Learning by Doing in the Context of Modern Information and Media Literacy of Students in "Library and Information Management" in ULSIT Using the Digital Collection "Bulgarian Revival"

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Education is the ignition of the flame, not the filling of a vessel
Socrates

Abstract. The purpose of this article is to evaluate the effectiveness of learning by doing as a practical tool for managing the training of students in "Library Management" at the ULSIT, Sofia, Bulgaria, by using the creation of project 'Data Base "Bulgarian Revival Towns" (CD), financed by Bulgarian Ministry of Education, Youth and Science (1/D002/144/13.10.2011) headed by Prof. DSc Ivanka Yankova, which aims to create new information resource for the towns which will serve the needs of scientific researches. By participating in generating the an array in the database through searching, selection and digitization of documents from these period, at the same time students get an opportunity to expand their skills to work effectively in a team, finding the interdisciplinary, a causal connection between the studied items, objects and subjects and foremost – practical experience in the field of digitization, information behavior, strategies for information search, etc. This method achieves good results for the accumulation of sustainable knowledge and it generates motivation to work in the field of library and information professions.

Keywords: Information Literacy, Scientific Literacy, Learning By Doing, Skills And Learning Skills, Metacognitive Knowledge, Learning, Database "Bulgarian Cities During the Revival"

1   Introduction

We live in a dynamic world of active change and changing paradigms, new relationships and connections, which radically altered notions of literacy, learning, knowledge and communications. We are talking about need of new and comprehensive metaknowledge and universal experience. The new digital environment allows us to throw the gauntlet of challenge every day and everywhere. Properly adaptation to the situation requires a new and rapidly reconsideration of all previously accumulated

knowledge, experience, ideas and attitudes for learning and personal development in this rapidly growing and too unknown to us yet environment.

Cardinal changes popularize the education in its higher degree. Today more and more people acquire higher education and continue to learn throughout all their lives, feeling freed from the limitations of time, place and latitude. We are witnessing a "major social variations in terms of objectives and practices of the demand for higher education and all students should develop a broad range of skills to succeed in school, work and life."[6] At the same time the information floods from all around us, the criteria for accuracy, availability and need of information are changing, the culture of using information increases its criteria, capacity for informing are both endless and very limiting the individual. People should develop a culture of information literacy, information behavior, legal and ethical standards, honesty with regard to intellectual property rights, right of access and many others.

The modern generation of so-called Millennials makes the task of learning more difficult due to their low threshold of patience and short attention attracting and retaining interest. Today's young people are characterized by high reactivity and mental intelligence, but unfortunately with underdeveloped emotional intelligence and concentration, with a tendency to scan and information instead of traditional reading and learning which requires to seek appropriate forms and innovative tools for teaching and learning, related to their orientation to the fun, bringing the mood, "intrusive" learning through new media interactive formats. Today's students are technically literate but do not have enough good skills to be successful IT workers of their future jobs in the digital environment because they are expected to independently and effectively, cognitive, emotional and psychological interact with information technology and possess a high level of information literacy.

2   The Hypothesis

The Department of Library Management ULSIT is very young – it teaches students since four years. It can be called an experimental department for Bulgarian conditions in the area of management of library and cultural institutions. Its mission is to prepare bachelors and masters with established knowledge and skills to manage activities and information in libraries and other cultural institutions – museums, publishers, archives. Its teaching staff is also young (average age is 40 years), but experienced, ambitious, turn to the major research problems and projects in the field of management, information provision and delivery of consumer products and services in libraries. The majority of lecturers are practically oriented, leading experts from major libraries in Bulgaria and this determines the demand for direct connection with the practice in the teaching courses.

Among the scientific research interests of lecturers certainly are included and methods and approaches to effective teaching and learning, development of information literacy and behavior, a culture of creating strategies and tactics for search, retrieval and transformation of information and complex scientific literacy of the trained students. "Overall it can be argued that currently to a great extent the infor-

mation on Internet is considered blind, with trust and that is enough alarming symptom to take adequate steps to teaching the skills of critical information literacy which will transform the way in which students, professors and researchers seek information."[12] Learning by doing has a large share in the education of our students because of the nature and character of one of the most individual and most common human activities – the management.

The study of "information behavior", which in the 1990s replaced the terms "seeking information" enjoys a major research interest of our side because represents a complex amalgam of very information needs and complex objective and subjective individual and social interactions with information, concerning the research and theories of the very wide range of scientific and applied fields – marketing, communication, behavioral psychology, education, research, scientific and professional careers, sociology, LIS, social anthropology, information architecture and infrastructure and another long list of areas of human activity.

The constructivism as a theory of knowledge to detect the meaning of the world through a series of separate structures and filters of reality and the creation of order in an otherwise looking chaotic world, as defined by *John Dewey* (1859-1952), is support tool, which we believe helps to the object of education – the student, through active learning and experience to acquire further knowledge by their own reliable impact on the environment and to test new knowledge in a natural and democratic way, through study and reflection, without the help of a tutor, but rather a facilitator and mentor, creating conditions and guidelines for independent work. In this way there is applied also the *Spiral pattern of the four elements of David Kolb and Roger Fry*: actual experience, observation and reflection, formation of abstract concepts, and testing in new situations [8], which requires students to deepen their knowledge.

The construction of scientific literacy is complicated and complex problem because it "includes critical thinking, cognitive and megacognitive skills and habits of mind to build understanding in specific disciplines, big ideas or unifying concepts of discipline and communication, to share these understandings and to persuade others to take informed actions."[16] For our students it is essential to their future career because the so called "Deep learning" requires first building a "comprehensive, global experience to understand the main point on the basis of the material and the second is much more localized attention, close to the detailed logic of the argument."[4] We believe these are very important qualities needed in the communication of the future IT specialists with users – scientific researchers.

Overall, for the library and information professionals *sensemaking* (sense of judgment), or the process by which people give meaning to experience is an important area because it combines the best human-computer interaction for finding and transfer of information, specifics of demand for information in context and socio-cultural and behavioral characteristics of library users with different needs and motivations, attitudes and habits, formed from different social and cultural factors and determinants. Because when dealing with different types of conventional and online resources by users are required multiple skills and design strategies, tactics and techniques for searching and identifying the different sources and having to overcome problems of different nature in finding desired information. Because, regardless of personal affilia-

tion towards new innovative technologies by anyone seeking information, ultimately they are only a means of facilitating and accelerating under the "principle of least effort" (which could not guarantee the quality of information) and they do not offer new socio-cultural and psychological interactions and concepts for effective search and evaluation of information, necessary for decision making and problem solving. According to *Marcia J. Bates*, however, "people have (sometimes unjustified) faith in their ability to filter out the good and valid information from the uncertain, and thereby their tendency to search deeper to find the highest quality information available."[1] In all our courses, we rely on personal search for information in different in form and nature resources by students in solving a scientific problem and the task facing them. "It is about teamwork, in which students shared their own obligations to each other, self study, systematize and provide a written and oral to other students electronic resources that are being sought. Very well taken is the participation in role-playing games assigning of practical and not imaginary problems during exercise in most contributes to the integration of the students to the profession and for connecting theory with practice."[9]

3   The Methodology

For us the *Concept of learning by doing* is very important. By this educational approach active learners – object of our study – actually are placed in the center of the educational process, as they have the opportunity to carry out activities that managed by their own through mutual consultations, discussions and dialogue. The aim of this approach is to combines freedom of choice and also intentional acts with programmed results, or so-called "goal-based scenarios". Leadership position still remains in the hands of lecturers who pursue specific educational purposes. But the main goal is through the *Concept of learning by doing* can be overcome "fear of the unknown", the deficit of knowledge and experience and to stimulate collaboration, delegation and understanding of responsibilities, thanks to the equity of the participants in the educational project. Students can clearly identify the purpose and benefits of their efforts for useful cases in a short period of time. Thus, are achieved both cognitive and social goals needed for building the future library managers, well known and routine, and expert activities in the style of the *Concept of scripts by Roger C. Schank*, who said: "We must, as best as we can, teach students to do things, rather than having them be told about what others have done."[7]

In scientific publications are increasingly out research on problems of consumer behavior in a web environment and change the types of skills and information literacy, driven by new technologies, educational trends and changes in scientific communication and distance learning. "In terms of learning skills and information literacy definitions of excellence and improve students' knowledge include following attributes: capacity to manage information and ability to manage training, which are closely related to teaching methods and training to improve these capabilities in students."[4] "The set of skills is great. The most important are: self-reading, writing, note taking, time management, working with others, engage in critical and analytical thinking, and

reassessment and remember."[4] In the process of learning is constantly monitored the success of students in three essential elements of information literacy: *Skills to use ICT* and service-oriented architectures on the Internet, e-libraries, databases and research platforms, digital repositories, etc. The main emphasis is on building the skills to gather, store, organize, retrieve information and digitize selected sources; *Library and information skills* in traditional and digital environment as an essential part of learning skills; Scientific skills in critical reading and evaluation of books, articles, websites and digital resources in different fields of knowledge specifically in the field of historiography and bibliography.

In today's conditions we all, teachers and students, are consumers of information. Whether for our own purposes, for research or for training, all equally experience the need to absorb all kinds of active learning and teaching. Therefore, as members of a young department, it is important for us to discover and to realize more holistic approach to educational needs, to academic life and future career of our students through effective adaptation of curricula and practices, through various educational learning techniques (active, cooperative, self-) critical thinking and information literacy as well as external training programs, seminars, conferences with leading experts, web-based training, including for work with various complex databases and world scientific platforms.

Goal of teaching is primarily to create a sufficiently developed reflective approach to retrieve, evaluate and use of scientific information from selected historical documents and through personal consultations with students, mediated by email and social networks, through coordination and cooperation between them and lecturers to evaluate the performance of specific work on a project titled, as well as the whole education, training and scientific literacy and production achieved by them during the whole academic career. Critical thinking and ethical use of information remain the main objectives and practices for students and teachers. "Especially in the context of the implementation of digitization projects, through which Bulgarian libraries write "homework" of Bulgaria for the digital future of Europe."[10]

4   The Database

The period of Bulgarian Revival is a subject of numerous studies not only in Bulgaria. The development of the Bulgarian town during the Revival is a theme that covers several lines in the Bulgarian scientific literature, each of which prominent Bulgarian researchers have devoted considerable number of works for: state and development of the Revival town, business and etnodemographic characteristics; Bulgarian Church and town municipality, education, science, cultural institutions and spiritual life; appearance of first civil society and others. The access to digital scientific information and source material and the creation of databases with digitized documents with scientific information is a crucial issue for the modern development of Bulgarian scientific research, in international academic exchange and scientific communication.

The project "Database "Bulgarian towns during the Revival" [3] aims to create a information resource for more than 50 Bulgarian towns through research tool – in-

quiry map which to explore the historical, socio-economic status and political scientists of the Bulgarian Revival towns and settlements with. Direct beneficiaries of the project are researchers and students in ULSIT and other universities in the country and abroad, the scientific community, broader audience. [15] Through this project we successfully accumulate a database useful in teaching and research tasks. The database, available on CD, allows to reach systematic searches and results in favor of scientific observation. It accumulates materials, through digitization of important documents by students, needed in various scientific fields: history, culture, philology, ethnology, sociology, history of science. At the moment the digital collection includes digitized primary sources and research, related to the Bulgarian national revival, in particular problems for the development of Bulgarian towns during this difficult but rich historical period – over 150 digitized documents by students through high-quality scanner. Content structure comprises: Revival literature and periodicals, studies of the Bulgarian Revival by famous researchers, bibliographies, internet resources. An important place is given to the bibliographic sources, composed by the students themselves, such as a good basis for teaching and preparation of a number of subjects in the curriculum of academic courses "Library and Information Management", "Library Science and Bibliography", "Information Funds of Cultural-historical Heritage", "Information Resources of Tourism" in ULSIT. By (bio) bibliographic references is systematized the student`s knowledge on the Bulgarian National Revival period, which is subject to significant and numerous studies.

The digital collection "Bulgarian Revival", available through the online authentication on the website of the University provides an easy and convenient access to information for the users. In the collection, except graphic materials, are available documents in text format, suitable for use by blind readers. All materials in the digital collection get digitized by students with prior consent of their authors in accordance with the conditions of the copyright when necessary. Free access to the digital collection is in accordance with Creative Commons and predisposes to properly use of copyright products for educational and noncommercial use.

5   The Results

Based on the Concept of learning by doing, students participate in this major project for the University within the prescribed classes for this. They work collaboratively with their classmates, and consult lecturer of their choice from the project team during their work in connection with any difficulties or found ignorance and lack of know-how related to the process of digitization of previously traced, selected and approved by management of the project materials. In this paradigm of the process, the roles are very specific and mechanism of work is extremely flexible, personalized and efficient.

On the one hand, the inclusion of more students in 4th semester of bachelor's degree in research project that relies on accumulation of a rich database of selected thematic and digitized studies, articles, contents, introductions and conclusions of monographs, bibliographies and other sources associated with the period of Bulgarian Revival in various aspects, is quite ambitious and *risky task* because of limited time in

which students are trained in the field of LIS and in particular – in the technology of digitization, by specialized software of the scanner. At the same time this risk paid off many times because of the fact that students are not confined to the narrow framework of dry lectures and examples, often taken out of context and experience and go through the whole cycle of a real and meaningful research that requires serious motivation, focus and much effort. This is because they themselves participate in the process of search and suggestions of suitable materials for the age, conducting information searches in Retrospective national bibliography and in traditional and online catalogs and Local History collections of libraries throughout the country. In collaboration with their lecturers explore the quality of the resources found, inspected the state of the copyrights of the documents and perform basic activities on digitization of selected materials in a suitable graphical or text format and very good quality, i.e. they acquire *functional knowledge* about the historical period and the factors that led to the issuing of relevant documents by additional studies which they have to make. Especially valuable for them is the *work with the originals*.

Another important effect of the activities of students within the project is their *interdisciplinary training*. They actually receive comprehensive knowledge and especially informal academic development associated with the accumulation of much implicit knowledge and skills. Learning by doing, they acquire both knowledge of: project management; skills in ICT technology (digitization); cultural studies; history and historiography; national and retrospective bibliography; book publishing and book distribution; knowledge of special funds; organization of digital massifs and processing; perceptions of information structure, etc.

The digital expression of the results is as follows:

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20 hours educational practice in libraries + 10 hours of
educational practice search and digitization.
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Statistics of digitized materials amounts to:

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15 editions of books + 87 titles of articles and studies
+ 102 digitized, processed and edited materials.
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There is achieved the primary objective of learning by doing – through analysis and synthesis of experience gained by students and definition of problems through creativity and innovation to be taken heuristic decisions by themselves, leading to the creation of new, metacognitive knowledge and originality in the selection, classification and digitization of documents. Our students, like everyone else, are influenced in various degrees by their environment and from different cultural sediments and educational habits. Therefore, in varying degrees they can independently deal with the discovery and digitizing of materials. The goal is each student to take personal responsibility for his is not achieved in the same way in trained students, but anyway at all is observed disciplining and motivating effect. Each of them alone seek meaning in what they do, taking to heart its mission and uphold the decisions taken for selecting and processing materials, and not in competition but in collaboration, peer review and joint development with other participants in the project activities. Their work be-

comes a shared basis and emotion. There is achieved peer interaction and learning that train communication skills – listening, speaking, making suggestions, decision making, consideration of others' opinions, etc. There are gained skills for teamwork and coordination. Measurable quantitative and qualitative performance of the students are assessed through *evaluation and acquisition of 2 credits in a semester*.

Another important achievement of the Concept of learning by doing is the motivation and increasing confidence in their own potential of students, achieving satisfaction and self-actualization. This *complicates the task* of the lecturers-intermediaries as they constantly have to check the learning experience and to construct it with clear parameters and guidelines. After acquiring such real experience students apparently become free and demonstrate confidence and activity to create new values – quality term papers and publications. They are motivated not just to solve their current problems but to seek answers for complex problems, for example in the field of digitization, copyright, access rules, i.e. gain an idea of a wider picture. This once again confirms the thesis of *Prawat* and *Floden*, that "the knowledge is the product of humans and is socially and culturally constructed."[5]

In academic aspect thanks to the established relationships in the curriculum of the specialty "Library and Information Management", this type of learning – by doing – achieved very good results in the preparation of students in academic courses: Bibliographic Culture, Library and Information Resources, Management and Development of Library Collections, Automated Library, Comparative Librarianship, Information Servicing in Libraries, QM of Library Activities, Standardization. This is well illustrated by the level of development of their course assignments, reports and reference. "When they apply training and demonstrate utilized bibliographic culture as in searching for relevant sources in the topic, and in shaping the developments – preparation of lists of documents used, bibliographic citation, etc."[13]

6 Discussion

Learning by doing is not just finding things for themselves at random. Practical implications in the article: the activity of students is carefully designed by lecturers, by making a preliminary analysis of the accumulated so far by them experience and knowledge in various lectures and exercises. The emotional tonus of the project participants opens them to build their own self-esteem, which strengthens and stimulates in subsequent phases of the learning cycle – a traditional and practical. Learning by doing is always encouraging the critical thinking, which is a very important skill to life sickening trivial ideas and universal concepts. The combination of theoretical and practical knowledge is critical to the learning process and requires large investments of time, effort and motivation.

Basically many of the things that need to knows young people today are not dependent on computers and technology. To become good professionals in any field, they need their real productive knowledge, product and not what is often schematically be assessed in mandatory tests and assignments. With the exponential growth of information and technology the scientific and professional skills is no longer meas-

ured by the accumulation of facts which can be found from information literate person with a single mouse click. The knowledge should focus not on painfully familiar, but on the outstanding issues on curiosity and interest. "Modern resource oriented training increases the quality of the information competence of students and close cooperation of ULSIT with university and public libraries contributes to an adequate assurance of access and opportunity for appraisal of information resources by students through visits, internships in real time and practical situation – as a guarantee of modern education."[11]

7   The Conclusion

The idea of the paper, which also presents our Ad hoc observations on issues that arise in our interaction with students through the Concept of learning by doing, is our deep conviction of academics and practitioners that professional knowledge and skills include not only theoretical and research problems and subject to make ongoing decisions on practical cases, woven situational exceptions and variations. The essential expression of creativity shown by students and faculty in informal forms of education such is the aim of the project "Bulgarian Towns", "consists in creating new ideas, products, embodiment of knowledge, relationships, rules, educational and social practices. In the process of learning this new can not be objective innovation but individual reached a new building on pre-set in the given training schemes."[14]

The Concept of information culture "includes component information worldview, motivation of individuals about the need to special training information which refer to cultural and provide an integrity of traditional letters (library) and new (computer) information culture to avoid the confrontation of two cultures – technocratic and humanitarian."[2] The value of the article is in the synergy of strictly academic consistency of gathered knowledge and the construction of set of concepts and management responsibilities among our students, including through the Concept of "learning by doing", because we believe that achieving their production results by implicit learning, the functional knowledge and lessons learned from similar projects will be crucial to their future professional and practical realization as good reference specialists. This naturally requires for its part to teach the students to be open to the foundation of various unknown sciences in order to be able in future to achieve the best professional information services. On the other hand, our higher purpose is to try to place in them potential and to develop talent for cleverly combining research interests and related management practice that requires flexibility and openness and ability to detect subtle, inconspicuous opportunities for success.

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