup>528</sup>. Crowdsourcing is a complex phenomenon, which is characterized by open innovations, creativity and social participation, sharing knowledge, open learning and actioning on a global scale<sup>529</sup>. Crowdsourcing is also called the wisdom of the crowd. The wisdom of the crowd is the concept of J. Howe understood as the use of an external source of knowledge of organizations, such as communities, to solve problems<sup>530</sup>. J. Surowiecki claims: “the bigger the crowd, the better<sup>531</sup>”. He enumerates conditions that characterize wise crowds: diversity of opinion (as each individual has some private information, even if it's just an eccentric interpretation of the known facts), independence (because people's opinions are not determined by the opinions of others), decentralization (people are able to specialize and draw on local knowledge) and aggregation (meaning that some mechanism exists for turning private judgements into a collective decision). J. Surowiecki points that each person's guess, consists of information and error. After we subtract the error, we are left with the information. Asking the crowd to answer a question or solve a problem, makes the average answer to be at least as good as the answer of the smartest member.

Following the Edumanity dictionary, crowd-learning is learning through mutual interaction with others using social network tools based on the Internet, developing organically<sup>532</sup>. The function of this innovative learning method is to acquire knowledge that is difficult to acquire through reading books and solving problems that are almost impossible to solve independently. According to D. Kalisz, crowd-learning is the use of knowledge, potential and specialist competencies of people to find an answer to

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<sup>528</sup> Kasprzycki-Rosikoń J., Piątkowski J. (ed.) (2013): *Crowdsourcing. Jak angażować konsumentów w świat marek*. Helion, Gliwice, p. 5.

<sup>529</sup> Stąporek M. (2014): *Crowdsourcing, social media, livestreaming – nowe możliwości e-partycypacji użytkowników w kształtowaniu zbiorów, zasobów i usług bibliotek naukowych*. Politechnika Krakowska, Biblioteka Politechniki Krakowskiej, [http://delibra.bg.polsl.pl/Content/15520/Staporek\\_Marta\\_tekst.pdf](http://delibra.bg.polsl.pl/Content/15520/Staporek_Marta_tekst.pdf) (visited 23 March 2018).

<sup>530</sup> Howe J. (2016): *The rise of crowdsourcing*, <https://www.wired.com/2006/06/crowds/> (visited 30 March 2018).

<sup>531</sup> Surowiecki J. (2005): *The wisdom of crowds*. Anchor books, New York, p. 4.

<sup>532</sup> Edumanity, <http://www.edumanity.com/dictionary/crowd-learning> (visited 27 March 2018).

a question or to solve an immediate problem<sup>533</sup>. C. Shirky claims that crowd-learning understood as social software has existed for a long time and was defined as a software that supports group interaction. In addition to the obvious forms of interaction, one-to-one, one-to-many, many-to-many, synchronous or asynchronous, indirect or direct, crowd-learning also provides many-to-one interaction. Crowd-learning tools reduce the important role of the instructor and create a global teaching and learning audience<sup>534</sup>. A. Farasat et al. describe crowd-learning as a paradigm “where students experience deeper learning through collaboratively creating learning materials for each other. Crowd-learning practice is envisioned to produce large *banks* of subject matter problems generated by students themselves, in a crowdsourced way, as the students learn new subjects; these problems can then serve as learning and assessment materials usable at scale”<sup>535</sup>. They point to the mission and vision of crowd learning. According to them, the mission is to help learners to gain new perspectives on the use of subject-matter concepts and let them learn with and from each other. The vision is that of a self-sustaining problem-posing and problem-solving environment, where the students of a given subject intermittently take on roles as the creators and evaluators.

M. Sharples et al. defined crowd-learning as "harnessing the knowledge and expertise of many people in order to answer questions or address immediate problems. When carried out successfully, it enables learners to gain information related to what they want to know, at the time when they want to know it"<sup>536</sup>. Originators of the report also characterized the crowd-learning phenomenon as a form of learning, often occurring informally and spontaneously, where everyone can be a teacher or a source of knowledge. U. Upadhyay, I. Valera, M. Rodrigues state crowd-learning is when a crowd learns from knowledge curated and contributed by the crowd. These researchers describe a probabilistic crowd-learning model in the following way:

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<sup>533</sup>Kalisz D.E. (2015): *Crowd Learning: Innovative Harnessing the knowledge and potential of people*. [in:] Tiwari S. R., Nafees L. ed. „Innovative Management Education Pedagogies for preparing the next generation leaders”. IGI Global.

<sup>534</sup>Shirky C. (2003): *A Group Is Its Own Worst Enemy*. [http://shirky.com/writings/group\\_enemy.html](http://shirky.com/writings/group_enemy.html) (visited 7 May 2018).

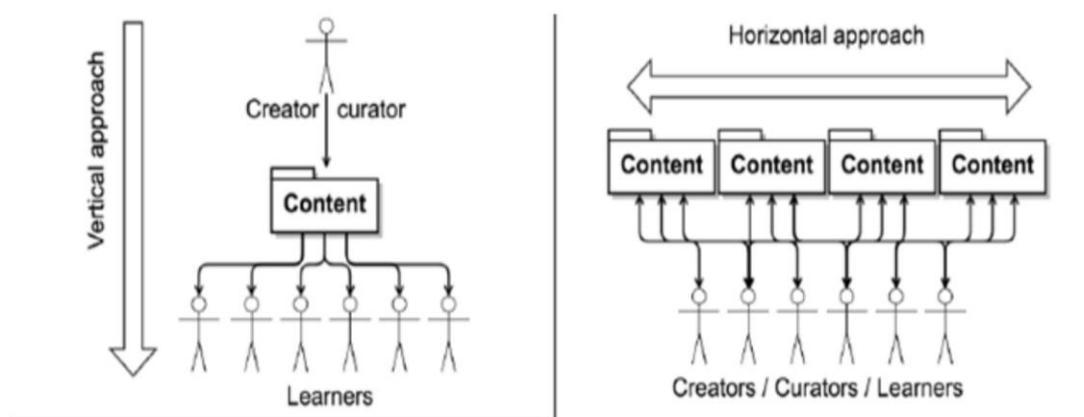
<sup>535</sup>Farasat A. et al. (2017): *Crowdlearning: Towards Collaborative Problem-Posing at Scale*. [https://www.researchgate.net/publication/317006564\\_CROWDLEARNING\\_Towards\\_Collaborative\\_Problem-Posing\\_at\\_Scale](https://www.researchgate.net/publication/317006564_CROWDLEARNING_Towards_Collaborative_Problem-Posing_at_Scale) (visited 7 May 2018).

<sup>536</sup>Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., & Gaved, M. (2013). *Innovating Pedagogy 2013: Open University Innovation Report 2*. Milton Keynes: The Open University, pp. 20-22. [http://www.open.ac.uk/personalpages/mike.sharples/Reports/Innovating\\_Pedagogy\\_report\\_2013.pdf](http://www.open.ac.uk/personalpages/mike.sharples/Reports/Innovating_Pedagogy_report_2013.pdf) (visited 13 July 2019).

a knowledge item → contributors → learning events → process → assessment

A knowledge item is the smallest quantum of knowledge (e.g. a question concerning a way of doing something) posted by a participant, in the next step users can contribute to a knowledge item (e.g. by posting answers). Then users can learn from knowledge items. The process is when the same user later contributes knowledge on a related topic. Finally, the crowd assess the contribution made by other users (e.g. using 'Like' function). “Then the user reads more knowledge items, contributes, reads more, contribute all while increasing his expertise”<sup>537</sup>.

T. R. Balasubramanian and T. Estrada say that “crowd learning is a new technological learning paradigm where students are upgraded from mere passive content consumers to primary content creators and curators”<sup>538</sup>. According to the authors crowd learning is all about allowing learners to share their vision of the world, understand different learning styles of other users, and putting in place mechanisms to safely, scalable and accurately share and consume learning materials online. They illustrated a horizontal model of crowd learning in contrary to a traditional vertical hierarchy of knowledge transfer.



Picture 7. Vertical vs Horizontal approaches for content dissemination (T. R. Balasubramanian and T. Estrada).

<sup>537</sup>Upadhyahy U., Valera I., Rodriguez M.: *On crowdlearning: How do People Learn in the Wild?* Max Plank Institute for Software Systems. <http://ml4ed.cc/attachments/UtkarshCrowdlearning.pdf> (visited 17 July 2019).

<sup>538</sup>Balasubramanian T. R., Estrada T. (2016): *Crowdlearning: A Framework for Collaborative and Personalized Learning*. In Proc. 46th Frontiers in Education (FIE) Conference.

The author of this dissertation agrees with all of these definitions, nevertheless, she considers to consolidate the definition of *crowd-learning as informal or incidental learning from the knowledge/ experience/ resources of people gathered in e-crowd in pursuit of self or professional development*. From the author's point of view, a fundamental characteristic of crowd-learning is its informal character, voluntary participation and use of media.

Thus, we cannot say that crowd-learning is what others call collective or collaborative learning. Collaborative learning does not have to be done using online tools, which is a prerequisite for crowd learning. It is worth noting the absence of the above-mentioned terms in Polish terminology. Group work is only a form of implementation of the discussed methods. Analysing the concepts of crowd-learning and collective learning one can find many similarities. In both processes, an important concept is the group and knowledge of individual members, as well as the share of tools based on the Internet. However, crowd-learning acts as a facilitator for collective learning. A correctly conducted crowd-learning process allows learners/users to get the information they need at exactly the time when the need arises, regardless of where the unit and the device they use are located. One receives adequate knowledge at an appropriate level without financial expenditures. It is not crowdsourcing for education either. Authors of crowdsourcing for education definition see crowd-learning as an element of crowdsourcing for education. According to Y. Jiang, D. Schlagwein, B. Benatallah „crowdsourcing for education is a type of online activity in which an educator, or an educational organisation proposes to a group of individuals via a flexible open call to directly help learning or teaching”<sup>539</sup>. Others say that crowdsourcing is a phenomenon where humans performing tasks act as computational nodes in a network, and computers aggregate the results<sup>540</sup>. The difference is that in crowdsourcing, there is a moderator (a tutor or an educational organisation) who creates real tasks (online exercises) for you to learn. In crowd-learning any user can be a moderator in a sense that anybody can ask

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<sup>539</sup> Jiang Y., Schlagwein D., Benatallah B. (2018): *A Review on Crowdsourcing for Education: State of the Art of Literature and Practice*. Completed Research Paper. Twenty-Second Pacific Asia Conference on Information Systems, Japan.

<sup>540</sup> Ponti M., Hillman T., Kasperowski D., Kullenberg C., Stankovic I. (2015): *Designing Futures for Learning in the Crowd: New Challenges and Opportunities for CSCL*.  
[https://www.researchgate.net/publication/283721929\\_Designing\\_Futures\\_for\\_Learning\\_in\\_the\\_Crowd\\_New\\_Challenges\\_and\\_Opportunities\\_for\\_CSCL](https://www.researchgate.net/publication/283721929_Designing_Futures_for_Learning_in_the_Crowd_New_Challenges_and_Opportunities_for_CSCL) (visited 17 July 2019).

a question and start a discussion, it is not controlled by any educational organisation and participants do not have to do tasks.

A feature that distinguishes crowd learning from other previously mentioned forms is the diversity of the roles of participants in this process, who are also consumers and producers of knowledge. By sharing their materials, commenting on other materials and making large-scale discussions, they contribute to the development of science. In 1980s A. Toffler created the term 'prosumers' to define consumers who are engaged in the process of production of goods and services. He differentiated prosumers of the first wave (agrarian era), who were mainly farmers farming to satisfy their needs and expected financial benefits from prosumers of the third wave<sup>541</sup> (information era), who take part in the creation of goods and services in order to gain social benefits<sup>542</sup>.

Polish scientists distinguish the following types of prosumers:

- participating in individual prosumption, which is completely lacking cooperation, full prosumer independence from other market participants. It happens when the prosumer as an individual participates in the process of prosumption alone;
- participating in intra-prosumption which is collective prosumption, taking place only within the group of prosumers;
- participating in the co-design or co-production process product;
- participating in inter-prosumption, taking place between a group of prosumers and the producer;
- involved in forms of cooperation between the prosumer-internet user and the producer (e.g. via social networks) to develop new or improve existing products<sup>543</sup>. Of course, we have to take into account that probably there are some crowd-learners who are not prosumers as they do not share their knowledge, and they remain passive consumers. That issue would be discussed in the latter part of the work.

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<sup>541</sup> The second wave refers to time of the industrial era when roles of consumers and producers were clearly defined and they did not overlap. (A. Toffler: *Trzecia Fala*)

<sup>542</sup> Toffler A. (1986): *Trzecia Fala*. Państwowy Instytut Wydawniczy, Warszawa, p. 309-333.

<sup>543</sup> Suchacka M. (2015): *Konsument czy prosument? Socjologiczne uwarunkowania stylu życia w perspektywie rozwoju zrównoważonego*. [in:] Bartoszek A. et al (eds) *Prosumenckie społeczeństwo a energetyka prosumencka- problemy wdrażania innowacyjnych ścieżek rozwoju OZE*. Uniwersytet Śląski, Katowice, p. 27.

### 3.3.1. Crowd-learners and the benefits they get from crowd-learning

G. Viscusi and C. Tucci - scientists from Switzerland were wondering how many people create a crowd. They concluded that the sheer number of participants might be less important than structural characteristics of the crowd, which include: growth rate and its attractiveness to the members, the equality among members, the density within provisional boundaries, the goal orientation of the crowd, and the “seriality” of the interactions between members of the crowd<sup>544</sup>.

Participants of crowd-learning are called differently by researchers. Y. Yan et al. name them annotators<sup>545</sup>. J. Zou and D. Parkes defined them as workers<sup>546</sup>. According to American scientists T. R. Balasubramanian and T. Estrada, the learning participants in the learning cycle include creators and consumers of materials and evaluators of other users<sup>547</sup>. A. Farasat et al. distinguish creators of subject-focused problems, evaluators of problem quality and problem solvers. Activities of creators and evaluators are consensus-driven students create and “vote” in the problems that help them learn, thereby building “banks” of subject matter problems to use for learning and assessment<sup>548</sup>.

U. Upadhyay et al. from Max Plank Institute for Software Systems propose terms of a learner and a contributor, with the possibility of switching between both roles. They emphasise that a crowd-learning site is useful only when it has both types of participants. Their research showed that despite the higher number of learners than contributors, the amount of knowledge fed into the site by the contributors shows higher variability than the knowledge learned by users. It means that the distribution of contributed knowledge is fat-tailed. Moreover, users that learn more knowledge are also more proficient at producing high knowledge contributions<sup>549</sup>.

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<sup>544</sup> Viscusi G., Tucci C. (2015): Distinguishing “crowded” organizations from groups and communities: Is there a crowd? Management of Technology and Entrepreneurship Institute. <https://infoscience.epfl.ch/record/213767/files/2015-WP-GV-Draft.pdf> (visited 22 July 2019)

<sup>545</sup> Yan Y. et. al.: *Active Learning from Crowds*. [http://www.cs.columbia.edu/~prokofieva/CandidacyPapers/Yan\\_AL.pdf](http://www.cs.columbia.edu/~prokofieva/CandidacyPapers/Yan_AL.pdf) (visited 5 September 2018)

<sup>546</sup> Zou J., Parkes D.: *Get another worker? Active crowdlearning with sequential arrivals*. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.269.7213&rep=rep1&type=pdf> (visited 5 September 2018).

<sup>547</sup> Balasubramanian T. R., Estrada T. (2016): *Crowdlearning: A Framework for Collaborative and Personalized Learning*. In Proc. 46th Frontiers in Education (FIE) Conference.

<sup>548</sup> Farasat A. et al. (2017): *Crowdlearning: Towards Collaborative Problem-Posing at Scale*. [https://www.researchgate.net/publication/317006564\\_CROWDLEARNING\\_Towards\\_Collaborative\\_Problem-Posing\\_at\\_Scale](https://www.researchgate.net/publication/317006564_CROWDLEARNING_Towards_Collaborative_Problem-Posing_at_Scale) (visited 7 May 2018).

<sup>549</sup> Upadhyay U, Valera I, Gomez-Rodriguez M. (2016): *Uncovering the Dynamics of Crowdlearning and the Value of Knowledge*. <https://arxiv.org/pdf/1612.04831.pdf> (visited 1 September 2018).

A slightly different proposition is presented by N. Padhariya and K. Raichura, who designed the incentive-based learning platform for the crowd. They distinguish contributors, learners and collaborators whose roles are interchangeable as the learner in one crowd can act as a contributor in another crowd. Insofar as roles of a contributor and a learner are clear, the role of a collaborator needs explaining. First of all, a collaborator records collection of contributors and learners establishes a link between contributors and learners, provides a learning platform by incentivizing crowd and assesses crowd-learning system. They depict the process of information sharing among knowledge crowds. “As all the entities are independent in the crowd, they can share information upon requirement. Any interested learners can join any crowd at any time. Here, the information sharing process among a group may change the role of entities. For example, learners of one crowd share information with another crowd in the form of contribution, hence a learner of one crowd becomes a contributor for another crowd. Same way contributor conveys his/her information in a collaborative way, so in this case, the contributor plays the role of collaborator for that crowd”<sup>550</sup>. Their work also points out that fair participation in crowd-learning is possible due to motivational factors, and an incentive is one of them. Their platform is based on paid courses offered by contributors and learners who are rewarded via discounted scheme for fees they pay. As the number of learners increases, the amount of payable fees decreases. That payment system encourages participants to bring new learners in the crowd.

Now the question is: what is the quality of crowd-learning? Crowd-learning can have both positive and negative consequences for teaching and learning. „The increasing access of people to the expertise and opinions of others can challenge the balance of control between educators and experts and the wider public. Thus, it is important to be aware of how increasing levels of access to distributed information and knowledge affect the type and levels of participation, and whether this limits the potential value of education”<sup>551</sup>. Crowd-learning is seen as fast and personalised; however, dependent form voluntarism of others who are a group of well-informed, interested and knowledgeable

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<sup>550</sup> Padhariya N., Raichura K. (2014): *Crowdlearning: An incentive-based learning platform for crowd*. 2014 Seventh International Conference on Contemporary Computing (IC3). Institute of Electrical and Electronics Engineers.

<sup>551</sup> Ponti M., Hagen N., Hillman T., Kasperowski D., Kullenberg C., Stankovic I. (2013): *Designing Futures for Learning in the Crowd: New Challenges and Opportunities for CSCL*, p. 2. <https://www.isls.org/cscl2015/papers/1202-Workshop-Ponti.pdf> (visited 29 August. 2018).

people who share their knowledge without any financial compensation. They wondered how to maintain this kind of contribution.

Crowd-learning is connected with ideas of problem posing, peer learning, learning by teaching and metacognition, that is why it is especially important in STEM (science, technology, engineering, mathematics). Crowd learners are enabled to collaborate as teachers. Once learners recognize that, having acquired some skill, they can immediately start helping peers to master the same skill. What is more, posed problems are collaboratively improved as the assignment of the tasks to multiple workers allows even non-experts to collectively produce quality outputs. Finally, crowd learning increases the number and diversity of learning and assessment materials and builds new knowledge communities<sup>552</sup>.

L. Mamykina et al. examined the increase in employee precision after they were exposed to feedback generated by experts and feedback generated by participants. The study confirmed that the feedback generated by the experts is a powerful mechanism that facilitates learning and leads to significant profits. It also showed that comparing their solutions with various solutions suggested by others and their comparative frequencies leads to significant increases in precision<sup>553</sup>. The research conducted by U. Upadhyay, I. Valera, M. Rodrigues showed that newbies and experts increase their knowledge the least, users in the middle of the range tend to increase the most. The users that learn more knowledge are also more proficient at producing high knowledge contributions<sup>554</sup>.

In M. Borkowski's opinion, crowd-learning alleviate learners to reach their full potential, become more creative and productive, inspire and get inspired from, and understand a topic to its very essence rather than just getting a single perspective to a question. Additionally, the old education system and academic curriculum have always been regarded as a rigid and passive process by students. Still, crowd-learning is appreciated for being insightful and engaging at the same time. Moreover, as students learn in their own pace and style, it helps to develop self-management skills. He also mentions one more important issue. Nowadays, when social interactions are reduced and

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<sup>552</sup> Farasat A. et al. (2017): *Crowdlearning: Towards a collaborative problem-solving at scale*. [https://www.researchgate.net/publication/317006564\\_CROWDLEARNING\\_Towards\\_Collaborative\\_Problem-Posing\\_at\\_Scale](https://www.researchgate.net/publication/317006564_CROWDLEARNING_Towards_Collaborative_Problem-Posing_at_Scale) (visited 3 September 2018).

<sup>553</sup> Mamykina L. et al.: *Learning from the Crowd: Observational Learning in Crowdsourcing Communities*. <https://www.eecs.harvard.edu/~kgajos/papers/2016/mamykina16learning.pdf> (visited 30 August 2018).

<sup>554</sup> Upadhyay U., Valera I., Gomez-Rodriguez M. (2017): *Uncovering the Dynamics of Crowdlearning and the Value of Knowledge*. WSDM '17: Proceedings of the Tenth ACM International Conference on Web Search and Data Mining, Association for Computing Machinery, Cambridge United Kingdom, pp. 61-70.

more time is spent with devices than with people, crowd learning platforms can develop social skills through active interaction aimed to seek and suggest solutions.

Finally, crowd learning provides an authentic and enhanced experience by integrating real-life skills along with facilitation of learning<sup>555</sup>.

C. Raykar et al. described a probabilistic approach to supervised learning when we have many annotators (probably noisy) providing labels. The proposed algorithm evaluates various experts and also estimates the real hidden labels<sup>556</sup>. Human and non-human actors are engaged in crowdsourcing for education. They are divided into four categories: organizers, learners, contributors and IT platforms<sup>557</sup>. Taking into account the fact artificial intelligence tends to be commonly combined with crowdsourcing and e-learning, it might be possible to use AI in crowd-learning too. People have been working on intelligent tutoring systems since the 1980s. Their purpose was to deliver educational contents matching a learner's needs modified during the learning process. The 21<sup>st</sup> century brought the possibility to provide content with a more appropriate level of difficulty having a consistent form with a recognized learning style. Moreover, modern e-learning platforms allow creating own content which results in an enormous amount of materials. Thus, algorithms are used for collecting them in one place and use them in different educational contexts that can be varied for a specific group of learners according to their individual needs<sup>558</sup>.

The newest trends in AI in e-learning include automation of training processes, chatbots and digital assistants, algorithms personalizing the learning process, authoring tools, management and optimization of training activities in the company<sup>559</sup>. Thus, it is possible that some aspects of AI could be used in crowd-learning.

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<sup>555</sup>Borkowski M. (2019): *Here's why the give-and-take experience makes crowd learning the way ahead*. <https://yourstory.com/2019/02/heres-give-take-experience-makes-crowd-learning-way-ahead> (visited 19 July 2019)

<sup>556</sup>Raykar V. C. et al. (2010): *Learning form Crowds*. *Journal of Machine Learning Research* 11 (2010) 1297-1322. [http://delivery.acm.org/10.1145/1860000/1859894/11-1297-raykar.pdf?ip=80.244.157.7&id=1859894&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&\\_\\_acm\\_\\_=1536119509\\_7f63122c08ca34189ce937b5a074f2e7](http://delivery.acm.org/10.1145/1860000/1859894/11-1297-raykar.pdf?ip=80.244.157.7&id=1859894&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&__acm__=1536119509_7f63122c08ca34189ce937b5a074f2e7) (odwiedzono 05.09. 2018).

<sup>557</sup>Thamilarasan Y. et al. (2019): *MyMUET- An interactive crowdsourced Malaysia University English Test online learning application*. [in:] Bin Abdollah M. (ed.): „Proceedings of Mechanical Engineering Research Day 2019”, Centre for Advanced Research on Energy, Malaysia, pp. 221-222.

<sup>558</sup>Marciniak J. (2016): *Inteligentne systemy e-learningowe jako przykład wykorzystania sztucznej inteligencji w kształceniu na odległość*. EduAkcja. Magazyn edukacji elektronicznej No 2 (12)/2016, pp. 87—101

<sup>559</sup>Pola B. (2019): *Sztuczna inteligencja w edukacji*. EPALE <https://epale.ec.europa.eu/pl/blog/wprowadzenie-do-sztucznej-inteligencji-w-edukacji> (visited 11 February 2020).

For sure, crowd-learning would also not be possible without the development of social software which is defined as “software that supports group interaction”<sup>560</sup> or “a media with the primary purpose to enable its users to connect and communicate in a networked environment. Such an environment changes the patterns of private and business communication but also learning models and information and knowledge flow”<sup>561</sup>. Social media represent a complex set of interactive, participatory tools and platforms, emerging initially from the notions of Web 2.0<sup>562</sup>. Initially, early computing visionaries talked about computers augmenting group interaction. The first forms of social software were mailing lists, chatrooms and instant messaging. With the development of the Web comes the development of social software. Nowadays, the web is viewed as a platform for a number of interesting problems involved in helping people interact (identity, reputation management, conversational threading). Among them are social networks, media sharing services, social bookmarking and tagging services, content discovery services, wikis, blogs and microblogs.

R. Faizi et al. put benefits coming from using social media in education, thus in crowd learning too, in three categories. First of all, social media play the role of a communication channel enhancing communication between the different actors of the educational system, namely, student, faculty and staff. Secondly, social media tools are also effective ways to increase students’ engagement. Collaborative and participatory tools can encourage students to become active participants or even co-producers rather than passive consumers of content. Thirdly, social media foster collaboration<sup>563</sup>.

Social software tools enable a different way of using the web within an educational context. The use of social software applications in online education delivery encourages collaboration while supporting self-direction and individuation. Social software offers far more interactivity and a distributed web of communication paths. In this way, social software fosters interaction, community feeling, and group motivation. He emphasises

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<sup>560</sup> Shirky C. (2003): *Social Software: A New Generation of Tools*. [in:] Release 1.0, Vol. 21, No 5, [http://www.coulthard.com/library/Files/shirky\\_2003.pdf](http://www.coulthard.com/library/Files/shirky_2003.pdf)

<sup>561</sup> Matešić M., Vučković K., Dovedan Z. (2009): *Social software: teaching tool or not?. INFUTURE2009: Digital Information and Heritage..* [https://bib.irb.hr/datoteka/433059.MM\\_KV\\_ZD-IN\\_Future.pdf](https://bib.irb.hr/datoteka/433059.MM_KV_ZD-IN_Future.pdf) (visited 5 October 2018)

<sup>562</sup> O'Reilly, T. (2006). *What is Web 2.0: Design patterns and business models for the next generation of software*. <http://www.oreillynet.com/lpt/a/6228> (visited 18 July 2019).

<sup>563</sup> Faizi R., Afia A., Chineb R. (2013): *Exploring the Potential Benefits of Using Social Media in Education*. [in:] International Journal of Engineering Pedagogy. Vol. 3, No 4. <http://online-journals.org/index.php/ijep/article/view/2836/2821> (visited 8 October 2018).

that connection and dialogue are supported, offering the potential for transformation and enabling the possibility of lifelong competence development<sup>564</sup>.

As it was stated by P. Bryant “social media spaces are by their nature less structured (or indeed unstructured) and frequently not under the control of a central designer. They can be democratic, personalised and are capable of facilitating a form of knowledge construction that is organic and collaborative”<sup>565</sup>. Although he enumerates lots of positive impact of social media in learning he notices a risk of superficial learning which means slacktivism and clicktivism, where engagement requires nothing more than a click, a like or a name on a virtual petition. Moreover, he adds that superficial social engagement can create interactions between participants that can be abusive, discriminatory, offensive or dangerous, either through the impact of the fractured social dynamic or through the toxicity of a single participant.

Nevertheless, opportunities outrun shortcomings. J. Dron and T. Anderson<sup>566</sup> made a complex specification of functions and examples of social software used in education. The author has chosen only those functions which refer to the many-to-many model of communication characteristic for crowd learning phenomenon. Among them there are:

- e-mail
- instant messaging (Skype)
- chat (Facebook chat)
- social tagging (Del.icio.us)
- social rating (rate-my-teacher)
- shared whiteboard (whiteboard.com)
- web meeting (Google hangouts)
- discussion forum (web forums)
- video conferencing (Skype)

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<sup>564</sup> LeNoue M.D. (2012): *Educational social software: the use of social network sites for teaching and learning*.

<https://library.ndsu.edu/ir/bitstream/handle/10365/26833/Educational%20Social%20Software%20The%20Use%20of%20Social%20Network%20Sites%20for%20Teaching%20and%20Learning.pdf?sequence=1> (visited 8 October 2018).

<sup>565</sup> Bryant P. (2017): *Generating learning through the crowd: the role of social media practices in supporting students as producers at scale*. [in:] Partridge, H. and Davis, K. and Thomas, J., (eds.) *Me, Us, IT! Proceedings ASCILITE2017: 34th International Conference on Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education*. ASCILITE, Toowoomba, Australia, at <http://eprints.lse.ac.uk/86492> p. 2 (visited 18 July 2019).

<sup>566</sup> Dron J., Anderson T. (2014): *Teaching Crowds: Learning And Social Media*. AU Press, Athabasca University.

- social networking (Facebook)
- microblogging (Twitter)
- social curation (Pinterest)
- social gaming (SimCity)
- file sharing (Google Docs)
- Q&A systems (Yahoo Answers)
- reputation networks (Linked.In)
- publication (Facebook)
- scheduling (Outlook)
- content management (Lotus Notes)
- location-based systems (Google Latitude)
- learning management systems (Moodle)
- immersive environments (Second Life)
- MUDs and MOOs (Lambda MOO)
- reviews (Amazon Books)

Among the examples of social software, Facebook was mentioned three times. According to statistica.com, the most popular social media in the world in 2018 were: Facebook, YouTube and WhatsApp<sup>567</sup>. Facebook still remains the fastest growing social network, and it is viewed as the most engaging the audience<sup>568</sup>. It is very similar in Poland: Facebook, YouTube and Messenger<sup>569</sup> are dominant ones. M. Kabilan et al. pointed out that “computer-mediated communication is one of the oldest yet still most valuable tool of network-based language teaching, as it puts learners in direct contact with others for authentic communication, and therefore, has positive outcomes for teaching and learning”<sup>570</sup>. A. Fewkes and M. McCabe stated that “social networking is the second nature to our students”<sup>571</sup>. Facebook is the most famous example of a social networking

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<sup>567</sup> [www-16] <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/> (visited 12 October 2018).

<sup>568</sup> <https://www.smartinsights.com/social-media-marketing/social-media-strategy/new-global-social-media-research/> (visited 12 October 2018).

<sup>569</sup> Kolenda P. (red.) (2018): *Raport Strategiczny. Internet 2017/2018*. IAB Polska, p. 52. <https://iab.org.pl/wp-content/uploads/2018/06/HBRP-raport-IAB-04-18.pdf> (visited 12.10.2018)

<sup>570</sup> Kabilan M., Ahmad N., Abidin, M. (2010): *Facebook: An online environment for learning of English in institutions of higher education?* The Internet and Higher Education, 13(4), p. 181.

<sup>571</sup> Fewkes A., McCabe M. (2012): *Facebook: Learning tool or distraction?* Journal of Digital Learning in Teacher Education, 28(3), p. 93.

site of which educational aspects were studied by many researchers. S. Mazman Y. Usluel discussed ways of utilizing Facebook for educational purposes<sup>572</sup>. Kent & Leaver examined the role of Facebook in higher education where it became an inevitable component of college life, acting alternately as an advertising, recruitment and a learning tool<sup>573</sup>. Prescott et al. aimed their study to gain an insight into the experiences and views of academic staff who currently use Facebook as part of their teaching<sup>574</sup>. Van Doorn and Eklund devoted their research to Facebook as a tool to deliver curriculum and facilitate learning. They also discussed computer-mediated communication between teacher and students<sup>575</sup>. C. M. Shaw described potential benefits to using Facebook as an educational tool: promoting collaboration, enhancing communication, developing skills and incorporating contemporary student culture into the classroom. Besides benefits, she also discussed challenges and limitations among which the most important are: potential erosion of professional boundaries, privacy and security concerns, distraction<sup>576</sup>.

Polish researcher E. Kulczycki analysed social media which are used by Polish universities. He observed sharp transformations in science communication seen as a process aimed to inform about the research and promote findings as well as inform and educate the society about the research. Kulczycki emphasizes that informing and promoting findings are the ways of creating and practising open science which is connected with open access, open data, citizen science and crowdsourcing. According to his research, Facebook is the most popular social media which enables creating networks of contacts, follow the profile and activity of various institutions and organizations<sup>577</sup>. M. Koszembar-Wiklik conducted research aimed to check the most popular source of information about the university used by students. Aside from the website, Facebook is

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<sup>572</sup> Mazman S., Usluel Y. (2010): *Modeling educational usage of Facebook*. Computers and Education Vol. 55 Issue 2, pp. 444-453.

<sup>573</sup> Kent M., Leaver T. (2014): *An Education in Facebook? Higher Education and the World's Largest Social Network*. Routledge, New York.

<sup>574</sup> Prescott J. et al. (2015): *The Experience of using Facebook as an Educational Tool*. Health and Social Care Education. DOI: 10.11120/hsce.2013.00033

<sup>575</sup> Van Doorn G., Eklund A. (2013): *Face to Facebook: Social media and the learning and teaching potential of symmetrical, synchronous communication*. Journal of University Teaching & Learning Practice, Vol 10, No 1, article 6.

<sup>576</sup> Shaw C.M. (2015): *Using Facebook as an Educational Resource in the Classroom*. Oxford Research Encyclopedia of International Studies. DOI 10.1093/acrefore/9780190846626.013.114

<sup>577</sup> Kulczycki E. (2012): *Wykorzystanie mediów społecznościowych przez akademickie uczelnie wyższe w Polsce. Badania w formule otwartego notatnika*. [in:] „Komunikologia. Teoria i praktyka komunikacji”. Wydawnictwo Naukowe Instytutu Filozofii UAM, pp.89-109.

the most often used medium. Additionally, in students' opinion universities should engage in communication via social media<sup>578</sup>.

Numerous features of Facebook like email, bulletin boards, instant messaging, video and picture posting and applications download supplement serve the educational function of enabling communication, collaboration and sharing between students and faculty. It can be considered a form of constructivism for the reason that it gives students the opportunity to work collaboratively, learn together and from each other, build learning communities, and construct knowledge through the interaction of members of these communities. Facebook can be an effective online environment to learn and to develop professional skills inasmuch its users build informal communities which sympathise round about a specific issue. Facebook's group, created in response to social need, is assigned space of virtual reality dedicated to the collectivity gathered about a certain matter. It plays the role of a virtual information storehouse providing its members fast, free of charge and limitless access to files placed by other members. As K. Fabjaniak-Czerniak said, „today's society, especially young people, wants to search for interesting information independently and in the convenient time and place”<sup>579</sup>. B. Cyrek called it 3W method: whatever-when-ever-wherever<sup>580</sup>.

Crowd-learning is a convenient way of upskilling and vocational training. The author observed Facebook's groups of interest among teachers and asked them questions concerning the advantages of informal vocational training through crowd-learning via social media<sup>581</sup>. The users mentioned:

- sharing knowledge
- fast information searching
- informing about new initiatives
- learning about new interactive tools used during the classes and during proceeding a project

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<sup>578</sup> Koszembar-Wiklik M. (2015): *Media społecznościowe w zarządzaniu komunikacją uczelni ze studentami*, Kultura - Media - Teologia, 2015 No 2, pp. 9-22.

<sup>579</sup> Fabjaniak-Czerniak K. (2012): *Internetowe media społecznościowe jako narzędzie public relations*, [in:] Kubiak K. (ed.) *Zarządzanie w sytuacjach kryzysowych niepewności*, Warszawa, p. 173.

<sup>580</sup> Cyrek B. (2016): *Media społecznościowe- nowa przestrzeń nauki*. Kognitywistyka i Media w Edukacji, nr 2, pp. 25-56. [http://www.czasopisma.marszalek.com.pl/images/pliki/kim/2016\\_2/kim2016204.pdf](http://www.czasopisma.marszalek.com.pl/images/pliki/kim/2016_2/kim2016204.pdf) (visited 6 September 2018).

<sup>581</sup> Przybyło S. (2018): *From correspondence distance learning to crowd learning via social media – a case study of Polish teachers of English groups on Facebook*. Biuletyn Edukacji Medialnej, Nr 1/2018, p. 28-41.

- database of ideas
- variety
- disseminating information about training on a large scale
- direct exchange of information
- large groups of activists from all the country
- lots of inspirations
- immediate feedback
- immediate answer to a question
- an immediate solution to a problem supported by the experience of many users
- time flexible
- possibility to come back to the content many times
- time-saving
- free of cost
- always available
- any place accessible
- easy access
- every day update
- verification of one's activities
- shared experience comes from practitioners, not theoreticians
- ability to share documents and files
- possibility to ask questions directly
- matching with interests and time availability
- confirming popularity and convenience of this type of learning which might be the future direction of vocational training.

In 2009 educators from Online College prepared a list of 100 ideas for using Facebook in education. Nearly three years later, as Facebook improved, they refreshed the list and divided into categories: Resources on Facebook, Projects and Assignments, Sharing, Collaboration and Discussion, Classroom Management and Organization, and finally Apps and Groups<sup>582</sup>. In 2016 a promising page Facebook for Education was set up

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<sup>582</sup> [www-17] Online College: *99 Ways You Should Be Using Facebook in Your Classroom*. <https://www.onlinecollege.org/2012/05/21/100-ways-you-should-be-using-facebook-in-your-classroom-updated/> (visited 13 February 2020).

as a professional learning community for educators to come together to share, learn and inspire one another. Its mission is to give people the power to build community and bring the world closer together. Facebook Education was created to bring the world closer together by growing the knowledge economy, through access and equity in educational opportunities for all learners<sup>583</sup>. Moreover, Facebook offers inspiring educational programs in Computer Science Education and Social and Emotional Learning, as well as products which drive Innovation + Transformation and Connection + Collaboration<sup>584</sup>.

### **3.3.2. Crowd-learning platforms around the world.**

In this subchapter, the author presents nine different crowd-learning platforms around the world. The author's intention was to search for platforms which are based mainly on users' knowledge in comparison to Massive Open Online Courses which are designed by lecturers and crowd-learning happens because of virtual classes. Moreover, the author's intention was to estimate the scale of crowd-learning platforms dedicated to vocational training. Although selected platforms differ in the subject matter, a target group and their procedure, the key feature is sharing knowledge among users. In the second step, the author makes a comparison of characteristic features in order to find answers to questions concerning financing and motivating users.

#### **Learning as usual is not an option - The Goals.org**

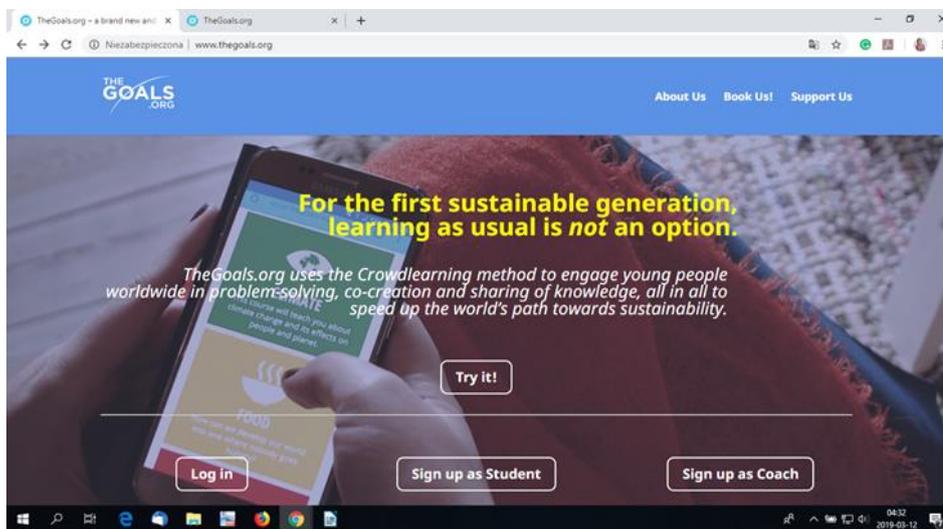
TheGoals.org is a free global education and learning portal on sustainable development solutions. It is a unique and free open crowd-learning experience for mobile devices that connects youth from all the corners of the world. The aim is to build understanding and cooperation about the United Nation's sustainable development goals. It is based on the crowd-learning pedagogy that involves three recurring steps: receiving online briefs, performing offline tasks and giving feedback. Participants are not only going

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<sup>583</sup> [www-18] [https://www.facebook.com/pg/education/about/?ref=page\\_internal](https://www.facebook.com/pg/education/about/?ref=page_internal) (visited 13 February 2020).

<sup>584</sup> Parrott M. (2018): *Facebook Education: Activate, Collaborate, Innovate*. <https://www.gettingsmart.com/2018/10/facebook-for-education-activate-collaborate-innovate/> (visited 13 February 2020).

to learn lots of new things and skills, but also they are going to make new friends from all over the world. Once the course is finished, a user receives a diploma.



Picture 8. A Homepage of The Goals. Source: [www.thegoals.org](http://www.thegoals.org)

That enterprise is governed by the International Foundation for the Young Masters Programme (ISYMP), a non-governmental organisation in Sweden internationally recognized as a leader in innovative and transformative ICT-based education for sustainable development. It is enabled by donations of businesses and offices. The Goals.org functions in partnership with educational associations and organisations with participation of United Nations Educational, Scientific and Cultural Organisation and a scientific foundation LMK Stiftelsen<sup>585</sup>.

### **Idea Hunt - the workshop app**

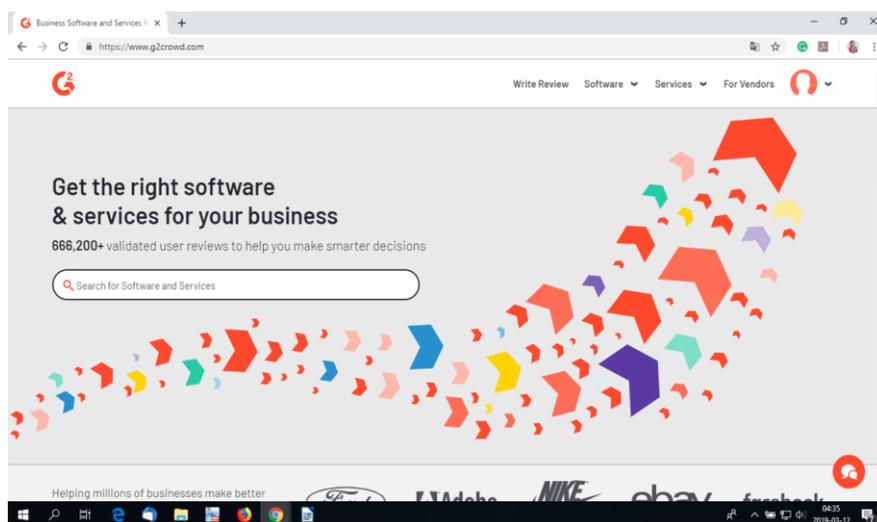
Ideahunt.io is a kind of workshop application. After signing up, users select a free template of workshops: brainstorming, word cloud, poll or an extra template: empathy mapping or ideation. Then the user is required to enter the name of workshops and host it. Workshops are only visible to those a user shares them with The data is safely stored. Time of workshops depends on their kind. Brainstorming requires from 8 to 15 participants and 20 minutes time, word cloud and poll take 5 minutes with 4 up to 20 participants. Empathy

<sup>585</sup>[www-19] <http://main.thegoals.org/> (visited 11 March 2019).

map and ideation needs 90 minutes and between 4 and 16 participants. The outcomes are 30 ideas or more in total, top 7 voted ideas and workshop statistics (brainstorming), word cloud, top votes list (poll), empathy map, 50 ideas and top voted list ideas (ideation). The host and the participants use your smartphones for register ideas, voting, so no materials such as marker pens, sticky notes and flip charts are required. The host needs a shared screen, like a projector or a TV. That tool is dedicated to companies in order to facilitate client workshops and foster open innovation within organisations. With Idea Hunt, companies are able to spend less time recording and analysing ideas, and more time coaching and engaging their clients in a workshop<sup>586</sup>.

### **G2crowd - B2B software review**

G2 Crowd is a review site for business-to-business software and services. It runs a review campaign on one's behalf with a shared list of customers (first names and email addresses) and sends out the requests for reviews. Users can come and read real reviews about the software they're thinking about buying in order to make more informed buying decisions. Thanks to that site, the decision-making process has become much simpler, letting users' voices be heard, and helping buyers make smarter, faster, and more impactful decisions<sup>587</sup>.



Picture 9. A homepage of G2Crowd. Source: <https://www.g2crowd.com>

<sup>586</sup>[www-20] <https://ideahunt.io/> (visited 11 March 2019).

<sup>587</sup>[www-21] <https://www.g2crowd.com> (visited 11 March 2019)

## **Help me to make a decision - Don't know.**

Dontknow.net is a Spanish social networking site which helps to make important decisions in one's life. Excessive information and poorly structured, unreliable or unavailable sources, lack of time and social taboos make it difficult to acquire knowledge and make a decision. Dontknow.net supports individuals in making decisions by four steps: explaining better what decisions imply, providing expert opinions, getting the most relevant experiences of people, allowing to request personalized advice. Pieces of advice are given by experts and laics. Once the user is registered, he searches for a subject of a decision he is going to make by using a browser or a menu. After selecting the subject of a decision, a user will find a series of elements that will be useful for a better understanding of what this decision consists of. These elements are a description of the decision itself, some of the usual brakes to take it and some of its usual consequences as well as some suggestions to face it. When a user have better understood what the decision is, he has two ways to expand his knowledge and make a more solid decision. First, know the points of view of the experts from different disciplines, summarized, ordered in favour ("YES") and against ("NO").

A user can also find references: books, websites, foundations with which the expert collaborates, which will help users if they want to deepen their point of view even more. Second, know the experiences of people similar to a user who has gone through similar decisions. With a structure similar to that of experts, you a user find the experiences of people who have gone through similar decisions. They are also structured in two groups, the "YES" (people who recommend you, according to their experience, make the decision) and the "NO" (people who recommend you, following their experience, do not make the decision). The idea with this first screen is that you can make a quick composition of place with respect to the main points of view of the people who have had relevant experiences, for and against, of the decision that you are considering. Once located, a user can deepen the experiences of the people that interest him, by selecting them. When doing so in any of them, you a user find more detail about who the person is, what their experience was and what their recommendation or position is according to their experience. If a user has or has had a personal experience related to an important decision,

he is encouraged to share it. Dontknow.net also provides online courses, open discussions and public groups<sup>588</sup>.



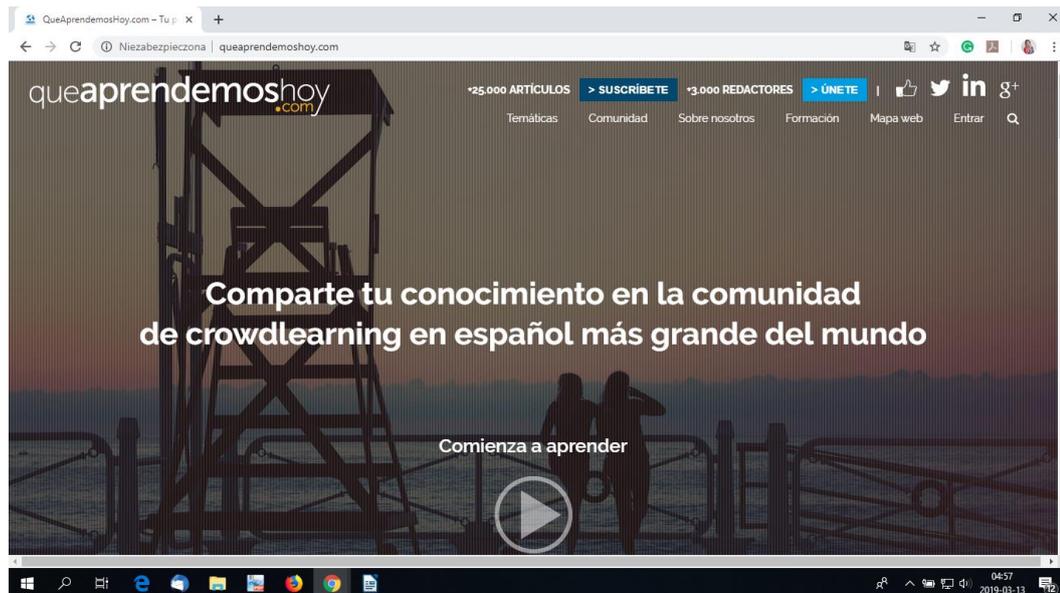
Picture 10. A homepage of Don't know. Source: [www.dontknow.net](http://www.dontknow.net)

## Everyone has to share knowledge – QueAprendemosHoy

It began in 2008 from sending an e-mail to friends, where a new lesson was made available every day. This mail reached the ears of relatives, friends of friends, and within a few weeks, more than a hundred people received it. A few months later, the number of people interested in learning something new each day was so great that it was impossible to meet the demand for participation. That is why the QueAprendemosHoy.com web was born, where thousands of people today share knowledge, which is taught to over a million people each month. QueAprendemosHoy.com is the largest Spanish crowd-learning platform in the world. Every day thousands of people share their knowledge with others by writing articles. The platform creates a community of thousands of people convinced the most effective way of improving education is sharing knowledge with the rest of the world.

<sup>588</sup> [www-22] <https://www.dontknow.net/informacion/como-funciona-dontknow> (visited 13 February 2020).

Registered users can write about any subject they are passionate: economics and business, law, history, culture and society, heritage, technology and social media, reflections, coaching, cinema, fashion, neuroscience, health and sport. There is one condition: everyone is obliged to share. Moreover, members play different roles in the community: editors, responsible and directors. The platform offers them access to permanent training in order to promote personal development<sup>589</sup>.



Picture 11. A homepage of Ques Aprendemos Hoy. Source: <http://queaprendemoshoy.com/>



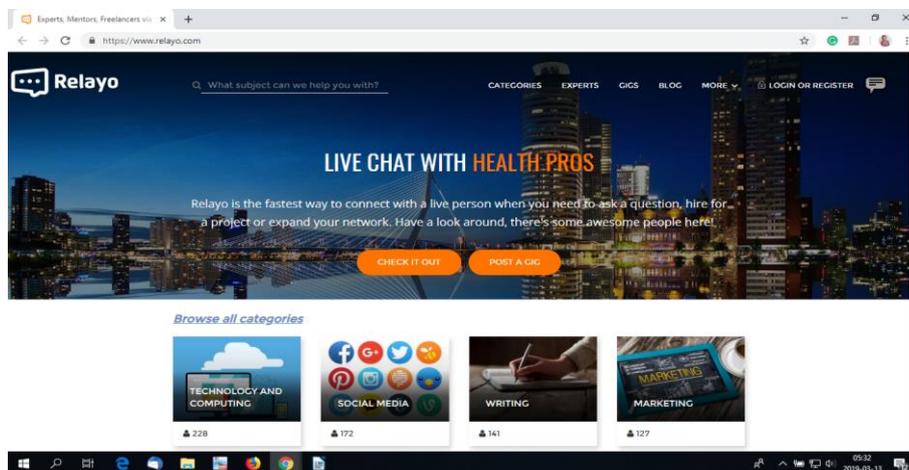
Picture 12. Types of users /crowd-learners. Source: <http://queaprendemoshoy.com/>

<sup>589</sup>[www-23] <http://queaprendemoshoy.com/> (visited 13 February 2020).

## A live chat with experts - Relayo

Relayo.com is American peer-to-peer platform designed to empower finding, connecting and learning. The platform offers expertise, articles, blogs, and advice are available on-demand and supports one's ability to engage with people online using XMPP open-source chat, braintree + bitcoin integration, and mobile responsiveness. The unique feature of Relayo.com is a live chat with experts. Relayo's users play three different roles: superheroes, humans and community. Superheroes are experts, freelancers, bloggers, mentors, coaches, businesses, service providers, influencers and humans of all kinds, who use Relayo to promote their talents, service offerings, and value to the world. As a superhero one can earn or learn in real time.

Humans use Relayo to instantly connect with superheroes in order to get answers and help with projects. Using live chat, email, and other forms of contact, there are zero barriers to finding and connecting with the hero one needs at the speed of now. Community is a network of go-to people to be one's #braintrust or #lifeteam. Members of the community can use Relayo in two ways: by helping others, spending time sharing expertise or by growing a business by chatting with potential customers.



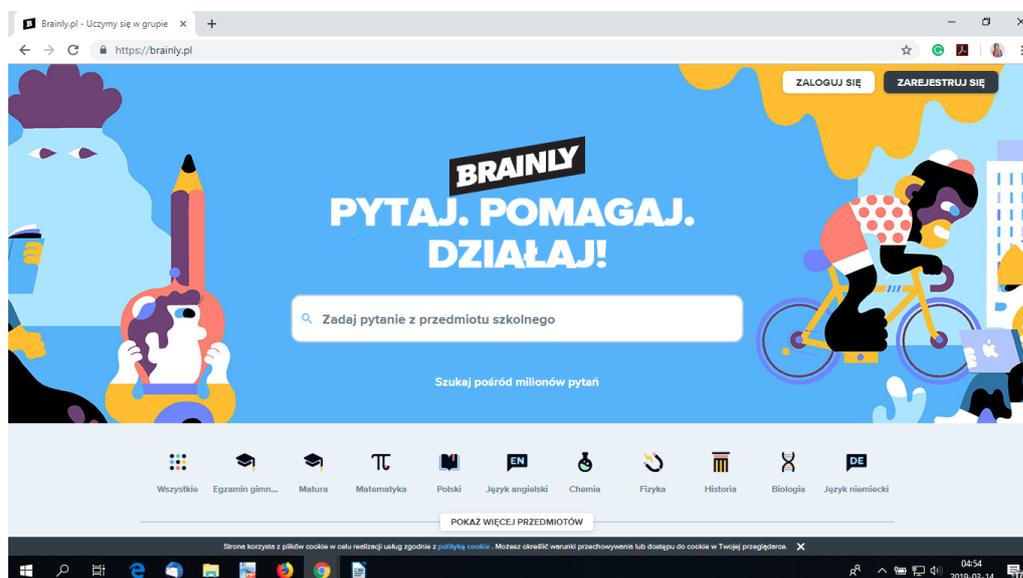
Picture 13. A homepage of Relayo. Source: [www.relayo.com](http://www.relayo.com)

There is the point system in order to give more visibility on the site. Adding a summary, and a picture on one's profile gives 10 pts. Every received 'like' for a blog one has posted equals 5pts. Sharing a profile on Twitter and Facebook gives 5pts each max once a month. When a user is recommended, he earns 10pts. Currently, the access is open, however, future plans are to integrate a fully in portal payment system based on Braintree.

Registered users benefit access to 1000's of experts, are paid for helping people, make valuable connections, have an opportunity to become a brand ambassador<sup>590</sup>.

### From questioning to understanding - Brainly.

Brainly.pl is Polish knowledge-sharing community where 150 million international students and experts put their heads together to crack their toughest homework questions. About 75% of users are aged 13-19. It works in different languages. Registered users can ask any question which other users answer. All questions are categorized by subject, respective of country and school level. The network has elements of gamification in the form of motivational points and ranks and encourages users to engage in the online community by asking questions and answering those of other students. Joining in and logging once a day gives a user 5 points. Points are needed in order to ask questions on the site.



Picture 14. A homepage of Brainly. Source: [www.brainly.com](http://www.brainly.com)

Every time a user wants to ask a question, he needs to choose a specific amount of points to spend. The more points a user gives away, the greater chances of getting an answer right away! Completing a profile and confirming an e-mail address gives a user 10 points.

<sup>590</sup> [www-24] <https://www.relayo.com/>

A user receives points for every answer to a posted question. He is also rewarded an additional 50% of the points for the Brainliest answer and receives 25% of the total points for choosing the Brainiest answer to his question. What is more, a user gets additional points for place on the Leaderboard. With Brainly, students learn more, lead more, and make friends. They bring their skills to the table to answer questions, earn points, and rise through the ranks- from Beginner to Genius. The best and brightest earn prized spots as community moderators, who keep a close eye on the accuracy, clarity, and kindness of every question and every answer.

The website offers paid services too- Brainly Plus, which gives uninterrupted access to millions of high-quality answers, prioritize questions to fast track user's learning, and it is completely ad-free<sup>591</sup>.

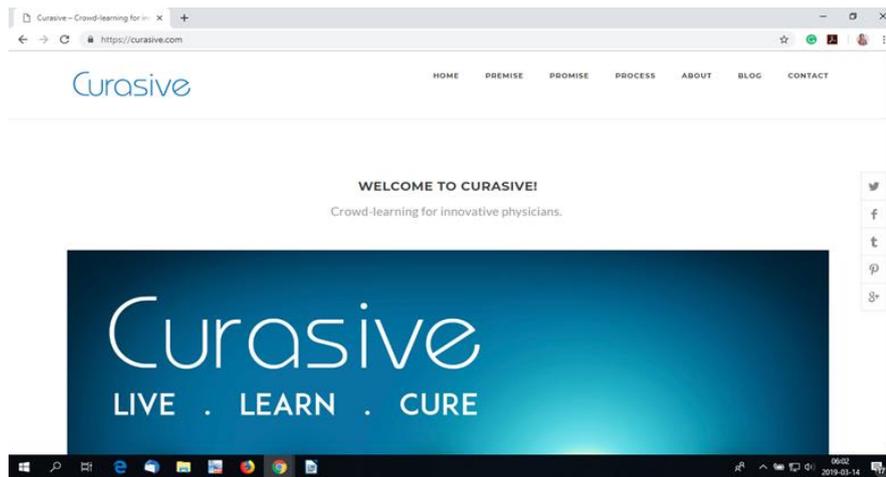
### **Physicians learn about the business – Curasive**

Curasive.com was a crowd-learning site (not working currently) dedicated to innovative physicians who want to deepen their knowledge about the business of medicine. The originator hoped to collect similar bits of experiences from other physicians, and create a repository that can both encourage and enable others who might be on the proverbial cliff, thinking about jumping in. They could share their knowledge in many different forms, including a guest blog post about one's experience as it relates to one's practice or work, links to articles, blogs, podcasts or websites that are relevant to the business of medicine, and a personal review of a process, product or service that worked (or did not) for an individual. The relevant topics included the following: finances and capital, accounting, marketing strategy in creating or growing a practice, billing, coding and documentation, software (EMRs, EPCS, Scheduling, Payments, Communication etc.), technology and innovation (Telemedicine, Wearables etc.), networking and partnerships, education (Books, Seminars, Webinars, Courses etc.) or legal matters<sup>592</sup>.

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<sup>591</sup>[www-25] <https://brainly.pl/> (visited 14 March 2019)

<sup>592</sup>[www-26] <https://curasive.com/> (visited 14 March 2019).



Picture 15. A homepage of Curasive. Source: [www.curasive.com](http://www.curasive.com)

### **Learn playing, play learning - Solo Learn**

Sololearn.com, although its name is an innovative community learning platform, which breaks the stereotypes of institutional instructor-centric learning and creates a student-centric open crowd-learning that provides for fast, effective and fun learning experience available anytime anywhere for free. Registered users become learners, they choose a course. They go through carefully selected content, take the interactive quizzes, accumulate checkpoints, complete entertaining exercises, collect colourful points, and practice. Meantime they can ask questions, other learners, when they have problems with the task. They can also post on a blog if they want to. There is also an element of gamification as users unlock new levels, take quizzes, collect points, and compete with peers from around the world<sup>593</sup>.

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<sup>593</sup>[www-27] <https://www.sololearn.com/> (visited 15 March 2019).



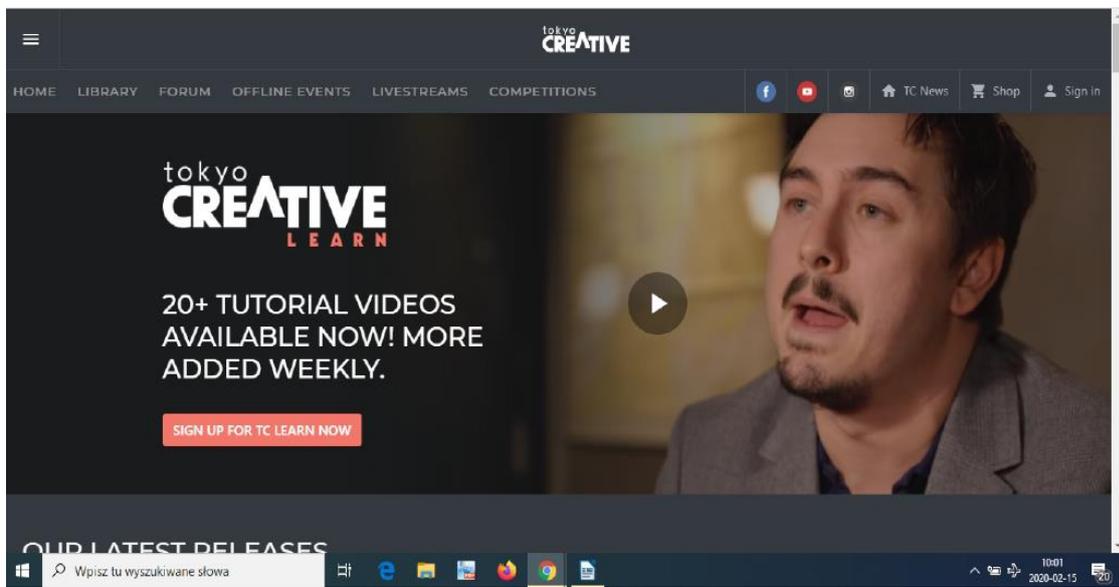
Picture 16. A homepage of Solo Learn. Source: [www sololearn.com](http://www.sololearn.com)

## Creators and influencers in one place - Tokyo Creative Learn

Tokyocreative.com is a platform where all favourite creators and influencers come together to share their knowledge and experiences of Japan. Members of the platform gain access to content video library created by influencers and monthly live-streams to interact directly with them. Members can join the online community forum where they ask and answer Japan-related questions. What is more, influencers have a possibility to critique or show off a member's creative work on YouTube. The platform also organizes offline events with influencers and prepares 1-week early notice. Members can take part in competitions based on video or photo. All finalists receive feedback on their work within a video and prizes. Tokyo Creative Learn runs a shop where members can purchase exclusive items from the Tokyo Creative family, including special collaborations with influencers<sup>594</sup>.

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<sup>594</sup><https://www.tokyocreative.com/learn/> (visited 15 February 2020)



Picture 17. A homepage of Tokyo Creative Learn. Source: [www.tokyocreative.com/learn](http://www.tokyocreative.com/learn)

## Comparison of Crowd-learning platforms around the world

crowd-learning platform	origin country	target-group	access	main idea	source financing	of medium	Social media	Users' roles	Motivating users
<b>The Goals</b>	Sweden	youth from all the over the world	free	to build understanding and cooperation about the United Nations Sustainable Development Goals	donations	website	Facebook Twitter Instagram	Coaches, Students	diploma after finished course
<b>Idea Hunt</b>	Sweden	companies	basic-free premium-paid	co-creation platform, to crowdsource ideas for product development and marketing	payment for premium version	website/ mobile app	Twitter Facebook Instagram LinkedIn	Contributors, Visitors	rewards for the best contributors
<b>G2Crowd</b>	USA	business-to-business	demo-free, Pro and Power paid	leverage the crowd to limit business risks	paid subscription	website	Twitter, Facebook LinkedIn	Vendors, Users	-----
<b>Don't know</b>	Spain	anyone	free	social site helps to make decisions	co-financed by the Ministry of Economy and Competitiveness and the Community of Madrid	website	Facebook Google+ LinkedIn You Tube	Users, experts	rankings of experts

<b>Que Aprendemos Hoy</b>	Spain	anyone	free	learning by sharing knowledge	advertising (Google AdSense)	website	Facebook, LinkedIn, Twitter, Google+	Editors, Responsible Directos	promoting one's personal and professional development.
<b>Relayo</b>	USA	anyone	free	to empower finding, connecting and learning, experts via chat or video on demand	Unknown,	website	Facebook, Twitter, LinkedIn, Instagram	Humans Superheros/ Experts, Community	point system, earning, gaining valuable contacts
<b>Brainly</b>	Poland	students	basic-free Brainly Plus-paid	we are learning in groups	advertising, payment for Brainly Plus, services for business	Website / mobile app	Facebook, You Tube, LinkedIn	Beginners, Helping Hand, Ambitious, Virtuoso, Expert	Top Learners Leaderboard
<b>Solo Learn</b>	USA	anyone who wants to learn coding	free	learn playing-play learning	advertising, paid Pro subscription	Website / mobile app	Facebook, Twitter, Google+	peers	Top Learners Leaderboard
<b>Tokyo Creative Learn</b>	Japan	anyone interested in Japan	paid	all favourite creators and influencers together	paid subscription, shop, cooperation with services	Website	You Tube, Instagram, Facebook	Influencers, Members of a community	competitions with prizes, feedback from influencers,

Table 21. Comparison of crowd-learning platforms around the world, the author.

\*Curasive is not included as the platform does not work in its first character and specific data is no longer available.

To conclude, people devote the greatest amount of time for informal learning, which is not appreciated because of the lack of certification. Development of new media and open access facilitated crowd-learning phenomenon which, according to the author, is the future of lifelong learning of the Information Society. It is the most flexible form of learning, the most practical and the most personalized.

In this subchapter, the authors presented 9 different crowd-learning platforms around the world. The author's intention was to search for platforms which are based mainly on users' knowledge in comparison to Massive Open Online Courses which are designed by lecturers and crowd-learning happens because of virtual classes. Moreover, the author's intention was to estimate scale of crowd-learning platforms dedicated to vocational training. Although selected platforms differ in the subject matter, a target group and their procedure, the key feature is sharing knowledge among users. In the second step, the author made a comparison of characteristic features in order to find answers to questions concerning financing and motivating users.

Presented crowd-learning platforms are dedicated to different groups of interests: young people, businesses, students, professionals or to anyone and cover varied subject matters. Pioneer country in crowd-learning is Sweden with the rate of adult participation in learning 30% in 2017 (in comparison to Poland 4%)<sup>595</sup>, the USA and Spain. Thus, the use of crowd-learning platforms might have a positive impact on adult participation in lifelong learning. Most of these crowd-learning platforms functions for free; however, in some cases, there is an intention to introduce additional paid services. Platforms are financed by different sources: businesses, public offices, donations and vendors. Users play different roles dependent from their level of knowledge, experience and activeness. There is usually a motivating system which includes collecting points, diplomas, gaining higher status.

The analysis of presented platforms led to the conclusion that there is no crowd-learning platform aimed at vocational training. There is a potential in creating a crowd-learning platform dedicated to vocational training in native and later in a foreign language. Public offices should support not only financially, but also by introducing an information campaign in order to reach a mass audience.

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<sup>595</sup> European Commission (2018): *Education and Training. Monitor 2018. EU Targets for 2020.* [http://ec.europa.eu/education/sites/education/files/document-library-docs/2018-et-monitor-leaflet\\_en.pdf](http://ec.europa.eu/education/sites/education/files/document-library-docs/2018-et-monitor-leaflet_en.pdf) (visited 15 January 2019).

### **3.4. Crowd-learning in the opinion of various sociological groups in Poland**

#### **3.4.1. Who are crowd-learners in Poland?**

The aim of the sub-chapter is to present the results of research concerning aspects connected with new opportunities for professional development that have emerged thanks to social media, particularly, the use of social media and mobile applications for informal education and lifelong learning, functioning crowd-learning platforms across the world as well as present author's findings and conclusions concerning the phenomenon of crowd-learning in Poland and the role of digital media in adult education. The chapter also mentions the increasing significance of digital media literacy for access to lifelong education and exclusion of that part of society which is not familiar with ICT skills. In order to make a full picture of the phenomenon, the author conducted three kinds of research: desk research, quantitative research and qualitative research. Conducted research allowed to develop a design of crowd-learning platform as a way informal vocational training which could engage Polish society in upskilling and improve our social capital.

Quantitative research was conducted by a national research panel „Ariadna” as a part of the omnibus survey among representative sample using the CSAQ surveys-pool method (computerized self-administered questionnaire). The unit of the analysis is the professionally active society in Poland<sup>596</sup>. All in all, the sample was greater than expected, and it equalled 598 participants, thus the maximum error equals 4%. The aim of the research was to estimate the scale of crowd learning in Poland, to know who Polish crowd-learners are and what are their professions. This information is going to be used to define consumers of the crowd-learning platform.

#### ***The usage of informal forms of professional development.***

The research showed that two-third of Polish society use new informal forms of learning. The greatest number use social media for professional development. Apart from online courses, which also chosen willingly, Polish adults make use of publications online applications available for smartphone.

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<sup>596</sup>GUS (2018): *Informacja o rynku pracy w pierwszym kwartale 2018 roku*. <http://stat.gov.pl/obszary-tematyczne/rynek-pracy/pracujacy-bezrobotni-biemi-zawodowo-wg-bael/informacja-o-rynku-pracy-w-pierwszym-kwartale-2018-roku,12,33.html?pdf=1> (visited 22 August 2018).

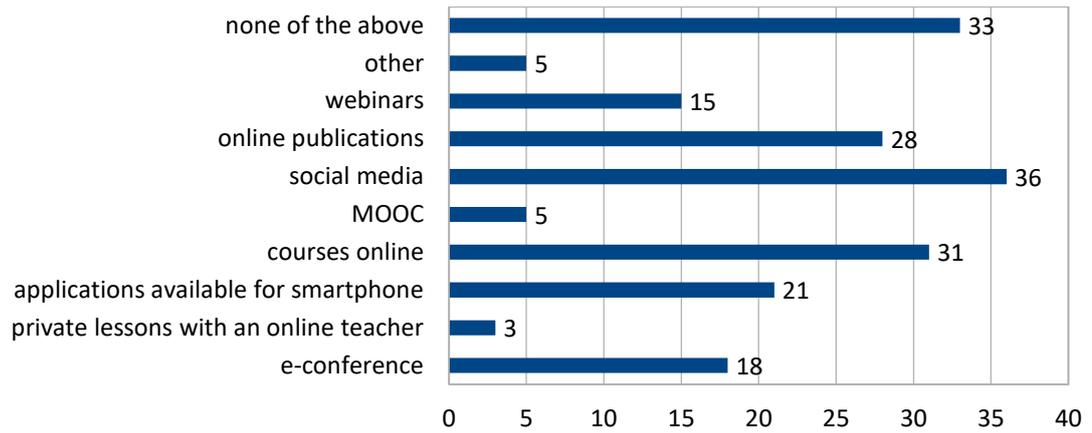


Figure 29. Participation of Polish society in new form of informal learning. Source: the author's research.

There are noticeable effects of the mediatization process in gaining knowledge. Social media and online courses play a special role, which shows the direction of development of non-formal and informal education.

***Familiarity with the term crowd-learning***

18% of Polish society is already familiar with the term of crowd learning. The consciousness level of an existing phenomenon is absolutely low, however, the number of people engaged more or less in this kind of learning is larger. That statement is expressed by the next question.

***Frequency of knowledge sharing by respondents***

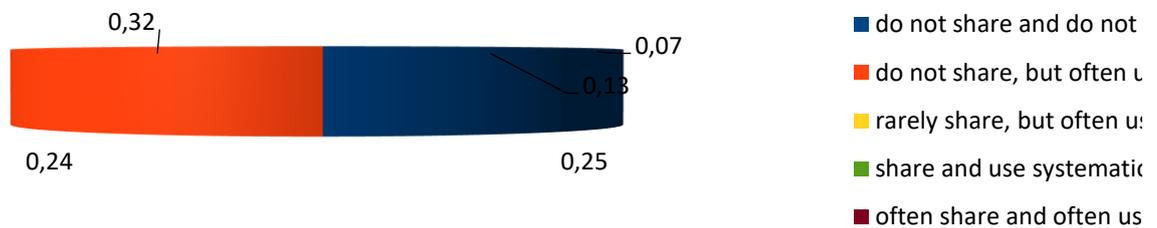


Figure 30. Frequency of using others' knowledge and sharing knowledge with others. Source: the author's research.

As we can see 51% of Polish society more or less shares their knowledge and experience with others, and the author calls them crowd learners. What is more, until one fourth do not share, but use others' knowledge. It means that crowd learning is a significant form of informal learning.

***Self-assessment of users' advancement in knowledge-sharing***

The answers for those questions were gathered from those who author refers as crowd learners. As we can see from the figure, 60% of users are rather passive observers who share their knowledge from time to time. Really active participants, along with the experts, are 40% of society.

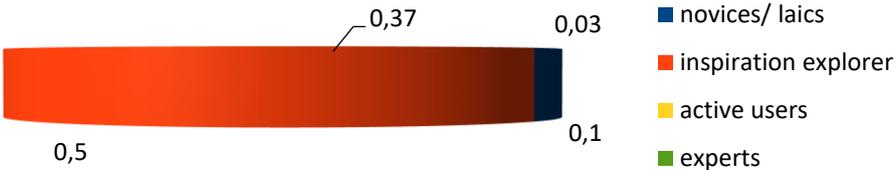


Figure 31. Roles of crowd-learners. Source: the author’s research.

***Age of crowd-learners***

That question needs to be answered in two ways. The following figure shows the differences between groups of crowd learners aged 25-64 every 10 years. According to the figure, people in their 20s and 30s are the most eager to learn through crowd-learning, and that willingness decreases with the time.

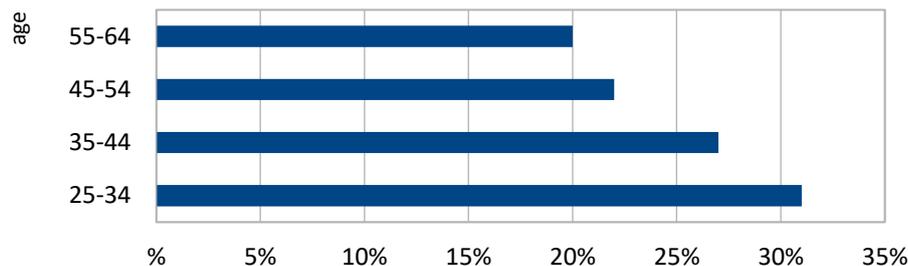


Figure 32. The age of crowd-learners in Poland. Source: the author's research.

That agrees with the professional activity of Polish society prepared by GUS . According to its main statistic people aged 25-44 are the most active in the job market.

WYSZCZEGÓLNIENIE	2017	2018	2019			
	III kwartał	II kwartał	III kwartał	+/- w porównaniu z		
				III kwartałem	II kwartałem	
				2018	2019	
w %						
<b>1. Współczynniki aktywności zawodowej</b>						
Z ogółem w wieku:						
15-24 lata	35,2	35,4	35,0	36,8	1,4	1,8
25-34	84,2	84,4	84,2	84,5	0,1	0,3
35-44	87,4	88,0	87,4	87,3	-0,7	-0,1
45-59/64	73,0	75,0	74,9	75,5	0,5	0,6
60/65 lat i więcej	9,1	8,3	8,0	8,3	0,0	0,3

Table 22. Professional activity of Polish society according to age. Source: GUS (2019).

The figure would look different if we categorised age groups by tens. That structure illustrates the natural cycle of human life: in their 20s people start their first work and they spend their free time actively. In their 30s they speed up their careers in order to gain stability in their 40s. After bringing up children, people in their 50s gain more free time. Finally, reaching 60, their activity slows down as their ICT skills are lower, and they step in the retiring age.

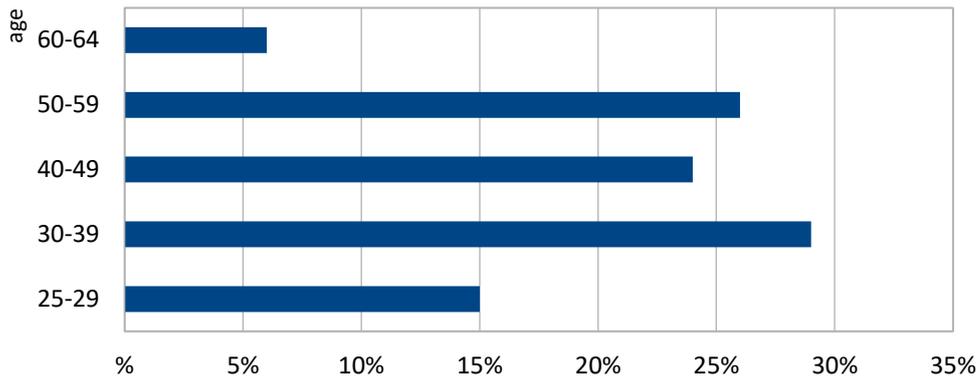


Figure 33. The age of crowd learners in Poland. Source: the author's research.

### *Crowd-learners' profession*

Here, persons being tested wrote their profession. In order to explore what professions crowd learners are, the author used The Polish Classification of Occupations and Specializations for Labour Market Needs introduced by the Ordinance of the Minister of Labour and Social Policy on 7th August, 2014 with amendments<sup>597</sup>. It is a national adaptation of the International Standard Classification of Occupations (ISCO-08) compiled by the International Labour Office, Geneva. ISCO-08 is recommended to the EU Member States by EUROSTAT to use in statistical surveys<sup>598</sup>. Conducted the following desk research let to distinguish the most specific professions involved in vocational training through crowd-learning.

The research showed that professionals, technicians and associate professionals, service workers and shop sales workers, craft and related trade workers, as well as plant and machine operators and assemblers, are occupations which are the most eager to share their knowledge and use others' knowledge. The data allowed a more specific classification of occupation specialization. Medium staff for business and administration, specialists in teaching and education, specialists for economic affairs and management, sellers and related, drivers and vehicle operators, specialists in physical, mathematical and technical

<sup>597</sup> Minister of Labour and Social Policy (2018): *Announcement of the Minister of Family, Labour and Social Policy of 28 December 2017 on the publication of a uniform text of the Regulation of the Minister of Labour and Social Policy on the classification of professions and specialties for the needs of the labour market and the scope of its application*. Dziennik Ustaw Rzeczypospolitej Polskiej Dz.U. 2018 poz. 227. <http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU20180000227/O/D20180227.pdf>

<sup>598</sup> Ministry of Labour and Social Policy (2018): *Classification of Occupations and Specializations for Labour Market Needs*. [https://psz.praca.gov.pl/documents/10240/6488358/English%20summary%20na%20PSZ%20-%20tekst%20jednolity%20Dz\\_U\\_z%202018%20poz\\_227.pdf/6ae79422-b862-448e-956b-c3bd5d277873](https://psz.praca.gov.pl/documents/10240/6488358/English%20summary%20na%20PSZ%20-%20tekst%20jednolity%20Dz_U_z%202018%20poz_227.pdf/6ae79422-b862-448e-956b-c3bd5d277873)



Figure 34. Crowd learners according to their occupation. Source: the author's research.

sciences, mining and processing machinery and equipment operators, as well as secretaries, office equipment operators and related professions are the target group of crowd-learning platform. It is vital to say that medium health staff and health specialists together form numerous auditorium.

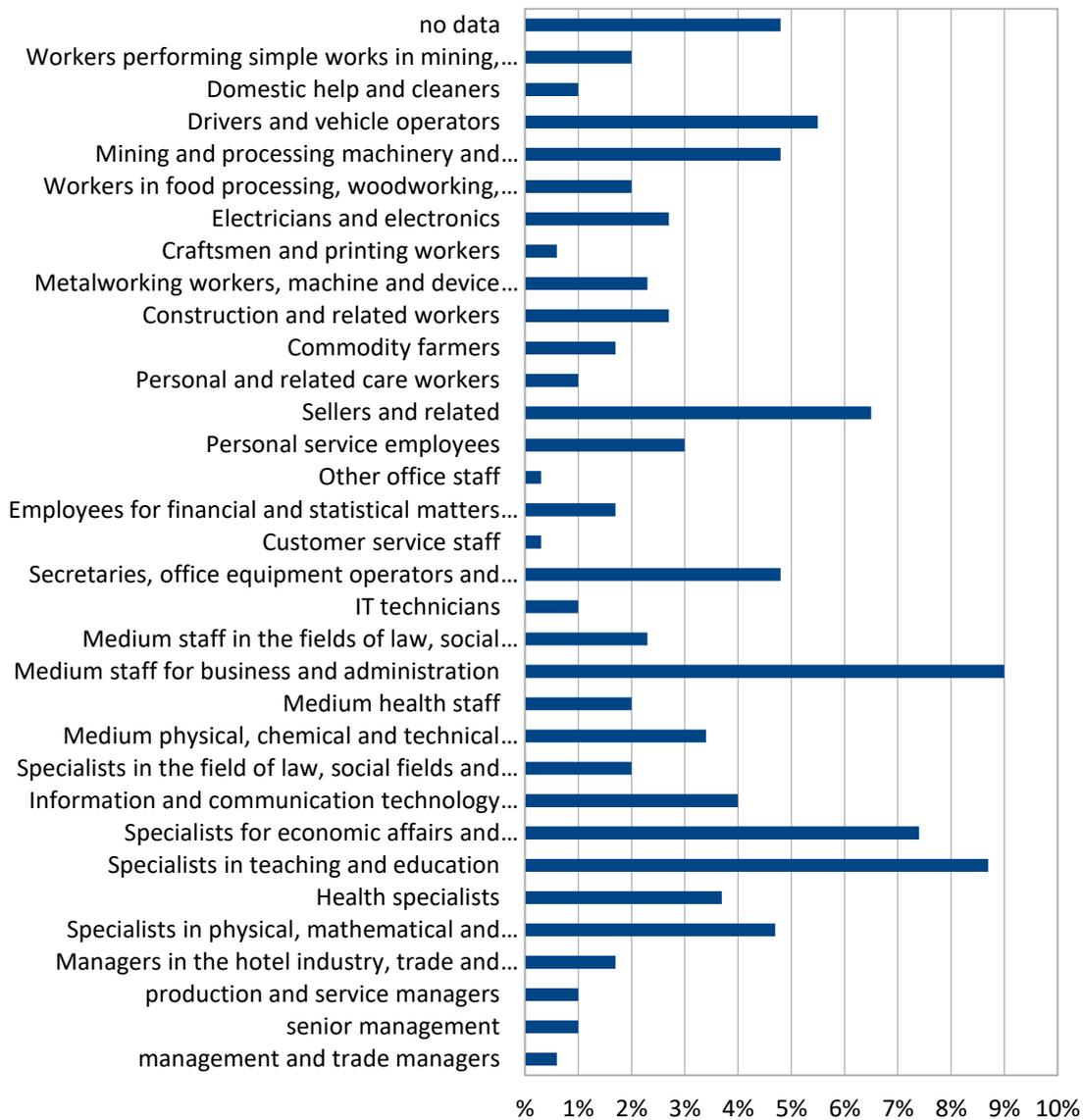


Figure 35. Crowd learners by occupation specialization. Source: the author’s research.

***Education level***

The research showed that crowd learners usually have a university degree. Higher educated people have relatively advanced ICT skills and computer literacy. They are more willing to share their knowledge and experience using different media because, first of all, they have particular knowledge; secondly, they know how to share it and who eagerly will be able to make use of it. Finally, they often have a specific purpose of doing it.

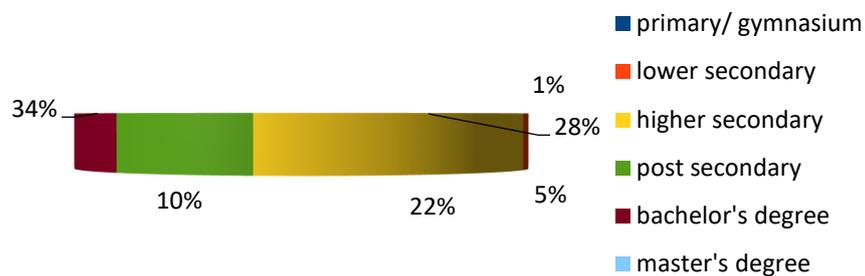


Figure 37. Crowd learners by the level of education. Source: the author's research.

### *Place of residence*

Crowd learners are mainly residents of cities, especially medium and big cities. It is connected with greater access to the internet and media facilities in cities than in countries. In cities, there are also more jobs demanding ICT skills. Residents of cities have more opportunities for personal development as they might be more aware of the media importance for successful career advancement.

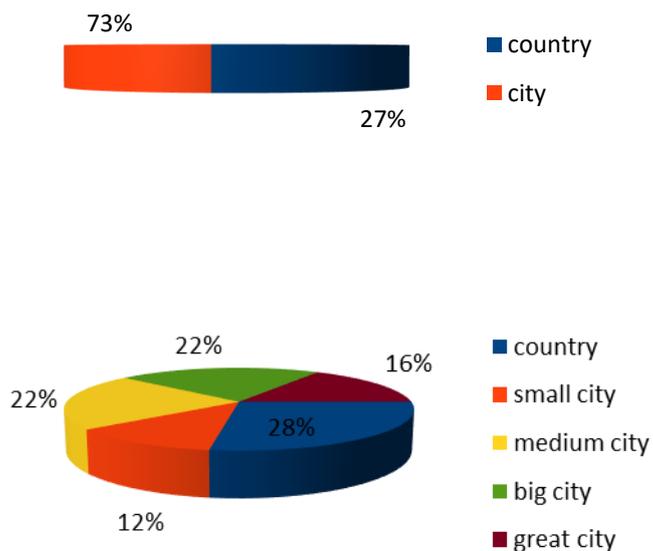


Figure 38. Crowd learners by place of living. Source: the author's research.

## Sex

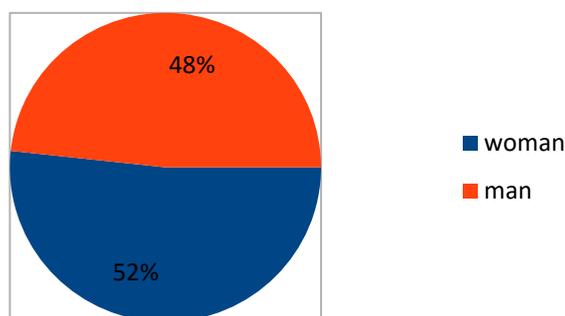


Figure 39. Crowd-learners by sex. Source: the author's research.

There are slightly more women between crowd learners than men. Here the difference is 4%. The data is comparable with data provided by other institutions. According to Statistics Poland (GUS) in 2016, slightly more woman participated in adult learning. The difference was only 1,5%. (chapter 2.4.5.) and average participation in 2015 according to OECD there were slightly more men (3 % more) than women. Differences are not significant as they oscillate between 5%, thus at the statistical error limit. Taking into account that there are more women than men in Poland, we can say that the participation of men and women in adult education is balanced.

### Discussion:

The term of crowd-learning is not known by the majority of society. Above all, it is pure English terminology which cannot be neutrally translated into Polish. It has to be popularized among society, like other foreign terms, e.g. e-learning. Polish society learns online progressively. Social media gained great popularity among Polish society in case of informal learning – one-third of society uses social media for learning. Apart from social media courses online also become more and more popular. Social media and applications available on smartphones are preferable tools for informal learning. Crowd-learners in Poland are mainly professionals with a diploma of the university; thus they have computer literacy and skills needed to take part in crowd-learning. Omnipresent new

media and mediatization process influenced a new form of learning which is crowd-learning. Although Polish society is not aware that it is learning in a new form, it is learning new things and gaining new experiences every day. It would not be possible if it were not for the digital media, which not only facilitates but even enables the communication between students who are in diverse places and a precondition for crowd-learning is efficient communication. The development of new media has made the communication model change and these changes serve crowd-learning by allowing for a perfect arrangement of gaining knowledge, at any time, in any place, from anyone who has the will to share.

They live mainly in cities which are resided by 60% of the population. However, small towns are the least active, even less than residents of the country which might be caused by depopulation and lack of development strategy. In the author's view, residents of country commuting to their work in a bigger city have more opportunities of personal development than residents of a small city where they live and work in the same provincial place.

Polish crowd-learners are in their 30s and 40s; they are speeding up their careers. That age group is also the most active on the labour market. They have got a well-established market position and family life. Besides they are more familiar with ICT tools than the older group, and they more willingly follow new trends. Among them, there are slightly more women than men what is connected with the pyramid of population age<sup>599</sup>.

Conducted research showed that medium staff for business and administration, specialists in teaching and education, specialists for economic affairs and management, sellers and related, drivers and vehicle operators, specialists in physical, mathematical and technical sciences, mining and processing machinery and equipment operators secretaries, office equipment operators and related professions, as well as medium health staff and health specialists, are the target group of the crowd-learning platform. In the author's opinion, medium staff stands for those crowd-learners who are the biggest group, so they benefit the most.

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<sup>599</sup>GUS (2019): *Population. Size and structure and vital statistics in Poland by territorial division in 2019. As of 30th June*, p. 10.

### **3.4.2. Motives, benefits and risks associated with knowledge sharing**

#### **The focus test**

The focus test organised as a part of social campaign “Dni Uczenia się Dorosłych 2019” (“Adult Learning Days 2019”) was moderated by the author and recorded with the approval of the participants. Metrics of participants are in the Annex on page 312.

The first thing discussed was the Polish naming of the term “crowd-learning” As it was said in chapter three, there is no Polish equivalent for crowd-learning. The meaning of the crowd as large assembly is not seen as professional. It does not have a positive or neutral connotation. There is not crowd-learning platform in Poland and participants suggested that it might be caused by insufficient Polish terminology. It would be not possible to create Polish meaning of crowd learning out of two words only as in English. Polish equivalent of crowd learning should have positive, professional connotation and should explain the character of the term. The closest meaning could be “social learning”, however, the term was already coined in the 20<sup>th</sup> century, and it has its definition, which is not equal with crowd-learning.

The author considers “*uczenie (się) poprzez dzielenie*” (Eng. learning through sharing) as this term explains somehow the nature of the phenomenon. However, it would be difficult to create name for crowd learners. In English “sharers” could be acceptable, in Polish definitely not. Eventually “*dzielący się*” (Eng. sharing) could be an option. We could go further and coin the term “*e-Barterowe uczenie się*” (Eng. Barter learning) as crowd learning is based on exchanging goods which are knowledge and experience through electronic devices. “*e-Barterzy*” (Eng. e-Barters) as a name for crowd learners would be acceptable, but there is a risk of creating a new term for existing one which author wants to avoid as it might be confusing in the future, for instance in case of searching the literature. Nevertheless, as it was shown in quantitative research, only 18% of Polish society already know the term crowd-learning. It means that regardless of the name, the crowd-learning phenomenon has to be popularized among Polish society.

#### **Reasons for sharing knowledge**

In order to understand crowd learners motives, the author asked test participants question about reasons why people share their knowledge on the Internet. Test

participants mentioned several reasons which can be divided into two categories: altruistic and having a mercenary interest.

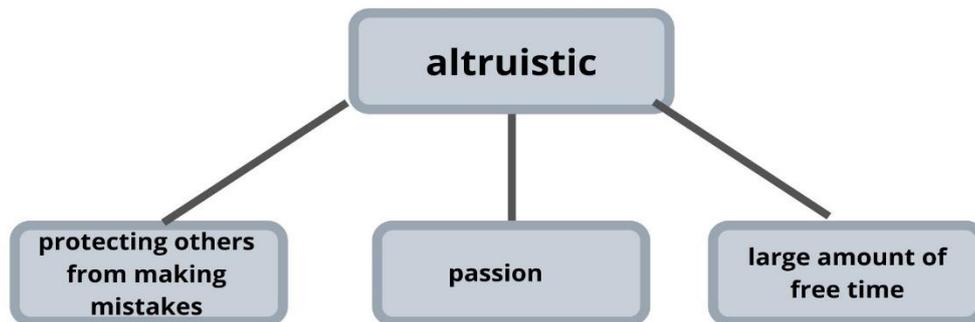


Figure 40. Altruistic reasons for sharing knowledge. Source: the author's own research.

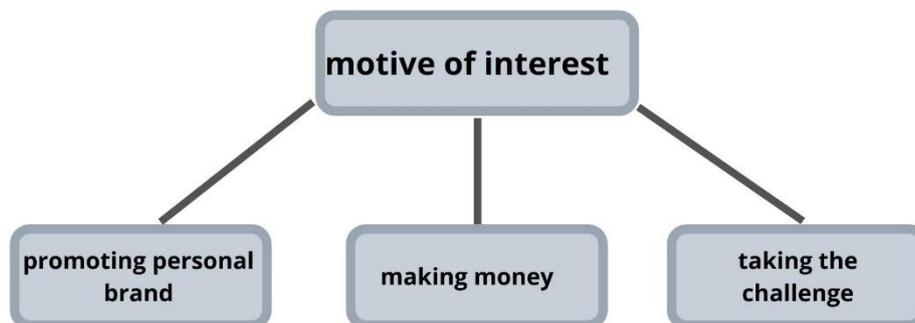


Figure 41. Motives of interest for sharing knowledge, author's own research.

At the same time, test participants wonder why people do not share their knowledge. Among reasons, they mentioned professional know-how. Sharing that deep knowledge might be harmful to the company and a crowd learner. Besides a part of people do not want to share the knowledge which they gained with hard work or much time devoted. They expect some profits, notably financial ones.

### **Threats connected with sharing knowledge**

According to participants of the focus test revealing secret information or sharing too much knowledge might cause a risk of losing a job, especially when it comes to the non-competition clause. It could turn out that competitors would take advantage of one's knowledge, not necessarily honestly. Another threat includes exposition to criticism and experiencing hate. People who set up temporary accounts or act under fake names with

fake profile photos pose a danger as they tend to criticise, discredit one's competence or even insult. As a result, that factor might inhibit sensitive people from sharing knowledge.

### **Potential functionalities of the platform**

During discussion participants of the focus test agreed that apart from the possibility of asking questions, commenting and watching and transmitting pieces of training, the platform should have a system of alerts and a newsletter informing and reminding about coming events. They suggested that interactivity and synchronous communication between crowd learners and experts might be the strong point of the platform. Another idea was moderating a discussion after webinars. Here, participants of webinars would have a chance to deliberate the topic, create together valuable conclusions and develop knowledge which is the essence of crowd learning.

### **Opportunities and methods of attracting people to use the platform**

People taking part in crowd learning are aware of the lack of certification. They take part in it because they want to, they have intrinsic motivation to learn and personal goal to achieve. What is more, they are self-motivated to gain new knowledge, they need some specific knowledge in a particular moment, or they improve their hobbies and interests. Participants of the research were afraid that this is a too small number of people for creating a crowd-learning platform for them. Moreover, they pointed out that people are wont to use tools they know (e.g. specific forums, familiar YouTubers, Facebook groups) and are no eager to change them. The question arose about how to attract people to use a crowd-learning platform. Some propositions of participants overlap author's ideas which prove the validity of her ideas.

In order to turn crowd learners on using a crowd-learning platform it is vital to offer more functionalities than other social tools have. In this case, it was proposed to guarantee the presence of the experts. One of the participants suggested on-call time experts who would be paid for being ready to serve professional help at any time. It is especially important for national laws and regulations in all branches. They are changing fast, and it takes a lot of time to follow changes and modifications and to interpret them correctly. Such duty would save workers' and employers' time, which could be devoted to active, effective and accurate work.

One more different scenario of crowd learning platform was indicated by some members of the focus test group. They advocated it should function as a connector of current training entities, similarly as Booking.com. In such a situation, the platform provides a virtual place for society to take part in varied training offered by public and private educational entities. It could help crowd learners to compare the thematic and price pieces of training and let them take part online in specific training or course. In addition, they would get certificates from these educational entities. On the contrary educational entities have a virtual place with a mass auditorium which might influence the quality of training positively and get the course going, as participants of the course might be gathered from all parts of the country.

### **Opportunities and methods of attracting experts to use the platform**

The author presented to the participants three groups of experts. Each group would benefit at the same time.

- Scientists and university lecturers - they would have a chance to promote personal and university brand, as well as popularize science which is unfortunately not popular in Poland, and industry news. Their role could be transferring international knowledge to average citizens. However, universities should reward scientists on their own as a part of their work and investment in the university promotion.
- Companies lacking qualified workers - they could share their knowledge in order to present conditions of their work, prepare future employees and make their brand recognizable.
- Crowd-learning platform's users - users willing to prepare webinars in order to teach others professional knowledge and share their professional experience.

Participants of the focus test proposed two more groups of experts: private training entities and producers of professional materials and equipment.

- Private training entities which could use the platform to transmit their training or courses. After paying fee, it gives crowd-learning users the opportunity to take part in training remotely and get a certificate confirming participation in that specific training.

- Producers of professional materials- they would present their new products and teach how to use them at work. On the one hand, it would be a kind of product placement, but on the other hand, it would inform about technological news.

## **Financing methods**

Tested participants figured out that they would not be willing to pay full access, they prefer to pay for some specific piece of training when it would be interesting and attractive for them. They proposed the possibility of subscription with alerts about coming training and webinars. Moreover, the three options of access were recommended.

1. Free - for those who want to learn from other users, without access to formal experts.
2. Paid - with access to formal experts.
3. Challenge - free with the possibility of collecting points for sharing knowledge and exchanging them for free access to formal experts for a fixed period of time.

The author suggests that platform should be financed at the first stage of creation by governmental and non-governmental organisations. In the second phase, financing should be covered by users and private training entities which would like to use the crowd learning platform for transmitting their pieces of training. Taking into account what participants said, users should be free to choose a fee plan.

## **Technical issues**

The last issue concerned technical solutions of a crowd-learning platform. Taking into account quantitative research, according to which applications for smartphone are quite popular, and what focus test participants said about subscription and alerts, in the author's opinion crowd learning platform should function as an application for mobile devices as well as a website. Using a desktop version could be free, however, downloading application on a mobile device has to be paid.

## **Individual-depth-interviews**

The author had a conversation with 8 people, men and women, living in different parts of Poland who share their knowledge for free with online communities via social media. Among interviewed people, there was a scientist, a midwife, a lawyer, a teacher, two entrepreneurs and two traders. The author tried to choose respondents who represent different professions and who are active in social media. Two of them were known to the author earlier, two persons were recommended by the former interviewed. The author also made contact with the person who was mentioned in the article about good practices in education, searched for professional groups on Facebook and asked administrators to the interview. Metrics of the respondents are on page 311.

## **Reasons for sharing knowledge**

Each of interviewed had different motives of sharing knowledge. Most of them are purely altruistic. Interlocutor 1 said:

*“Knowledge should be widely available; then the world becomes better”.*

He emphasised that people in Poland study for free and the taxpayers have not got any direct benefits from it, that is why we should share our knowledge. The universities have a social mission of spreading knowledge. Some interlocutors pointed out the social spirit, the internal need and open personality as main factors of sharing knowledge. They said:

*“I needed to find people similar to me, who also want to share knowledge”.* (Interlocutor 2)

*“The need to spread knowledge which is useful and helpful”.* (Interlocutor 3)

*“The need of sharing knowledge and experience with people because many of them lacks it and I do not want this knowledge to be secret”.* (Interlocutor 4)

Making new friends is also an important issue connected with sharing knowledge. Some of the conversational partners indicated that everyone has different views and opinions about a topic. As people make different things for a living they, see the same problem

from different points of view, and that is why they can contribute. Conversations, discussions and exchanging experiences leads to making new connections which are very valuable or might be valuable in the future. Sharing and exchanging knowledge is especially important when one starts his or her profession.

On the other hand, sharing knowledge is a way of starting own business. One of interviewed emphasised much flexibility which might is important, especially for women who have their maternity leave or take care about children.

### **Benefits coming from sharing knowledge**

Interlocutors pointed varied benefits coming from sharing the knowledge which might be categorised into financial and non-financial. When it comes to non-financial “pleasure” is the most common benefit.

*“It is satisfaction, positive feedback, that it positively influenced someone's life”.*

*“Satisfaction, the influence on women's activity and building their consciousness”.*

(Interlocutor 4)

Sharing knowledge with others makes people also get valuable knowledge and connections which might be useful in the future.

*“The first contact is online, then it turns into face to face- that is very positive. It might turn out that we would work together on some project in the future”.* (Interlocutor 2)

Sometimes sharing knowledge can improve our work conditions.

*“I change the consciousness of women which makes easier to work with them later”.*

(Interlocutor 3)

My conversational partners also mentioned financial benefits which are:

- job offers
- cooperation with a publishing
- invitation to TV programmes
- preparing online courses
- regular job

## **Sharing and using knowledge**

All of the interviewed share as well and use the knowledge shared by others. It is not only professional knowledge but that of personal interests too. Exchanging knowledge in online communities gives a possibility to learn from someone who is met rarely face to face or from experts who are unavailable in a particular place.

## **The value of knowledge acquired by crowd-learning**

The knowledge shared by people is for sure real, coming from real experiences, however, conversational partners emphasised that we have to take in stride to knowledge and resources shared on the internet. We must not approach it uncritically but select. One said:

*“The more people work on the content, the more valuable it is”.* (Interlocutor 5)

Another person noticed that knowledge in professional communities is very valuable and possible to verify in comparison to non-professional ones.

*“People write in comments: don't write folly!”* (Interlocutor 3)

One emphasised that more and more resources are not valuable and low quality, but there are also more and more people who are eager to pay for it. It might be due to the fact that people who are not lifelong learning they repeat myths and do not the current knowledge. Similarly, those who are not lifelong learning do not differentiate myths from the current knowledge, purchase low-quality materials and support the existence of false experts. Some other issue is connected with very specific knowledge which is shared not by specialists but by journalists in articles without any professional consultancy. Thus, knowledge should always be selected.

## **Differences between knowledge gained during traditional training and by crowd-learning**

The most important difference between knowledge gained in online communities and traditional training is that you gain answer or advice to your specific problem wherever you need. The second is saving time and money. Not every person can afford to pay for the training, and not everyone has the possibility to participate in training in another city.

Women who take care of their children have limited opportunities to travel and learn. Crowd-learning is a better solution for them at that particular time. It was noticed that it is the best way to analyse case studies.

*“A member describes his/her case study, and I can compare it with my case studies and consult. Moreover, when it is quite a rare case study I haven't experienced it yet, I will know how to react when I face it”.* (Interlocutor 3)

Another discussed the multiplicity of experiences.

*“When people participate in traditional training they are familiar with the point of view of the leader. In online communities members meet with different views and opinions. Learning is then based on exchanging knowledge and real experience”.* (Interlocutor 5)

### **Threats and negative consequences coming from sharing knowledge**

Most of interviewed faced some kind of risk but fortunately, incidental ones. When they share not only knowledge but also resources, their work or outcome of their work, they face copyright infringement. One said:

*“People are not always aware that we constantly base our work on one's knowledge. It is our responsibility to indicate the source”.* (Interlocutor 1)

Another:

*“I do not mind using my materials, I wanted to share them, but please write that you used my work”.* (Interlocutor 2)

Another problem is that people entering the community agree with the terms and conditions. They agree to use one's resources and agree to use their resources. The thing is that they use, but do not share. Those people were called by the interlocutor “vampires”. One of conversational partner mentioned a situation where parts of her statement were used out of context and were passed along. It resulted in the experience of hate for some time. Another interviewed person noticed the community's expectancy of totally free services.

*“Since you do something for free, they expect that everything will be for free”.*  
(Interlocutor 4)

Yet another phenomenon was experienced. It was called “nerd principle” by the conversational partner. These are unkind comments like:

*“Why are you doing it for free, as you can do it for money?!”* (Interlocutor 1)

Finally, inexperienced who have just started their career face with deriding their questions, because they ask about basic issues.

*“Each of us used to start a career. There are no stupid questions. There are only stupid answers”.* (Interlocutor 7)

### **Users' opinion regarding the possibilities of using crowd-learning for personal and professional development**

All of the interviewed agreed that crowd-learning influences personal development. First of all, it gives enormous support. Secondly, that form of learning is not worse than formal learning. All the knowledge is on the internet, it is a matter of finding it and selecting. Besides, learning from other people working in different fields and branches makes the knowledge or our problem more interdisciplinary. Consequently, we can think outside the box, from different points of view. That develops people a lot. Today people have to learn all the time, and smaller portions of material bring a higher level of motivation. Thirdly, it is so flexible that one can learn during daily routines or when ONE has some free time, not an educator. What is more, we can come back to some topics whenever we need. Every item of knowledge makes people richer.

### **Familiarity with crowd-learning platforms**

The issue of crowd-learning was quite new to the interlocutors that is why they had a problem with mentioning any crowd-learning platform. One of interviewed enumerated Coursera, FutureLearn, MOOCs, however, in fact, they are not crowd-learning platforms, but massive open online courses, a kind of non-formal learning, where an educational organization runs the fixed courses using collaborative learning. None of the interviewed

mentioned any of the platforms described earlier by the author. At the moment, Facebook is a place where the crowd-learning happens.

### **Requests on behalf of a crowd-learning platform's functionalities**

Conversational partners mentioned several functionalities which could be added value, which are not available on Facebook:

- verified user's account - in order to avoid fake accounts
- clear layout
- moderator's custody
- possibilities of uploading and downloading resources
- chat
- webinars live
- knowledge organized in modules
- feedback
- suggestion of topics already covered and ready to discovered
- certification

### **Source of financing**

That question was the most confusing, and the interviewed had different opinions, however, everybody agreed that only high quality of knowledge might convince society to use it. One of the interlocutors said that it should not be for everyone, and smaller communities are more value has the community. Another noticed that only some professions would be interested in using paid service. Generally, financing should be shared by some parties:

- employers
- employees
- coherent advertising and sponsors

*“It could be free in order to show its value, and then the payment should be introduced”.*  
(Interlocutor 6)

It was indicated that employees should not be given free access by the employer:

*“If the employee is given something for free, he does not want to develop himself, but if he participates in the costs there is a greater chance of visiting the platform”.*  
(Interlocutor 7)

Conducted research led the author to prepare recommendations for the first Polish crowd-learning platform, which are explained in the next sub-chapter. Interviewed people are representants of different profession and they were able to give advice from different points of view.

The media has entered our private and professional lives permanently. As a social being, a person needs contact with others, seeks a place and group where he or she will feel at ease and with which he or she will have common conversation topics. This group does not have to be people from the immediate surroundings, thanks to the new media they can be people from any place on Earth. The topics of common conversations may be more down-to-earth, but professional topics are increasingly being discussed. Why? Because work can be a passion for some people, which they want to develop. Others want to dispel their doubts, to which the nearest co-workers are not able to answer. We are looking for authorities who will professionally advise us or someone who has already processed the problem and knows how to help us. And this is very good, as long as we take into account that in order to reach reliable knowledge we have to get through the communication noise, which is misguided advice, outdated knowledge, hate and comments, which, while maintaining communication, do not bring anything valuable to the subject.

Sharing knowledge through social media is mutually beneficial. For the seeker, it is primarily knowledge and experience, but one must not forget to save time and the possibility of participation in itself. Those who share knowledge through social media are well aware that they are building their personal brand, which can bring positive effects in the near or far future, not only financial but also non-financial, like recognition, respect, support, more comfortable working conditions and new development opportunities. Thus, the process of mediatization has also influenced personal and professional development by transferring vocational education, branding and business to the online world, to social media.

## **Recommendations for the first crowd-learning platform in Poland.**

The outcome of the conducted research was to elaborate features of a crowd-learning platform in Poland. Characteristics and functionalities are presented below:

1. A crowd-learning platform should function in a native language in order to be available for everyone. Statistics show that only about 40% of Polish society can speak one foreign language.

2. A crowd-learning platform should be addressed to these professions which are the most eager to take part in crowd-learning. The quantitative research made by the author shows that among them there are:

- medium staff for business and administration,
- specialists in teaching and education,
- specialists for economic affairs and management,
- sellers and related,
- drivers and vehicle operators,
- specialists in physical, mathematical and technical sciences,
- mining and processing machinery and equipment operators secretaries,
- office equipment operators and related professions
- medium health staff and health specialists

3. Quantitative research shows that educational applications on smartphones are quite popular among Polish society. During focus test participants indicated that application sending alerts on a mobile device would be the best option. Thus, conducted the focus test research indicates that the crowd learning platform should function as web as well as an application on mobile devices.

4. In order to gather large audience crowd learning platform should have recognized experts:

- Scientists and university lecturers - they would have a chance to promote personal and university brand, as well as popularize science which is not popular in Poland, and industry news. Their role could be transferring international knowledge to

average citizens. However, universities should reward scientists on their own as a part of their work and investment in the university promotion.

- Companies lacking qualified workers - they could share their knowledge in order present conditions of their work, prepare future employees and make their brand recognizable.
- Crowd learning platform's users - users willing to prepare webinars in order to teach others professional knowledge and share their professional experience.
- Private training entities which could use a platform to transmit their training or courses. After paying fee, it gives crowd-learning users the opportunity to take part in training remotely and get a certificate confirming participation in that specific training.
- Producers of professional materials - they would present their new products and teach them how to use them at work. On the one hand, it would be a kind of product placement, but on the other hand, it would inform about technological news.

It should also offer functionalities that are unavailable anywhere else. That could be on-call time experts ready to serve professional help at any time. It is especially important for national laws and regulations in all branches which are changing fast and could be not clear to everyone.

5. The focus test and individual-depth-interviews indicate that all the users have to be registered and give their real name and surname. An account has to be verified. It is vital to avoid hate and fake knowledge.

6. The users could ask questions by posting, answer by commenting and evaluate by rating scale: OK, GOOD, GREAT. The author intentionally do not mention negative grades in order not to discourage users who might withdraw after being graded negatively. Valuable knowledge would be appraised by other users by GREAT grade, following a particular user and active discussions.

7. The platform should be addressed not only to people aged 25-64, but also it should be available to retire who have a lot of free time could share their many years' experience and learn modern solutions. University students using the platform could have a chance

to learn lifelong learning behaviour which might be our social capital and investment in the future.

8. Analysed crowd-learning platforms are financed by non-governmental organisations, private donations, investors, businesses and offices. As it was stated by B. Worek, it is obvious that the costs of lifelong learning should be financed by those who take advantage of it. That includes individuals, companies and the state<sup>600</sup>. The author proposes sharing costs of funding among these mentioned entities in the following way:

- the state should participate in financial aid at the beginning during platform creation and promotion. Promotion of crowd learning platform in media and in a social campaign is especially important at the beginning. State participation in covering the costs of adult education is the same as employers participation (Sweden) or even higher (Norway) in countries characterized by the highest level of adult learning<sup>601</sup>.
- Individuals should pay for downloading the application on mobile devices and for additional functions available in the PRO version, payable monthly or annually, or they should have a chance to buy one particular piece of training.

Free version	PRO version
Desktop	mobile app
one account	more accounts
annual report	on-call experts
posting, commenting, grading	participating in commercial pieces of training
performing free pieces of training	monthly and annual report
participating in free pieces of training	performing commercial pieces of training
possibility to ask an expert	international access in the future

Table 23. Versions of the crowd-learning platform

<sup>600</sup> Worek B. (2019): *Uczące się społeczeństwo. O aktywności edukacyjnej dorosłych Polaków*. Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków, p. 123.

<sup>601</sup>Ibidem, p. 58.

- Companies/ Employers should have possibilities to buy access for their workers at a lower price and to pay for access to on-call time experts for the whole company. Companies/ Private training entities should cover the costs of sharing platform's server for their paid training. The price should be dependent on a number of event participants.
- The platform could also be free in the first month as a DEMO to show its value.

9. Crowd learners motivation has to be sustained. One way is to collect points for sharing knowledge and exchange them for a free piece of training. Another solution is certification. The crowd-learning software could generate periodic certificates informing about the time spent on the learning and sharing knowledge with others, and knowledge learnt. That certificate could be confirmation of participation in vocational training when needed.

10. Proposed crowd-learning platform has got a possibility of development in the future. For the last dozen years, students learn English from early childhood, and in the future, there would be more adults speaking English than there are now. As a result, the Polish crowd learning platform could be used by international crowd learners and engage international experts.

11. Crowd-learning platform proposed by the author would help to increase the level of adult learning, lifelong learning and level of participation in vocational training, develop social capital, popularize science and the latest scientific research, foster cross-generational cooperation, promote and learn lifelong learning behaviours, and help companies to find qualified workers.

### **Ways and costs of creating a crowd-learning platform**

The author made a request to a local company specializing in IT solutions and taking into account that the mobile app is going to be more significant than the website the cost work was estimated 117 700 PLN (27 197 Euro). However, it does not include the price of management.

## www page + mobile (emphasis)

graphics + design - 100 hours

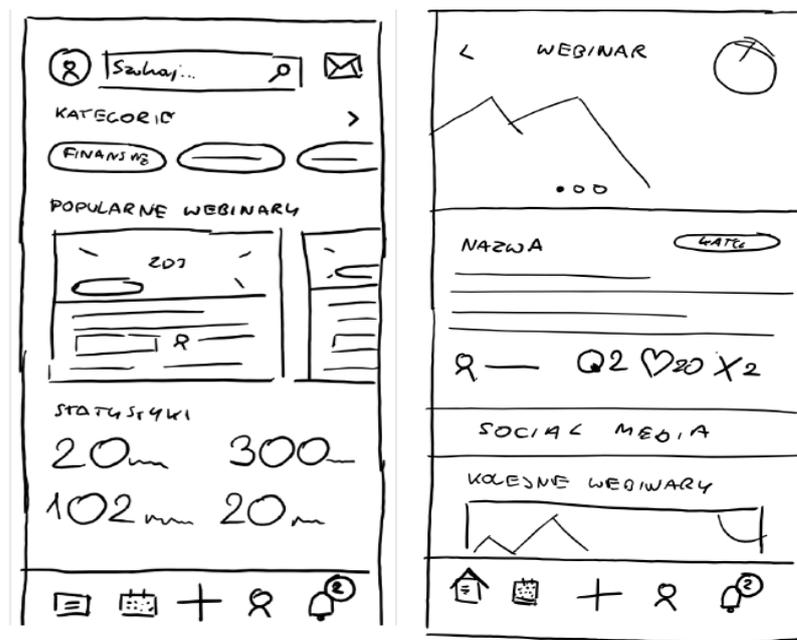
Backend Mobile programming  
(native)- 600 hours

Backend Desktop programming -  
400 hours

Time: 1100 hours

Rate: 107 PLN/ 1 hour

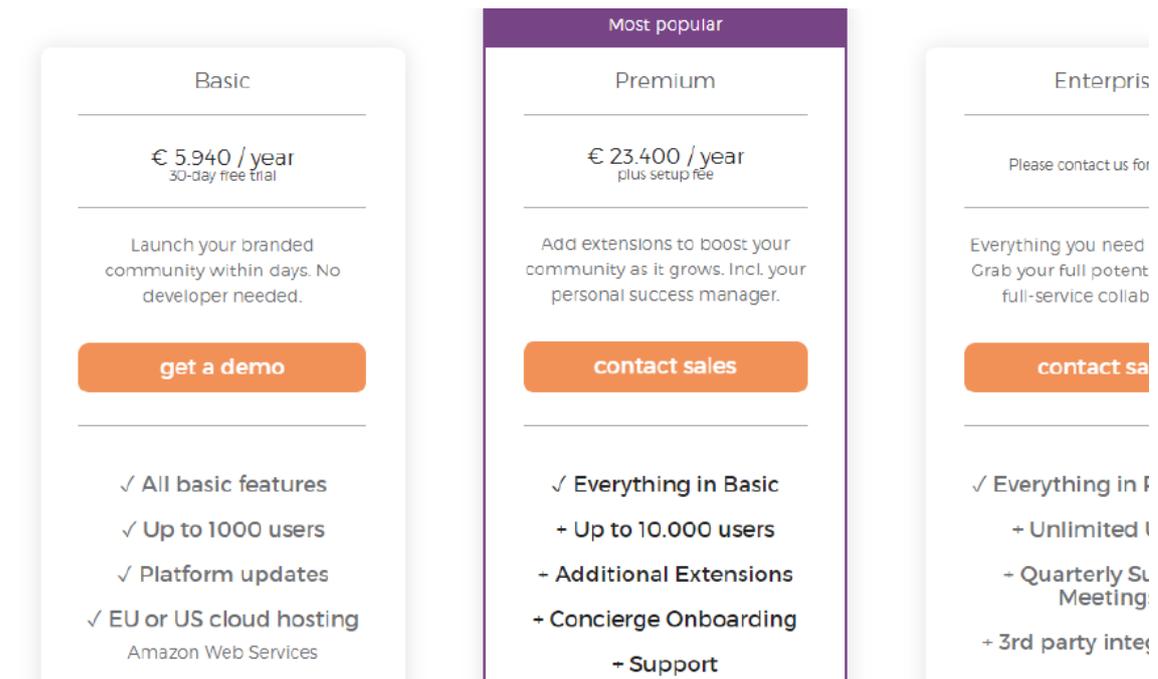
Picture 18. Pricing of crowd-learning platform design  
The company also proposed the mock-up view. Below Home Page and Webinar Page.



Picture 19. A draft of Home Page and Webinar Page od crowd-learning platform.

Another solution is using software of the Dutch company Open Social. Open Social is an online community platform for social intranets, volunteer communities, ideation communities, and extranets<sup>602</sup>. The cost is dependent on the number of users, and the pricing is annual; however, it includes concierge onboarding.

<sup>602</sup>[www-28] <https://www.getopensocial.com/> (visited 29 February 2020).



Picture 20. Open Social pricing for crowd-learning platform.

The choice of these two solutions is not easy. The author is not familiar with the total cost of platform management. Offer 1 contains a one-time price for the software but does not include expenses connected with management. Offer 2 proposes a similar price but paid annually; however, it contains concierge onboarding and support. What is more, it can be created within several days in comparison to offer 1. Currently, it is the limitation of the thesis and the issue connected with a financing need to be consulted with the economist.

## **4. Conclusions.**

The previous chapter contained a series of research aimed to justify the advisability of creating a crowd-learning platform, as well as, verifying the author's hypothesis, which were also partly verified in chapter one and two.

The author wanted to present the extent to which development of ICT (and especially new media) affects ways of gaining knowledge and lifelong learning in the Information Society. The complexity of the issue demanded to touch upon globalisation and mediatization as processes which shaped the Information Society and which influenced changes in communication models. These changes, together with the development of new media and ICT tools, led to emerging new types of learning based on the wisdom of crowds, cooperation and collectivism. Crowd-learning, the subject of the thesis, is one of them. Although the term is known in Europe, it is not known in Poland. The author hopes her work would familiarize global society with the term and engage in crowd-learning presented in work as the most flexible and individualized form of informal learning. The author wants to explain specific problems which were outlined in the introduction.

### **1. What is the attitude of Polish society towards the idea of lifelong learning?**

Lifelong learning has been marked as a significant matter of societies progress by authorities since many years. Unfortunately, an unfavourable situation in Poland after II World War which resulted in lack of lifelong learning tradition, and in author's opinion, insufficient action taken by the previous authorities are responsible for a low percentage of lifelong learning in Poland. We need to learn to lifelong learning behaviour and culture in society. The latest data coming from European organisations indicate a deficient level of participation in adult learning oscillating about 4%. The most frequent participants are

educated people who are aware of the importance of life-long education for the quality of human life.

On the other hand, part of the population with a lower level of education is less likely to participate in further education, risking social exclusion. The author also wants to point what was said by M. Smolska. She explains that in Poland, large corporations perceive employee training as a long-term investment; therefore, they try to develop various instruments of professional development, including the most advanced ones. Unfortunately, the training activity of the small sector companies is extremely vulnerable to economic fluctuations<sup>603</sup>.

## **2. What types of informal training are chosen by Polish society?**

Polish society begins to use ICTs do participate in informal training. Among them, there are social media, online courses and internet resources, however, in the author's opinion, not all the people can recognize social media correctly. They understand social media as one particular medium, not group. That is why that percentage might be higher (e.g. people see Facebook as a social media and YouTube is seen as a separate category, while it is still social media). Only 18% of society participates in e-conference, but that data can be slightly different as the situation has changed recently because of COVID-19 pandemic. In the author's view percentages of participation in new forms of informal learning might be higher and they are going develop in the future.

## **3. What new forms of professional development have emerged thanks to the development of new media?**

With the development of new media and enabling effective synchronous and asynchronous communication with many users, new forms of development have emerged. Apart from the already known e-learning courses, webinars have appeared, during which users can communicate synchronously with the teacher. However, we happen to train informally. Social media made us talk about another form of professional improvement,

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<sup>603</sup> Smolska M. (2018): *Trendy usług szkoleniowych w Polsce*. [in]: (eds): Gruszevska E., Matel A., Kuzionko-Ochrymiuk E., *Współczesne problemy ekonomiczne w badaniach młodych naukowców*. T. 2, Zarządzanie organizacją, finanse i inwestycje, pp. 88-101.

which is crowd-learning. Employees take advantage of crowd learning as they gain needed knowledge fast, easily and in flexible time. Conclusions coming from the focus test result in the statement that employers are not interested in sharing knowledge by their employees because they see their know-how unsafe and are afraid of competitors.

Nevertheless, certificates affirming their workers' participation in training conducted by recognized experts might matter. Crowd learners play different roles. Benefits coming from participation in crowd learning involve all the crowd learners. However, there are more issues which are not mentioned earlier.

Crowd-learning might be a way of stimulation of seniors who are retired, have a lot of free time and low quality perspective for further life. They might share their professional experience, keep in touch with other people without leaving home and stay in a good mental condition for a long time.

On the other hand, encouraging students to use crowd-learning platform might facilitate learning and shape a habit of lifelong learning which is not formed in Polish society. Social media are the most popular way of new informal forms of learning.

#### **4. Are new forms of professional development resulting from the development of modern communication technologies and new media perceived as more attractive than traditional training?**

The stationary training courses, as well as online training, have their supporters and opponents. Some people loves physical contact with participants, they point to stronger bonds and better relationships. Others believe that online training is unrivalled. This is a very individual matter. Nowadays, when we do a lot, flexibility is very important, and therefore new forms of further informal training using new media are increasingly attractive to the busy society. The fact is, online training is more accessible to society, saves time and enables participation of those who have to take care of a family member regularly. Also during the COVID-19 pandemic, this is a form of training which, unlike traditional training, is realizable. According to Statistics Poland (GUS), the Internet and computer programs are the most frequently chosen tools by Polish society. Most Polish companies have benefited from internal and external training, such as workshops and lectures, however, job instructions and e-learning courses were relatively often chosen. New developmental methods with the use of new media were still relatively unpopular: social learning, mobile learning, virtual classes and webinars and competition.

Nevertheless, these developmental methods have excellent growth potential. Companies noticed that the increasing quality of e-learning training translates more and more into efficiency and is increasingly higher business value. They also declare shortly it will be more eager to use social learning, mobile learning, virtual classes and webinars<sup>604</sup>.

## **5. What are the advantages, disadvantages, opportunities and problems of participants and moderators of crowd-learning?**

Participants of crowd-learning have a great opportunity to broaden their knowledge to know different point of view and to use experiences of other users. They also have the ability to share their knowledge and inspire others. Gaining knowledge in that way is time-saving and cost-saving. It enables establishing new relationships and may result in new job opportunities. Unfortunately, crowd-learners have to be aware of hate that may come from other users, outdated knowledge, fake knowledge or fake authorities. Sometimes one's statements can be used out of context and shared improperly, however, the most crucial risk is connected with the copyright infringement. These are real threats, but crowd-learners share their knowledge anyway, and they see potential in crowd-learning development.

The author also took a challenge to answer the question concerning usability features of the crowd-learning platform in order to gather representatives of different professions, engage both laics and experts, and provide (synchronous) interaction between users. The author starts from the verification of the hypothesis and then goes to recommendation for the crowd-learning platform.

### **Hypothesis versus scientific results**

At this point, the author would like to verify the research hypotheses stated in the introduction. Therefore, she first refers to the specific hypotheses, and finally to the main hypothesis.

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<sup>604</sup> Ibidem, p. 97.

***Hypothesis 1: Number of adults in Poland undertaking learning activities is increasing over time. Polish society follows the world's education trends based on the knowledge economy.***

The hypothesis has been refuted as Polish society do not participate in lifelong learning willingly. According to data coming from Polish offices, the amount of adults learning lifelong is increasing over time. GUS indicated rise from 35,8% in 2006 to 43,3% in 2016, however, the research took into account adults aged 18-69, which influenced that rise significantly. Social Diagnosis prepared by Rada Monitoringu Społecznego presents less optimistic scores. During 15 years, from 2000 to 2015, the percentage of adults aged 25 and more than 39, taking learning activities in Poland had risen about 0,5%, from 16,2% to 16,7%. European statistics show that the percentage of adults taking part in lifelong learning during last 16 years oscillate between 4% and 5% which signifies very low increase, especially in comparison to European average which is 10,9%.

***Hypothesis 2: Using new media and “the wisdom of the crowd” operating within them, the society quickly reaches the currently needed knowledge and within a short time finds answers to questions and creative solution problems.***

The hypothesis has been proved. Qualitative research showed that people more and more search for information on social media because it is fast and flexible. Learning from the crowds makes us receive an almost immediate answer to the subject we are concerned about. There is always someone who has the time to respond. What is more, thanks to this form of gaining not only knowledge but also experience, we have the opportunity to get to know a variety of experiences, looking at it from many perspectives. Testing solutions on your own takes a lot of time. It is more effective to explore the solutions of others and choose the one that is the most accurate.

***Hypothesis 3: There are both laymen and experts in the communities participating in the crowd-learning, possible thanks to the development of mediatization processes. The benefits of active participation in crowd-learning are reciprocal for laics and experts.***

Both the subject literature and the author's research show that crowd learners play different roles. Some researchers call them experts and novices, creators and consumers. Others distinguish creators of subject-focused problems, evaluators of problem quality and problem solver. Another one use contributors, learners and collaborators whose roles are interchangeable. The author proposed and used in the research four groups: novices, searching for inspiration, active participants and experts. According to scientists population in the middle range benefits the most, novices and expert the least.

For experts interviewed by the author, crowd-learning is an excellent way of professional case study analysis and for improving general knowledge. Sharing knowledge brings financial benefits as well as non-financial. Among them are invitations to TV programmes, creating online courses, own company development, writing paid articles, new job opportunities and challenges, and of course great satisfaction. Thus, benefits involve all crowd learners and the author's propositions mentioned in the focus test highlight profits for experts who could promote their personal brand or promote the university. At the same time, they might be awarded by the university. Companies lacking qualified workers could find them or prepare potential employees.

***Hypothesis 4: Membership in a professional group sharing knowledge and experience in social media causes establishing and maintaining social bonds between members.***

The hypothesis is partly true as social bonds are not established and maintained between all the group members. However, as it was said during one of individual-depth-interview, social ties are established and held between some of the members which can result in cooperation and co-working in the future. There are also personal meetings and friendship among particular members.

***Hypothesis 5: Members of the crowd-learning community, focused on personal and professional development, for an auditorium form online training entities.***

The hypothesis is true. Some members of crowd-learning communities create their personal brand intentionally. They give some knowledge for free in order to encourage people to buy their product or service. It might be an online course, private lessons or a one-to-one appointment. Members looking for knowledge have the opportunity to

recognize the authority and decide whether they want or need to learn more. Sometimes members even suggest organizing tutorials by other members.

***Hypothesis 6: Crowd-learners are prosumers, using Internet resources and sharing their content online.***

That is true. Prosumers are those who are producers of knowledge and its consumers, however, we are not able to state how often we should share knowledge in order to be a prosumer. Kinds of crowd learner groups proposed by the author affirm that not all crowd learners share their knowledge equally. Novices ask and read a lot, but they hardly ever share. Those looking for inspiration also use a lot, but they share their knowledge and experience rarely. Active users and experts are real sharers. Active users use others' knowledge very often, and they share their knowledge and experience very often, regularly and gratuitously. Experts very often share their knowledge in order to promote their personal brand, as a form of marketing or just for pleasure which is comes from psychological needs.

***Hypothesis 7: Flexible forms of training are possible, thanks to the development of the Internet and ICT.***

That hypothesis is definitely true. At first, the internet and ICT made distance learning and e-learning very common and effective. Then they have contributed to the development of new methods and forms of teaching and learning. Crowd-learning is one of a new way of informal learning, based on internet-mediated communication, which is only possible with the new media.

The analysis of the existing data and literature, as well as the research, carried out by the author of the paper, prove, despite the fact that a relatively small number of Poles take part in lifelong learning, that the modern connectivism paradigm, based on acquiring knowledge in other people and digital resources, Wikinomics and the process of mediati-  
zation, has influenced the development of new forms of professional development such as crowd-learning, whose participants are aware of the rapid speed of technological de-  
velopment and changes in the labour market, striving for continuous updating of  
knowledge and raising professional competences, which requires designing the software

for its formal functioning in Poland. First of all, the development of new media, and especially social media, influenced new communication opportunities. Many to many communication in social media has made it possible to establish and maintain contacts with people regardless of their place of living, but with common interests, including professional ones. Online communities gathered in social media discuss professional issues and share their knowledge, experience and even resources for free. Members of these knowledge-based communities create a kind of knowledge repository stored in their members. Members know who to ask to get the necessary knowledge, information or advice. They also rely on the wisdom of the crowd. It is vital to say that the information they are looking for is not an imaginary or hypothetical issue but a real one, sometimes urgent.

Crowd-learners are like Alexandrians who store knowledge because they know it is valuable, and it cannot be hidden from society, it should serve the community. By the reason that this collecting knowledge and others' experiences is not regular and documented, crowd-learners are not aware of the fact that they learn. However, for the same reasons, crowd-learning can be considered as one of the forms of informal learning. This form of learning is especially useful as it is very flexible and available all the time. Unlike traditional training and online courses, it is more personalized and allows for learning regardless of the financial and family situation. Moreover, none of the respondents nor the interviewed could point to a crowd-learning platform which supports the need for designing the software for a crowd-learning platform in Poland.

## Bibliography

### Empirical studies

1. Przybyło S. (2019): *Crowd-learning and crowd-learners in Poland* -the author's research assigned to a nationwide research panel "Ariadna" for realization. July 2019.
2. Przybyło S. (2019): *Crowd-learning and its development opportunities*. The author's own research. The focus test conducted on the 26th of September 2019 in the University of Information Technology and Management in Rzeszów.
3. Przybyło S. (2020): *Individual-depth-interviews*. February 2020.

### Legal acts, reports and official documents

4. Act of 7 September 1991 on the Educational System. Journal of Laws. 1991 No. 95 item 425.  
<http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU19970780483/U/D19970483Lj.pdf>
5. Ala-Mutka K., Punie Y., Redecker Ch. (2008): *Digital Competence for Lifelong Learning*. European Commission, Joint Research Centre – Institute for Prospective Technological Studies, Office for Official Publications of the European Communities, Luxembourg, p. 6.
6. CEDEFOP (2011): *The benefits of vocational education and training. Research Paper No 10*. Publications Office of the European Union, Luxembourg.  
[http://www.cedefop.europa.eu/files/5510\\_en.pdf](http://www.cedefop.europa.eu/files/5510_en.pdf)
7. Centre for Educational Research and Innovation (2007): *Giving knowledge for free. The emergence of open educational resources*. OECD.
8. Centre for Educational Research and Innovation (2001): *Education Policy Analysis. Chapter 1*, OECD Publishing, DOI: <https://dx.doi.org/10.1787/epa-2001-en>
9. Centrum Cyfrowe (2020): *Edukacja zdalna w czasie pandemii. Raport z badań*.  
[https://centrumcyfrowe.pl/wpcontent/uploads/sites/16/2020/05/Edukacja\\_zdalna\\_w\\_czasie\\_pandemii.pptx-2.pdf](https://centrumcyfrowe.pl/wpcontent/uploads/sites/16/2020/05/Edukacja_zdalna_w_czasie_pandemii.pptx-2.pdf)
10. Commission Of The European Communities (2000): *A Memorandum on Lifelong Learning*. Brussels. <http://uil.unesco.org/i/doc/lifelong-learning/policies/european-communities-a-memorandum-on-lifelong-learning.pdf>
11. Council of Europe (1970): *Permanent Education*. Strasbourg.
12. Czapiński J., Panek T. (2015): *Social Diagnosis 2015. Objective and subjective quality life in Poland*. Contemporary Economics. Quarterly of University of Finance and Management in Warsaw, Vol. 9, Issue 4, November 2015.
13. Delors J. (1996): *Learning: the treasure within; report to UNESCO of the International Commission on Education for the Twenty-first Century*. UNESCO Publishing.
14. EPAL (2015): *MOOCs- a game shifter in adult learning*.  
<https://ec.europa.eu/epale/en/blog/moocs-game-shifter-adult-learning>
15. EURLex (2011): *Council Resolution on a renewed European agenda for adult learning*. Official Journal of the European Union. Information and Notices C 372, Vol. 54, December 2011.

16. European Association for the Education of Adults (2018): *Adult Education and Sustainability*. Brussels. [https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability\\_paper\\_final\\_9\\_2018.pdf](https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability_paper_final_9_2018.pdf)
17. European Association for the Education of Adults (2018): *Adult Education And Sustainability*. EAEA, Brussels p. 5. [https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability\\_paper\\_final\\_9\\_2018.pdf](https://eaea.org/wp-content/uploads/2018/09/AE-and-sustainability_paper_final_9_2018.pdf)
18. European Centre for the Development of Vocational Training (2011): *The benefits of vocational education and training*. Luxembourg, Publications Office of the European Union. [http://www.cedefop.europa.eu/files/5510\\_en.pdf](http://www.cedefop.europa.eu/files/5510_en.pdf)
19. European Commission (2018): *A multi-dimensional approach to disinformation. Report of the independent High level Group on fake news and online disinformation*. Publication Office of the European Union, Luxembourg, p. 14.
20. European Commission (2018): *Digital Economy and Society Index (DESI) 2018 Country Report Poland*. [http://ec.europa.eu/information\\_society/newsroom/image/document/2018-20/pl-desi\\_2018\\_-\\_country\\_profile\\_eng\\_B440E0DD-F8E8-B007-4A97A5E2BE427B1F\\_52233.pdf](http://ec.europa.eu/information_society/newsroom/image/document/2018-20/pl-desi_2018_-_country_profile_eng_B440E0DD-F8E8-B007-4A97A5E2BE427B1F_52233.pdf)
21. European Commission (2002): *European Report On Quality Indicators Of Lifelong Learning*. Directorate-General for Education and Culture, Brussels, p. 5.
22. European Commission (2015): *EACEA National Policies Platform, Eurydice, Poland*. [https://eacea.ec.europa.eu/national-policies/eurydice/content/adult-education-and-training-56\\_pl](https://eacea.ec.europa.eu/national-policies/eurydice/content/adult-education-and-training-56_pl)
23. European Commission (2016): *Shaping Europe's digital future. Report*. <https://ec.europa.eu/digital-single-market/en/news/report-shows-digital-skills-are-required-across-all-types-work-also-jobs-outside-office>
24. European Commission (2017): *Digital Workplace Strategy*. <https://ec.europa.eu/info/sites/info/files/digitalworkplacestrategy2017.pdf>
25. European Commission (2017): *Reflection paper on harnessing globalisation*. Brussels. [https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation_en.pdf)
26. European Commission (2018): *Education and Training Monitor 2018 Poland Factsheet*. [https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-factsheet-2018-poland\\_en.pdf](https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-factsheet-2018-poland_en.pdf) (visited 2 January 2019).
27. European Commission (2018): *Education and Training. Monitor 2018. EU Targets for 2020*. [http://ec.europa.eu/education/sites/education/files/document-library-docs/2018-et-monitor-leaflet\\_en.pdf](http://ec.europa.eu/education/sites/education/files/document-library-docs/2018-et-monitor-leaflet_en.pdf)
28. European Commission/EACEA/Eurydice (2015): *Adult Education and Training in Europe: Widening Access to Learning Opportunities. Eurydice Report*. Luxembourg: Publications Office of the European Union. <https://eurydice.org.pl/wp-content/uploads/2015/02/179EN.pdf>
29. European Commission: *EU policy in the field of adult learning*. [http://ec.europa.eu/education/policy/adult-learning\\_en](http://ec.europa.eu/education/policy/adult-learning_en)
30. European Union (1996): *White Paper on Education and Training. Towards the Learning Society*. [http://europa.eu/documents/comm/white\\_papers/pdf/com95\\_590\\_en.pdf](http://europa.eu/documents/comm/white_papers/pdf/com95_590_en.pdf) (visited 11th February 2019).

31. Eurostat (2016): *Classification of Learning Activities. Manual*. Publications Office of the European Union, Luxembourg.  
<https://ec.europa.eu/eurostat/documents/3859598/7659750/KS-GQ-15-011-EN-N.pdf/978de2eb-5fc9-4447-84d6-d0b5f7bee723>
32. Eurostat (2018): *Eurostat Regional Book 2018 edition*. Publications Office of the European Union, Luxembourg, pp. 55-69.  
<https://ec.europa.eu/eurostat/documents/3217494/9210140/KS-HA-18-001-EN-N.pdf/655a00cc-6789-4b0c-9d6d-eda24d412188>
33. Eurostat (2018): *Participation rate in education and training (last 4 weeks) by sex and educational attainment level*. <http://bit.ly/eurostat2018>
34. Eurostat (2018): *Smarter, greener, more inclusive? Indicators to support Europe 2020 strategy*. Publications Office of the European Union, Luxembourg, pp. 87-103. <https://ec.europa.eu/eurostat/documents/3217494/9087772/KS-02-18-728-EN-N.pdf/3f01e3c4-1c01-4036-bd6a-814dec66c58c>
35. Eurostat (2018): *Sustainable development in the European Union. Monitoring report on progress towards the SDGS in an EU context*. Publications Office of the European Union. Luxembourg,  
<https://ec.europa.eu/eurostat/documents/3217494/9237449/KS-01-18-656-EN-N.pdf/2b2a096b-3bd6-4939-8ef3-11cfc14b9329>
36. Eurostat (2019): *Participation rate in education and training (last 4 weeks) by sex and educational attainment level*. [bit.ly/eurostat2018](http://bit.ly/eurostat2018)
37. Eurostat (2019): *Participation rate in education and training (last 4 weeks) by sex and educational attainment level*. [bit.ly/eurostat2018](http://bit.ly/eurostat2018)
38. Eurostat, Glossary: Lifelong learning,  
[http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Lifelong\\_learning](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Lifelong_learning)
39. Eurostat: (2019): *Statistics Explained. Adult Education Survey methodology*.  
<https://ec.europa.eu/eurostat/statistics-explained/pdfscache/44915>
40. GUS (2013): *Kształcenie dorosłych 2011*. Zakład Wydawnictw Statystycznych, Warszawa.  
[http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/2/4/ksztalcenie\\_doroslych\\_2011.pdf](http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/2/4/ksztalcenie_doroslych_2011.pdf)
41. GUS (2018): *Kształcenie dorosłych 2016*.  
[http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/3/1/ksztalcenie\\_doroslych\\_2016.pdf](http://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5488/3/3/1/ksztalcenie_doroslych_2016.pdf)
42. GUS (2018): *Informacja o rynku pracy w pierwszym kwartale 2018 roku*.  
<http://stat.gov.pl/obszary-tematyczne/rynek-pracy/pracujacy-bezrobotni-biemi-zawodowo-wg-bael/informacja-o-rynku-pracy-w-pierwszym-kwartale-2018-roku,12,33.html?pdf=1>
43. GUS (2019): *Population. Size and structure and vital statistics in Poland by territorial division in 2019*, p. 10.
44. GUS: *Wskaźniki społeczeństwa informacyjnego - badania wykorzystania technologii informacyjno-telekomunikacyjnych*, definicja: *Information Society*. Warszawa.
45. Intel Corporation (2012): *The positive impact of e-learning-2012 update*.  
[http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/The%20Positive%20Impact%20of%20eLearning%202012UPDATE\\_2%206%20121%20\(2\).pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/The%20Positive%20Impact%20of%20eLearning%202012UPDATE_2%206%20121%20(2).pdf)

46. Kolenda P. (red.) (2018): *Raport Strategiczny. Internet 2017/2018*. IAB Polska, s.52. <https://iab.org.pl/wp-content/uploads/2018/06/HBRP-raport-IAB-04-18.pdf>
47. *Konstytucja Rzeczypospolitej Polskiej z dnia 2 kwietnia 1997 r.* <https://www.sejm.gov.pl/prawo/konst/polski/kon1.htm>
48. KRTiT (1996/1997): *Spoleczeństwo informacyjne w Polsce. Wstęp do formułowania założeń polityki Państwa*. Warszawa, p. 5.
49. Ministry of Labour and Social Policy (2014): *Classification of Occupations and Specializations for Labour Market Needs – Summary*. [https://psz.praca.gov.pl/documents/10240/6488358/English%20summary%20na%20PSZ%20-%20tekst%20jednolity%20Dz\\_U\\_z%202018%20poz\\_227.pdf/6ae79422-b862-448e-956b-c3bd5d277873](https://psz.praca.gov.pl/documents/10240/6488358/English%20summary%20na%20PSZ%20-%20tekst%20jednolity%20Dz_U_z%202018%20poz_227.pdf/6ae79422-b862-448e-956b-c3bd5d277873)
50. Ministry of Labour and Social Policy (2018): *Obwieszczenie Ministra Rodziny, Pracy i Polityki Społecznej z dnia 28 grudnia 2017 r. w sprawie ogłoszenia jednolitego tekstu rozporządzenia Ministra Pracy i Polityki Społecznej w sprawie klasyfikacji zawodów i specjalności na potrzeby rynku pracy oraz zakresu jej stosowania*. Dz.U. 2018 poz. 227.
51. Ministry of Labour and Social Policy (2013): *Strategia Rozwoju Kapitału Ludzkiego 2020*. Warszawa. [http://kigeit.org.pl/FTP/PRCIP/Literatura/007\\_2\\_Strategia\\_Rozwoju\\_Kapitału\\_Ludzkiego\\_2020.pdf](http://kigeit.org.pl/FTP/PRCIP/Literatura/007_2_Strategia_Rozwoju_Kapitału_Ludzkiego_2020.pdf)
52. Newman N. et.al (2017): *Reuters Institute Digital News Report 2017*. Reuters Institute for the Study of Journalism.
53. OECD (2001): *E-Learning. The Partnership Challenge. Education and skills*. OECD Publishing. DOI: <https://dx.doi.org/10.1787/9789264193161-en>
54. OECD (2005): *Education at a Glance. OECD Indicators 2005*. OECD Publishing.
55. OECD (2006): *Education at a Glance, OECD Indicators 2006*. OECD Publishing.
56. OECD (2009): *21st century skills and competences for new millennium learners in OECD countries*. Directorate for Education. Working paper no 41, p. 8
57. OECD (2011): *Education at a Glance: OECD Indicators*. OECD Publishing.
58. OECD (2012): *Education at a Glance: OECD Indicators*. OECD Publishing.
59. OECD (2014): *Learning Begets Learning: Adult Participation in Lifelong Education*. Education Indicators in Focus, No. 26, OECD Publishing, Paris.
60. OECD (2016): *Education at a Glance 2016: OECD Indicators*. OECD Publishing, Paris.
61. OECD (2017): *Education at a Glance 2017: OECD Indicators*. OECD Publishing, Paris.
62. OECD (2017): *Educational Opportunity for All: Overcoming Inequality throughout the Life Course*. OECD Publishing, Paris.
63. OECD Publishing, Paris.
64. OECD (2018): *OECD Economic Surveys: Poland 2018*. OECD Publishing, Paris. [https://dx.doi.org/10.1787/eco\\_surveys-pol-2018-en](https://dx.doi.org/10.1787/eco_surveys-pol-2018-en)
65. Partnership for 21st Century Skills (2015): *P21 Framework Definitions*. [http://www.p21.org/storage/documents/docs/P21\\_Framework\\_Definitions\\_New\\_Logo\\_2015.pdf](http://www.p21.org/storage/documents/docs/P21_Framework_Definitions_New_Logo_2015.pdf)
66. Reuters (2017): *Global E-Learning Market 2017 to Boom \$275.10 Billion Value by 2022 at a CAGR of 7.5% – Orbis Research*. <https://www.reuters.com/brandfeatures/venture-capital/article?id=11353>

67. The Broadband Commission for Sustainable Development (2017): *Working Group on Education: Digital skills for life and work*. <http://broadbandcommission.org/Documents/publications/WG-Education-Report2017.pdf>
68. UNESCO (1999): *Adult learning and the challenges of the 21st century: a series of 29 booklets documenting workshops*. The Fifth International Conference on Adult Education. Hamburg.
69. UNESCO (2009): *Global Report on Adult Learning and Education*. UNESCO Institute for Lifelong Learning, Hamburg. <http://unesdoc.unesco.org/images/0018/001864/186431e.pdf>
70. UNESCO (2013): *2nd Global Report on Adult Learning and Education. Rethinking Policy*. UNESCO Institute for Lifelong Learning, Hamburg, p. 17. <http://unesdoc.unesco.org/images/0022/002224/222407E.pdf>
71. UNESCO (2016): *3rd Global Report on Adult Learning and Education. Key Messages and Executive Summary*. UNESCO Institute for Lifelong Learning, Hamburg. <http://unesdoc.unesco.org/images/0024/002459/245917e.pdf>
72. UNESCO (2016): *Recommendation on Adult Learning and Education*. United Nations Educational, Scientific and Cultural Organization and UIL. <http://unesdoc.unesco.org/images/0024/002451/245179e.pdf>
73. UNESCO (2016): *Third Global Report on Adult Learning and Education (GRALE 3)*. UNESCO Institute for Lifelong Learning. <http://uil.unesco.org/adult-education/global-report/third-global-report-adult-learning-and-education-grale-3>
74. UNESCO (2019): *4th Global Reporting on Adult Learning and Education. Leave no one behind: participation, equity and inclusion*. UNESCO Institute for Lifelong Learning, Bremen, p. 36.
75. UNESCO: *Fundamental principles of digitization of documentary heritage*. [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization\\_guidelines\\_for\\_web.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization_guidelines_for_web.pdf)
76. UNESCO: *Glossary: informal learning* <http://uis.unesco.org/en/glossary>
77. Von der Leyen U. (2019): *A Union that strives for more. My agenda for Europe-Political Guidelines For The Next European Commission 2019-2024*. [https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf)
78. We Are Social (2020): *Digital 2020*. [https://datareportal.com/reports/digital-2020-poland?fbclid=IwAR2AtwNuMCTPlyCAA7GUreUus5YID\\_g7MdfKNr3XRvR1bcJessSGKePIXmM](https://datareportal.com/reports/digital-2020-poland?fbclid=IwAR2AtwNuMCTPlyCAA7GUreUus5YID_g7MdfKNr3XRvR1bcJessSGKePIXmM)
79. World Economic Forum (2018): *The Future of Jobs Report*. Centre for the New Economy and Society. [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs\\_2018.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf)
80. [www-14] <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=LEGISSUM%3Ac11088>
81. [www-16] <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>
82. [www-19] <http://main.thegoals.org/>
83. [www-20] <https://ideahunt.io/>
84. [www-21] <https://www.g2crowd.com>
85. [www-22] <https://www.dontknow.net/informacion/como-funciona-dontknow>

86. [www-23] <http://queaprendemoshoj.com/>
87. [www-24] <https://www.relayo.com/>
88. [www-25] <https://brainly.pl/>
89. [www-26] <https://curasive.com/>
90. [www-27] <https://www.sololearn.com/>
91. [www-32] <https://www.getopensocial.com/>
92. [www-33] <https://ec.europa.eu/digital-single-market/en/news/report-shows-digital-skills-are-required-across-all-types-work-also-jobs-outside-office>

## Publications

1. Adamski A. (2016): *Media as the intersphere of human life: Another view on the mediatization of communication theory*. Conference Proceedings from International Scientific Conference 14 th -15 th April 2015 Congress Hall of the Slovak Academy of Science Smolenice, Slovak Republic, Trnava.
2. Adamski A: (2012): *Media w analogowym i cyfrowym świecie*. Dom Wydawniczy Elipsa, Warszawa.
3. Agarwal H., Pandey G.N. (2013): *Impact of E-Learning in Education*. International Journal of Science and Research, Vol.2, No 12.
4. Alexander B. (2006) *Web 2.0: A New Wave of Innovation for Teaching and Learning?* Educause Review, Vol. 41, No. 2, <https://er.educause.edu/articles/2006/1/web-20-a-new-wave-of-innovation-for-teaching-and-learning> p. 32–44.
5. Anderson Ch. (2009): *Free. The Future of a Radical Price*. Random House Business Books, London.
6. Anderson R. C. (2016): *Berkshire Encyclopaedia of Sustainability*. Berkshire Publishing Group, <http://www.oxfordreference.com/view/10.1093/acref/9780190622664.001.0001/acref-9780190622664-e-874>
7. Anderson T. (2005): *Distance learning: Social software's killer app?* Paper presented at the ODLAA,
8. Adelaide, Australia. [http://auspace.athabascau.ca/bitstream/2149/2328/1/distance\\_learning.pdf](http://auspace.athabascau.ca/bitstream/2149/2328/1/distance_learning.pdf)
9. Andrews R., Haythornthwaite C. (2007): *The SAGE Handbook of E-learning Research*. Sage Publications.
10. Apanowicz J. (2002): *Metodologia Ogólna*. Wydawnictwo Diecezji IVIplińskiej Bernardinum, Gdynia, p. 59.
11. Appana S. (2008): *A Review of Benefits and Limitations of Online Learning in the Context of the Student, the Instructor, and the Tenured Faculty*. International Journal on E-learning Vol. 7 No. 1, pp. 5-22.
12. Ariyur K. Azpura- Linares F., Bekel J. et al. (2008): *The Wikinomics Playbook: Mass Collaboration in Action*. Creative Commons. Attribution Non-Commercial Share-Alike, p.7. <http://www.wikinomics.com/the-wikinomics-playbook-2008.pdf> (visited 26th April 2018).
13. Arkoful V., Abaidoo N.: (2014): *The role of e-learning, the advantages and disadvantages of its adoption in Higher Education*. International Journal of Education and Research, Vol. 2 No. 12, pp. 397-410.
14. Babbie E. (2019): *Badania społeczne w praktyce*. Wydawnictwo Naukowe PWN, Warszawa.

15. Baker M. J. (2015): *Collaboration in Collaborative Learning. Interaction Studies: Social Behaviour and Communication in Biological and Artificial Systems*, No. 16(3), Special issue on “Coordination, Collaboration and Cooperation: Interdisciplinary Perspectives. pp. 451-473.
16. Balasubramanian T. R., Estrada T. (2016): *Crowdlearning: A Framework for Collaborative and Personalized Learning*. 2016 IEEE Frontiers in Education Conference (FIE), Erie, PA, USA, pp. 1-9.
17. Bandyopadhyay D., Jaydip S. (2011): *Internet of Things: Applications and Challenges in Technology and Standardization*. *Wireless Personal Communications*, Vol. 58, No. 1, p. 49.
18. Banks M. A. (2008): *On the Way to the Web: The Secret History of the Internet and Its Founders*. Apress.
19. Bańko M. et al. (2016): *Nie całkiem obce. Zapożyczenia wyrazowe w języku polskim i czeskim*. Wydawnictwa Uniwersytetu Warszawskiego, Warszawa, p. 96-97.
20. Baran S. J., Davies D. K. (2010): *Mass Communication Theory. Foundations, Ferment and Future*. Sixth Edition. Wadsworth Cengage Learning, Boston.
21. Baraniak B. (2013): *Koncepcja kształcenia i doskonalenia zawodowego w ujęciu Tadeusza W. Nowackiego wciąż aktualna we współczesnych realiach rynku pracy*. ANNALES UNIVERSITATIS MARIAE CURIE - SKŁODOWSKA LUBLIN-POLONIA. Vol.26, No. 1-2, p. 53.
22. Barkley, E.F., Cross, K.P., Major, C.H. (2005): *Collaborative Learning Techniques: A Handbook for College Faculty*. San Francisco: Jossey-Bass.
23. Bates A.W. (2005): *Technology, e-learning and distance education*. Routledge Taylor & Francis Group, New York.
24. Bauman Z. (2000): *Globalizacja. I co z tego dla ludzi wynika*. Polski Instytut Wydawniczy, Warszawa.
25. Beck U., Giddens A., Lash S.: *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Stanford University Press, California.
26. Berger A. A. (1995): *Essentials of Mass Communication Theory*. Sage Publications.
27. Bessenyei I. (2008): *Learning and Teaching in the Information Society*. [in:] Pintér R. (ed.): *Information Society From Theory to Political Practice.*, Budapest, p. 202.
28. Błędowski P., Nowakowska M. (2010): *Prosta sprawa- kwalifikacje to podstawa. Poradnik Podstawy Kształcenia Ustawicznego*. Wydawnictwo Ego, Łódź.
29. Boeren E., Nicaise I., Baert H. (2010): *Theoretical models of participation in adult education: the need for an integrated model*. *International Journal of Lifelong Education*, Vol. 29, No. 1(January-February 2010), pp.45-61.
30. Boeren, E, Nicaise, I & Baert, H (2012): *Adult learners' satisfaction and its relation to characteristics of the individual and the educational institution*. *Pedagogies*, vol 7, no. 2, pp. 132-149.
31. Bolisani, E., and Bratianu, C. (2018). *The elusive definition of knowledge*. [in:] Bolisani, E. and Bratianu C.: „Emergent knowledge strategies: Strategic thinking in knowledge management”. Springer International Publishing, pp.1-22.
32. Boone M., La Velle Hendricks M., Waller R. (2014): *Closing the Digital Divide and its Impact on Minorities*. *The Global E-Learning Journal*, Vol. 3, Issue 1, pp.1-6.

33. Bordewijk J. L., van Kaam B. (1986): *Towards a New Classification of Tele-Information Services*. Intermedia Vol. 34, No. 1, pp. 16-21.
34. Bourn D. (2018): *Understanding Global Skills for 21st Century Professions*. Palgrave Macmillan, London, p. 67-70.
35. Brabham D. C. (2010): *Moving the crowd at Threadless*. Information, Communication & Society, Vol.13, No.8, pp. 1122-1145.
36. Bransford J. D. (1999): *How people learn. Brain, mind, Experience, School*, National Academy Press, Washington.
37. Brayant P. (2017): *Generating learning through the crowd: the role of social media practices in supporting students as producers at scale*. [in:] Partridge, H. and Davis, K. and Thomas, J., (eds.) Me, Us, IT! Proceedings ASCILITE2017: 34th International Conference on Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education. ASCILITE, Toowoomba, Australia, pp. 197-207.
38. Bringula R. et al. (2017): *Learner-Interface Interactions with Mobile- Assisted Learning in Mathematics: Effects on and Relationship with Mathematics Performance*. International Journal of Mobile and Blended Learning. Vol. 9, No. 1, pp. 34- 36.
39. Bulik J. (2011): *Podział klasowy Społeczeństwa Informacyjnego*. Zagadnienia Informatyki Naukowej No. 1, pp. 3-19.
40. Bullock I. et. al. (2016): *Pocket Guide to Teaching for Clinical Instructors*, 3rd edition. John Wiley & Sons, Ltd, pp. 1-10.
41. Burdzik T. (2017): *Drapieżne czasopisma jako przykład nieetycznego publikowania*. Philosophy and Science: Philosophical and Interdisciplinary Studies, 5, pp.131-149.
42. Burleson S. E., Thoron A. C. (2014): *Maslow's Hierarchy of Needs and Its Relation to Learning and Achievement*. The Institute of Food and Agricultural Sciences, <https://edis.ifas.ufl.edu/pdf/WC/WC15900.pdf> (visited 31st October 2018).
43. Carey J. (2009): *Communication as Culture. Essays on Media and Society*. Revised edition. Routledge Taylor and Francis Group, New York and London, pp. 11-29.
44. Carne E. (1999): *Telecommunications Primer. Data, Voice and Video Communications*. Pearson.
45. Castells M. (2010): *The Rise of the Network Society*. Wiley-Blackwell.
46. Chakhotin S. (1940): *The Rape Of The Masses. The psychology of totalitarian political propaganda*. George Routledge & Sons, Ltd., London, p. 121.
47. Chłoń-Domińczak, A. (2012): *The Necessity of Lifelong Learning. Interview with Sigrun Matthiesen*. Population Europe, Berlin. <https://www.population-europe.eu/policy-insights/necessity-lifelong-learning>
48. Christozov D. and Toleva-Stoimenova S. (2013): *Knowledge Diffusion via Social Networks: The 21st Century Challenge*. International Journal of Digital Literacy and Digital Competence, IGI Global, Vol. 4, No. 2, p. 1.
49. Cincinnato S., De Wever B., Valcke M. (2014): *The Learning Divide in Formal Adult Education: Why do low-qualified adults participate less?* Conference paper: Local Change, Social Actions and Adult Learning: Challenges and Responses At: Lisbon, Portugal.
50. Cisco Systems (2010): *The Learning Society*. Cisco Public Information, p. 4
51. Cleary S., ed. (2004): *The communication handbook*. Juta and Company Ltd., Lansdowne.

52. Couldry N., Hepp A. (2013): *Conceptualizing Mediatization: Contexts, Traditions, Arguments*. Communication Theory, No. 23. <https://onlinelibrary.wiley.com/doi/abs/10.1111/comt.12019> (visited 20th April 2018).
53. Cyrek B. (2016): *Media społecznościowe- nowa przestrzeń nauki*. Kognitywistyka i Media w Edukacji, No 2, pp. 25-56.
54. Daesang K. et. al. (2017): *Mobile Assisted Language Learning Experiences*. International Journal of Mobile and Blended Learning. Vol. 9, No 1, p. 53.
55. Daliviigkas N. (2014): *Benefits of Lifelong Learning – BeLL*. <https://ec.europa.eu/epale/en/resource-centre/content/benefits-lifelong-learning-bell>
56. De Laat M., Simons P. R. J. (2002): *Collective Learning: Theoretical Perspectives and Ways To Support Networked Learning*. European Journal for Vocational Training, No 27, pp. 13-24.
57. De Noronha Vaz M. T., Fernandes S., De Noronha Vaz E. (2008): *E-Learning Tool for Regional Development*. [in:] Putnik G. D., Cruz-Cunha M. M. (eds.) Encyclopedia of Networked and Virtual Organizations. IGI Global. pp. 467-474.
58. Dede C. (2010): *Comparing Frameworks for 21st Century Skills*. [in:] Bellanca J., Brandt R. (eds): „21st Century Skills: Rethinking How Students Learn”. Solution Tree Press, p. 1.
59. DeFillippi R. J., Arthur M. B. (2002): *Project-Based Learning , Embedded Learning Contexts and the Management of Knowledge*. [https://www.researchgate.net/publication/254118473\\_Project-Based\\_Learning\\_Embedded\\_Learning\\_Contexts\\_and\\_the\\_Management\\_of\\_Knowledge](https://www.researchgate.net/publication/254118473_Project-Based_Learning_Embedded_Learning_Contexts_and_the_Management_of_Knowledge)
60. Dillenbourg P. (1999): *What do you mean by collaborative learning?*. [in:] Dillenbourg P. ed. „Collaborative-learning: Cognitive and Computational Approaches”. Oxford: Elsevier, p. 1-19.
61. Dominick J. R. (2004): *The Dynamics of Mass Communication. Media in the Digital Age*. Eight Edition. Mc Graw Hill, New York, p. 11.
62. Donderowicz M. (2014): *Najnowsze teorie uczenia w epoce cyfrowej*. Dydaktyka Informatyki 9, pp. 153-163.
63. Doroszewski W. (red.): *Słownik Języka Polskiego*. PWN. <https://sjp.pwn.pl/doroszewski/kolaborowac;5440595>.
64. dos Reis A. et al. (2013): *How Should we Teach, in the School of the Future?* [in:] E. Smyrnova- Trybulska (ed.): E-Learning and Lifelong Learning. University of Silesia, Katowice, pp. 13-38.
65. Dreher A. (2008): *Measuring Globalisation. Gauging Its Consequences*. Springer, New York.
66. Dron J., Anderson T. (2014): *Teaching crowds: learning and social media*, AU Press, Athabasca University.
67. Earnst & Young (2011): *The digitisation of everything. How organisations must adapt to changing consumer behaviour*. Earnst & Young, London, p. 2. [https://www.ey.com/Publication/vwLUAssets/The\\_digitisation\\_of\\_everything\\_-\\_How\\_organisations\\_must\\_adapt\\_to\\_changing\\_consumer\\_behaviour/%24FILE/EY\\_Digitisation\\_of\\_everything.pdf](https://www.ey.com/Publication/vwLUAssets/The_digitisation_of_everything_-_How_organisations_must_adapt_to_changing_consumer_behaviour/%24FILE/EY_Digitisation_of_everything.pdf) (visited 13 July 2018).
68. Eco U. (2002): *Nowe środki masowego przekazu a przyszłość książki*. [in:] Hopfinger M.: Nowe media w komunikacji społecznej XX wieku. Oficyna Naukowa, Warszawa, pp. 527-528.
69. Eraut M. (2004): *Informal learning in the workplace*, Studies in Continuing Education, 26:2, 247-273, DOI: 10.1080/158037042000225245

70. European Centre for the Development of Vocational Training (2011): *The benefits of vocational education and training*. Publications Office of the European Union, Luxembourg.
71. Fabjaniak-Czerniak K. (2012): *Internetowe media społecznościowe jako narzędzie public relations*, [in:] Kubiak K. (ed.) *Zarządzanie w sytuacjach kryzysowych niepewności*, Warszawa, p. 173.
72. Faizi R., Afia A., Chineb R. (2013): *Exploring the Potential Benefits of Using Social Media in Education*. [in:] *International Journal of Engineering Pedagogy*. Vol. 3, No 4. <http://online-journals.org/index.php/i-jep/article/view/2836/2821>
73. Farasat A. et al. (2017): *Crowdlearning: Towards Collaborative Problem-Posing at Scale*. Conference: Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale. DOI: 10.1145/3051457.3053990
74. Faure E. et al (1972): *Learning to Be: The World of Education Today and Tomorrow, Report of the Edgar Faure Commission*. UNESCO, Paris.
75. Fazlagić J. A. (2008): *Wiedza kolektywna na przykładzie polskiej oświaty*. „E-mentor” vol. 23, No 1.
76. Feder B. J. (2006): *Theodore Levitt, 81, Who Coined the Term 'Globalization', Is Dead*. „New York Times”
77. Fewkes A., McCabe M. (2012): *Facebook: Learning tool or distraction?* *Journal of Digital Learning in Teacher Education*, 28(3), p. 93.
78. Forbes Brand Voices (2012): *Embedded Learning: Integrating Skill Acquisition Into Day-to-Day Activities*. <https://www.forbes.com/sites/sap/2012/09/13/embedded-learning-integrating-skill-acquisition-into-day-to-day-activities/#44d4846638cd>
79. Fougler D. (2004): *Models of the Communication Process*. <http://davis.foulger.info/research/unifiedModelOfCommunication.htm>
80. Frania M. (2017): *Nowe media. Technologie i trendy w edukacji*. Wydawnictwo Impuls.
81. Franklin, T. van Harmelen, M. (2007): *Web 2.0 for Learning and Teaching in Higher Education, Report*. The Observatory of borderless higher education, London, [http://www.obhe.ac.uk/documents/view\\_details?id=24](http://www.obhe.ac.uk/documents/view_details?id=24)
82. Fu W., Lo H., Drew D. (2006): *Collective learning, collective knowledge and learning networks in construction*. *Construction Management and Economics*, Vol. 24, No. 10, pp. 1019-1028.
83. Fuchs C., Boersma K., Albrechtslund A., Sandoval M. (2012): *Internet and Surveillance. The Challenges of Web 2.0 and Social Media*. Routledge, New York, pp. 3-6.
84. Gałuszka D., Ptaszek G., Żuchowska-Skiba D. (2016): *Technologiczno-społeczne oblicza XXI wieku*. Libron, Kraków, p. 15.
85. Garrison D. R., Anderson T. (2003): *E-learning in the 21st century. A framework for research and practice*. Routledge Falmer, Taylor & Francis Group, London and New York.
86. Gerlach, J. M. (1994): *Is this collaboration?* [in:] Bosworth, K., Hamilton, S. J. (eds.), *Collaborative learning: Underlying processes and effective techniques, New directions for teaching and learning*, No. 59.
87. Ghirardini B. (2011): *E-learning methodologies A guide for designing and developing e-learning courses*. FAO, p. 3.
88. Glazer J., Kremer I., Perry M. (2015): *Crowd Learning without Herding : A Mechanism Design Approach*. Warwick Economics Research Paper Series.

- [https://warwick.ac.uk/fac/soc/economics/research/workingpapers/2015/twerp\\_1095\\_glazer.pdf](https://warwick.ac.uk/fac/soc/economics/research/workingpapers/2015/twerp_1095_glazer.pdf)
89. Głabicka K. (2015): *The importance of lifelong learning in XXI century*. Central European Review Of Economics & Finance Vol. 8, No. 2(2015), pp. 51-62.
  90. Głowacki M. (2012): *Wstęp do e-learningu*. Warszawa <http://www.mariuszgłowacki.eu/wp-content/uploads/2014/01/Wst%C4%99p-do-e-learningu.pdf>
  91. Goban-Klas T. (2004): *Media i komunikowanie masowe. Teorie i analizy prasy, radia, telewizji i Internetu*. PWN, Warszawa.
  92. Goban-Klas T. (2005): *Spoleczeństwo medialne*. PWN, Warszawa.
  93. Goban-Klas T., Sienkiewicz P. (1999): *Spoleczeństwo informacyjne: Szanse, zagrożenia, wyzwania*. Wydawnictwo Fundacji Postępu Telekomunikacji, Kraków.
  94. Goban-Klas T.: *Media. Historia i współczesność*. [http://users.uj.edu.pl/~usgoban/files/media\\_podstawowe\\_problemy.pdf](http://users.uj.edu.pl/~usgoban/files/media_podstawowe_problemy.pdf)
  95. Golka M. (2005): *Czym jest Spoleczeństwo Informacyjne?* Ruch Prawniczy, Ekonomiczny i Socjologiczny, No. 4/2005, p. 254.
  96. Govind Kumar Menon M. (2006): *Globalisation and education. An overview*. [in:] Sánchez Sorondo M., Malinvaud E., Léna P. (ed.): *Globalization and education. The Proceedings of a Joint Working Group 16-17 November 2005 Casina Pio IV, Vatican City*, pp. 24-38.
  97. Goździk Ż. (2003): *Edukacja nieformalna a potrzeby rynków pracy w państwach członkowskich Unii Europejskiej*. Acta Universitatis Lodziensis, Folia Oeconomica 170, p. 133- 154.
  98. Grabowska I., Kotowska I. E., Panek, T. (2015). *Warunki życia gospodarstw domowych. Edukacja*.
  99. Gradzewicz M., Hagemeyer J., Żółkiewski Z. (2008): *Globalization and the Polish Economy: Stylized Facts and CGE Model Simulations*. National Bank of Poland. <https://ecomod.net/sites/default/files/document-conference/ecomod2007/387.pdf> (visited 18.07.2018).
  100. Griffin P., Care E. (eds.) (2015): *Assessment and Teaching of 21st Century Skills Methods and Approach*. Springer.
  101. Grinnel C. K. (2009): *From Consumer to Prosumer to Producer: Who Keeps Shifting My Paradigm? (We Do!)*. Public Culture, Vol 21 (3), pp. 577- 598.
  102. Grotowska-Leder J. (2014): *Rzecz o kształceniu dorosłych. Lifelong learning w Polsce, w perspektywie Unii Europejskiej*. Acta Universitatis Lodziensis Folia Sociologica No. 50, 2014.
  103. Gunarante S. A. (2001): *Paper, Printing And The Printing Press. A Horizontally Integrative Microhistory Analysis*. Gazette Vol. 63, Issue 6, pp. 459-479. Sage Publications.
  104. Hall S. (2005): *Encoding/decoding*. [in:] Hall S., Hobson D., Lowe A., Willis P. (eds.): *Culture, Media, Language. Working Papers in Cultural Studies 1972-1979*. Routledge, Taylor and Francis e-Library, pp. 117-127.
  105. Hanf, G. (2002). Introduction. [in:] CEDEFOP: *Towards a history of vocational and educational training in Europe in a comparative perspective*. Proceedings of the first International Conference, Florence, Volume I [http://www.cedefop.europa.eu/files/5153\\_1\\_en.pdf](http://www.cedefop.europa.eu/files/5153_1_en.pdf).
  106. Hjarvard S. (2008): *The Mediatization of Society A Theory of the Media as Agents of Social and Cultural Change*. Nordicom Review 29 (2008) 2, p. 113.

107. Hjarvard S. (2012): *Mediatization and Globalization*. University of Copenhagen, Section of Film and Media Studies, Department of Media, Cognition and Communication.
108. Hofmokl J. (2009): *Internet jako dobro wspólne*. Wydawnictwa Akademickie i Profesjonalne Warszawa.
109. Hong W. (2008): *Exploring educational use of blogs in U.S. education*. US-China Educational Review, Vol. 5, No. 10, p. 34.
110. Horton W. (2006): *E-learning by Design*. A Wiley Imprint, San Francisco, p. 1-2.
111. Hughes C., Tight M. (1995): *The myth of the Learning Society*. British Journal of Educational Studies. Vol. 43, No. 3, pp. 290-304.
112. Hussein M., Nätterdal C. (2015): *The Benefits of Virtual Reality in Education*. Department of Computer Science and Engineering, Göteborg. [https://gupea.ub.gu.se/bitstream/2077/39977/1/gupea\\_2077\\_399771.pdf](https://gupea.ub.gu.se/bitstream/2077/39977/1/gupea_2077_399771.pdf)
113. International Association for K-12 Online Learning (2001): *The Online Learning Definitions Project*. [https://www.inacol.org/wp-content/uploads/2015/02/iNACOL\\_DefinitionsProject.pdf](https://www.inacol.org/wp-content/uploads/2015/02/iNACOL_DefinitionsProject.pdf)
114. Jarvis P. (2007): *Globalization, Lifelong Learning and the Learning Society: Sociological Perspectives*. Lifelong Learning and the Learning Society Volume 2. Routledge Taylor and Francis Group, London and New York.
115. Jarvis P. (2009): *The Routledge International Handbook of Lifelong Learning*. Routledge, London and New York.
116. Jarvis P., Griffin C. (eds) (2003): *Adult and Continuing Education. Major Themes in Education. Volume 4: Teaching, Learning and Research*. Routledge Taylor and Francis Group, p. 44.
117. Jenkins H. (2007): *Kultura konwergencji. Zderzenie starych i nowych mediów*. Wydawnictwa Akademickie i Profesjonalne, Warszawa.
118. Jenkins H. (2007): *Transmedia storytelling 101*. [http://henryjenkins.org/2007/03/transmedia\\_storytelling\\_101.html](http://henryjenkins.org/2007/03/transmedia_storytelling_101.html)
119. Jiang Y., Schlagwein D., Benatallah B. (2018): *A Review on Crowdsourcing for Education: State of the Art of Literature and Practice. Completed Research Paper*. Twenty-Second Pacific Asia Conference on Information Systems, Japan.
120. Kabilan M., Ahmad N., Abidin, M. (2010): *Facebook: An online environment for learning of English in institutions of higher education?* The Internet and Higher Education, 13(4), p. 181.
121. Kajino H. et al. (2012): *Learning from Crowds and Experts*. AAAI Workshops, North America, July. 2012. <https://www.aaai.org/ocs/index.php/WS/AAAIW12/paper/view/5257>
122. Kalisz D.E. (2015): *Crowd learning: Innovative harnessing the knowledge and potential of people*, [in:] Tiwari S.R. ed. "Innovative Management Education Pedagogies for Preparing Next- Generation Leaders". IGI Global.
123. Kallen D. (1996): *Lifelong-learning in retrospect*. European Journal of Vocational Training, Cedefop, No. 8/9. <http://www.cedefop.europa.eu/files/8-9-en.pdf>
124. Kallen D., Bengtsson J. (1973): *Recurrent education. A strategy for lifelong learning*. Centre for Educational Research and Innovation, Paris.
125. Kambil A. (2008): *What is your Web 5.0 strategy?* Journal of Business Strategy Vol. 29, Issue 6, pp. 56-58.

126. Kankanhalli A., Tan B., Wei K (2006): *Knowledge Producers and Prosumers*. [in:] D. G. Schwartz (ed.) "Encyclopedia of Knowledge Management", Herslen, London, pp. 459-467.
127. Karaś E., Piasecka-Głuszak A. (2013): *Zarządzanie wiedzą- dlaczego tak ważne?* Management Sciences Vol. 4 No.17, pp. 45- 60.
128. Karpov A. O. (2016): *Education in the Knowledge Society: Genesis of Concept and Reality*. International Journal of Environmental & Science Education 2016, Vol. 11, No. 17, pp. 9949-9958.
129. <https://files.eric.ed.gov/fulltext/EJ1119352.pdf>
130. Kasperkiewicz W. (2004): *The concept of an Information Society in the European Union*. Acta Universitatis Lodziensis, Folia Oeconomica No.182, p. 309.
131. Kasprzycki-Rosikoń J., Piątkowski J. (ed.) (2013): *Crowdsourcing. Jak angażować konsumentów w świat marek*. Helion, Gliwice, p. 5.
132. Katz E., Blumer J. (1975): *Uses of Mass Communication by the Individual*. [in:] Davison W. P., Yu F.T. (eds.): *Mass Communication Research. Major Issues and Future Directions*. Praeger Publishers, pp. 11-35.
133. Katz R. L. (2017): *Social and economic impact of digital transformation on the economy*. GSR-17 Discussion paper, p.4.
134. Kazmer M. M. (2007): *Community-embedded Learning*. [in:] Andrews R., Haythornwaite C. *The SAGE Handbook of E-learning Research*. SAGE Publications.
135. Kąsek L. (2015): *Poland as a Global Development Partner*. The World Bank. Washington, p. 11.
136. Kent M., Leaver T. (2014): *An Education in Facebook? Higher Education and the World's Largest Social Network*. Routledge, New York.
137. Keyton, J. (2011): *Communication and organizational culture: A key to understanding work experience*. Thousand Oaks, CA: Sage.
138. Kęsy M. (2011): *Społeczeństwo Informacyjne w rozwoju cywilizacyjnym ludzkości*. Dydaktyka Informatyki. Problemy i wyzwania Społeczeństwa Informacyjnego. Wydawnictwo Uniwersytetu Rzeszowskiego (1/2011), p. 74- 94..
139. Khan F, Moher D. (2017): *Predatory Journals. Do not enter*. University of Ottawa Journal of Medicine Epub. <https://uottawa.scholarsportal.info/ottawa/index.php/uojm-jmuo/article/view/1755/1778> (visited 17 January 2019).
140. Khondker H., Schuerkens U. (2014): *Social transformation, development and globalization*. Sociopedia. ISA DOI: 10.1177/205684601423
141. Kincaid D. L. (1987): *Communication Theory. Eastern and Western Perspectives*. Academic Press Inc., California, p. 184.
142. Kincaid D. L., Rogers E. M. (1981): *Communication networks*. Free Press, p. 65.
143. King W. R. (2006): *Knowledge Sharing*. [in:] D. G. Schwartz (ed.) "Encyclopaedia of Knowledge Management". Herslen, London, p. 493.
144. Knut Lundby ed. (2014): *Mediatization of Communication*. Walter de Gruyter GmbH & Co KG.
145. Kołodko G. W. (2007): *Polska z globalizacją w tle. Instytucjonalne i polityczne aspekty rozwoju gospodarczego*. TNOiK, Toruń.
146. Kołodziejczyk W., Polak M. (2011): *Jak będzie zmieniać się edukacja. Wyzwania dla polskiej szkoły i ucznia*. Instytut Obywatelski, Warszawa.
147. Konsbruck R. L. (2001): *Impacts of Information Technology on Society in the new Century*. <https://www.zurich.ibm.com/pdf/news/Konsbruck.pdf>

148. Korczak J., Woźniak D. (2008): *Zastosowanie nowoczesnego e-learningu i multimedialności w edukacji*. Zeszyty Naukowe Instytutu Ekonomii i Zarządzania. <http://zeszyty.wne.tu.koszalin.pl/images/wydawnictwo/zeszyty/02/11.pdf>
149. Koszembar-Wiklik M. (2015): *Media społecznościowe w zarządzaniu komunikacją uczelni ze studentami*. Kultura - Media - Teologia, 2015 No 2, pp. 9-22.
150. Kozinets, R.V., Hemetsberger, A., Schau, H.J. (2008): *The Wisdom of Consumer Crowds: Collective Innovation in the Age of Networked Marketing*. Journal of Macromarketing, Vol. 28, No. 4, pp. 339-354.
151. Krzyminiweska G. (2013): *Nierówności a rozwój społeczny świata*. Studia Ekonomiczne No. 139, pp. 50-59.
152. Kujur P., Chhetri B. (2015): *Evolution of World Wide Web: Journey From Web 1.0 to Web 4.0*. „IJCSST” Vol. 6, No. 1. <http://www.ijcst.com/vol61/1/30-Pranay%20Kujur.pdf>
153. Kulczycki E. (2012): *Teoretyzowanie komunikacji*. Wydawnictwo Naukowe IF UAM, Poznań.
154. Kulczycki E. (2012): *Wykorzystanie mediów społecznościowych przez akademickie uczelnie wyższe w Polsce. Badania w formule otwartego notatnika*. [in:] „Komunikologia. Teoria i praktyka komunikacji”. Wydawnictwo Naukowe Instytutu Filozofii UAM, pp.89-109.
155. Kuruliszwili S. (2016): *Technologie informacyjne a andragogika – edukacyjne wyzwania współczesności*. Instytut Rozwoju Służb Społecznych, Warszawa.
156. Kuruliszwili S. (2017): *Incidental e-learning versus self-education, incidental and connected learning – a description of a phenomenon*. Polish Journal Of Continuing Education No. 4/2017, pp. 63-72.
157. Laal M. (2011): *Lifelong learning: What does it mean?* Procedia - Social and Behavioral Sciences No.28 (2011), pp. 470 – 474.
158. Laal M. (2012): *Benefits of lifelong learning*. Procedia - Social and Behavioral Sciences No. 46, pp. 4268 – 4272.
159. Laal M., Laal M. (2012): *Collaborative learning: what is it?* Procedia - Social and Behavioral Sciences No. 31 (2012), pp. 491-495.
160. Laal M., Zhina Khattami-Kermanshahi M., Laal M. (2014): *Teaching and education: collaborative style*. Procedia - Social and Behavioral Sciences No. 116, pp. 4057-4061.
161. Lamb S., Maire Q., Doecke E. (2017): *Key Skills for the 21st Century: an evidence-based review*. State of New South Wales Department of Education.
162. Lasecki W. S., White, S. C., Murray K. I., Bigham J. P. (2012): *Crowd memory: learning in the collective*. Presented at Collective Intelligence Conference, 2012. <https://arxiv.org/pdf/1204.3678v2.pdf>
163. Lasswell H. D. (1948): *The structure and function of communication in society*. [in:] Lyman Bryson (ed.): *The Communication of Ideas*. New York: The Institute for Religious and Social Studies, Chapter 7.
164. Le Bono G. (1997): *Psychologia tłumu*. Wydawnictwo PAVO, Warszawa.
165. Leadbeater C. (2007): *We-Think. Why Mass Creativity Is the Next Big Thing*. <http://charlesleadbeater.net/wp-content/uploads/2010/01/We-Think-Chapter-Three.pdf> (visited 17 April 2018).
166. Leimeister J. M. (2010): *Collective Intelligence*. Business & Information Systems Engineering, No.2(4), pp. 245-248.
167. Lemańska- Majdzik A. (2013): *Globalizacja - szansa czy zagrożenie dla współczesnego świata*. Zeszyty Naukowe Wyższej Szkoły Humanitas, No. 1, pp. 114-125.

168. LeNoue M.D. (2012): *Educational social software: the use of social network sites for teaching and learning*. In Partial Fulfillment for the Degree of DOCTOR OF PHILOSOPHY Fargo, North Dakota
169. Letmayr C. F., Riihimaki T. (2011): *The benefits of vocational education and training*. European Centre for the Development of Vocational Training. Publications Office of the European Union, Luxembourg.
170. Levinson P. (2013): *New New Media*. Pearson, second edition.
171. Lewin K. (1947): *Frontiers in group dynamics. II. Channels of Group Life; Social Planning and Action Research*. Human Relations Vol.1, Issue 2, pp. 143-153.
172. Li K., Bado N., Smith, J., Moore D. (2013): *Bloggng for Teaching and Learning: An Examination of Experience, Attitudes, and Levels of Thinking*. Contemporary Educational Technology”, Vol. 4, No.3, pp. 172-186.
173. Lister M. (2009): *New media. A critical introduction*. Routledge Taylor and Francis Group, London and New York.
174. Littlejohn A., Milligan C., Margaryan A. (2011): *Collective Learning in the Workplace: Important Knowledge Sharing Behaviours*. International Journal of Advanced Corporate Learning. Vol 4, No 4, pp. 26-31.
175. Liu M. et al. (2017): *Improving Learning-from-Crowds through Expert Validation*. Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence. Main track, pp. 2329-2336.
176. Livingstone, S. (1999): *New media, new audiences? New media and Society*, 1(1): 59-66. LSE Research Online. <http://eprints.lse.ac.uk/archive/00000391>.
177. Long J. M., Rutherford T. A., Wingenbach G. J. (2011): *Opinion Leaders' Influence on College Students' Perceptions of the National Animal Identification System*. The Texas Journal of Agriculture and
178. National Resource, No. 24, pp. 18-27.
179. Lorenz J. et al. (2011): *How social influence can undermine the wisdom of crowd effect*. PNAS Vol. 108, No. 22, pp. 9020-9025.
180. Lorimer R. (2001): *Mass Communication: Some Redefinitional Notes*. Canadian Journal of Communication, Vol. 27, No. 1, p. 67-69.
181. Losee R. M. (1999): *Communication Defined as Complementary Informative Processes*. „Journal of Information, Communication and Library Science”, Vol. 5, No. 3, p. 1-15.
182. Lundby K.(ed.) (2014): *Mediatization of Communication*. Walter de Gruyter GmbH & Co KG.
183. Machlup, F. (1962): *The Production and Distribution of Knowledge in the United States*. Princeton, N.J.: Princeton University Press.
184. Malone T. W., Bernstein M. S. (2015): *Handbook of Collective Intelligence*. The MIT Press, Cambridge, Massachusetts, London, England.
185. Mamak-Zdanecka M. (2016): *Kompetencje cyfrowe w warunkach czwartej rewolucji przemysłowej*. [in:] Gałuszka D., Ptaszek G., Żuchowska-Skiba D. (eds): *Technologiczno-społeczne oblicza XXI wieku*. Libron, Kraków, p. 257-268.
186. Mamykina L. et al. (2016): *Learning from the Crowd: Observational Learning in Crowdsourcing Communities*. <https://www.eecs.harvard.edu/~kgajos/papers/2016/mamykina16learning.pdf>
187. Maness J. M. (2006): *Library 2.0 Theory: Web 2.0 and Its Implications for Libraries*, University of Denver.
188. Manovich L. (2000): *The language of New Media*. Cambridge, The MIT Press.

189. Marciniak J. (2016): *Inteligentne systemy e-learningowe jako przykład wykorzystania sztucznej inteligencji w kształceniu na odległość*. EduAkcja. Magazyn edukacji elektronicznej No. 2 (12)/2016, pp. 87—101.
190. Masuda Y. (1983): *The Information Society as Post-Industrial Society*. World Future Society, Washington.
191. Matešić M., Vučković K., Dovedan Z. (2009): *Social software: teaching tool or not?* „INFuture2009: Digital Information and Heritage”. [https://bib.irb.hr/datoteka/433059.MM\\_KV\\_ZD-IN\\_Future.pdf](https://bib.irb.hr/datoteka/433059.MM_KV_ZD-IN_Future.pdf)
192. Mazman S. Y. Usluel (2010): *Modelling educational usage of Facebook*. Computers and Education Vol. 55 Issue 2, pp. 444-453.
193. McLaren B. (2014): *What Happens When We Learn Together. A Research-Based Whitepaper on the Power of Collaborative Learning*. Wiley.
194. McLuhan M. (1962): *The Gutenberg Galaxy. The making of a typographic man*. University of Toronto Press.
195. McLuhan M. (1994): *Understanding the Media. The extensions of man*. London and New York.
196. McLuhan M., Fiore Q. (2001): *Medium is the message. An inventory of effects*. Ginko Press.
197. McNair S. (2009): *Demography and Lifelong Learning. IFLL Thematic Paper 1*. National Institute of Adult Continuing Education, Leicester. <https://www.learningandwork.org.uk/wp-content/uploads/2017/01/Demography-and-Lifelong-Learning-Thematic-Paper-1.pdf> (visited 31st October 2018).
198. McQuail D, Windahl S. (2013): *Communication Models for the Study of Mass Communication*. Routledge Taylor and Francis Group, London and New York.
199. McQuail D. (2007): *Teoria komunikowania masowego*. PWN, Warszawa.
200. McQuiggan S. et al. (2015): *Mobile Learning. A handbook for Developers, Educators, and Learners*. Wiley.
201. Milewski F. (ed.) (2015): *Tłum jako źródło wiedzy i kapitału*. Polska Agencja Rozwoju Przedsiębiorczości. Warszawa.
202. Morreale S. P. et al. (2007): *Human Communication: Motivation, Knowledge, and Skills*. Thomson Wadsworth.
203. Mrozowski M. (2001): *Media masowe: władza, rozrywka, biznes*. Oficyna wydawnicza ASPRA-JR.
204. Naga Swathi T., Lanka S. (2015): *Wearable technology a new paradigm in Educational Universities*. International Journal on Computer Science and Engineering”, Vol. 7, No.4.
205. Naidu S. (2006): *E-Learning. A Guidebook of Principles, Procedures and Practices*. Commonwealth Educational Media Center for Asia, New Delhi, p. 1.
206. Nath K., Iswary R. (2015): *What comes after Web 3.0? Web 4.0 and the Future*. International Conference on Computing and Communication Systems (13CS'15) [https://www.academia.edu/15205321/What\\_Comes\\_after\\_Web\\_3.0\\_Web\\_4.0\\_and\\_the\\_Future](https://www.academia.edu/15205321/What_Comes_after_Web_3.0_Web_4.0_and_the_Future)
207. NEA: *Preparing 21st Century Students for a Global Society. An Educator's Guide to the "Four Cs"*. National Education Association, p. 5.
208. Nicolle K., Fejes A. (eds) (2008): *Foucault and Lifelong Learning. Governing the subject*. Routledge Taylor and Francis Group, London and New York.
209. Nonaka I., Konno N., Toyama R. (2001): *Emergence of Ba*. [in:] Nonaka I., Nishiguchi (eds.): *Knowledge Emergence. Social, Technical, and Evolutionary Dimensions of Knowledge Creation*. Oxford.

210. Nowak S. (2012): *Metodologia Badań Społecznych*. Wydawnictwo naukowe PWN, Warszawa.
211. Okello-Obura C., Ssekitto F. (2015): *Web 2.0 Technologies application in teaching and learning by Makerere University Academic Staff*, Library Philosophy and Practice e-journal. University of Nebraska, Lincoln, 1248.
212. Oman C. (1996): *The Policy Challenges of Globalisation and Regionalisation*, OECD Development Centre, Policy Brief No. 11, p. 5.
213. O'Reilly, T. (2006). *What is Web 2.0: Design patterns and business models for the next generation of software*. [www.oreillynet.com/lpt/a/6228](http://www.oreillynet.com/lpt/a/6228)
214. Orihuela J. L. (2017): *The 10 new paradigms of communication in the digital age*. <https://medium.com/@jlori/the-10-new-paradigms-of-communication-in-the-digital-age-7b7cc9cb4bfb>
215. Padhariya N., Raichura K. (2014): *Crowdlearning: An incentive-based learning platform for crowd*. 2014 Seventh International Conference on Contemporary Computing (IC3). Institute of Electrical and Electronics Engineers.
216. Pal A., Konstan J. A.: *Expert Identification in Community Question Answering: Exploring Question Selection Bias*. <http://files.grouplens.org/papers/p1505-pal.pdf>
217. Pamfilie R., Orindaru A., Bumbac R. (2013): *Innovative e-learning benefits for universities and companies*. [https://www.researchgate.net/publication/264239608\\_Innovative\\_e-learning\\_benefits\\_for\\_universities\\_and\\_companies](https://www.researchgate.net/publication/264239608_Innovative_e-learning_benefits_for_universities_and_companies)
218. Panitz T. (1999): *The Case for Student Centered Instruction via Collaborative Learning Paradigms*. <https://files.eric.ed.gov/fulltext/ED448444.pdf>
219. Petrini F. (2004): *The common vocational training policy in the EEC from 1961 to 1972*. Vocational Training European Journal. No 32 May-August 2004/II, pp. 45-54.
220. Pieriegud J. (2016): *Cyfryzacja gospodarki i społeczeństwa – wymiar globalny, europejski i krajowy*. [in:] J. Grajewski et al. (ed): *Cyfryzacja gospodarki i społeczeństwa. Szanse i wyzwania dla sektorów infrastrukturalnych*. Publikacja Europejskiego Kongresu Finansowego, Gdańsk, p. 11.
221. Pieter D. (2010): *Wikinomia, czyli rewolucja nowej gospodarki wiedzą i innowacją*. Chowanna, No. 2, p. 177.
222. Poe M. T. (2011): *History of Communications. Media and Society from the Evolution of Speech to the Internet*. Cambridge University Press, New York, p. 213-214.
223. Pola B. (2019): *Sztuczna inteligencja w edukacji*. EPALÉ <https://epale.ec.europa.eu/pl/blog/wprowadzenie-do-sztucznej-inteligencji-w-edukacji> (visited 11 February 2020).
224. Ponti M., Hagen N., Hillman T., Kasperowski D., Kullenberg C., Stankovic I. (2013): *Designing Futures for Learning in the Crowd: New Challenges and Opportunities for CSCL*, p. 2. <https://www.isls.org/cscl2015/papers/1202-Workshop-Ponti.pdf>
225. Popescu A. (2011): *The Learning Society as a Key for Development*. Proceedings of Administration and Public Management International Conference “State Reform: Public Administration and Regional Development”.
226. Power M., St-Jacques A. (2014): *The Graduate Virtual Classroom Webinar: A Collaborative and Constructivist Online Teaching Strategy*. MERLOT Journal of Online Learning and Teaching, Vol. 10, No.4, p. 684.

227. Pozgaj Z. (2008): *Informal Learning in Lifelong Education*. 31st International Convention MIPRO 2008 in Opatija, Croatia, <http://journals.sfu.ca/onlinejour/index.php/i-jet/article/viewFile/612/593>
228. Present D. (2015): *Open Badges Making Learning Visible*. Learning Agents Inc. <https://openbadgespasport.com/file/a/4/f/b/a4fbf40866d28c640f19c0001b879327d32b4b1725988a35b57a863714b553b3.pdf> (visited 1 May 2018).
229. Prescott J. et al. (2015): *The Experience of using Facebook as an Educational Tool*. Health and Social Care Education. DOI: 10.11120/hsce.2013.00033
230. Przybyło S. (2018): *From correspondence distance learning to crowd learning via social media – a case study of Polish teachers of English groups on Facebook*. Biuletyn Edukacji Medialnej, No 1/2018, pp. 28-41.
231. Ptaszek G. (2019): *Edukacja Medialna 3.0. Krytyczne rozumienie mediów cyfrowych w dobie Big Data i algorytmizacji*. Wydawnictwo Uniwersytetu Jagiellońskiego, p. 88-91.
232. Pulla S. (2017): *Mobile Learning and Indigenous Education in Canada: A Synthesis of New Ways of Learning*. International Journal of Mobile and Blended Learning. Vol. 9, No 2, pp. 39-59.
233. Rawolle S., Lingard B. (2014): *Mediatization and education: a sociological account in Mediatization of communication*. De Gruyter Mouton, Berlin, Germany.
234. Raykar V. C. et al. (2010): *Learning from Crowds*. Journal of Machine Learning Research 11 (2010) 1297-1322.
235. Rochelle J. (1995): *Learning in Interactive Environments: Prior Knowledge and New Experience*. <http://www.astc.org/resource/education/priorknw.htm> visited
236. Roschelle, J., Teasley, S.D. (1995): *The construction of shared knowledge in collaborative problem solving*. [in:] O'Malley C. (Ed.) Computer Supported Collaborative Learning, Berlin: Springer Verlag, pp. 69-97.
237. Roselli N. D. (2016): *Collaborative learning: Theoretical foundations and applicable strategies to university*. Universidad San Ignacio de Loyola, Vicerrectorado de Investigación y Desarrollo, Ene.-Jun. 2016, Vol. 4, No. 1, pp. 219-280.
238. Russ, C. (2007): *Online Crowds – Extraordinary Mass Behaviour on the Internet*. I-MEDIA '07 and I-SEMANTICS '07 conferences, p. 65.
239. Saar E., Ure O. B., Holford J. (eds) (2013): *Lifelong Learning in Europe. National Patterns and Challenges*. Edward Elgar Publishing Limited, Cheltenham, p. 2-3.
240. Salas-Pilsco S. Z. (2013): *Evolution of the framework for 21st century competencies*. Knowledge Management & E-Learning: An International Journal, Vo. 5, No. 1, pp. 10-24.
241. Schuller T. (2017): *What are the wider benefits of learning across the life course? Future of Skills & Lifelong Learning Foresight*, Government Office for Science, London.
242. Sellen, A.J., Murphy, R. M., & Shaw, K. (2002): *How knowledge workers use the Web*. Proceedings of CHI 2002, Minneapolis, MN New York: ACM Press, pp. 227-234.
243. Selwyn N. (2007): *Web 2.0 applications as alternative environments for informal learning - a critical review*. OECD, Paris.

244. Sener, J. (2010): *Why online education will attain full scale*. *Journal of Asynchronous Learning Networks*, Vol. 14, Issue 4, pp. 3-16. <https://eric.ed.gov/?id=EJ909907>
245. Sharples M. et al. (2014): *Mobile and Accessible Learning for MOOCs*. *Journal of Interactive Media in Education*, X(X): X, pp. 1-8.
246. Sharples M., Taylor J., Vavoula G.: *A Theory of Learning for the Mobile Age*. [in:] Haythornwaitie C. et al (eds.)(2016): *The SAGE Handbook of E-learning Research*. 2nd edition, SAGE Publications Ltd., pp.63-81.
247. Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., & Gaved, M. (2013): *Innovating Pedagogy 2013: Open University Innovation Report 2*. Milton Keynes: The Open University, pp.20-22.
248. Shaw C.M. (2015): *Using Facebook as an Educational Resource in the Classroom*. *Oxford Research Encyclopaedia of International Studies*. DOI 10.1093/acrefore/9780190846626.013.114
249. Shirky C. (2003): *Social Software: A New Generation of Tools*. [in:] Release 1.0, Vol. 21, No. 5, [http://www.coulthard.com/library/Files/shirky\\_2003.pdf](http://www.coulthard.com/library/Files/shirky_2003.pdf)
250. Siemens G. (2003): *Why We Should Share Learning Resources*. [http://www.elearnspace.org/Articles/why\\_we\\_should\\_share.htm](http://www.elearnspace.org/Articles/why_we_should_share.htm)
251. Sienkiewicz P., Nowak J. S. (ed.) (2008): *Spółczesność Informacyjna. Krok na przód, dwa kroki wstecz*. Polskie Towarzystwo Informatyczne- Oddział Górnośląski, Katowice.
252. Sluková P. Z. (2012): *Communication of Information*. Charles University in Prague Institute of Information Studies and Librarianship. [http://www.informacniveda.cz/dwn/1003/1172\\_Modul%20Communication%20of%20Information.pdf](http://www.informacniveda.cz/dwn/1003/1172_Modul%20Communication%20of%20Information.pdf)
253. Smolska M. (2018): *Trendy usług szkoleniowych w Polsce*. [in:] (eds): Gruszewska E., Matel A., Kuzionko-Ochrymiuk E., *Współczesne problemy ekonomiczne w badaniach młodych naukowców*. T. 2, Zarządzanie organizacją, finanse i inwestycje, pp. 88-101.
254. Stage, C. (2013): *The online crowd: a contradiction in terms? On the potentials of Gustave Le Bon's crowd psychology in an analysis of affective blogging*, *Distinction*. *Scandinavian Journal of Social Theory*, Vol. 14, No. 2, p. 216.
255. Stahl G., Koschmann T., Suthers D. (2006): *Computer-Supported Collaborative Learning*. [in:] Sawyer R. K. (ed.): *The Cambridge Handbook of The Learning Sciences*. Cambridge University Press, pp.409-425.
256. Stąporek M. (2014): *Crowdsourcing, social media, lifestreaming – nowe możliwości e-partycypacji użytkowników w kształtowaniu zbiorów, zasobów i usług bibliotek naukowych*. Biblioteka akademicka. Infrastruktura - uczelnia – otoczenie. Biuletyn Biblioteki Głównej Politechniki Śląskiej, No. 3, pp. 337-353.
257. Stern J.: *Introduction to Online Teaching and Learning*. <http://www.wlac.edu/online/documents/otl.pdf>
258. Stevens Ch. H. (1981): *Many-to-many Communication*. Center for Information Systems Research
259. Sloan School of Management Massachusetts Institute of Technology. [http://dspace.mit.edu/bitstream/handle/1721.1/48404/manytomanycommun00stev.pdf?sequence=1&origin=publication\\_detail](http://dspace.mit.edu/bitstream/handle/1721.1/48404/manytomanycommun00stev.pdf?sequence=1&origin=publication_detail)
260. Stopińska-Pająk A. (2015): *Polskie tradycje instytucji edukacji dorosłych w kontekście uczenia się całościowego*. *Rocznik Andragogiczny* 2015, No. 22, pp. 289-300.

261. Suchacka M. (2015): *Konsument czy prosument? Socjologiczne uwarunkowania stylu życia w perspektywie rozwoju zrównoważonego*. [in:] Bartoszek A. et al (eds) *Prosumenckie społeczeństwo a energetyka prosumencka- problemy wdrażania innowacyjnych ścieżek rozwoju OZE*. Uniwersytet Śląski, Katowice, p. 27.
262. Sunstein C. R. (2006): *When Crowds Aren't Wise*. Harvard Business Review, September 2006. <https://hbr.org/2006/09/when-crowds-arent-wise>
263. Surowiecki J. (2005): *The wisdom of crowds*. Anchor books, New York, p. 4.
264. Szabo L. V. (2014): *The Future of Communication: From new Media to Postmedia*. Procedia - Social and Behavioral Sciences. Vol. 136, pp. 36-43.
265. Szpunar M. (2005): *Cyfrowy podział - nowa forma stratyfikacji społecznej*. [in:] Kleban J., Wiczerzycki W. (eds) *Era społeczeństwa informacyjnego. Wyzwania, szanse, zagrożenia*, Poznań, pp. 97-107.
266. Szulc-Obłóza A. (2017): *Kształcenie osób dorosłych w Polsce jako forma inwestycji w kapitał ludzki*. Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu, No. 489, pp. 405-415. [www.dbc.wroc.pl/Content/39387/SzulcObloza\\_Kształcenie\\_Osób\\_Dorosłych\\_w\\_Posce\\_Jako\\_Forma\\_2017.pdf](http://www.dbc.wroc.pl/Content/39387/SzulcObloza_Kształcenie_Osób_Dorosłych_w_Posce_Jako_Forma_2017.pdf)
267. Ślusarczyk M., Grabania M. (2017): *E-learning współczesnym narzędziem nauczania*. Szybkobieżne Pojazdy Gąsienicowe. Vol. 46, No. 4, pp. 33-40.
268. Tapscott D., Williams A.D. (2006): *Wikinomics. How mass cooperation changes everything*. Portfolio, Penguin Group Inc.
269. Tekdal M., Sayginer Ş., Baz F. Ç. (2018): *Developments of web technologies and their reflections to education: a comparative study*. Journal Of Educational And Instructional Studies In The World. Vol.8, Issue 1., pp. 17-27.
270. Thamilarasan Y. et al. (2019): *MyMUET- An interactive crowdsourced Malaysia University English Test online learning application*. [in:] Bin Abdollah M. (ed.): *Proceedings of Mechanical Engineering Research Day 2019*, Centre for Advanced Research on Energy, Malaysia, pp. 221-222.
271. Thanji M., Vasantha S. (2018): *A Study of Benefits and Limitations of eLearning- A Learner's Perspective*. International Journal of Pure and Applied Mathematics Vol. 118, No. 5, pp. 175-184.
272. The Mozilla Foundation, Peer 2 Peer University, The MacArthur Foundation (2012): *Open Badges for Lifelong Learning. Exploring an open badge ecosystem to support skill development and lifelong learning for real results such as jobs and advancement*. [https://wiki.mozilla.org/images/5/59/OpenBadges-Working-Paper\\_012312.pdf](https://wiki.mozilla.org/images/5/59/OpenBadges-Working-Paper_012312.pdf) (visited 1 May 2018).
273. Tian T., Zhou Y., Zhu J. (2018): *Selective Verification Strategy for Learning from Crowds*. In Thirty-Second AAAI Conference on Artificial Intelligence. <http://ml.cs.tsinghua.edu.cn/~tian/papers/CrowdV.pdf>
274. Toffler A. (1986): *Trzecia fala*. Państwowy Instytut Wydawniczy. Warszawa.
275. Tomski P. (2012): *Komunikacja w społeczeństwie informacyjnym: aspekt niekomercyjny*. Zeszyty Naukowe Uniwersytetu Szczecińskiego, No. 703. Ekonomiczne Problemy Usług No. 88, pp. 836-837.
276. Trilling, B., Fadel, C. (2009): *21st century skills: Learning for life in our times*. CA: Jossey-Bass, San Francisco, p. 175-177.
277. Turow J. (2014): *Media Today. Mass Communication in a Converging World*. Routledge Taylor and Francis Group, London and New York.
278. Upadhyahy U., Valera I., Rodriguez M.: *On crowdlearning: How do People Learn in the Wild?* Max Plank Institute for Software Systems. <http://ml4ed.cc/attachments/UtkarshCrowdlearning.pdf>

279. Upadhyay U., Valera I., Gomez-Rodriguez M. (2017): *Uncovering the Dynamics of Crowdlearning and the Value of Knowledge*. WSDM '17: Proceedings of the Tenth ACM International Conference on Web Search and Data Mining, Association for Computing Machinery, Cambridge United Kingdom, pp. 61-70.
280. Van Dijck J., Nieborg D. (2009): *Wikinomics and its discontents: a critical analysis of Web 2.0 business manifestos*. New media and society. Vol 11(4), pp. 855–874.
281. Van Dijk J. (2006): *Digital divide research, achievements and shortcomings*. Poetics Vol. 34, Issues 4-5, pp. 221-235.
282. Van Doorn G., Eklund A. (2013): *Face to Facebook: Social media and the learning and teaching potential of symmetrical, synchronous communication*. Journal of University Teaching & Learning Practice, Vol 10, No 1, article 6.
283. Varsori A. (2004): *Vocational education and training in European social policy from its origins to Cedefop*. Vocational Training European Journal. No 32 May-August 2004/II, pp. 63-76.
284. Vermesan O., Friees P. (2011): *Internet of Things- Global Technological and Societal Trends*. River Publishers, Aalborg.
285. Viertel E. (2009): *Teaching and learning in modern vocational education and training systems*. INFORM European Training Foundation, No. 2, September 2009.
286. Viscusi G., Tucci C. (2015): *Distinguishing “crowded” organizations from groups and communities: Is there a crowd?* Management of Technology and Entrepreneurship Institute. <https://infoscience.epfl.ch/record/213767/files/2015-WP-GV-Draft.pdf>
287. von Krogh G., Ichijo K., Nonaka I. (2000): *Enabling Knowledge Creation. How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation*. Oxford University Press.
288. Webster F. (2006): *Theories of the Information Society*. Routledge Taylor & Francis Group, London and New York.
289. Wentling L. T. et al. (2001): *E-learning - A Review of Literature*. Knowledge and Learning Systems Group, University Of Illinois At Urbana-Champaign, NCSA.
290. Westley B. H., MacLean M. S. (1957): *A Conceptual Model For Communications Research*. Journalism Quarterly No. 34, pp. 31-48.
291. Whitmore A., Agarwal A. (2015): *The Internet of Things- A survey of topics and trends*. Information System Frontiers, Vol.17, No. 2, pp. 261-274.
292. Włodarczyk K. (2015): *E-learning jako element lifelong learning. Przykład społeczeństwa polskiego*. Zeszyty Naukowe Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania Vol. 3, No. 39, pp. 397-409.
293. Wolf-Dietrich G. (2004): *European vocational training systems: the theoretical context of historical development*. European Journal of Vocational Training No 32, pp. 18-25.
294. Worek B. (2019): *Uczące się społeczeństwo. O aktywności edukacyjnej dorosłych Polaków*. Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków.
295. Wright C.R. (1979): *Sociology of Mass Communication*. Annual Review of Sociology, No. 5, pp. 193-217.
296. Yadava U. et. al. (2017): *Models of communication*. Indira Gandhi National Open University. <http://egyankosh.ac.in/bitstream/123456789/7156/1/Unit-2.pdf>

297. Yan Y. et. al.: *Active Learning from Crowds*. Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI 2015), pp. 1061-1067.
298. Zhang J. et al. (2015): *CEKA: A Tool for Mining the Wisdom of Crowds*. Journal of Machine Learning Research No. 16, pp. 2853-2858.
299. Zhou M., Brown D. (2015): *Educational Learning Theories. Education Open Textbooks*. Galileo University of Georgia, Book 1, p. 30.
300. Zou J., Parkes D. (2012): *Get another worker? Active crowdlearning with sequential arrivals*. In Proceedings of the Workshop on Machine Learning in Human Computation and Crowdsourcing (ICML'12).<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.269.7213&rep=rep1&type=pdf>

## References

1. Cambridge Business English Dictionary <https://dictionary.cambridge.org/dictionary/english/wikinomics>
2. Cambridge Dictionary: *collectivism*. <https://dictionary.cambridge.org/dictionary/english/collectivism>
3. Crowdoscope (2015): *Collective Intelligence: An Overview*. Crowdoscope Ltd., London. <https://www.crowdoscope.com/pdf/Crowdoscope%20-%20Collective%20Intelligence%20-%20An%20Overview.pdf>
4. Cushard B., *On-Demand is the Future of Online Learning*. Mindflash, <https://www.mindflash.com/blog/on-demand-is-the-future-of-online-learning>
5. Degreed (2015): *The Growth of Informal Learning and the Opportunity It Creates*. Degreed.
6. *Encyklopedia Zarządzania: kolektywizm*, <https://mfiles.pl/pl/index.php/Kolektywizm> (visited 23 March 2018).
7. Epignosis LLC(2012): *E-learning: Concepts, Trends, Applications*. Epignosis LLC, San Francisco.
8. Feder B. J. (2006): *Theodore Levitt, 81, Who Coined the Term 'Globalization', Is Dead*. New York Times <https://www.nytimes.com/2006/07/06/business/06levitt.html>
9. Fundacja Młodej Nauki (2018): *Polska Platforma MOOC*. <http://fmn.org.pl/polska-platforma-mooc/>
10. Howe J. (2016): *The rise of crowdsourcing*. <https://www.wired.com/2006/06/crowds/>
11. IGI Global Dictionary, <https://www.igi-global.com/dictionary/many-to-many-communication/17839>
12. IGI Global <https://www.igi-global.com/dictionary/online-learning-community/4775>
13. MacDonald S. (2007): *The Web 2.0 Advantage*. <https://www.wiki.ed.ac.uk/display/Web2wiki/The+Web+2.0+Advantage;jsessionid=88EF90B16B81EC2B112D4F3458FFD0B5>
14. Murphy M. (2020): *COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy*. Contemporary Security Policy, DOI: 10.1080/13523260.2020.1761749.

15. Parrott M. (2018): *Facebook Education: Activate, Collaborate, Innovate*. <https://www.gettingsmart.com/2018/10/facebook-for-education-activate-collaborate-innovate/>
16. Partnership for 21st Century Skills: <http://www.p21.org/about-us/our-mission>
17. Pisarek W.: *Słownik terminologii medialnej*. TaiWPN Universitas, Kraków.
18. PwC (2016): *The Wearable Life 2.0 Connected living in a wearable world*. <https://www.pwc.se/sv/pdf-reports/the-wearable-life-2-0.pdf>
19. Scalter N.: *The Organisational Impact of Open Educational Resources*. <http://oro.open.ac.uk/18765/2/BC228F30.pdf> (visited 27 April 2018).
20. Shirky C. (2003): *A Group Is Its Own Worst Enemy*. [http://shirky.com/writings/group\\_enemy.html](http://shirky.com/writings/group_enemy.html)
21. Słownik Języka Polskiego, <https://sjp.pl/kolektywizm>
22. Słownik PWN: wiedza <https://encyklopedia.pwn.pl/haslo/3995573/wiedza.html>
23. Słownik synonimów, <https://synonim.net/synonim/kolektywny#g9676>
24. Talent LMS: *The history of e-learning*. <https://www.talentlms.com/elearning/history-of-elearning>
25. TATA Interactive Systems: *Wearables in Learning. The brave new frontier*. [http://www.tatainteractive.com/pdf/Wearables\\_in\\_Learning\\_article.pdf](http://www.tatainteractive.com/pdf/Wearables_in_Learning_article.pdf)
26. Wikipedia. Web 3.0 Wikipedia Definitions. [http://en.wikipedia.org/wiki/Web\\_3.0](http://en.wikipedia.org/wiki/Web_3.0)
27. Wisselink B. (2018): *The Wisdom of Crowds: not as easy as you think*. <https://baswisselink.com/articles/the-wisdom-of-crowds-not-as-easy-as-you-think/> (visited 1st October 2019).
28. [www-1] <https://www.encyclopedia.com/social-sciences/dictionaries-thesauruses-pictures-and-press-releases/information-society>
29. [www-2] <http://learning-media.blogspot.com/2008/08/some-definitions-of-mass-communication.html>
30. [www-3] <http://www.bristol.ac.uk/news/2012/8560.html>
31. [www-4] <https://www.communicationtheory.org/shannon-and-weaver-model-of-communication/>
32. [www-5] <https://www.communicationtheory.org/westley-and-macleans-model-of-communication/>
33. [www-6] *E-learning Industry: Top 7 Corporate Learning Management System Trends For 2018*.
34. [www-7] <https://www.facebook.com/helloeduation/videos/1811082255809184/>
35. [www-8] <https://education.microsoft.com/badges-points-certificates/badges-and-points>
36. [www-9] <http://elearning-conf.eu/docs/cp10/paper-27.pdf>
37. [www-10] <http://www.wlac.edu/online/documents/otl.pdf>
38. [www-11] [http://serwis-uslugirozwojowe.parp.gov.pl/files/Do\\_pobrania/28\\_12\\_2015/2/PARP-Olga\\_Lodyga.spr.pdf](http://serwis-uslugirozwojowe.parp.gov.pl/files/Do_pobrania/28_12_2015/2/PARP-Olga_Lodyga.spr.pdf)
39. [www-14] EUR-Lex: Glossary of summaries- Information Society. [https://eur-lex.europa.eu/summary/glossary/information\\_society.html](https://eur-lex.europa.eu/summary/glossary/information_society.html)
40. [www-15] <http://www.bell-projec t.eu/cms/>
41. [www-18] [https://www.facebook.com/pg/education/about/?ref=page\\_internal](https://www.facebook.com/pg/education/about/?ref=page_internal)
42. [www-28] <http://www.cedefop.europa.eu/en/about-cedefop>
43. [www-29] [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy\\_en#howis-thestrategymonitored](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy_en#howis-thestrategymonitored)

44. [www-30] <https://www.smartinsights.com/social-media-marketing/social-media-strategy/new-global-social-media-research/>
45. [www-31] Finance Online: *The history of Learning Management Systems*.  
<https://learning-management-system.financesonline.com/>
46. [www-32] Borkowski M. (2019): *Here's why the give-and-take experience makes crowd learning the way ahead*. <https://yourstory.com/2019/02/heres-give-take-experience-makes-crowd-learning-way-ahead>

## Summary

### **Crowd-learning as a method of improving vocational skills in the Information Society by the example of Poland**

The thesis consists of the introduction, three chapters, conclusions, the summary and the bibliography. In the introduction the author presents the main problem, research hypotheses and methodology of the research. The first chapter points at processes that shaped the Information Society, which we are and how these processes transformed education and learning. The second chapter discusses the idea of lifelong learning as a precondition of development in the Information Society. In the third chapter, the author describes the new technological paradigms of learning. There is a subject of crowd-learning explored with its benefits and shortcomings and world's crowd-learning platforms presented as well as research conducted by the author. In further steps, the author describes conclusions and verifies the hypotheses.

The development of human civilisation is divided by researchers differently, however, the stages and their characteristics are undoubtedly the same. We could call them eras, epochs, waves, societies or ages. The terms do not matter, but changes do. Whatever we call them, human civilisation had been living in the agrarian era for several thousand years, evaluating into industrial society and living for several hundred years in order to become the Information Society.

The 20<sup>th</sup> century has experienced the most radical changes in all the centuries recorded in history. New means of mass communication, from radio-station, film and television to computers and the internet, prepared media revolution, which along with the process of globalisation shaped the Information Society which we are today and which we are going to improve much more in the future. The analysis of different definitions of the Information Society led to a statement that the term of the Information Society is still evaluating as the society is still improving and the situation stimulates the development.

The globalized and mediated world is the natural environment of the Information Society. Thanks to new means of mass communication, the term “distance” has alleviated its meaning as the distance stopped to play a significant and obstructing role. Possibilities of unlimited distance communication also improved business and education. Anyone has got an opportunity to choose any place of work or education around the world as

globalisation unified skills, requirements and resources. Ways of communication between people and institutions in the Information Society changed convertible by new media. Communication is no longer one channelled without feedback, but there are many senders and receivers who give immediate feedback. Initial communication models are no longer enough to apply them to communication in the 21<sup>st</sup> century, communication on the Internet. Today we should pay attention to many-to-many communication model. The author proposed own model applied to communication during crowd learning. What is innovative in that model is that mass sender sends messages to mass receivers, but a part of receivers give feedback. Some receivers remain passive, meaning apart from receiving a message, they do not react, they are only and still receivers.

The digital economy of the 21<sup>st</sup> century based on Web 2.0 transformed the way people work and the skills they need at work. Digital technologies are used in all types of jobs. We experience four paradigm shifts happening in the IT world today, which influence the digital workplace: mobility which implies that people connect with others and with data anywhere, any time, and on any device, the data itself, the Cloud, which provides access to a broader service catalogue with a variety of levels of service and the collaboration meaning methods and tools allowing people to connect in a network manner – and co-create the information.

Not only business and work have transformed. Education has also undergone changes involving new means of organizing teaching and learning as well as many practices in education, including pedagogy, curriculum, and assessment. It is vital to say Web 2.0 gave people something revolutionary- open access. It allows to use of resources and recycle them for free. It made access to knowledge more manageable than ever before. It is a part of A. Toffler's concept of the third wave -the disappearance of a gulf between producers and consumers creating prosumers economy.

The most characteristic feature of our society, which is the Information Society, is fast technological development and omnipresent media. Every day 4.5 billion of people around the world connects with the internet and 3.8 billion of them are social media users. It equates more than 100 days of connected time per internet user, per year<sup>605</sup>. It means that more and more aspects of human life moved into online, develops online and through the media. Set of essential literacies and skills has changed. Traditional professions are

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<sup>605</sup> We are social (2020): *Digital Report 2020*. <https://wearesocial.com/blog/2020/01/digital-2020-3-8-billion-people-use-social-media> (visited 27 February 2020).

passing away in order to give place new ones, and any of them are strictly connected with IT environment.

Lifelong learning has never been as important as it is today. It is vital for maintaining good health, remaining active in the community and being fully included in all aspects of society, but also for improving and developing skills, adapting to technical developments, advancing a career or returning to the labour market. Lifelong learning is what business, education and economy have in common. Life-long learning is a crucial element of all job profiles. The society receives economic and non-economic benefits from lifelong learning, connected with the Social Capital Theory.

The Education and Training 2020 (ET 2020) framework includes the benchmark to increase the share of adults participating in learning to 15%. We have already reached 2020, and unfortunately, the progress towards the EU's goal turned out to be insufficient. Without Great Britain, which left the European Union, it is 10.7%. Poland's score is very low, only 4.9%, and it belongs to the lowest ones<sup>606</sup>.

Although formal education is very significant and necessary at some stages of human life, we are not able to learn the whole life in the formal system. In adult life, informal learning becomes more appropriate. Development of media changed the communication model and influenced new kinds of learning. Crowd-learning as a new informal way of upskilling appeared thanks to social media. It gives many opportunities for professional and personal development as it is the most flexible and personalized of all types of learning. It makes learning easier and more available to everyone. For busy professionals who want to learn quickly, for novices adapting to a new profession, for young women who share their time between work and family duties, for country's dwellers or for those who live in remote areas but above all, it is for open-minded who are eager to share their expertise with other similar to them and for those who want to develop themselves.

Crowd learning is the 21<sup>st</sup> century's way of lifelong learning. Based on wisdom of the crowd it gives unlimited possibilities to learn in any time and place, adjusting to adults' needs. It is the most personalized way of education. As it is informal learning, a kind of certification or confirmation is desired.

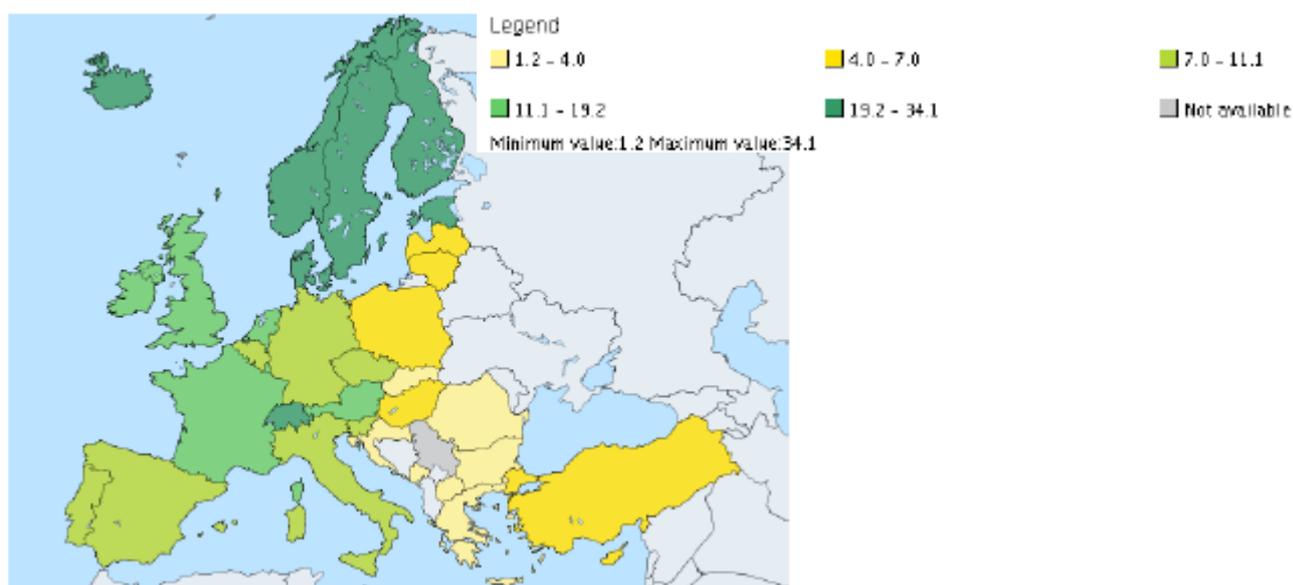
The author conducted a series of research (desk research, quantitative research and qualitative research) in order to know the educational activity of Polish society and to find

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<sup>606</sup> [https://ec.europa.eu/eurostat/tgm/web/\\_svg/Eurostat\\_Map\\_sdg\\_04\\_60\\_27053745691\\_tmp.pdf](https://ec.europa.eu/eurostat/tgm/web/_svg/Eurostat_Map_sdg_04_60_27053745691_tmp.pdf) (visited 27 February 2020).

out about possibilities of introducing crowd learning platform in Poland as well as set up basic and advanced functionalities.

From the very beginning, the author assumed that Polish society participates in lifelong-learning more and more and follows the world's trends in education. That hypothesis was disproved. Level of participation of Polish society in lifelong learning is very low for years in comparison to other European countries. As a result, the author changed motives and the direction of development crowd learning platform. Instead of introducing a tool for numerous adults lifelong learning, the author focused on the tool shaping lifelong learning behaviour aimed to improve lifelong learning in Poland.



Picture 21. Adult participation in learning. Eurostat.

The term of crowd-learning is entirely new to Polish society which is not aware that what they do in social media is learning. Only during the individual-depth-interviews particular crowd-learners realized how much they had learnt from each other, without a plan and a certificate. There are many experienced, disinterested and open-minded people in Poland who might contribute to adult learning increase, however, they need a special tool which is a crowd-learning platform.

Conducted qualitative research present the essential features and functionalities of the platform proposed by active crowd-learners. The author hopes the start-up of the platform

would gather people of varied professions and be the first noticeable step in improving adult learning and lifelong learning in Poland.

The crowd-learning platform proposed by the author would help to increase the level of adult learning, lifelong learning and level of participation in vocational training, develop social capital, popularize science and the latest scientific research, foster cross-generational cooperation, promote and learn lifelong learning behaviours, and help companies to find qualified workers.

Appendix 1

Survey pool questionnaire

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***Question 1. What new informal forms of professional development do you use?***

***(A multiple question, a participant could choose more than one)***

- a) e-conference
- b) private lessons with an online teacher
- c) applications available for smartphone
- d) courses online
- e) MOOC (massive open online course)
- f) social media (e.g. Facebook, YouTube, blogs, vlogs, forums)
- g) online publications
- h) webinars
- i) others

***Question 2. Do you know the term „crowd learning” or are you familiar with the term?***

- a) yes
- b) no

***Question 3. Do you share your knowledge with others? How often do you share your knowledge, experience or resources with others?***

- a) do not share and do not use
- b) do not share, but often use
- c) rarely share, but often use
- d) share and use systematically
- e) often share and often use

***Question 4. What kind of user are you?***

- a) a novice/ laic- I am beginning my work in the branch. I ask a lot, and I learn a lot.
- b) an inspiration explorer- I observe and use interesting ideas, but I rarely share my knowledge with others

- c) an active user- I use others' knowledge, and I often share my knowledge with others. I believe that exchanging knowledge develops us professionally.
- d) an expert- I promote my own brand.

***Question 5: How old are you?***

- a) 25-34 years old
- b) 35-44 years old
- c) 45-54 years old
- d) 55-64 years old

***Question 6: What is your profession? (open question)***

***Question 7: What is your education level?***

- a) primary education/ gymnasium
- b) lower secondary school
- c) higher secondary school
- d) post-secondary
- e) bachelor's degree
- d) master's degree

***Question 8: Where do you live?***

- a) country
- b) small city (up to 20 000 of residents)
- c) medium city (between 20 000 and 99 000 of residents)
- d) big city (between 100 000 and 500 000 of residents)
- e) great city (above 500 000 residents)

***Question 9: What is your sex?***

- a) woman
- b) man

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## Appendix 2

### A scenario of the focus test

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*Question 1. What makes you share knowledge? Why do you do it?*

*Question 2. What threats are connected with sharing knowledge?*

*Question 3. What functionalities should crowd-learning platform have?*

*Question 4. How to attract people to use crowd learning platform?*

*Question 5. Who should play the role of an expert?*

*Question 6. How should the crowd-learning platform be financed?*

*Question 7. What kind of technology should crowd-learning platform operate in?*

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## Appendix 3

### A scenario of the individual-depth-interviews

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*Question 1: What makes you share knowledge? Why do you do it?*

*Question 2. What benefits do you get from sharing knowledge?*

*Question 3. You share your knowledge with others but do you use knowledge and experiences shared by others?*

*Question 4. Is that knowledge valuable?*

*Question 5. How does it differ from the knowledge gained during traditional training?*

*Question 6. Have you ever faced danger or negative consequence of sharing knowledge?*

*Question 7: Can crowd-learning influence our personal development in your opinion?*

*Question 8. Do you know any crowd-learning platform around the world? Have you ever used one?*

*Question 9. What functionalities should a crowd-learning platform have to satisfy the needs of crowd-learners?*

*Question 10. How should crowd-learning platform be financed?*

## Appendix 4

### Metrics of the individual-depth-interviews respondents

Interlocutor	sex	Education attainment	profession	age	Place of living
Interlocutor 1	man	higher	scientist	in his 50s	city - Olsztyn
Interlocutor 2	woman	higher	teacher trainer	in her 40s	city - Ostrzeszów
Interlocutor 3	woman	higher	midwife	in her 30s	city - Rzeszów
Interlocutor 4	woman	higher	lawyer	in her 40s	city - Warszawa
Interlocutor 5	man	higher	sales manager	in his 30s	city - Wrocław
Interlocutor 6	man	higher	sales manager	in his 30s	city - Wrocław
Interlocutor 7	man	higher	entrepreneur	in his 30s	city - Łódź
Interlocutor 8	woman	higher	teacher	in her 40s	city - Kolbuszowa

## Appendix 5

### Metrics of the focus test participants

Interlocutor	sex	Education attainment	profession	age	Place of living
Interlocutor 1	woman	higher	coach	in her 50s	city
Interlocutor 2	man	higher	scientist	in his 40s	city
Interlocutor 3	man	higher	musician	in his 30s	city
Interlocutor 4	woman	higher	public servant	in her 40s	country
Interlocutor 5	man	higher	soldier	in his 50s	city
Interlocutor 6	man	higher	IT specialist	in his 30s	city
Interlocutor 7	man	higher	cultural manager	in his 50s	city
Interlocutor 8	woman	higher	clerk	in her 30s	city
Interlocutor 9	woman	higher	psychologist	in her 30s	city
Interlocutor 10	woman	higher	guidance counsellor	in her 40s	city
Interlocutor 11	woman	higher	public servant	in her 40s	city
Interlocutor 12	man	higher	IT specialist	in his 30s	city
Interlocutor 13	man	no data	no data	in his 40s	city

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