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## ADULT EDUCATORS' DIGITAL TEACHING COMPETENCE: EMPIRIC EVIDENCE FROM LITHUANIA

Most of the research efforts were made to investigate digital competence of teachers in secondary schools. However, little attention has been paid to the analysis of digital teaching competence of andragogues in adult education institutions. The aim of the study is to analyse the digital teaching competence of adult educators in Lithuania. The empirical study was carried out in Lithuania in 2017. Data collection was based on a questionnaire. The sample included 120 adult educators from various adult education institutions. The data was processed via quantitative analysis methods. The main result of the study: digital teaching competence of adult educators Lithuania needs to be developed. A new research question is formulated: How to organise trainings for adult educators in order to increase their level of digital teaching competence? Directions of further research are proposed.

### Introduction

Digital literacy consists of the ability to access digital media and ICT, to understand and critically evaluate different aspects of digital media and media contents and to communicate effectively in a variety of contexts. Digital competence, as defined in the EC Recommendation on Key Competences (EC, 2006) involves the confident and critical use of ICT for employment, learning, self-development and participation in society. This broad definition of digital competence provides the necessary context (i.e. the knowledge, skills and attitudes) for working, living and learning in the knowledge society. The *adult educators' digital competence* (the competencies) is one response to the challenges and needs identified in recent surveys of and reports on adult education (JISC, 2015). The competence identifies the knowledge and skills expected of any educator. It also offers a structured approach to determining the knowledge and skills that adult educators still need to develop and the professional development activities that will help them to acquire them.

It should be noted that digital competence of adult educators is an overall concept of such terms as ICT competence of educators. ICT competence of adult educators means that they need to be able to help the students become collaborative, problem-solving, creative learners through using ICT so they will be effective citizens and members of the workforce (United Nations Educational, Scientific and Cultural Organization, 2011, p. 3).

Digital competence for adult educators can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society (Ala-Mutka, 2011, p. 1). This means that an educator must make decisions about what kind of digital tools should be used in each teaching situation, how they should be used and why (Ottestad, Kelentrić, & Guðmundsdóttir, 2014, p. 246). It is important to develop this type of awareness during initial teacher training (Ottestad, Kelentrić, & Guðmundsdóttir, 2014, p. 246).

The digital competence in adult education can be represented in the so called six elements of digital capabilities. The competence consists of: ICT proficiency and fluency, information, media and data literacy, creating and innovating, digital research and scholarship, E-learning and Professional development, communication, collaborating and participating as well as digital identity and well-being (Beetham, 2015).

Digital adult educators' competence is understood at three levels of expertise which are progressive (to reach level 2 it is imperative to have level 1), and which constitute the ideal of adult educators' competence in ICT (Koehler, Mishra, 2008). These levels of expertise are:

**Level of expertise 1:** skills related to base knowledge of the common use of ICT in teaching.



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**Level of expertise 2:** skills related to:

- a. Design
- b. Implementation
- c. Evaluating activities using ICT

**Level of expertise 3:** skills related to the reflection and critical analysis of the actions and activities carried out using ICT.

- a. Individually
- b. Collectively (with other educators).

Three main dimensions describe adult educators' professional digital competence (Ottestad, Kelentrić, Guðmundsdóttir, 2014, p. 248):

– Generic digital competence cuts across subject disciplines and specifies the general knowledge and skills that adult educators should obtain in order to function as digital educators. This dimension is most likely identical, or very close to, the already existing descriptions of general digital competence.

– Didactic digital competence captures the digital specifics in each subject that the individual teacher, educator deems significant. It is in this dimension that the actual distinctive differences in the didactics between subjects would be described, for example, mathematics taught with ICT versus foreign language or pedagogy taught with ICT.

– Professional oriented digital competence describes digital traits of the extended teaching profession, the question of what adult educators need of digital literacy in other parts of the job, for example when they are planning subject lessons, sorting evaluations, recording marks and detention, communicating with students and other groups, etc.

The findings of the present research on the inter-relationships between competence, experience, digital competence of adult educators and professional digital competence of adult educators serve as a source of determination of what digital teaching competence of adult educators is. Digital teaching competence of adult educators is identified as an individual combination of abilities and experience (knowledge, skills and attitude) in digitalization of teaching. Digital teaching competence of adult educators includes such dimensions as

- Competence in media and equipment,
- Competence in courses, didactics and instructional design,
- Competence in Learning Management Systems,
- Competence in videoconferencing,
- Competence in social networks,
- Competence in e-moderation.

### **Design of the empirical research**

For analysis of digital teaching competence of adult educators, the synergy between Andragogy and Information and Communication Technology is promoted as the phenomena of education digitalisation and digital education are inter-connected. Such methodologies that consider the inter-relation between education and digitalization have been successfully implemented in adult education as well as teacher training. It should be noted that the present research is not limited to only two disciplines, namely, education digitalisation and digital education, but is based on a number of disciplines such as videoconferencing, social media, Learning Management Systems, etc.

The guiding research question is as follows: What is the level of digital teaching competence of adult educators in Lithuania?

The purpose of the empirical study is to analyze the digital teaching competence of adult educators in Lithuania.

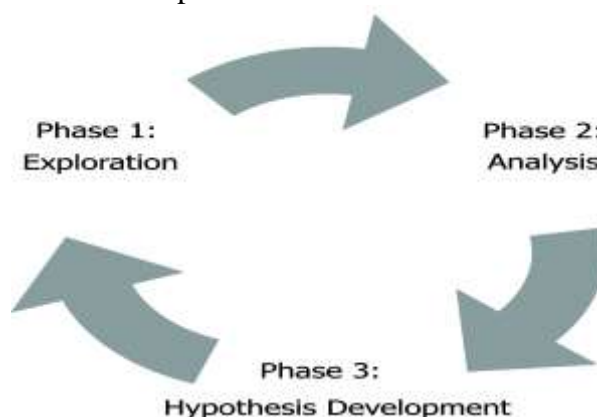


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The sample of the present empirical study was composed of 120 of adult educators in Lithuania. The sample was constituted in July 2017. All the participants had received extensive teaching and training experience in education at universities. The group (age, field of study and work, mother tongue, etc.) is heterogeneous.

The exploratory type of the comparative study is applied (Phillips, 2006). The exploratory type of the comparative study aims to generate new hypotheses and questions (Phillips, 2006). The newly developed hypotheses and questions can be tested for generality in following empirical studies (Mayring, 2007). The exploratory methodology proceeds from exploration in Phase 1 through analysis in Phase 2 to hypothesis development in Phase 3 as illustrated in Figure 1.



**Figure 1: Methodology of the exploratory research**

Questionnaire served as a means of data collection for the analysis of digital teaching competence of adult educators in Lithuania.

The questionnaire concentrated on the digital training needs of the educators and tried to clarify their attitudes towards digitalization. The questionnaire consisted on seven sections, which were background, competencies, training and digitalization. All of the questions were compulsory.

In order to analyse digital teaching competence of adult educators, the questionnaire was distributed among the prospective users ICT among adult educators. The questionnaire covered such topics as

- Media competence,
- Competence in courses, didactics and instructional design,
- Competence in Learning Management Systems,
- Competence in videoconferencing,
- Competence in social networks,
- Competence in e-moderation,
- General questions.

In total, the questionnaire included of 53 questions. The evaluation scale of 5 levels was created where “1” meant “often” / “agree”; “2” meant “sometimes” / “partly agree”, “3” meant “seldom” / “more agree than disagree”, “4” meant “never” / “disagree”, “5” meant “don’t know” . The evaluation scale was transformed into the level system such as “often” and “sometimes” indicates the optimal level, and “seldom”, “never”, “don’t know” reveals the low level.

## Results of the empirical study

**Table 1. Media competence**

Nr.	Question	Lithuania	
		Optimal level	Low level



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1	Do you use a smartphone, a tablet computer etc. in teaching-learning process?	78%	22%
2	Do you use the internet to do research / gather information for the teaching-learning process?	98%	2%
3	Do you use the internet to communicate with students (e-mail, messenger, video conferences)?	98%	2%
4	Do you use the internet to listen to music, to watch movies or to use other media in educational process?	74%	26%
5	Do you use the internet to publish teaching content (blog, website,...)?	58%	42%
6	Do you use the internet to share content with others (flickr, youtube,...)?	42%	58%
7	Do you use open educational resources (e.g. "EPALE" platform) for teaching purposes?	48%	52%

As shown in Table 1 adult educators in Lithuania apply IC technologies in the educational process. Nowadays it is important to know where to find information and how to create knowledge. The teacher is required to know how to utilize differentiated learning environments.

**Table 2. Competence in courses, didactics and instructional design**

Nr.	Question	Lithuania	
		Optimal level	Low level
8	Have you ever participated in an online course as participant?	24%	76%
9	Have you been involved in e-learning projects in the past?	88%	12%
10	Do you use Interactive boards (in your learning settings)?	76%	24%
11	Do you use E-Books (in your learning settings)?	52%	48%
12	Do you use screencasts/e-lectures, podcasts (in your learning settings)?	38%	62%
13	Do you use Learning apps on mobile devices (in your learning settings)?	54%	46%
14	Do you use 3D printer/fablabs (in your learning settings)?	18%	82%
15	Do you use computer game-based learning (in your learning settings)?	36%	64%
16	Do you use augmented reality (in your learning settings)?	14%	86%
17	Do you use audience response systems (in your learning settings)?	12%	88%
18	Do you use learning analytics (in your learning settings)?	28%	72%
19	Are you familiar with such instructional design models such as ADDIE, Agile design, SAMR, TPACK, IDOL?	14%	86%
20	Do you have experience in the design of flipped/inverted classrooms?	8%	92%

As shown in the Table 2 adult educators in Lithuania have to have good research and development skills. Educators will have more differentiated tasks to perform. In addition, they have to be dedicated to their job in order to prepare the courses properly. The preparation of virtual classes takes more time than the conventional courses due to the design of the online course materials, assignments and the aim of the course. The staff can be specialized into different tasks, but their personal development and goals should be taken into account.

**Table 3. Competence in Learning Management Systems**

Nr.	Question	Lithuania	
		Optimal level	Low level
21	Do you have experience in the use of LMS as e.g. Blackboard, Moodle, Canvas?	98%	2%



22	Do you use Learning Management System such as Stud.IP, Ilias, Moodle, Blackboard, Olat, CommSy, etc.?	96%	4%
23	Have you hosted/moderated fora?	10%	90%
24	Have you set up hand-in assignments?	52%	48%
25	Have you set up the production of glossaries?	18%	82%
26	Have you set up the production of wikis?	12%	88%
27	Have you moderated the use of blogs / learner diaries?	40%	60%
28	Have you moderated the use of automated tests/quizzes?	38%	62%
29	Have you created scenarios using rubrics?	32%	68%
30	Have you moderated the production of e-portfolios?	10%	90%

As shown in Table 3 the evaluation of the digital skills of students will be crucial. Educators need to support digital literacy with different study methods. The educator has to select the correct learning environment. The new technology enabled course structures will lead to the improved quality of teaching and reduced costs. The educator is required to have the ability to understand the cost-effectiveness of the teaching process.

**Table 4. Competence in videoconferencing**

Nr.	Question	Lithuania	
		Optimal level	Low level
31	Are you experienced in the use of video conference systems (e.g. Adobe Connect, Blackboard Collaborate, Google Hangouts, Skype)?	38%	62%
32	Are you acquainted with the use of different layouts?	22%	78%
33	Are you acquainted with role rights and their administration?	40%	60%
34	Are you able to share your screen or applications with others?	34%	66%
35	Are you able to record an online session?	30%	70%
36	Are you able to send participants to breakout rooms (and bring them back)?	28%	72%

As shown in Table 4 when it comes to the videoconferencing skills of the educators, they have to develop their pedagogical content skills. This means the skills of how the adult educators can combine their knowledge and skills when teaching with videoconferencing to different kinds of learner groups. It has to be kept in mind that there are adult educators from different age groups and backgrounds. Videoconferencing can help the educators to improve their professional awareness if they have positive attitude towards ICT development.

**Table 5. Competence in social networks**

Nr.	Question	Lithuania	
		Optimal level	Low level
37	Are you a member of social networks (LinkedIn, Xing, Facebook, Twitter, Google+ or similar)?	98%	2%
38	Do you use social networks in teaching / e-moderation?	68%	32%
39	Do you use social networks to distribute information?	88%	12%
40	Do you use social networks in the design of learning scenarios/tasks?	54%	46%
41	Do you use scenarios as TwitterWalls to get student feedback in face-to-face settings?	12%	88%

As shown in Table 5 adult educators have to be cooperative and to share different ideas by socialization, different communities and networks. Networking, especially with those organizations that have already utilized technology, helps the other organizations to imitate good practices. The communication will help teachers to assess critically information and create new ideas.





**Table 6. Competence in e-moderation**

Nr.	Question	Lithuania	
		Optimal level	Low level
42	Do you have experience as an e-moderator of online classes?	88%	12%
43	Have you moderated courses via e-mail and/or fora in learning management systems?	24%	76%
44	E-moderation is a key factor for successful online study programmes.	46%	54%
45	Workload in e-moderation compared to face-to face is less complicated	26%	74%

As shown in Table 6 when the proper technology is selected for pedagogic purposes carefully and utilizing the expertise of teachers, the quality of teaching will be improved.

**Table 7. Professional development in ICT**

Nr.	Question	Lithuania	
		Optimal level	Low level
46	Readily available support and consulting is important for the introduction of e-learning	100%	0%
47	Didactic training of teaching staff is important for the introduction of e-learning	100%	0%
48	Training of teaching staff in Learning Management Systems, multimedia and technology is important for the introduction of e-learning	100%	100%
49	Training of teaching staff in LMS, multimedia and Technology is important for the introduction of e-learning	100%	0%
50	Media literacy of teaching staff is important for the introduction of e-learning	98%	2%
51	Media literacy of students is important for the introduction of e-learning	100%	0%
52	Motivation of teaching staff is important for the introduction of e-learning	96%	4%
53	Motivation of students is important for the introduction of e-learning	98%	2%

As shown in Table 7 along with the trends, the adult educators require continuous development of themselves. Most of the respondents felt that teacher education does not provide good digital skills and at least some update is required. The knowledge of the importance of digitalization should be added in order to increase the motivation to learn. According to the competence development survey, the teachers felt the change towards digitalization mainly positive. Also the management emphasized the importance of information sharing. The communication and feedback should be increased. The negative influences of digitalization should be also taken into account.

### **Findings of the empirical study (their analysis)**

The analysis of the data demonstrates that the adult educators' digital competence should be developed. On the one side, the adult educators obtained the optimal level of competence in media and equipment, media literacy and teaching staff motivation. On the other side, adult educators' competence that requires a specific professional knowledge in courses, didactics and instructional design, Learning Management Systems and e-moderation is of the low level. Hence, the



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overall digital teaching competence of adult educators who participated in the empirical study is of the low level. The most important development areas are creating and editing digital material, using different classroom technologies, finding and using different learning tools and evaluating student performance in digital learning environments. The second most important are using blogs and wikis, social bookmarking, finding authentic web based content, using video and audio content, understanding privacy and copyright issues. Interestingly, the evaluation of the student performance in the digitalized learning environments is the most significant development issue.

The findings of the present research on the inter-relationships between competence, experience, digital competence professional digital competence of educators serve as a source of determination of what digital teaching competence of adult educators is.

The empirical findings of the research allow drawing the conclusions that the digital teaching competence of adult educators who participated in the empirical study is of the low level.

A new research question has been formulated: How to organise trainings for adult educators in order to increase the level of digital teaching competence?

The present research has *limitations*. The empirical study conducted by involving only 120 adult educators from Lithuania. Therein, the results of the study cannot be representative for the whole area. Nevertheless, the results of the empirical study may be used as a basis of analysis of use of on-line training for academic staff in other higher education institutions. If the results of other institutions had been available for analysis, different results could have been attained. There is a possibility to continue the study.

Further research tends to focus on statistical analysis of the collected data. The search for relevant methods for evaluation of adult educators' experience is proposed.

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