Use of informal knowledge sources and net generation

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Abstract - Pupils have always had access to different types of skills but nowadays, pupils are rapidly becoming powerful Internet users. If knowledge is also acquired outside the formal education system, most frequently on the Internet, then pupils will have access to a broad scale of educational locations, digital libraries, digital books, various educational portals, cyber cafes and similar places. In short, pupils have numerous possibilities for using informal sources of learning. For all these reasons it was necessary to research in detail whether pupils from Serbia (N=930) outside the formal education system, via informal learning (by using informal knowledge sources), acquire the knowledge and skills relevant for using modern IT technologies and also to determine the factors which influence the level of pupils' information literacy. On the basis of the research results it can be firmly claimed that the respondents confirmed, that their knowledge of using computers, software, the Internet, mobile phones and new digital technologies was acquired by using informal knowledge sources.

Index Terms-knowledge management, information literacy; informal learning; learning sources

I. INTRODUCTION

There is no doubt that the union of Information and Communication Technologies (ICT) available nowadays has the potential to offer access to complete knowledge and knowledge sources which are necessary in order to achieve a high standard of learning in numerous fields. Everyone, regardless of their age, anywhere and at any time, will be able to approach the sources for learning and on-line support from experts as well as the knowledge check system. All this will enable a complete program of learning and support.

Expansion of knowledge and its rapid evolution mean that educational methods and practice also have to evolve and adjust in accordance with the surroundings. This requires a lifelong dedication to learning, and the ability to make and identify innovations, which are necessary for keeping pace with changes.

Teaching methods within an information oriented society must meet and improve pupils' abilities to use the power of information. The key lies in the ability to evaluate information, determine its value in relation to other information, as well as in the determination of its authenticity and modernity.

The new educational space of Europe has announced an affirmation of lifelong learning and linking formal and informal education through the development of quality programs.

The consequence of inertia in formal education, i.e. the very nature of its results lies in the fact that it could not always keep pace with the development of new knowledge. Thus, non-formal education serves to supplement the formal and to give us the opportunity to access all those facilities that are inaccessible in a formal or even completely intact education system (various courses of specific skills, practical business knowledge, personal development ....).

II. THE CURENT STATUS OF INFORMAL EDUCATION IN EUROPE

Europe is facing serious challenges in the modern era, which stem from a change of economic concept as well as changes to the composition of society which in many European countries is now multi-ethnic. As a direct consequence of those changes, a change in the concept of education has also occurred, evolving into the modern educational concept of 'lifelong learning'. Europe has expressed the conviction that formal education is no longer capable of responding to those challenges by using its own forces and values exclusively, but it needs "strengthening in the form of informal educational practice"[1].

Since the 1990's, education has taken up a central position in the policy of the development of human resources in most European countries. The following table presents the chronology of events and documents which have determined the direction of the development of informal education in Europe.

Many European Union documents pay particular attention to informal education and provide a series of recommendations for European Union member Governments to realize the significance of informal education, emphasizing the importance of recognizing its status. Some of those documents are:

- Committee on Culture and Education report: Non–Formal Education, 15 December 1999.
- The working group on Non–Formal Education report: The present debate on recognition and quality standards at European level, 2001.
- Council of Europe, Directorate of Youth and Sport: Study on the links between formal and non–formal education, Strasbourg, March 2003.
- Council of Europe – Committee of Ministers – Recommendation of the Committee of Ministers to member states on the promotion and recognition of Non–Formal education/learning of young people, 30 April 2003,
- European Commission, Directorate–General for Education and Culture: Common European principles for the validation of Non–Formal and Informal Learning, 8 May 2003.

Consequently, the [2] issued concrete recommendations for member countries regarding the promotion and accreditation of informal education:

The development of efficient standards for the recognition of informal education as a crucial part of general education - this primarily refers to the criteria used to assess the quality of the education process within the framework of informal education.

The stimulation of progress in informal education by spreading information and examples of good practice, educational methods and achievements as well as the establishment of a list of skills, experiences and knowledge.

The promotion of equal possibilities for all young people, with special attention to socially endangered groups, through the creation of equal conditions for education with the goal of those young people fully developing their potentials, thus reducing social differences and social discrimination.

Encouraging young people to make their contribution to the promotion of values such as active citizenship, human rights, tolerance, social justice, intergeneration dialogue, peace and intercultural understanding.

Informal education activities should stimulate young people to actively participate in social life, particularly in countries in transition.

The establishment of funds and access to resources needed to make informal education a significant element of national policy for young people.

Estimations are that only 3% of the population of Serbia aged between 25 and 64 take advantage of informal education, i.e. enroll in various courses and undergo training. That is less than half in comparison with the European Union average, and as such Serbia is at the very bottom in this area.

III. INFORMAL LEARNING AND INFORMAL SOURCES OF KNOWLEDGE

Informal learning has not been researched enough and there is insufficient awareness of the very notion of informal learning in the Serbian school system. Informal learning is learning performed in daily life, at work, in free time, at home within the family, through communication with friends, the media and modern ICT. Informal learning is a natural accompaniment to daily life [3]. Unlike formal and informal education, informal learning is not necessarily deliberate learning, so it cannot even be recognized by the individuals themselves as a contribution to their knowledge and skills. It is not structured in relation to the aims, time and encouragement of learning and it cannot be certified. Informal learning can be targeted but it is, in most cases, unconscious and unintentional [6]. According to [5], informal learning is a lifelong process in which every individual acquires attitudes, values, knowledge and skills from daily experiences and educational influences.

In contrast to formal and informal education, informal learning does not have to occur consciously and often encompasses educational activities where you "learn and are not aware of it". The essential difference between formal education and informal learning is that formal education is always accompanied by teaching, which is not the case in informal learning. Formal learning is connected with a teacher who teaches, while informal learning is directed towards the surrounding which presents stimulating support for learning [4].

It is a continuous process, which is not limited by the time and place of learning, and through which personal attitudes are developed and new knowledge acquired on the basis of new experiences and informal sources of learning.

Modern trends (portable computers, mobile phones, WF access points) offer immense possibilities for using informal sources of knowledge and nowadays the Internet is one of the most used sources of informal learning. In their free time, pupils use the online world in order to share, estimate, and create reports and programs to engage easily and quickly in new digital technologies, share audio and video clips, and post different kinds of texts and photos. They create Web pages, blogs and avatars, and share their ideas easily [7]. All of this results in the improvement and regular update of their knowledge and information literacy. However, the ability to make an efficient search for information, familiarity with the selection and evaluation of information, ease and comfort when using a wide range of media and consciousness of the reliability and efficient transfer of information imply information literate pupils. Information literate pupils must

be computer, digitally and multimedia literate because these competences are crucial for permanent education and they are included in modern national educational policies and international documents related to education.

Current educational trends are characterized by a tendency towards flexibility and individualization, thus creating the need for learning at any place and at any time. The formal education system is inert and limited in time so it is changing more slowly and lags behind society's needs while informal education and informal learning support lifelong education and offer possibilities to every individual to acquire new, functional knowledge at any time.

Current education needs a new learning model – active learning based on the information resources of the real world. Nowadays, the need for education based on the methods used by ICT is more emphasized.

Informal learning takes place when the one who is learning on the basis of a problem of acting or interest, which he or she has personally established and considers relevant, sets his or her own learning goals, for whose realization he or she develops a work plan, or better said learning activities, implements them independently, decides how to deal with any learning difficulties when they occur, and finally establishes when he or she will consider such adopted competences satisfactory for the realization of the learning goal [8].

However, it would be wrong to insist on active learning by means of modern technologies without expert analysis of the possibilities of using informal sources of knowledge.

IV. The Internet and Free Software in the Function of Informal Learning

The development of the www service, i.e. the so-called Web 2.0 revolution, which has enabled dynamic web-pages with content changes, posting and downloading content, interaction between owners and users and among users themselves, synchronous communication among users and adaptation to other devices in addition to computers: mobile phones, PDA and other 'smart' devices, has brought us to the situation where today's secondary school pupils are referred to as "the Net Generation". This is supported by the fact that all that is required for access to knowledge is an Internet browser and basic Internet search skills combined with an understanding of the powers of individual Internet browsers such as www.google.com, which is the most used Internet browser today.

The video game phenomenon is described as a new form of literacy [9] because, depending on the game design, it presents multimedia dimensions consisting of images, animations, words, sound and movements which players use according to the rules of the game. Other researchers are expanding the body of knowledge related to video games as a new literacy, especially when the knowledge acquired in that way relates to classroom learning. However, the role of the teacher is of essential significance. If teachers become engaged in blogging, participate in "fan fiction" spaces, video games, music and video remixing, photo sharing and similar, they will gain a better understanding of how this new literacy can be integrated into the classroom and thus facilitate learning [10].

Affinity spaces are virtual or physical spaces where informal learning takes place. Those are locations which gather groups of people who share the same interests or are included in a joint activity, where the activities most frequently occur electronically; places which stimulate the exchange of knowledge and where informal learning emerges as a consequence [9]. People of all ages, ethnic affiliations, levels of education and cultures play and create together – often anonymously or under a pseudonym. They participate in those spaces because they are inclined towards a certain content which is represented in that place. Pupils join groups where skills are shared, video games are played, circuit breaker panels are assembled at work, and genes are mixed in a bio-laboratory. Pupils learn those skills from experienced members through joint activities and they advance their skills thus enabling them to get engaged and work with others on carrying out those activities. Both beginners and experts share the same space.

V. Researching the Contribution of Information Learning to the Information Literacy of Pupils

A. Research Subject

The research subject was to confirm that the level of pupils' information literacy, as a global educational trend, was increased by using informal sources of knowledge and modern technologies.

According to [11] information literacy presents the adoption of adequate forms of behavior which leads to finding information by using any method or medium, which satisfies the need for information in the best possible way and which in turn results in its ethical use in society.

In addition to information, the concept of modern literacy also includes multimedia, librarian, computer and digital literacy, where digital literacy is defined as a process related to the ability to read and understand hypertext or multimedia texts, and includes the understanding of pictures, sound and hypertext [12].

There are several on-going theoretical debates about media and learning with the help of media resulting in multimedia literacy. Among them three studies could be singled out which may lead to a significant understanding of literacy in the multimedia sense, also including learning from texts, the integration of multimedia in teaching and the expansion of pupils' social-cultural awareness of textual information. According to [13], research in which the cognitive perspective was used showed that students with low mechanical aptitude learn more text describing machinery when its work is animated on a computer screen than when it is presented as a serious of static pictures in conventional printed text. Using a case study [14], documented that writing activities as well as the roles of teachers and pupils had changed since e-mail and access to the Internet were introduced into classrooms. However, the study which dealt with the inclusion of pupils in the creation

of multimedia hypertexts about historical persons showed that pupils had a critical approach towards different sources of information [15]. The research carried out by [16] established that through on-line reading, i.e. using the Internet and other ICT devices, important issues are identified, information found, the usefulness of such information assessed in a critical way, and information which responds to those questions is synthesized and the answers forwarded to others.

The wider problem with which this study deals is to what extent the quality Informatics education of secondary school pupils, based on information literacy, has a statistically significant influence on the increase of the quality of the education process as a whole.

B. Research Hypothesis

The research served to verify whether pupils used informal sources of knowledge and whether informal sources of knowledge contributed to:

- increasing the level of pupils' information literacy;
- increasing the level of pupils' digital literacy;
- increasing the level of pupils' multimedia literacy.

The aim of the research was to find out whether informal learning had a significant statistical influence on the level of information literacy of secondary school pupils. In addition to the main hypothesis there were also three auxiliary hypotheses whose purpose was to determine whether the level of information, digital and multimedia literacy was increased by using informal sources of knowledge.

C. Research Methods

For the sake of empirical research, a questionnaire was created as the instrument, in other words, a Likert-type scale with 70 assertions on the adoption methods of ICT knowledge. The questionnaire created for the needs of this research included three separate groups of assertions related to different components of information literacy, in order to determine whether the use of informal sources of knowledge (from the social aspect) influenced the information, digital and multimedia literacy of pupils.

The respondents expressed their level of agreement with each claim, accepting one of the answers: very incorrect, mostly incorrect, not sure, mostly correct and very correct.

The claims in the questionnaire can be grouped into four categories:

1. Claims which refer to the use of ICT which are as follows:

- claims which refer to the use of computers (T1, T5, T9, T13, T17, T21, T25)
- claims which refer to the use of mobile phones (T3, T7, T11, T15, T19, T23, T27)
- claims which refer to the use of the Internet (T2, T6, T10, T14, T18, T22, T26)
- claims which refer to methods of gaining information and knowledge about ICT (T4, T8,T12, T16, T20, T24, T28).

2. Claims which refer to the method of acquiring computer literacy (T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42)
3. Claims which refer to the method of acquiring digital literacy (T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T56)
4. Claims which refer to the method of acquiring multimedia literacy (T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70)

Adding up the values for each answer (the answers were valued at 1,2,3,4 and 5) provides the general result for which the correlation of each claim with the total result is calculated.

For the general research, those claims which showed a high correlation with the total result were retained in the scale, or the correction of the instrument was done by means of the elimination of certain claims.

The item's consistency was checked by Cronbach's alpha coefficient, which is 911 for the scale and is considered to have good reliability. The sample consisted of 930 pupils from 36 representative secondary schools in the Republic of Serbia (grammar schools and secondary vocational schools, 25 vocations). The sample belongs to the category of intentional samples and the criteria for sample selection were the following: it was important that different vocations were included in the survey, and that secondary school pupils from the 4th form were also included because during their schooling they studied teaching plans and programs within subjects related to ICT. The research project anticipated the identification and ranking of those factors which determined the influence of informal learning on the pupils' information literacy. We also wanted to emphasize the possibilities of using informal resources in education, which was done in the research. The multivariate statistical technique of factor analysis was used in the data processing.

The main advantage of this multivariate statistical technique is reflected in the possibility of adjustment to a great number of variables in order to understand complex relations unlike univariate and bivariate methods. Because of its confirmatory approach (the estimation of to what extent the data satisfy the expected structure), factor analysis enables the selection of a representative subset of variables whereby the whole set of variables is explained by factors.

Our education is still based to a great extent on the traditional system of schooling. By using informal sources of learning this focus is transferred to the intellectual needs of individual users and possibilities emerge for the immediate dispersion of new knowledge in spatially indefinite conditions (remote places, other countries, other continents). In other words, pupils and teachers are given the chance to

approach innumerable sources of informal knowledge through non-institutional learning, which helps them to extend their current knowledge and raise the level of their information literacy as a general educational characteristic. According to the general methodological approach, this research can be characterized as empirical with transversal character. This means that the research was carried out simultaneously in 36 secondary schools on the territory of AP Vojvodina, in grammar schools and secondary vocational schools with different educational profiles. A survey was used as the basic research technique for data collection, while a statistic SPSS package and a statistic method were used for the interpretation of the research results.

VI. Research Results

The paper presents the following (separate) descriptive statistic indices of variables (frequencies) which show to what extent secondary school pupils think that they have acquired ICT knowledge by using informal learning sources.

The total sample of 930 respondents consisted of 407 female and 523 male pupils. 490 were from cities, 336 from villages and 102 from city suburbs. 201 were grammar school pupils and 729 were from secondary vocational schools.

The following text presents the results of research which refers to the part of the questionnaire which examines computer, digital and multimedia literacy.

A. *Frequencies of replies to claims on questionnaire items which refer to pupils' computer literacy*

In the group of claims which refer to methods of acquiring computer literacy (T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42), pursuant to the frequency of replies, claims T42, T33, T38, T37, T32, T31, T41, T30, T34, T36 can be set aside. The following graphs present the frequency of replies to the selected claims.

Graph 1 shows that 82% of the sample confirmed that they had acquired knowledge about how to use a scanner and printing software outside school (T42).

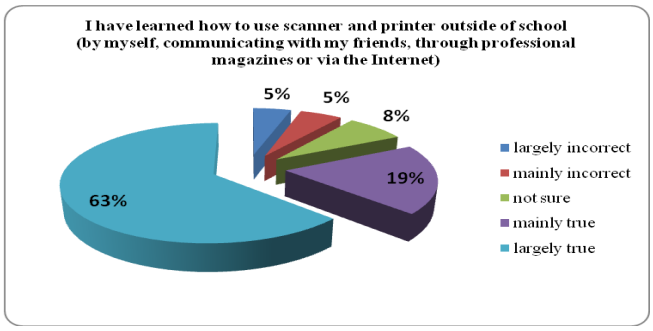

Fig. 1. Graph 1. The frequency of answers to the claim that knowledge about the use of scanners and printing software was acquired outside school (by themselves, through communication with friends, from journals or from the Internet)

Graph 2 shows that 77% of the sample confirmed that they had acquired knowledge about copying, pasting, deleting and transferring files and folders from various locations outside school (T37)

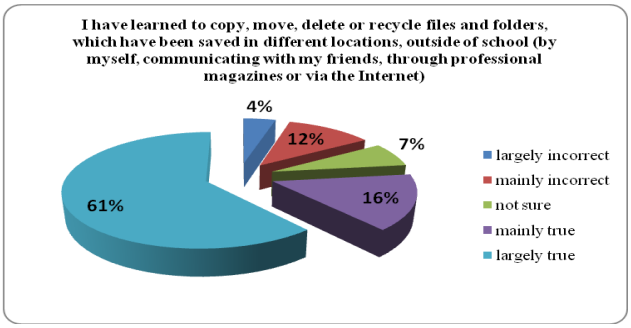

Fig. 2. Graph 2. The frequency of answers to the claim that knowledge about copying, pasting, deleting and transferring files from various locations was acquired outside school (by themselves, through communication with friends, from journals or from the Internet)

78% of the sample confirmed that they had acquired knowledge about how to use electronic mail outside school (T31). (See Graph 3)

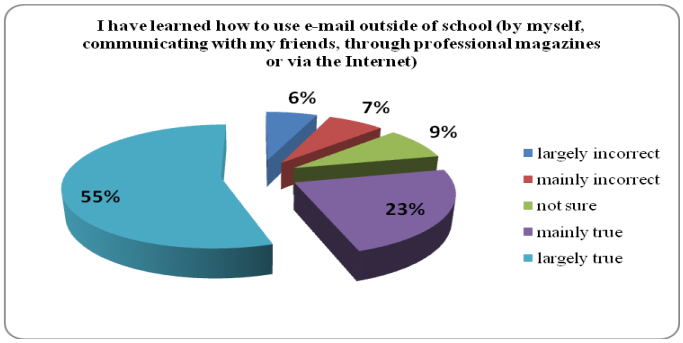

Fig. 3. Graph 3. The frequency of answers to the claim that knowledge about the use of electronic mail was acquired outside school (by themselves, through communication with friends, from journals or from the Internet)

B. *Frequencies of replies to claims on questionnaire items which refer to pupils' digital literacy*

In the group of claims which refer to methods of acquiring digital literacy (T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T56), pursuant to the frequency of replies, all claims can be set aside as statistically significant. The following graphs present the frequency of replies to the selected claims.

Graph 4 shows that 92% of the sample confirmed that they had acquired knowledge about how to post video clips or pictures on Facebook outside school (T45).

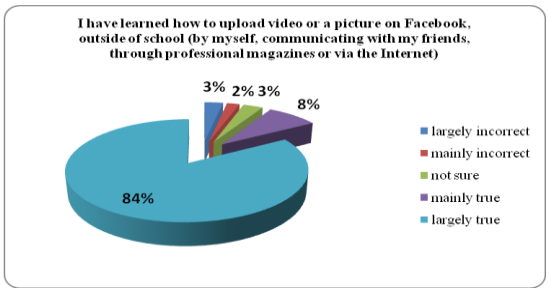

Fig. 4. Graph 4. The frequency of answers to the claim that knowledge about posting video clips or pictures on Facebook was acquired outside school (by themselves, through communication with friends, from journals or from the Internet)

90% of the sample confirmed that they had acquired knowledge about how to download from the Internet outside school (T50). (See Graph 5)

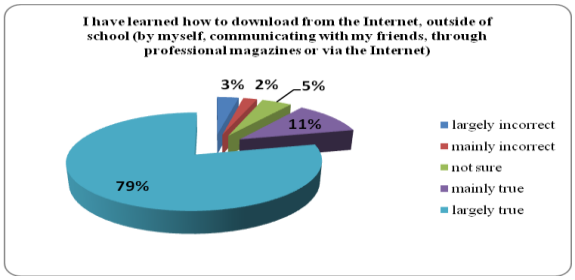

Fig. 5. Graph 5. The frequency of answers to the claim that knowledge about how to download from the Internet was acquired outside school (by themselves, through communication with friends, from journals or from the Internet)

85% of the sample confirmed that they had acquired knowledge about how to use electronic books and electronic sources of knowledge outside school (T52). (See Graph 6)

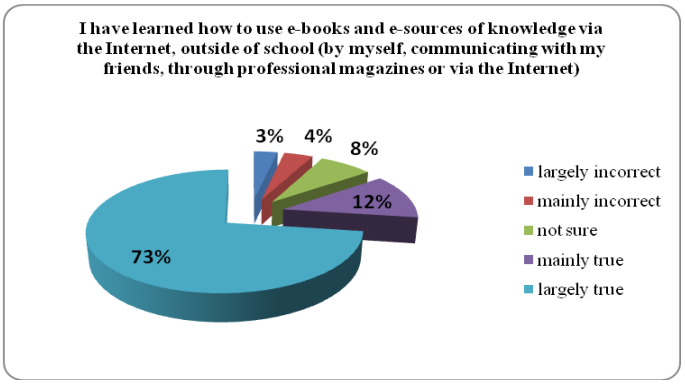

Fig. 6. Graph 6. The frequency of answers to the claim that knowledge about the use of electronic books and electronic sources of knowledge was acquired outside school (by themselves, through communication with friends, from journals or from the Internet)

C. Frequencies of replies to claims on questionnaire items which refer to pupils' multimedia *literacy*

In the group of claims which refer to methods of acquiring multimedia literacy (T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70), pursuant to the frequency of replies, all claims can be set aside as statistically significant. The following graphs present the frequency of replies to the selected claims.

Graph 7 shows that 94% of the sample confirmed that they had acquired knowledge about how to use music player programs outside school (T69). (See Graph 7)

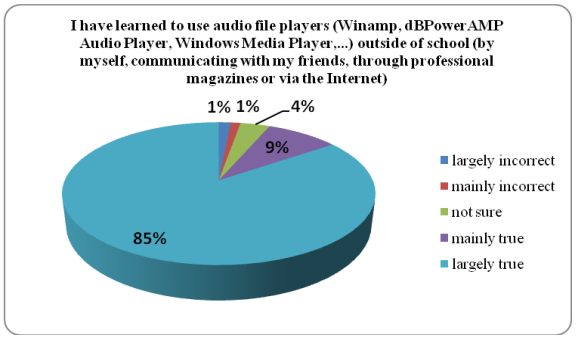

Fig. 7. Graph 7. The frequency of answers to the claim that knowledge about the use of music player programs (Winamp, dBPowerAMP Audio Player, Windows Media Player,...) was acquired outside school

93% of the sample confirmed that they had acquired knowledge about how to use cameras on mobile phones outside school (T59). (See Graph 8)

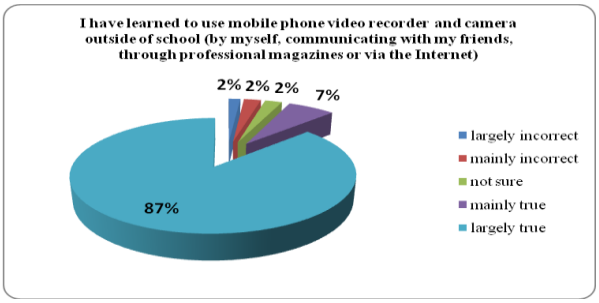

Fig. 8. Graph 8. The frequency of answers to the claim that knowledge about the use of cameras on mobile phones was acquired outside school

90% of the sample confirmed that they had acquired knowledge about how to use systems which enable free audio and video communication outside school (T63). (See Graph 9)

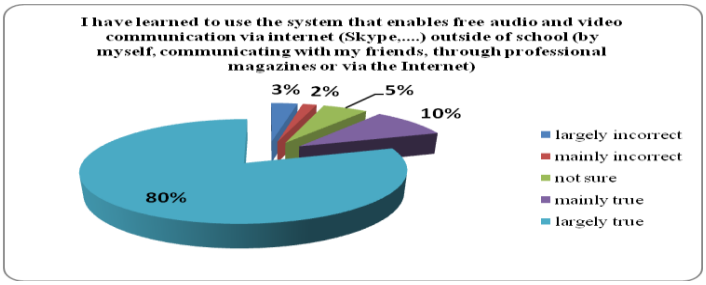

Fig. 9. Graph 9. The frequency of answers to the claim that knowledge about the use of systems which enable free audio and video communication was acquired outside school

88% of the sample confirmed that they had acquired knowledge about how to use picture and other media viewers outside school (T70). (See Graph 10)

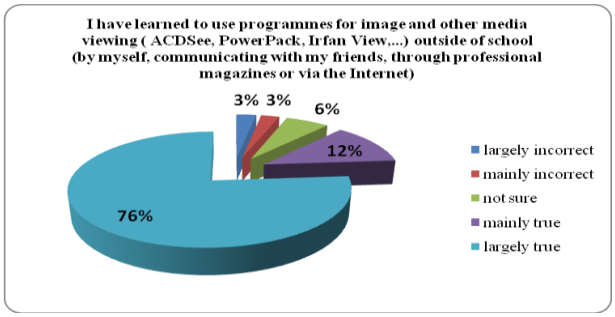

Fig. 10. Graph 10. The frequency of answers to the claim that knowledge about how to use picture and other media viewers was acquired outside

In order to find out whether the use of informal sources of knowledge had raised the level of pupils' information literacy a questionnaire was created based on ECDL standards with claims on the questionnaire items for evaluating the ways ICT knowledge sources were acquired and adopted.

After processing the results it can be determined that 80% of the respondents confirmed that they had learned how to install and uninstall software applications by using informal sources of knowledge (independently, through communication with others, professional journals, the Internet). 79% of the respondents said that they had acquired knowledge on the use of programs for Web search by using informal knowledge sources, and 77% of them confirmed that their knowledge about copying, pasting, deleting and transferring files had been gained through the same channels. 78% of the respondents had acquired knowledge related to E mail by using informal knowledge sources, 73% of them had learned how to install and use antivirus software for scanning certain devices, folders and files, 64% confirmed that they had learned how to compress and decompress files and 57% of them to create PDF files in the same way.

The first auxiliary hypothesis was that the level of information literacy of secondary school pupils was increased by using informal knowledge sources. Data processing confirmed that the pupils had acquired information knowledge and skills by using informal knowledge sources which resulted in increasing the level of their information literacy. Hence, the conclusion is that the implementation of the ECDL standard in teaching Informatics in schools is necessary.

In order to find out whether the use of informal knowledge sources had increased the level of pupils' digital and multimedia literacy questionnaires were created with claims for the evaluation of the ways ICT knowledge was acquired and adopted by using informal knowledge sources related to digital and multimedia literacy.

After processing the results of the questionnaire for evaluating the ways ICT knowledge was acquired and adopted by using informal knowledge sources related to digital literacy, it can be concluded that 90% of the respondents said that they had learned how to use download on the Internet by using informal knowledge sources (independently, through communication with friends, by reading journals and on the Internet). A total of 89% of the respondents confirmed that they had learned how to use e-mail on the Internet via some free services by using informal knowledge sources, and 89% confirmed that they had learned to use forums on the Internet in the same way. 85% said that their knowledge of using e-books and e-sources of knowledge on the Internet had been acquired by using informal sources of knowledge, 82% had learned to use Torrent on the Internet, and 81% had acquired the skill of using wireless local networks in the same way. 76% of the respondents had learned how to use auction sites on the Internet, 74% of them had learned to exchange files via different file hosting services, and 70% confirmed that they had learned to make personal pages on the Internet by using informal knowledge sources.

After processing the results for evaluating the ways ICT knowledge was acquired and adopted by using informal sources of knowledge related to multimedia literacy it can be concluded that 94% of the respondents said that they had learned how to use Bluetooth by using informal knowledge sources (independently, through communication with friends, in journals, on the Internet). A total of 94% of them confirmed that they had learned to use music programs in an informal way, 93% had learned to use cameras on their mobile phones, 92% how to use the Internet on their mobile phones, and 92% to use programs for watching DVX and DVD films by using informal knowledge sources. 92% of the respondents confirmed that they had learned how to make videos on their mobile phones in an informal way, 90% had learned programs which enable audio and video communication, 88% confirmed that they had learned to use programs for burning data, and, 88% of them had learned to use programs for viewing photos and other media. 83% of the respondents said that they had learned to use wireless local networks on their mobile phones by using informal knowledge sources, 82% confirmed that they had found out how to use photo shop programs, and 75% said that they had acquired knowledge related to sound processing in this way.

The second auxiliary hypothesis of the research was that by using informal sources of knowledge secondary school pupils had increased their level of digital literacy. The third auxiliary hypothesis was that by using informal sources of knowledge the level of secondary school pupils' multimedia literacy had increased. All three auxiliary hypotheses were confirmed.

On the basis of the research results for the average values of the respondents' answers, the frequency of the respondents' responses related to questions about the ways they acquire and adopt ICT knowledge, as well as the results of the Kaiser-Meyer-Olkin and Bartlett tests it can be firmly claimed that the respondents confirmed, to a great extent, that their knowledge of using computers, software, the Internet, mobile phones and new digital technologies was acquired by using informal knowledge sources. It was also confirmed that the pupils' knowledge related to information, and their digital and multimedia literacy was achieved by informal learning so the research verified the set tasks and research hypotheses. By achieving digital and multimedia knowledge and skills or competences the pupils increased the

level of their digital and multimedia literacy and therefore, information literacy.

VII. Conclusions

The implementation of the concept of key competences for lifelong education which must be supported by debates, reforms of teaching programs and the development of a lifelong educational strategy at national level represents one of the answers to the question "What competences (knowledge, skills and attitudes) should pupils adopt in order to be successful in the world of digital and multimedia technology taking into account that a formal system of education is inert and cannot keep pace with changes?" The European Commission defines competences as a transferrable multifunctional set of knowledge, skills and attitudes which everyone should be able to acquire during compulsory formal education and further develop through permanent professional improvement within informal contexts. All competences are related to a tendency to learning, the approach and possibility to manage ones' own learning, social and interpersonal relations and communication, motivation, etc. Along with the others, digital competences are defined as - "the competence – learn how to learn" (European Parliament, 2007).

According to the above and also to the research results, the knowledge, skills and attitudes related to the ability to organize and manage one's own learning by using informal knowledge sources individually or in groups can be defined. This knowledge would be related firstly to knowing and understanding one's own methods of learning, the advantages and disadvantages of one's own skills and qualifications as well as an awareness of the available possibilities for education by using modern ICT for the sake of increasing information literacy. The skills related to the ability to organize and manage one's own learning would be defined as the skills for using modern ICT, those related to managing information in the learning process and the ability for creative thinking on the subject and purpose of learning. As for the attitudes, it is sure that there will be a certain adaptability and flexibility in the further development of competences within lifelong learning.

Therefore, in addition to the competences acquired through formal education, there are also some competences which can be achieved by informal learning in numerous other fields, especially those related to lifelong learning and permanent professional improvement.

Education in Serbia is still based on the traditional schooling system. Through the use of informal sources of learning, this focus on traditional learning is transferred to the intellectual needs of the individual user thus opening up the possibilities for the immediate dispersion of new knowledge in what are practically unlimited spatial conditions (distant places, other states, or other continents). More exactly, pupils and teachers have access to spaces filled with countless informal sources of knowledge which could further extend the knowledge they have already acquired Namely, through outside-institutional education, i.e. informal learning, they achieve and increase their level of information literacy as well as their general-education.

Education is facing the challenges of reforms and fast adjustment to the requirements of the developed surroundings, but also intensive changes in science, technology, economy and social relations as a whole. The preparation of young people for daily life and their acceptance of responsibility for future development both represent the basis for defining and implementing a European education system.

One of the ways in which young people can prepare themselves for a "knowledge society" is through the determination of the system of external knowledge valorization or the systems for the accreditation of previous learning results, including informal learning. Learning how to learn, adjusting to changes and devising ways of using this enormous flux of information and informal education resources in order to achieve a high level of information literacy among pupils represent an imperative for all people involved in education.

This paper and the research results point out the practical significance of informal learning as well as the fact that modern education needs a new learning model – an active learning process based on using informal resources which is, first of all, applicable in the teaching process through the connection, adjustment and correlation of teaching contents.

In accordance with the aforementioned, as well as with the results of this study, we can tentatively define the knowledge, skills and attitudes related to the ability to organize and manage one's own learning through the use of informal sources of knowledge for both individual learning and that in groups: Knowledge (knowledge and understanding of one's own learning methods and the benefits and drawbacks of one's own skills and qualifications, knowledge about the possibilities of education and training through the use of modern ICT, in the aim of increasing information literacy), Skills (use of modern ICT, managing information in the learning process and the efficient management of one's own learning, critical thinking about the subject and purpose of learning, communication skills as part of the learning process though the use of appropriate means, as well as understanding and creating various multimedia messages (written or spoken language, sound, music, etc.)), Attitudes (the concept of independence which supports readiness for change and the further development of competences, treating learning as lifelong learning, adaptability and flexibility).

Accordingly, further research should be directed toward the creation and elaboration of models for using informal learning sources which will, no doubt, contribute to the permanent professional improvement of teachers and increase pupils' information literacy.

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