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Adults' Digital Competence And Readiness For Online Learning: Preliminary findings on Latvian adult learners' readiness to study online

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ABSTRACT

Technological development of ICT in Latvia is high; however, Latvian adults are passive online learners. The relationship between Latvian adult learners' digital competence and experience with online learning has been researched in this paper. The author has investigated Latvian adults' digital competencies and their experience with online learning. The findings show that adults' digital competence and the interest to study online is rather low. The results of this research can be used as a basis for online course design adapted to needs of adults with low digital competence.

Keywords **–** Adult Education; Digital Competence, Knowledge Transfer; Lifelong Learning; Online Learning

1.INTRODUCTION

Digital competence can add to a successful life and effective lifelong learning of an adult learner in the knowledge society [13]. Term "digital competence" in this article is used to describe individual's skills related to technologies, whereby according to Recommendation of the European Parliament "digital competence is confident and critical usage of information and communications technology for work, leisure and communication" [18].

When talking about computers and Internet availability in Latvia, which are the technological basis for studying online, the numbers are rather promising. In 2015 Latvia took the 6th place in the world by the average speed of Internet connection – it was 18.3Mbps, and it is three times faster than world average [12]. The number of households having access to a personal computer had increased by 300% (from 25.9% in 2004 to 71.7% in 2013), while number of households having access to Internet – by almost five times from 14.7% in 2004 to 71.6% in 2013 [14], [21].

The problem discussed in this article – despite the high technological development of the country, Latvian adults are passive online learners and passive lifelong learners, who could successfully develop their professional skills with help of online courses. Author considers this tendency unhealthy for the society - in the knowledge society, it might become an obstacle for a society to thrive.

The goal of the paper is to analyze the theoretical sources about concept of knowledge and knowledge transfer, to discuss the main principles of adults' learning with focus on online learning and research Latvian adults' attitudes towards learning online.

In literature one can find several definitions for online learning. For the purposes of this study the author will use Khan's (1997) definition of "online learning" as an educational approach of delivering instruction with help of Internet as a medium to a remote audience [1]. However, it should not limit the reader to think about other forms of learning with learner located at a distance and where technology is used to store and share the learning materials, to interact with the instructor or other learners, e.g., "distance learning", "e-learning", etc. In this paper author refers to "online learning" throughout.

Lifelong learning is the key element for a society to thrive. Knowledge acquired in schooling process is of vital importance as it is very different from all other resources – land, capital, human labor, etc. The main aspects of knowledge today are that it is inevitably changing, portable, transnational and not tied to any country [17].

New learning technologies and online platforms have given the opportunity to any individual with computer and Internet access to study anywhere and anytime and to acquire new knowledge and skills in online courses. Online learning has been widely described by scholars as access to learning experience by using technology, especially, Internet technologies [19]. MOOC (massively open online course) courses are available for anyone all over the world.

Today adults' learning is one of the top priorities in the European Commission's lifelong learning policy. It is considered very important for personal development and social inclusion as well as a basis for individuals' employability and competitiveness in the job market [6]. Digital competence is one of the eight key competences for lifelong learning strategies in European Competence Framework [18].

Data and comparison of statistics of Latvia to the average in the 28 member countries of European Union (EU) is represented in Table 1.

In Latvia, too few adult learners are involved in lifelong learning – in 2004 the number of people involved in lifelong learning was 8.4% of the population (age 25-64) [15].

Table : 1. LIFELONG LEARNING IN 2010 AND 2015 AFTER EUROSTAT [15]

	Total[a]		**Male**[a]		**Female**[a]	
	2010	***2015***	***2010***	***2015***	***2010***	***2015***
Latvia	5,4	5,7	3,6	4,1	7,0	7,2
EU-28	9,3	10,7	8,4	9,7	10,2	11,7

a. % of the population participating in education and training in age 25-64

As data in the TABLE I. shows, the total number of adults involved in lifelong learning in 2010 was 5.4% (a decrease by 3% from 2004), with a slight increase in 2015 – 5.7% of adults were involved in any kind of lifelong learning. In comparison to 28 countries of EU, where 10.7% of the age group is involved in lifelong learning, Latvia lags.

Per another Eurostat survey conducted in 2011 in all European countries, the main obstacles to participation in adult education and training (age 25-64) in Latvia where the following:

- 87,7% - do not need it;
- 19,5% - it is too expensive, cannot afford;
- 15,3% - it conflicts with the work schedule;
- 9,9% - have no time for it due to the family;
- 9,4% - did not find what wanted to study;
- 6,8% - there are no places to study within reachable distance;
- 2,3% - no access to Internet or computer [15].

The data shows that online learning, which is one type of distance education, could be a lifelong learning solution for those, who cannot afford expensive studies or cannot study because of their work schedules or family. Also, people who don't find anything for their interests or who ca nnot go to a place to study because of their geographical location would find it more convenient and comfortable to study online.

Some of the key issues regarding the online learning as one of the options for professional and personal development are how to motivate adult learners to participate in online courses, how to find out if they have the necessary skills to study individually in an online course (no matter it is synchronous or asynchronous) and what are the factors influencing their engagement in online courses. This paper does not answer to all these questions; however, the preliminary research reveals some facts that could be useful for online learning course designers and facilitators.

This paper consists of four parts – introduction, methodology, review of the relevant literature on concepts of knowledge and main principles of adults' learning and online learning as well as findings and discussions. At the end of the paper author gives suggestions for further research.

2.MATERIALS AND METHODS

The key research question derived from the aim is: What is the average level of adults' digital competence in Latvia and how is it related to their experience with online learning?

To answer the research question theoretical sources and other available research on knowledge concept, adults' learning and online learning have been studied.

The author has conducted a survey on adults' online learning experience, the main reasons for quitting an online course, digital competencies and learning skills as well as their interest to take part in online courses for their personal and professional development. It is important to note that author wishes to find out the current situation in Latvia and is not attempting to create a general guide for online learning course designers.

Author chose questionnaire as the most suitable method to obtain the outcomes of the research and created an online survey. Permission was granted to use a questionnaire developed by M.S. Kerr, Ph.D., who has been working with online learning and research for more than ten years [20].

Data collection was obtained using Google Forms and Excel, the collected data was processed in SPSS software to test the normality of data and to create frequency distribution tables for analyzing the data. The last questions provide recommendations for online learning course development, which author plans to use in future research and further studies of the topic. Last stage of the research is to provide conclusions based on the findings of analysis and recommendations for future research.

The questionnaire consisted of several independent blocks of questions:

- Digital competence;
- Independent/dependent learning skills;
- Necessity and readiness to study in a distance / online;
- Experience with distance studies and recommendations for online learning course design;
- Respondents' profile.

The survey was first published online on 10th January, 2017. After testing with several individuals, it was updated and shared in author's professional and social network. The survey was conducted in January 10-25, 2017. In total 203 responses were collected. All respondents were adults above 18 years of age. As author concentrated on Latvian adults mainly, 11 responses from abroad were excluded. Several responses were excluded because questions were not properly answered, the person had chosen all answers "I do not understand the question" or filled in the form twice (leaving his/her e-mail address), which left 197 responses for processing.

3.LITERATURE REVIEW

Novak (2011) has created his theory of education, where five elements are involved to create the meaning of experience to the learner's journey, and these are: (1)

teacher; (2) learner; (3) knowledge; (4) evaluation; (5) context. All these elements interact with each other and a very skillful teacher is needed to manage all the elements and to negotiate about the meanings of all the five basic elements.

3.1 Education in Knowledge Society

Drucker (1997) was one of the first to mention "knowledge society", which emerged at the end of 1990-s. Education is a key element in the knowledge society of the 21st century, and the role of lifelong learning is to become larger due to the need to continuous learning, which is crucial for professional and self-development. Knowledge society and process of learning or acquiring knowledge should not stop at any age, because continuous learning is a must for any knowledge worker [17].

Drucker (2000) determines six factors for knowledge workers' productivity and some of these are:

- autonomous work and self-management;
- innovation as one of the main tasks and responsibilities of knowledge workers;
- lifelong learning as part of daily life [16].

Knowledge and information are the key resources for economic growth of any nation or organization [17]. Reference [3] gives a clear explanation of why knowledge is important in any organization. Theorists mention Friedman's term Flat Earth, which means that knowledge cannot be stopped by geographical objects as mountains or seas – almost anything can be produced anywhere and delivered to any place in the world. Internet adds speed to the communication and international trade. Due to this global scope of these activities, any individual in any organization must integrate their acting, thinking and feeling and become highly effective in doing it.

3.2 Knowledge transfer in learning

As Rosenberg (2001) has discussed it is important to create a culture for learning where knowledge management plays a significant role [4]. Author sees knowledge as an important part of online learning process. Unexperienced online learning course designers become overwhelmed with the newest technology and tend to forget about the initial task of any learning – to let people gain new knowledge through socialization [2].

Moon, Hoffman, Novak and Cañas (2011) emphasize the necessity to transform the way people are educated today to enhance meaningful learning and process of creating new knowledge. They predict that most successful corporations in the 21st century will go through this change, and express their hope that human empowerment will be also achieved by changes in the schools. Organizations and individuals create their own knowledge transfer mechanisms to transfer/receive the knowledge; these processes show how learning takes place and how it becomes a part or organizational memory and organizational structure [3].

3.3 Main principles in adults' learning

It is impossible to predict the learning results in adult learning as adults choose themselves what they want to learn. Sveiby (1997) states that some adults will learn a lot from the learning process, while for others it will be more useful to learn from collaboration in the group or content of the course itself [10]. He also points out the role of the instructor, who should be facilitating the process instead of teaching certain knowledge.

One very important aspect of adults' learning is the social exchange and socializing. Vygotsky (1978) stresses the importance of social exchange among learners in approximately the same zone of proximal development (ZPD), which means learners at about the same cognitive development level. This refers to certain topic that might enhance each learner's commitment and engagement. People like to exchange their ideas, in this way knowledge transfer occurs. It happens also in cases when people are in different ZPD or who do not have knowledge or information in certain area [3].

Also, other academics describe social learning as important aspect for learning. For example, Gharajedaghi (2006) describes is as shared learning in a situation of shared image and culture. He considers knowledge as something that does not get lost when it is shared, though people tend to be afraid to share the knowledge. The ability to learn and to share knowledge enables the society or organization to increase their capacity and develop [9].

Self-directed learning, as Knowles (1975) have put it, is a process where the individual takes the initiative over personal study process and results, can formulate learning goals, describe his learning needs and choose the best learning strategy [5]. Knowles's theory of andragogy involves several characteristics of adult learners, and these are:

1. Adults need to know. They need to know how the content is related to the real-world problems;
2. Adults learn only when they are ready to learn and when they have a need to learn;
3. Adults have their life and work experience, that influences what they learn and can even hinder the learning of new things;
4. Adults are self-directed – as people grow older and mature they become more self-directed in their learning;
5. Adults are internally motivated for the most part, though they can respond to external motivators as bigger salary or new job offer;
6. Adults think about their learning as a life-centered activity, they are not interested to learn information which is not related to their life [5].

After reviewing the literature, reference [22] shows that all the blended learning theories can be grouped as follows:

1) Learning based on concept

This kind of learning is organized with online and offline work. Online part is mainly for individual use and study to get the understanding of the main concepts of the course. Classroom meetings are arranged to practice collaborative

learning and to work in groups to achieve deeper understanding of the concepts.

2) Learning based on collaboration

Reference [22] shows that online learning is collaborative (e.g., online workgroups, discussion forums, etc.), while classroom meetings are for individual learning (PowerPoint presentations, mentoring, answering individual questions).

Kudrik, Lahn and Morch (2009) have also researched a question – to what extent can collaboration and cooperation improve the learning results and enhance the individual learning. They define blended learning as such learning process that integrates individual and collaborative learning. After their research, they conclude that blended learning which is based on collaboration is more effective and helps to overcome the difficulties faced by individuals when learning in a self-paced e-learning course [22].

Ivanova (2012) admits that adult learners are not prepared to study individually; therefore, the course designers should pay attention to the supportive structures in the course. It is important to remember the aims of any adult learning course – to enhance adults' learning and develop their individual competencies [11].

3.4 Learners' readiness for online learning

History of distance learning industry goes back to end of 20th century – in 1971 Britain's Open University started courses via radio and television, in 1989 University of Phoenix started their online teaching, while other big universities, e.g., MIT and others have taught online since the beginning of 21st century [7].

Statistics during research have shown that learner's participation becomes smaller during the time. Authors mention several types of online course learners' behavior, where people are auditing, sampling or completing the course. However, several research results show that learners participate in many ways in the course and are satisfied with the course even when they do not complete it. People download materials, listen to online lections which seem relevant for them and their current interests, participate in online discussion forums etc., therefore the satisfaction rate is high even when the completion rate is not [19].

Piskurich (2003) claims that "e-learners fail" and there are number of reasons causing it – course design, weak motivation, etc. He also points out the necessity to think about the factors causing learners' engagement in any learning activity and how could learners be prepared for e - learning [8].

Learner's readiness for online learning has been addressed by Guglielmino and Guglielmino (2003). They conclude that there are two elements of successful online learning: (1) technical readiness and (2) readiness for self-directed learning [8]. It is important to understand the necessity to prepare learners for online learning because negative attitude towards the course during/before beginning of online learning causes negative experience, resistance and wasting of resources.

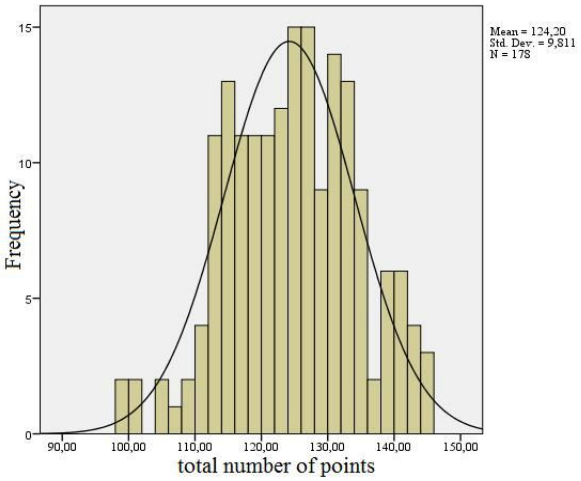

Figure 1:. Histogram representing total number of points for general "online learning success"

4.FINDINGS AND DISCUSSION

4.1 General findings on the readiness to study online

As data shows in Fig.1, the average number of points is 124.20 with standard deviation 9.811. Total number of answers included in the analysis is 178.

Respondents represented several age groups from 18 to 69. The distribution among age groups was as follows: 18 -23 (8 respondents), 24-29 (25 respondents), 30-39 (86 respondents), 40-49 (43 respondents), 50-59 (21 respondents), 60-69 (4 respondents).

There are several scales included in the survey that represent the readiness to study online:

- digital competence (whether the individual has the necessary skills to be able to independently study online);
- independent learning;
- dependent learning skills;
- willingness to study online;
- necessity for distance studies (work/family/ geographical location).

Developer of the online readiness test [20] writes that for an individual to be fully prepared to study online, the number of total points should be >190. As the average number of points for all respondents lies around 124, it means respondents' ability and readiness for online learning or any other kind of online learning are very low.

4.2 Digital competencies

To answer the research question author examined the *mean* for digital competence answers, which might vary from 0 to 5.

Results of the average number of points should be interpreted for the digital competence as follows:

- From 0 to 4.14 – very low, not ready for online learning;
- From 4.15 to 4.62 – low/average, need some training to be able to study online;
-

- From 4.63 to 4.99 – good, can study, maybe will need some training for some technical details;
- >5 – excellent result, completely ready to study online [20].

Table 2:. MEAN STATISTICS FOR DIGITAL COMPETENCIES

N	Valid	188
	Missing	9
Mean		4.1601
Std. Error of Mean		0.03672
Median		4.3636
Mode		4.55
Std. Deviation		0.50350
Variance		0.254
Range		4.55
Minimum		0.00
Maximum		4.55

Survey results for digital competencies are represented in Table 2. From 188 valid responses, the average response is 4.1601 (mean), and per test authors it is just above the lowest border to study online.

The results show that the average (mean) result is 4.16 from 5, which is below the required ability to successfully and/or independently study online. Learners with average result 4.16 would need training to be able to use the technological means, e.g., conference calls, attachments, online chat rooms, shared documents, etc.

The highest number is among 18-23-year-old respondents – 4.38 (mean), and the lowest in age group 50-59 – 3.93 (mean). These results show that the surveyed adults' digital competence is not satisfactory to independently study online. Author concludes that part of the learners would need special support for studying online, for example, a preparatory course, special classes or lectures explaining the usage of technological tools as well as practice.

As the author of online success test tool states, individuals with average result below 4.63 should be invited to enroll face-to-face courses as online learning would not fit their digital skills and learning preferences [20].

Author concludes that online learning might become a problematic issue to most of the adults who participated in the survey due to lack of digital competence and technical skills.

4.3 Experience with online learning

The question about experience with online learning represents similar situation – most of the respondents (46.7%) have never tried online learning (see Fig.2), 24.5% have completed 1-2 courses, while 20.8% have not completed any online course.

Very small amount of people can be viewed as especially motivated and successful online learners who can be considered as ready for online and self-directed learning – 7.1% of all respondents have studied online and completed more than 3 courses.

Figure .2:. Respondents' experience with online learning.

Author judges this topic as important for deeper qualitative research on motivation and self-directedness in learning.

4.4 Limitations and further research

The research question has been answered – author has carried out a literature analysis on knowledge and knowledge transfer subject, the level of adults' digital competence and experience with online learning has been researched.

Current research shows that Latvian adult learners' digital competence is not satisfactory to take part in online course; preliminary findings show that the digital competence and readiness to study online are below the required average to successfully take part in an online course. For online course designers, it means that people would need additional support and training for technical issues.

These findings are preliminary. Author acknowledges amount of 197 respondents is not enough to draw appropriate conclusions. However, these conclusions do show the tendencies and can serve as warning for online course designers to be very careful about planning tasks and activities in an online course. Author suggests conducting a pre-course survey to study potential online learners' digital skills and readiness to study online

The findings are leading to new questions, which were not answered with this survey, e.g., demographic data, employment, education of the respondents, in which field they work and what kind of courses exactly have they completed.

If the average digital competence of respondents of this survey is below average (4.16 out of 5), author sees a topic for further research to investigate the main reasons why 67.5% of respondents have never tried or completed any online course. Considered that largest number of the MOOC courses available for international audience are in English or any other foreign language (not Latvian), these results might show

another topic for research – in what way are foreign language skills related to individual learner's experience with online learning and his/her digital skills. In this research the language initially was not part of the questionnaire, and author sees this as a separate research, which could be highly topical to other nations with English as second or third language. However, there might be a list of other reasons except foreign language skills.

Reference [8] shows that successful online learning consists of both technical readiness and readiness for self-directed learning; therefore, it is important to prepare learners for online learning. As stated before, negative attitude towards the course during/before beginning of online learning causes negative experience, resistance and wasting of resources. Author will continue the research with focus on digital competences and technical readiness in separate age groups to develop technological solutions in online learning environment and in such way to enhance learning for individuals with lower digital competences.

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