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Information Competencies and Computing Literacy in Coaction with the Application of Lessons Learned Method in Rescue System

Kompetencje informatyczne i umiejętność korzystania z komputera. Stosowanie w systemie ratowniczym metody Lessons Learned (wyciągania wniosków)

Summary

The period, the contemporary society is found now, may be called the "age of learning". The term of "learning organisation" may be encountered more and more often, they speak of the exploitation of data, information, experience, attainments, knowledge and skills. The ability to constantly improve performance through learning is of even greater influence on the successfulness of an organisation.

Keywords: Information skills, information competences, learning, e-literacy, lessons learned method

Streszczenie

Okres, w którym obecnie znajduje się współczesne społeczeństwo, nazywany jest wiekiem uczenia się. Coraz częściej spotykamy się z określeniem organizacja uczenia się. Dotyczy on zarówno wykorzystania danych, zdobytych informacji, doświadczeń, osiągnięć naukowych, jak i wiedzy oraz umiejętności. Zdolność do ciągłego doskonalenia poprzez uczenie się ma niezwykle duży wpływ na osiąganie sukcesu przez organizację.

Słowa kluczowe: umiejętności informatyczne, kompetencje informatyczne, uczenie się, umiejętność korzystania z komputera, metoda Lessons learned (wyciągania wniosków)

Introduction

The contemporary society is distinctive by the innovating development of technology, the rapid development of technologies with a huge amount of new information forcing the individual to expend great effort in order to succeed in the modern society. The scientific cognition thus goes beyond the human possibilities. Through the never-ending increase in new information, the approach to education is changed too. Education thus becomes the life-long issue. The modern concept in the organisation of education, in particular in the level of an individual acquisition of new knowledge leads to the successful mastering of knowledge, skills and habits. Through the interconnection of theoretical education and practice it comes to the acquisition of exposed knowledge and positive approach to education. The investment in education facilitates the development of personality, results at work as well as the development of company, economic results and it would improve the position on market, which is realised by the representatives of both private and state companies nowadays. Thus it is in the interest of the company to train its employees by means of various courses, trainings, workshops, etc.

1. Information Competences

Information competencies are those which are immediately related to information. With regard to the information competencies, they usually use in particular two terms: information literacy and computing literacy [1]. The following information competencies are necessary for e-learning: The information literacy is characterised by the following set of capacities and skills:

- to localise various sources (computing) comprising the necessary information,
- to find necessary information in the sources,
- to be able to critically assess the information (their usefulness, asset, veracity, reliability, up-to-datedness, etc.),
- to use the obtained information for problem solving,
- to efficiently mediate the information in various forms (orally, in writing, graphically) to the other ones, in both direct contact and by means of various technologies (including the information and communication ones).

One of the key preconditions seems to be in particular the readiness of wide layers of population for the use of modern information and communication technologies (ICT) – the digital literacy. This is the ability to understand the information and to use them in various formats from various sources presented by means of information and communication technologies. However, some foreign researches warn that it often comes to the new type of social fragmentation on the background of the society computerisation process, to those having and those not having the access to modern information and

communication technologies and concurrently disposing of various level of digital literacy. In the professional circles, the phenomenon is called the digital divide or digital gap. Finally, such condition may induce the strengthening of the concepts calling for the radical political solutions, for example in social or economic field. The digital literacy development stages must consider several aspects. Digital literacy does not include just knowledge and skills when mastering a wide spectrum of various types of technological means, but also the knowledge in access to information, their obtaining, analysis, understanding and assessment. In general, the digital literacy can be characterised as the set of competencies covering skills and knowledge in the efficient and professional use of digital technologies for various purposes in private life and the professional field in particular. It is important for the development of digital literacy not only to attain the basic knowledge and skills, but also to master various possibilities of the use of DT for the support of the individual stages of learning process and to gain the abilities to apply the obtained knowledge when dealing with various problems. The digital literacy development may be schematically divided to several stages, illustrated in the scheme on Fig. 1.
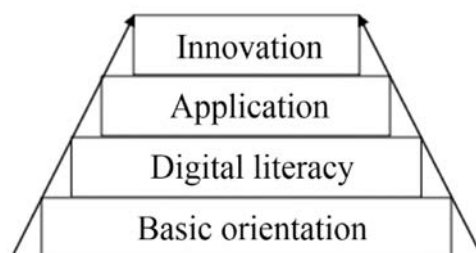
Fig.1. Digital literacy development

Source: [6].

Information competencies are those immediately related to information, including:
1. The use of information and information sources.
2. Data organisation and relation investigation.
3. Process analysis and automation.
4. Model understanding and modelling.
5. Communication.
6. Representation.
7. Tool and equipment use.

1.1. Information Literacy and Ability to Use Information Technologies in Practice

In practice, the crisis management and emergency planning would not do without the information and communication technologies. These are inevitably the priority elements serving for the communication of rescue units on the spot of an emergency incident or crisis situation. Nowadays, it is necessary to interconnect the individual systems and computers in networks for better exploitation of computing technology. Hardware resource sharing is when computer and other hardware may be shared by several users. In practice this means that the user does not need to have for example a printer, a scanner or mail server directly. Public administration benefits great financial savings from this solution. Software resource sharing facilitates the running of centrally stored databases and programs. In this case, we use the data stored on one server while being able to share the documents from any place supposing we know for example a password or any other access to the data. Nowadays, communications facilitate the access to databases and communication between the individual users from any place.

The ICT literacy in the field of information and communication technologies comprehends the set of competencies needed by an individual in order to be able to decide how, when and why to use the available ICT and then to use them efficiently when dealing with various situations in learning and life in the changing world. The ICT literacy includes the following components:

1. The practical skills and knowledge enabling the individual to master the individual ICT with understanding and efficiency.
2. The ability to accumulate, analyse, critically assess and use information using the ICT.
3. The ability to use the ICT in various contexts and for different purposes on the basis of the understanding of terms, concepts, systems and operations in the field of the ICT.
4. The knowledge, skills, abilities, attitudes and values leading to the responsible and safe utilisation of the ICT.
5. The ability to receive new impulses in the field of the ICT and to critically assess them, the understanding of a rapid development of technologies, their importance for personal progress and their impact on society.

First two components may be perceived as the basic building stones of the ICT literacy. The first one represents the requirement to mater the currently and commonly used technical means of both material character (hardware) and immaterial character (software). The other one represents the necessity to cope with the fact the development of technology has substantially changed the availability of information and thus also the methods of seeing, approaching to and work with them.

We may not suppose the absolute agreement would be reached in the determination what is the currently and commonly used technology. Therefore it is necessary to become aware the particular knowledge or skill (in this case or example the skill in using any ICT tool) is not the terminal objective of learning, but the means leading to the understanding of the basic terms, concepts and processes in the field of information science and information and communication technologies. Then it would be possible to base the ability to use the ICT in various concepts and for various purposes on them. Just the offer of such opportunities shall lead to the gradual gaining of experience necessary for coping with new tools and hitherto unknown situations.

The ICT may not be separated from the social context. The awareness of the social aspects of the ICT (from the ethical principles and crime, through on-line security up to the safe and harmless ergonomic handling with the ICT) is the integral part of the ICT literacy. This is a long-term and a complex problem. The shaping of attitudes must take place not only in the proclamation level. The ICT literacy in the field of information and communication technologies comprehends the set of competencies needed by an individual in order to be able to decide how, when and why to use the available ICT and then to efficiently use them when dealing with various situations in learning and life in the changing world. The ICT literacy includes the following components:

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Nowadays, we may not think of the ICT just as of the particular tools, it is necessary to perceive them in block, as a phenomenon fundamentally affecting the whole range of situations and events in society and placing a human in front of new situations and problems that must be responded to. Therefore the ability to differentiate the benefits and risks of the ICT in both personal and social level is one of the basic preconditions for life in today and future world.

1.2. Learning by Experiences

The basic precondition for organisation learning is to have the regular information exchange and discussions. If an organisation wants to change to the

knowledge one, it must build the system of knowledge – the information database that would be accessible to all employees. Thus the formalised knowledge management system is implemented in the progressive organisations. The individuals have the access to the experience of the other ones in it and at the same time they have the opportunity to contribute to the system with their experience. Finally, learning brings innovations and the innovative approaches which are the constant impulse for further learning. The part of learning is also the exploitation of experience from the past activities. The greatest mistake is the repetition of the same "old" mistakes. The organisation should learn from its past activities and experience and use them as the source when looking for the correct solutions. It is useful to continue in good procedures, to discard the bad ones and thus prevent later possible problems.

The Lessons Learned term occurs in the professional and scientific resources in relation to the project and knowledge management. Zůna (2008) defines the Lessons Learned process as the specific information process the mission of which is the collection, eligibility assessment, processing, storing, dissemination and the reuse of knowledge or experience. The output of the process is the specific information serving as the base for the manager´s decision-making. The objective should be the identification and correction of defects in the individual processes of the organisation and sharing and dissemination of the approved practices. Such a procedure should finally lead to the further improvement of the internal processes in an organisation. The Lessons Learned method is successfully used in the armed forces of several countries. The independent agency "Joint Analysis and Lessons Learned Centre – JALLC" seated in Portugal is created in the North Atlantic Treaty Organisation. The American "Center for Army Lessons Learned" in Kansas has a rich history and well developed project of Lessons Learned application too. The centres accumulate, analyse, release, integrate and archive the knowledge, experience, tactic and technical procedures of the armed forces for the purpose of their use in favour of the entire spectrum of military operations [6].

The philosophy of Lessons learned project lies in the assumption the individual users shall enter the particular information in the database of the project information system, the use of which shall be necessary and useful also for the other involved users. They suppose the system could be used as the source for lessons from real situations. The users shall be able to announce the existence of a new situation to the other interested parties by means of the standardised form, to announce the change in the original situation, to recommend the change in response or to announce their personal observation of the particular issue. It is important for the professional soldiers to learn how to recognize what facts must be considered as an experience suitable for publication and to become interested in discussion about the problems in the group of persons directly involved in any activity or task.

The core of the method was used also in the transformation of the armed forces of many countries. The implementation of outsourcing in the defence department of the Slovak Republic was logically implied by the professionalization of the armed forces. The professional army as the subject of a public sector deals with the production of public service – the national defence and security. The transformation of production sources is carried out in the form of a specific technology, military training of a general or specific character. The activities can be considered to be the primary activity of the armed forces. However, the quality assurance of defence is conditioned by the inevitable execution of various auxiliary activities that used to be provided mainly by compulsory military service soldiers in the period prior to the army professionalization. Since such category of soldiers was avoided in the armed forces, they decided in the management of the armed forces to introduce outsourcing in the field of military logistics for the lack of human resources. This was the introduction of a new method of the provision for services they had insufficient experience with, which was accompanied also with various problems.
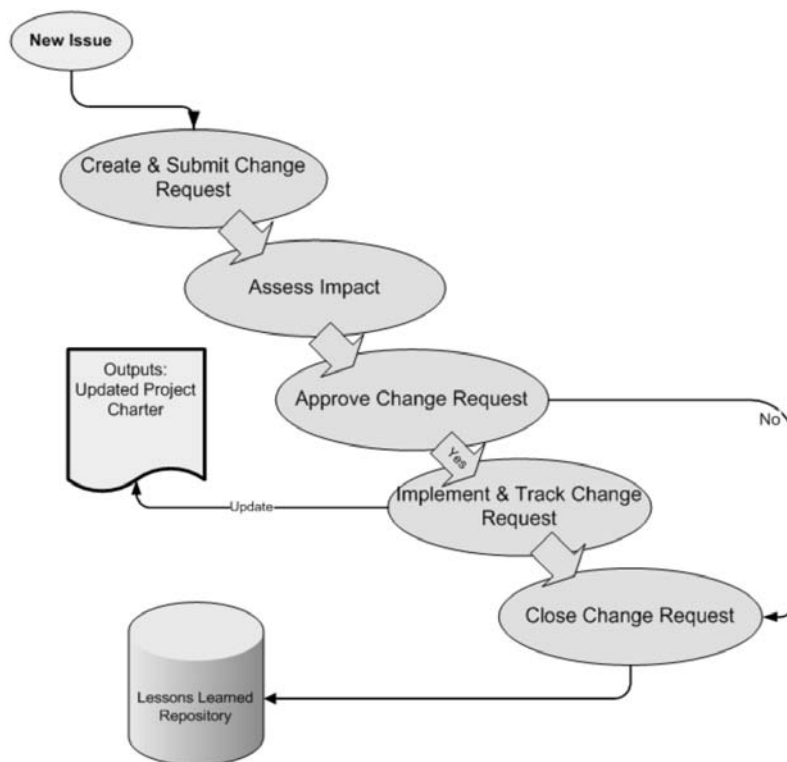

Fig. 2. Change Management Process

Source: [1].

1.3. The Lessons Learned Database

Lessons learned should be captured and placed in a database that is readily available to everyone in the organization. Unfortunately, many well-meaning Lessons Learned databases focus more on the problem than on the solution, and it is difficult to search and provide little help to future projects. Like any effective database, the Lessons Learned database must have an administrator whose job is to ensure that:

1. Each lesson focuses on what was learned that will benefit the performance of future projects. Future projects need to understand what went wrong on your project, but what they really want to know is what to do to not make the same mistake.
2. Each lesson is entered in the database in such a fashion that there is no finger pointing or blame attached. Nothing will kill a Lessons Learned process quicker than finger pointing.
3. The database is kept current, is easily accessible and is easily searchable. I have heard numerous times from students that, in their corporate Lessons Learned database, they could never find information that applied to their projects. It's important that the data entered in the database is clear, concise and has the appropriate key words to facilitate effective searches. It also helps to reference the individuals who can be contacted for more information.

In most organizations, it seems that Lessons Learned, if they are captured at all, are captured on an ad-hoc basis or captured only within one segment of the organization. Mistakes are often repeated from one project to the other. For those few organizations that have an effective Lessons Learned process that spans globally across all projects, the key success factors include:

- strong leadership that encourages and rewards openness and instils a culture aimed at performance improvement as opposed to placing blame,
- having a simple, yet formal, Lessons Learned procedure that is proven to add value and that is able to focus on process improvement and not point fingers,
- holding projects accountable to follow the procedure,
- providing adequate time and resources to capture, analyse and institutionalize the Lessons Learned,
- holding post-project reviews to ensure Lessons Learned are captured,
- maintaining a well administered database of Lessons Learned that is easy to access and easy to search,
- following up and actually institutionalizing the most important Lessons Learned,
- periodically reviewing and improving the organization's Lessons Learned process.

Conclusion

The mission of the knowledge management in the establishment of knowledge organisation is to create the corporate culture encouraging the employees to learn and share information, knowledge and experience. Many times, the introduction of the knowledge management is a great challenge for managers and the positive results are not obtained all the times. Managers must become aware the success of the establishment of the organisation using knowledge lies not only in the establishment of a quality information system, but also in the fact that the knowledge may not be separated from people, since this is the intangible intellectual property that must be managed.

The following preconditions must be met in order to achieve the supposed positive effects related to the introduction of the Lessons Learned system [8]:
1. Every employee must have a time to search for the relevant information in the database.
2. The employee must understand where the information can be found.
3. The employee must be able to use the information management software.
4. The employee must be able to interpret and use the found information correctly.

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