Adult ICT competence in educational processes

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ABSTRACT: The importance of life-long learning for Europe's future is now acknowledged at the highest level and is the key element in striving for public spirit to strengthen social cohesion and increase employment. It can be considered to be a great challenge for the new century with the help of new information and communication technologies (ICT). ICT competence is closely related to professional competence and, therefore, ICT competence is important for both, learners and adult educators. Their education is an essential factor in providing opportunities to succeed in the labour market, and to become active citizens. The significance of applying ICT in the labour market and the usefulness of e-learning in adult education professional activities are presented and discussed in this article.

INTRODUCTION

Adult education is becoming one of the decisive factors in the progressive development of the education system. It has proved to be beneficial in various ways: in developing the abilities needed for life and the professions, enhancing the integrity and political stability of society, encouraging active citizenship, reducing social differentiation and increasing employment options.

In terms of learning goals, adult education pursues two trends: 1) acquisition of profession-related knowledge and development of relevant abilities; and 2) general cultural training [1]. The document *Key Competences for Life-long Learning* distinguishes eight general life-long learning (LLL) competences necessary for everybody's personal development, sense of citizenship, social integration and involvement [2]. The competence of vital importance is digital literacy: the ability to use information and communication technologies creatively and critically in everyday life at home and at work, during leisure time and communication; to search, select and process information with the help of the basic computer software, the Internet or electronic mass media.

Information technologies open new possibilities for science and education. ICT and changing social demands and attitudes give rise to changes in the traditional concept of education, relations between the participants of the learning/teaching process, and raises new requirements for everyone involved in education [3]. ICT integration into the education system has become a necessity for Lithuania in order to keep up with other countries. When speaking about ICT integration into the education system, it should be stressed that it is a holistic process that can be considered in economic, professional, social, cultural and pedagogical aspects [4].

Some surveys have stated that only 60% of university students have the appropriate technological skills needed for independent work on the Internet [5]. Many students lack basic skills and experience for independent work with technologies. Young network users have a superficial understanding of applying Web services to their studies and creative work [6].

The present tendency in Lithuania is similar to that in other countries: a gap exists between the younger and older generations in terms of their level of competence. The older generation is making up a constantly increasing proportion of the working population; thus, their lagging behind the younger generations weakens the status of older people in the labour market and could slow down the economic and social development of the country.

In order to ensure life-long learning, there needs to be an appropriate quality of education, training services should be provided and certain conditions for encouraging individual growth of different age, and interest groups should be created. LLL is vital for learning by people, the public at large, and for persons working in the education system. Higher

school lecturers and adult educators should play an important part in implementing life-long learning in reality. Therefore, people working in the education system should adapt to the present changes, accept innovations and get fully involved in the LLL process.

The aim of this article is to present an overview and analysis of the importance of ICT competence and the demands of work activities, and to boost the ICT competence of learners and lecturers. The specific objectives of this research were:

1. To provide an overview of adult ICT competence in the context of life-long learning.
2. To determine ICT competence among higher school lecturers and adult educators and its application in educational processes.
3. To study the demand for ICT competence in the labour market.

The following research methods have been applied: an analytical literature review, research sources and document analysis, synthesis of systemic theoretical analysis and questionnaire-based surveys.

ICT COMPETENCE IN THE CONTEXT OF LIFE-LONG LEARNING

The present information, power and transport communications have made the world much more interconnected and dynamic. Every person has become not only a member of the local community, but also of global society, and their success depends on their ability to make use of personal creative power and knowledge. Not only the initial stages of knowledge acquisition are of great importance - the demand for refreshing permanent skills and general abilities is growing and the significance of life-long learning is increasing [7]. The main EU and Lithuanian documents regulating education claim that directing education and training systems towards life-long learning will play a decisive role in the future of Europe as a knowledge society [8-10].

The document of the European Parliament and Council *Key Competences of Life-long Learning* distinguishes eight areas of competence required for life-long learning, which are all equally important, interconnected and complement each other [2]. The essential factors for developing these competence areas are basic language, literacy, calculus and ICT skills, and all the training activities are based on the ability to learn.

LLL competence has become inevitable due to two imperatives: the need to find the necessary information and the ability to evaluate the quality of the obtained information. Therefore, during the last decade serious attention has been given to mastering new technologies, developing initiative, computer and information literacy and communication [11].

Computer and information literacy provide additional possibilities for people to improve their qualification, to learn independently, to search and use information needed at home and at work. This is the basis for independent life-long learning. Improving qualification with regard to personal needs, mastering new technologies allow a person to adapt to the changing environment and ensure successful long-term performance [12].

ICT competence is closely related to professional competence. Therefore, ICT competence is vitally important, and its development is an essential factor in providing opportunities for entering the labour market and being an active citizen. People can choose where and how to develop their ICT skills: university, college, vocational schools, adult training centres or other adult education institutions. These could be formal or non-formal educational institutions. The choice depends on the level of personal abilities, place of residence, employment, time or financing.

Lately, even more attention has been given to non-formal education as a special branch of adult education. Non-formal adult education, which has increasingly been using e-learning, is important since it is more flexible in terms of geographical location, time choice, improving or changing qualifications that can help to take a firm position in the labour market, to improve life quality and integration into the modern society.

Thus, the LLL paradigm enhances education with the aspects of universality, globality and availability, and liberates learning from the limitations of the traditional learning paradigm. LLL is the best way to face all the changes, to integrate all members of society into social life and active citizenship, to help them create a productive and satisfying way of life.

LECTURER'S ICT COMPETENCE IN THE EDUCATIONAL PROCESS

ICT competence can efficiently be applied when information technologies are harmoniously integrated into the educational process by enriching pedagogical technologies and facilitating management tasks, while the experience, knowledge and traditions accumulated in the education system complement the learning environment [4].

The lecturer's or adult educator's role in integrating ICT into the educational process is of great importance both in formal and non-formal education. People working in the education system should be fully involved in the LLL process as their ability to accept innovations and to improve constantly their skills predetermines their competence level and successful work results in the educational process.

A research report on the impact of ICT on European schools states that a majority of teachers still lack confidence in applying ICT-based methods in practice. The qualitative content analysis in universities of applied science, performed by Kankevičienė allowed the author to diagnose the main obstacles to integrating ICT into the education system: the lecturer's pedagogical competence, the lack of ICT skills among lecturers and students, poor lecturers' skills in preparing methodological materials and presenting them in various environments, insufficient students' skills in selecting and evaluating information, presenting it ethically and communicating on-line, insufficient attention to the infrastructure and support for the lecturers [6].

The results of qualitative research at Klaipėda University show that there is an ICT competence problem among older lecturers, and a lack of skill in applying teaching programmes. The diagnostic study *ICT Impact on the Technology-based Learning Content Efficiency* that was carried out at Vytautas Magnus University in 2004 revealed that lecturers (101 respondents) would like to use ICT more, but they lack skills, time and resources [13].

Within the framework of the EU Grundtvig project *Tech-Connected Teacher*, coordinated by Kaunas University of Technology in cooperation with partners from Italy, Poland, Greece and Spain, a study was carried out (78 respondents from 19 institutions), analysing adult educators' needs and evaluating lecturers' ICT skills and knowledge. It was found out that lecturers are best skilled in using e-mail, Internet search engines and text editors, but they still need improvement in ICT skills and knowledge [12].

An international team of 12 experts performed a study of EU Grundtvig mobility project results: *Analysis and Exploitation of the Results of two Grundtvig Measures* [3]. The results indicate that 11.53% of the Grundtvig programme professional training participants (271 respondents) chose ICT and distance learning courses, 18.9 % - teaching methodology, 14.7 % - adult education, 12.2% - language courses.

Recently, an increasing number of engineering lecturers have engaged themselves as adult educators and participated in technological projects supported by various European Union programmes. An expanding implementation of technologies helps to promote the LLL idea. A need has arisen to develop new methodologies, to apply the blended learning methodology and efficiently to improve teaching practice.

LEARNERS' ATTITUDE TOWARDS THE IMPORTANCE OF ICT COMPETENCE

The Life-long Learning Strategy focuses on developing general abilities of adults [9]. One of the Strategy aims is to improve people's computer competence in order to reduce social differentiation in the area of ICT (digital divide). Even though people claim they *are able, know-how and want* to use information technologies, not all citizens find the principles of building the information society attractive and understandable, and the computer literacy of the population is not sufficient.

The most representative data about Lithuania's adult preferences concerning the subjects they would like to study were obtained by a survey of the country and township population: the majority of adults would like to study foreign languages and computer literacy. According to the data from the Lithuanian Department of Statistics, the number of older people is increasing [14].

Consequently, recruitment of all employable people and help for staying in the labour market is a significant precondition for the growth of the country's economic and social well-being. The main hindrance in employing older people is the fact that their level of competence does not meet the demands of the present labour market. The developing information society and the changing nature of labour require specialists able to apply their knowledge efficiently in professional activities and to work with ICT.

This research is being funded by the European Social Fund under the Global Grant measure project *Research and Development Platform for Adult Training of Key Competences* No. VP1-3.1-SMM-07-K-03-073. Its aim is to study the situation of developing adult key areas of competence in Lithuania, France and Germany. The research will be followed by a comparative study of key competence areas, their state and development in Lithuania, France and Germany, and upon the basis of the research data, strategic recommendations for developing key competence areas will be prepared.

Methodology. The research basis is of a subjective-interpretational-constructivist conception. The article argues that key competence areas are formed, developed and constructed through the whole human life through professional and personal experience.

Empirical research and its results. In 2013, quantitative research was conducted. The research was carried out to determine the ICT competence needs for the information society, including a survey of 1,640 adults of all ages from all over Lithuania.

The tool of the research - was the survey, which consisted of a detailed questionnaire. The questionnaire was presented in an electronic version by creating free access to every adult. The development of ICT competence was revealed by means of theoretical analysis, and it has become the background of the research instrument.

The respondents were selected randomly. Statistical and descriptive analysis was conducted to analyse the data. The majority of the respondents were aged 50-59 years (35%.), 18-29 year olds made up 24%, and 40-49 year old persons accounted for 23% of respondents. Most of the respondents were higher education graduates (73%).

The response to the question whether ICT competence is important in professional activities was as follows: 62% said it was very important, 36% claimed it was important. A slightly lower percentage of respondents considered ICT competence very important for seeking professional career (very important - 54%, important - 43%). The lowest level of importance of ICT competence was marked by the respondents in relation to social, cultural activities and citizens' duties - 22% considered it not very important. However, it turned out to be of great significance for personal development: 68% respondents marked it as very important and 31% - important (Figure 1).
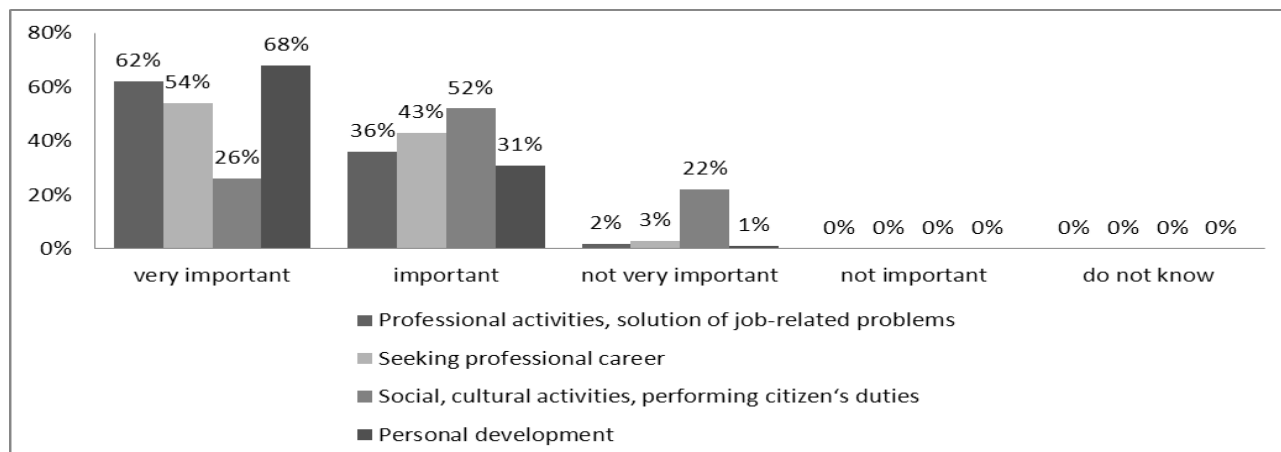

Figure 1: Importance of ICT competence.

The analysis of the answers to the question *Which of the ICT competence skills are most important for you?* showed that the more essential skills were marked in the area of professional activities. The most frequently mentioned ability was that of using the Internet for searching and selecting useful information (48%), followed by using electronic devices for mathematical calculations (42%). Various ICT skills were considered important for personal development (38-39%). However, these and other abilities did not exceed 21% when evaluating their significance in participation in social activities and accounted only for 17% when speaking about seeking a career. Using the Internet for searching and selecting useful information in seeking a career and using IT services for personal and/or job goals, participating in social activities made up only 4% (Figure 2).
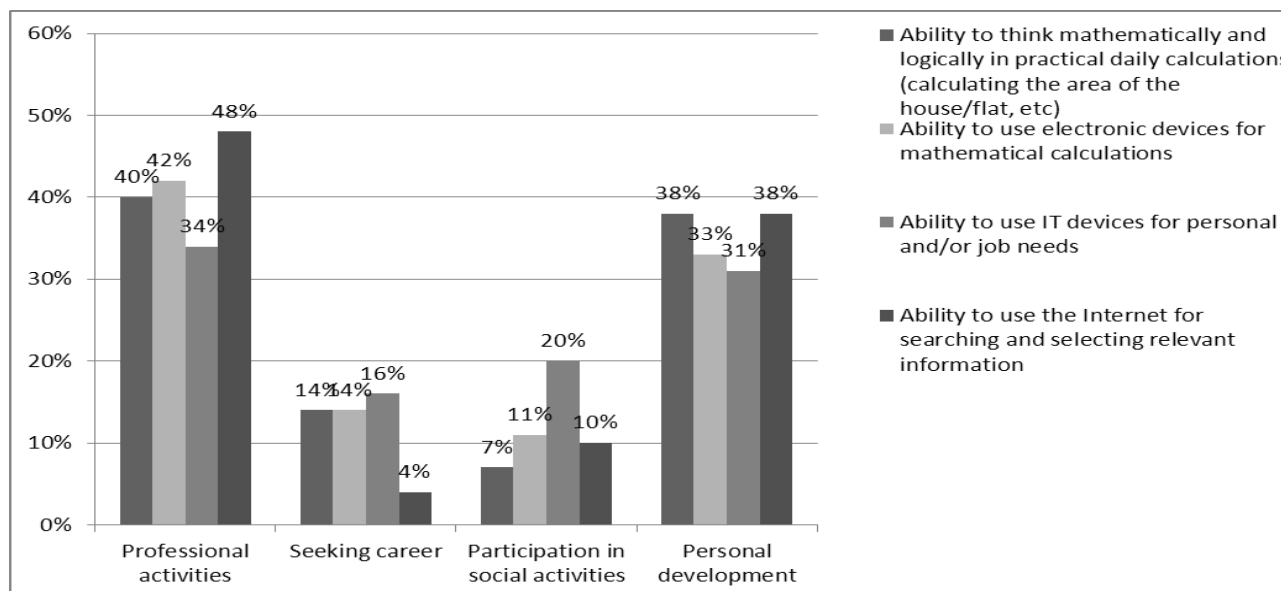

Figure 2: Importance of ICT competence abilities.

The best way to improve ICT skills is to learn directly with a colleague who has better knowledge (very helpful - 63%, helpful - 28%). 97% consider learning by oneself in everyday activities and/or at work. 20% stated that independent learning by studying literature is not helpful. 52% were of the opinion that non-formal training, e.g. attending seminars, and learning on-line or virtual distance learning were very helpful or helpful. It may be concluded that learning from experience or direct learning are collectively the most beneficial.

The greatest obstacles in developing ICT skills were lack of time (39%) and lack of money (17%). The most powerful incentive for developing ICT competence is the need of these skills for work (30%). A quarter of respondents said that those skills can contribute to personal development. For some respondents it means new career options (14%), self-realisation (11%) or searching for a job (10%). Family support does not have a significant influence.

In the rapidly changing world, ICT competence is gaining importance in professional life. Among all the abilities when searching for information about job vacancies, the ability to use the Internet for searching and filtering information was distinguished as the most important (62%, Figure 3).

The ability to use IT devices for personal goals (48%) and to make use of IT services (45%) also proved to be important. The answers also show that the ability to process information by using appropriate software is helpful in preparing the documents needed for employment (56%).
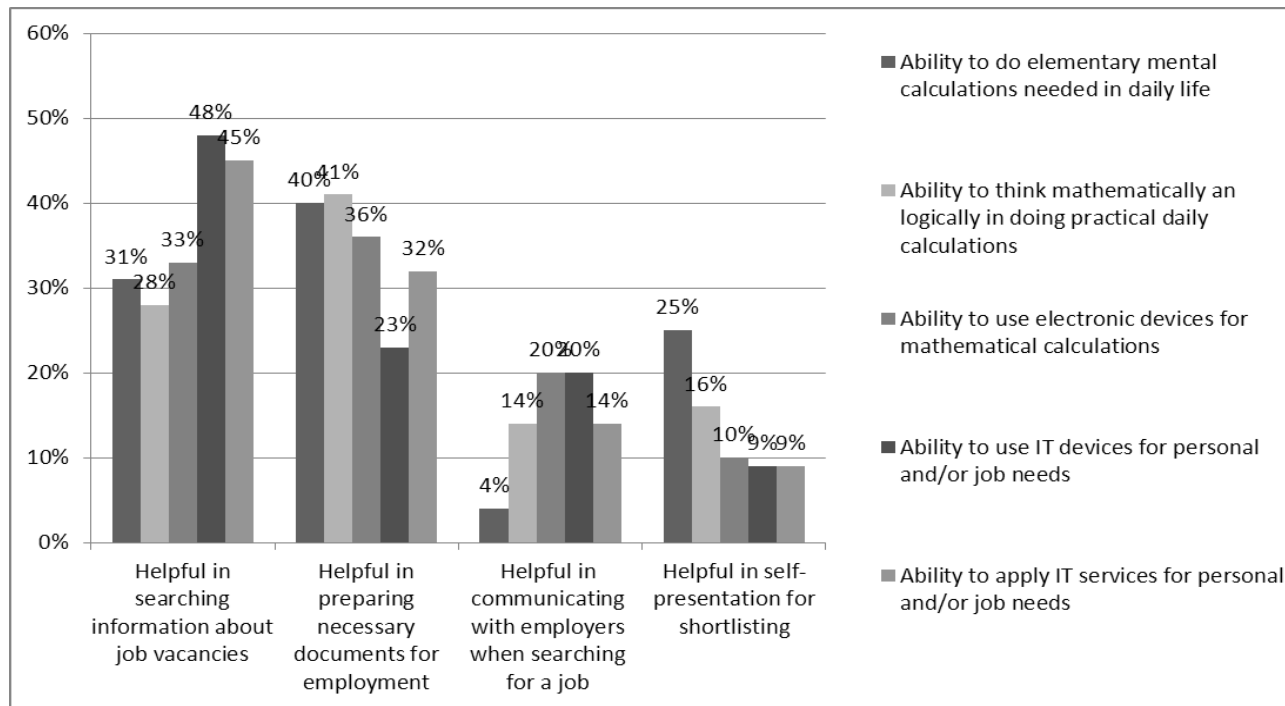

Figure 3: Impact of ICT competence skills on a person's professional life.

After a person finds employment, ICT skills help them to keep it, to achieve better results and to save time and effort. Most hepful in this respect is the ability to make use of IT services (46%) and the ability to use electronic calculation devices (44%). Better results can be achieved if a person is able to use the Internet for selecting information (38%), to use software (35%) and to apply IT devices (32%).

ICT competence consists of various abilities and skills, its wide range embracing mass media and communication, technologies and computer science, literacy and informatics. It consists of technical skills for using digital technologies, abilities to apply digital technologies in work, studies and a variety of daily activities, ability to evaluate critically digital technologies and motivation to participate in digital culture.
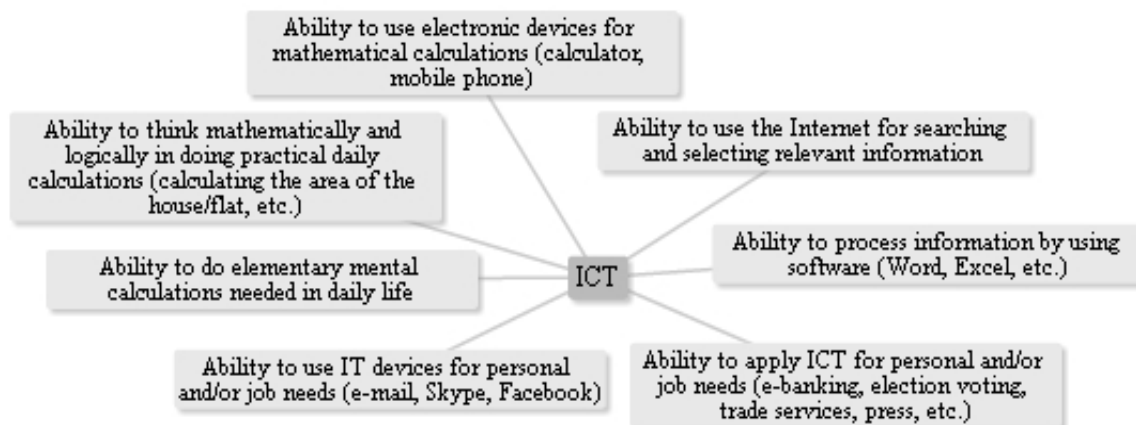

Figure 4: Abilities related to ICT competence.

Upon the basis of theoretical analysis and quantitative research, the ICT abilities presented in Figure 4 were distinguished as the most prominent in educational processes and were mostly applied by adults in their personal, social and professional activities.

CONCLUSIONS

LLL cannot be imagined without personal qualification improvement, development of personal knowledge and skills, and life-long learning is, therefore, a permanent self-development. ICT application has become critical in the information society based on LLL when seeking efficient high-quality change in the teaching/learning process. ICT competence and its development is a decisive factor in the LLL process, providing the opportunity to find employment, and to become integrated into the social life and active citizenship. The paradigm of life-long learning liberates learning from the limitations of the traditional learning paradigm, and ensures the aspects of universality, globality and availability.

The common tendencies in the country and the research that has been undertaken have shown that ICT competence is important for adults in their personal, social and professional activities. The results also testify to the fact that it is significant in seeking a career. ICT skills are essential in searching for information about job vacancies and in preparing documents for employment. The necessity of having ICT skills for the job and the desire to improve self-development are the main incentives for developing ICT competence. ICT is most significant for personal development. The most important ICT ability is to use the Internet for searching and selecting useful information, to process information with the help of computer software, and to make use of IT services for personal and/or job-related goals.

ICT application is vital for lecturers and adult educators in their professional activities. However, their ICT skills are not sufficient, and they wish to develop them. The main obstacle in integrating ICT into the education system is the lecturer's pedagogical competence and the lack of students' and lecturers' ICT skills. The problem is the older lecturers' ICT competence and the lack of skills in applying technological teaching programmes.

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