

NEW PERSPECTIVES IN RESEARCH OF ADULTS' ON LINE LEARNING

Hajdana Glomazić*

Institute of Criminological and Sociological research, Belgrade, Serbia

Vesna Fabian**

National Employment Services, Belgrade, Serbia

Abstract

The development of the Internet and new technologies brought about many changes in the field of learning which has opened multiple possibilities for methodology of andragogic research to explore the phenomena which are at the center of its interests. Adult online learning represents one of these phenomena. In this paper, we aim to examine whether modern analytical research methods and logical models can be successfully applied in the study of learning and adult education which refer to the online community. The results showed that use of the software and logical models in empirical research of adult on line learning has its justification, but it must be noted that there are some important limitations in their application.

Key words: online adult learning, on-line adult education, connectivism, digitization, empirical research

Introduction

The advancement and development of technology have brought numerous innovations in the world of communication and opened different perspectives on the field of learning and education. One of the particularities of the modern information society is the requirement for permanent adult education. Modern technology has provided multiple opportunities for adults to meet this need in a way that is least time consuming or disturbing their daily schedule. As knowledge is growing exponentially and the demands that society and the labour market are setting for adults are becoming bigger, they are forced to learn and educate continuously in order to meet the requirements that have been set previously.

* hajdana.ng@gmail.com

** vesna.fabian@yahoo.com

Only forty years ago, people who have left the formal education system would begin their career after graduation and it would usually last a lifetime without excessive turbulence (George Siemens, 2005). Today, due to changes caused by technology development, situation has altered significantly, since knowledge required for successful integration into society, on a personal and professional level, is rapidly changing. Hence, the authors warn that *life of knowledge* have shortened so that now it can be measured in years or even months (Siemens, 2005). In such an environment, learning has become imperative, and not only the one that refers to the formal education and school – because people learn every day (Anita Woolfolk, Malcolm Hughes, Vivienne Walkup, 2014), but in any other, informal and empirical learning that takes place in various ways: through practice, creating personal connections, job-related tasks, and similar (Siemens, 2005).

In this paper, learning is understood in the broadest sense, while under the term of learning we think of a process that occurs “when experience causes relatively permanent change in knowledge or behaviour of a person” where “change can be intentional or unintentional, for better or worse, right or wrong, aware unaware of (Hill, 2002, as cited in Woolfolk et al., 2014, p.14).

The study of adult learning in a dynamic new environment and rich resources for learning is a challenge for andragogy both in theoretical and methodological sense.

Adults’ on-line learning and Connectivism

In the literature, there are distinctions between the concepts of online learning, e – learning and distance learning, but as a deeper analysis of the reasons underlying the distinction between these concepts are beyond the objectives of our work, we will not go further into it. It is important to say that online learning is defined as a process in which learning takes place electronically and in which the learning resources are available via the Internet (Glomazic, 2013). Furthermore, adults’ online learning is characterized by the use of new technologies in learning which represent its key feature. However, in order to understand the process of adults’ learning in online environments and to aid professionals in educating adults while creating online learning programs for them, their characteristics and specificities must be taken into account (Cercone, 2008). The authors believe that it is important for professionals in the field of on-line adult learning to care to support adult learners, by taking into account their experience, needs, barriers in adjusting to a new way of learning (ibid.). It must also be kept in mind that adult students, as they go through the process of online learning (and learning in general), transform their experience and need support as they go through these changes. In this regard, the role of the instructor is to act as a mediator, not a lecturer, “allowing students to experience the discovery as part of the learning process”(Cercone, 2008, str. 151).

From the literature in the field of adults' online learning, we can conclude that it can be viewed in two ways: as a form of learning in the formal education system which includes the use of all available technological novelties in order to innovate and modernize classroom practice. Another form of adults' online learning refers to informal learning or, even more precise, empirical learning that takes place in the online space by using the Internet, new media and social networks. This paper is primarily interested in the informal aspect of adults' online learning. Therefore, we want to know if it is possible to learn in virtual space and how to measure the effects of such learning.

In order to understand the methodological challenges that are put before researchers who study learning and adult education, we must first pay attention to the theoretical basis or explanation of the learning that takes place in an atmosphere of rapid development of technology. Behaviourism, constructivism and cognitivism are learning theories that have a purpose to explain the complex processes of learning, but the fact is that they are developed at a time when learning was not significantly dependent on the development of technology (Siemens, 2005), or not to the extent that it depends today. Although in the past twenty years, technology have become so advanced that it reorganized the way we live, communicate and learn (Siemens, 2005), we should not forget that traditional learning paradigms do not become outdated; in fact, it is necessary to, in comply with the requirements dictated by the information society, existing theories incorporate attributes that reflect modern learning environment in themselves (Clarissa Davis, Earl Edmunds & Vivian Kelly Bateman, 2008). In that sense, there was a need for processes and principles of learning, as well as learning needs, to be explained in a way that appreciated the social environment in which they take place. Furthermore, all of these theories, including the theory of transformative learning and connectivism, have a common component whose basis lies in steering the path that will help students to gain knowledge and develop a deeper understanding of what they learn (Debbie J. Wicks, 2009).

Connectivism, the theory of a new age¹, attempts to answer to some of the questions concerning learning in general, as well as adult learning, in the online space. George Siemens (2005), the creator of this theory, considers that the technological tools we are using not only define, but also shape our thinking. The very fact that the technology is involved in learning causes displacement of learning theories towards digital era. Siemens (2005) examined the theory of chaos and realized that chaos is a new reality in learning in the digital era, which is defined as "hidden form of order" by some authors (ibid.). His view, based on theory of chaos, states that chaos recognizes the connection of everything with anything and that there is a meaning within

1 We use *theory* only conditionally since there is no agreement between researchers if it can actually be called a theory or it is just a pedagogical method

itself. Therefore, it is a challenge for student to discover the meaning or to recognize schemes, patterns and relationships that seem hidden. At its core, George Siemens' theory of connectivism is the combined effect of three different components: chaos theory, importance of networks, and the interplay of complexity and self-organization. He believes that our knowledge does not necessarily have to be placed inside of us, but that it might reside outside of us (in organizations or database) and that learning is defined as the active construction of knowledge aimed at linking the worlds of information and connections that allow us to learn. Thus, the ability to connect and build relationships, or having a skill to carry out a selection of information and separate the important from the unimportant among them, is more significant than our current state of knowledge, since information and knowledge are changing rapidly. As the author states, the ability to leverage resources in order to achieve knowledge becomes the key skill: knowing when and knowing what is replaced with knowing where. Siemens believes that learning (knowledge) located in the databases must be connected with the right people in the right context in order to be classified as learning. As a part of social networks, essence are well connected people who are able to maintain the flow of knowledge and them being connected between themselves may have effective flow of knowledge as a result.

The author believes that the starting point in the cycle of knowledge is an individual, whose personal knowledge consists of creating a network and which is later subsequently incorporated into organizations and institutions. It then circles and is returned back to the network to eventually continue to provide knowledge for the individual. This cycle of knowledge (from personal to network to organization) allows the one who learns to remain stable in their field through the connections he have formed. Siemens states that the spread of learning, knowledge and understanding through increased personal networks represents a concise review of connectivism. Although this theory suffers complaints and criticism because of the lack of merits and its status as a theory is disputed (see: Frances Bell, 2011²; Betsy Duke, Ginger Harper, and Mark Johnston, 2013³), it is popular in scientific circles and is used to explain learning process that undoubtedly refers to the online community, especially because of the great popularity and widespread use of mass open online courses (MOOCs). Moreover, this approach provides an explanation of the adults' online learning whether it takes place in higher education institutions of formal education, informal education, business environment or on social networks.

2 Bell states that connectivism is influential in practice because of the prevalence of massive open online courses (MOOCs) especially for those who use them in learning as well as for others who want to implement it in practice, but that it lacks more serious critics

3 This paper presents the advantages and disadvantages connectivism; it problematizes the question of connectivism as a theory

In higher education, online learning has become especially popular as evidenced by numerous scientific papers on the topic of this area. British organization *Research Information Network*⁴ deems that social media have established a new way of interconnection, which represents an important technological trend. They believe that social media have significant implications on a way in which scientists (and people in general) cooperate and exchange information, thus that connecting and exchanging information, knowledge and educational resources among scientists and researchers via Internet is one of the innovations that marked the adults' on-line learning. Research Information Network presented a tutorial on using social media in research, scientific, or academic purposes where there is a very detailed classification of social media that are resources for adults' online learning and the exchange of educational information: "This guide uses the term 'social media' to refer to Internet services where the online content is generated by the users of the service" (Social media: A guide for researchers, 2011, p. 7). According to their classification, we can distinguish several groups of social media out of which each can be an educational resource for adults. They are following: *Social networking services* (Academia.edu, Facebook, LinkedIn...); *Social bookmarking, news and social citation tools* (BibSonomy, CiteULike, delicious, Digg, diigo, Mendeley, Newsvine, Reddit, Zotero); *Blogging and Microblogging tools* (Blogger, LiveJournal, Twitter, Google buzz, Plurk, Posterous, Tumblr, Wordpress...); *Virtual worlds* (SecondLife, OpenSim, World of Warcraft), *Presentation sharing tools* (Scribd, SlideShare...); *Audio and Video tools* (YouTube, Picasa, Viddler, Vimeo); *Examples of academic and research blogs* (Research blogging, Academic blog portal, Science in the Open, Science of the Invisible, Stanford blog directory Starting out in Science...); *Research and writing collaboration tools* (Dropbox, Google Docs, Wikia...); *Managing projects and cooperation tools* (Bamboo, Skype...); *Information management tools* (Google Reader, iGoogle).

This, of course, does not exhaust the topic of adult' online learning because this type of learning does not refer only to a category of highly educated people, but serves to illustrate the many ways in which it takes place and is used. It actually refers to all adults who use the potential of the Internet for the exchange of knowledge, whether it occurs as a result of their deliberate intention to acquire a certain knowledge and skills, or unconsciously, in which case learning can be defined as an accidental, side effect.

Logically, along with the development of new paradigms that explain the flow of the learning process in an era of technological revolution, there was a need to find new methodological approaches in the study of learning and adult education.

4 See: <http://www.rin.ac.uk/our-work/communicating-and-disseminating-research/social-media-guide-researchers>

Methodological challenges in the study of adults' online learning

Since studies show that in developed countries, the population of Internet users nearly became equal to the general population – a similar trend is noticed in less developed countries – logically follows that the availability and use of digitized data and records from the virtual space for research purposes increased and that wide space for the development of advanced analytical methods and approaches in the study of contemporary social phenomena opened up (Branković, 2013).

The authors argue that digital society brought “new stations and tools for practical actions, which are completely different, much more powerful, faster and more effective in comparison to what a classic, pre-digital society had to offer” (Brankovic, 2014b, p. 1). This has opened multiple possibilities for exploring the phenomena which are at the heart of their interest for the methodology of social research, and therefore the methodology andragogic research.

In his article *Social networks and new possibilities of social research*, Brankovic states that “life” of the entire society literally takes place on the Internet, given the fact that in the modern world “functioning of the state, education, the whole political and cultural life is unimaginable without the Internet” (Brankovic, 2013, p. 4). As the major social changes, made by development of communication technologies, have resulted in connectivity and networking of individuals and groups, that was further reflected in the changes in the field of methodology of social research (ibid.). Brankovic (2013) describes several levels in which changes in the methodology of social research have occurred. They are following:

The subject plane – there is a newly opened possibility that subject of the research can be anything defined as “life” of the whole society (“real life”), meaning that “much broader thematic intervention is possible in relation to classical studies” (ibid., p. 4).

Transferred to the field of online learning and adult education, this means that it is possible to extract themes from the so-called “real life” and this way explore this andragogic area.

The “social unit (individual) –social universe” axis – unlike the classic studies that have been done on different samples of the population, using modern research methods, research can often be carried out on entire population.

The possibility that opens up by using this methodological approach is equally important for the research carried out in andragogic as well as in all other areas.

The time axis – “real life (where it is possible to select a part which will become the subject of research, author’s note) is exposed to a continuous row along the timeline” which “provides easier detection and monitoring of trends and deeper insight into the relations of connectivity, conditioning, causality, and causality” (ibid. p. 4).

The phenomenal aspect – digitalized data on the occurrence which is the subject of research allow their easy individual identification, clustering, classification, ranking, measurement and involvement in a series of advanced statistical and other analyses.

This, as well as previously described plane, has universal significance for the research carried out in the area of social sciences, and consequently in the sciences of education and adult learning.

Since modern channels and methodological tools are not sufficiently explored in the methodology, and the author Brankovic (2014b) himself concludes that the literature almost does not have any recorded research on this topic (and consequently on the topic of their use in the research of adult's online education, author's note). Therefore, this paper will have to set up a hypothetical problem and assume that the global settings that apply to social research methodology, should likewise apply to the methodology of research in andragogy, since it belongs to social sciences.

Adults' online learning is interactive and takes place in the process of communication on the Internet. Since the data about the communication is available in digital form, traces or records of the ways in which the learning process takes place through communication constitute a specific database. These digital traces exist in the form of text, images, audio and audio-visual records. Therefore, a large amount of the raw material on the Internet, in the form of database, is available for research. Brankovic noted that, so far, not many serious actions have been made to use such a base "to the extent it is available, as it is not used to the depth of the project which would seriously surpass the achievements of the classical empirical research" (Brankovic, 2014a, p. 70). For this reason, the same author and his colleagues⁵ have developed an original and unique analytical model and a research tool that provides entirely new possibilities in the field of empirical research and called Symbols Research (SR).

By using this analytical model, it is possible to explore the phenomenon of online adult learning, at least in some aspects, though it is not its primary purpose. Since it might be useful to researchers from different scientific disciplines: communication, sociology, political science, economics, linguistics and many other disciplines (Brankovic, 2014), it is possible to test it in the field of learning and education⁶. Software – Symbols Research – belongs to a new field of applied researches, which is known as a large set of analytics (Brankovic, 2014b), while the characteristic of a model itself is to review all communications that

5 The authors of the analytical model and software Symbols Research are Prof. PhD Srbobran Brankovic, PhD Ljubisa Bojic and Alek Kezeleand and its realization included a team of psychologists, mathematicians and programmers.

6 In that sense, one of the authors of this paper have agreed to the idea of research in the field of the adults' on-line learning in collaboration with the creator of the analytical model SR, Srbobran Brankovic.

take place on social networks. It is based on the idea that quantitative studies of communication among people are possible, which is primarily related to written communication and in later stages, communication through voice and image. Brankovic said the following (Brankovic, 2014a, p. 71): “Symbols Research views the entire communication on social networks in a given time and social space, automatically detects the requested content, sorts them in real time and makes basic checks, then notices certain regularities and provides analytical findings, including recommendations to clients of what to do in order to improve their results. “Its main qualities that make us believe it can be successfully used in andragogy research are following (Brankovic, 2014, p. 72–73):

- Symbols Research involves the whole population in the research (the entire communication in social networking that takes place in one language), which is a qualitative leap in relation to classical studies.

In contrast to this type of research, classical studies investigate the pattern, tiny fraction of the population.

- Within the SR, analysis is done in real time, which means that a tool for the identification, classification and evaluation is pre-made and a much more dispersed.

SR advantage over the classical study is that the tool is standardized to a greater extent than it is the case with the classical analysis of the contents.

- In the process of research when it comes to the SR “place of a man – analyst” is different compared to classical research: he is able to bring changes and corrections during the research process that can be applied both forward and backward. This is possible because it is a so-called smart software, or more precisely artificial intelligence, which is in the basis of this model.

In traditional research, the role of man is in reviewing content and drafting concepts that represent basic units of research, then input of the data into the program for processing and analysis, while, in the SR, there is a pre-made list of terms, and a man constantly controls its “sensitivity” and efficiency in identifying content which might be interesting for processing.

- In the basis of SR is an extensive study of language and its various layers (literary, written, spoken, various versions of professional language, as well as various categories of slang) and on that basis dispersed symbol table is made.

In classical content analysis, tool (list of terms and meanings) is made individually for each subject in analysis.

- Tracking trends is of a much better quality in comparison to classical content analysis.

- With the SR, impact of some independent on dependent variables can be significantly more effective compared to classical research. Thus, for example, formation of some movement or action on the social networks can be tracked: what was the trigger for an event, how did actions and announcements of actors or followers reflect on the flow of the event, and similar. By having these insights, many social phenomena become more understandable.

Therefore, SR works in a way where, in the first stage, we make a symbol table that contains a list of words, phrases, idioms, simple frames, emoticons, photos ... after which this software browse communication content in real-time and makes an overview of communication. In the second phase, which takes place almost parallel to the previous one, analytics and presentation of results is done (tables of intersecting and correlation between variables), while in the third phase more delicate analysis are done – multivariate and regression analysis, in order to find algorithms which largely explain changes in the dependent variables (ibid., p. 74).

Symbols Research is an analytical model that relates only to research in the area of social networks which is one of the limitations of its use in online learning for adults. The online learning does not take place on social networks only, although it is becoming one of the most important channels for exchange of information and knowledge among adults. However, this portrayal of one approach or analytical models should not be seen as an imperative and something authors insist must be followed as it is considered to be “up-to-date”. It should be primarily seen as an additional option which is open to researchers, and which might possibly contribute to the improvement of current research practice. It should also be noted that it is always possible to combine traditional methods with new ones and therefore we can still see modern models as a supplementation to the ones that already exist.

Concluding remarks

Because of the widespread of on-line learning on the Internet, as well as opportunities to explore the entire population and measurements in real time, it would be beneficial if new research models or methods would find their place in a wide field of research of adult education. Furthermore, we should be careful and understand this attempt we made as a proposal to make efforts in order for this methodological approach to be tested further, which would check its usability in further research regarding adults' online learning. Although the theoretical review presented before suggests that using of software and logic models in empirical research in adults' online learning is valid, it must be noted that there are some important limitations in their application.

References

- Bell, F. (2011). Connectivism: Its Place in Theory-Informed Research and Innovation in Technology-Enabled Learning. *The International Review of Research in Open and Distributed Learning: Special Issue – Connectivism: Design and Delivery of Social Networked Learning*, 12 (3), 98–118.
- Branković, S. (2013). The Social Network and New Possibilities in Social Research. *Culture policy* 20 (10), 77–90 Retrieved from: <https://www.academia.edu/3515120/>. (05.09.2015.)
- Branković, S. (2014a). *Big Data Analytics and Its Epistemological Relevance*. In: Đorđević, D.B., Petrović, J. (eds.) *The study of social phenomena. Methodological considerations*. Niš: Faculty of Philosophy. Retrieved from: <https://www.academia.edu/8101951>. (05.09.2015.)
- Branković, S. (2014b) *Advanced Research of Social Networks' Communication CM: Communication and Media Journal*. 9 (32), 69 – 82. Retrieved from: <http://aseestant.ceon.rs/index.php/comman/article/view/7518/2570> (05.09.2015.)
- Cercone, K. (2008). Characteristics of adult learners with implications for online learning design. *AACE Journal*, 16 (2), 137–159.
- Duke, B., Ginger Harper, G. & Johnston, M. (2013). Connectivism as a Digital Age Learning Theory *The International HETL Review, Special Issue*. (pp. 4–11). Retrieved from: <https://www.hetl.org/wp-content/uploads/2013/09/HETLReview2013Special-Issue.pdf> (06.09.2015.)
- Davis, C, Edmunds, E, & Kelly-Bateman, V. (2008). Connectivism. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology*. Retrieved from: <http://epltt.coe.uga.edu/index.php?title=Connectivism>. (06.09.2015.)
- Glomazić, H. (2013) *On line Learning in Higher Education*. In Vujačić, M. and Stanišić, J. (eds.) *Innovative Approaches to Education. Abstracts*. (pp.95). Belgrade: Teacher Training Faculty.
- Simens, G. (2005). Connectivism: A Learning Theory for the Digital Age. *International Journal of Instructional Technology and Distance Learning*. 2 (1). 3–10 Retrieved from: http://www.itdl.org/Journal/Jan_05/article01.htm (26.08.2015)
- Research Information Network (2011). *Social media: A guide for researchers*.
- Woolfolk, A., Hughes, M. & Walkup, V. (2014). *Psychology in education II*. Belgrade: Clio
- Wicks, D. J. (2011). *Emerging Theories and Online Learning Environments for Adults. Theories of Educational Technology*. Wikibook. Retrieved from: <https://sites.google.com/a/boisestate.edu/edtechtheories/emerging-theories-and-online-learning-environments-for-adults-1> (06.09.2015.)