The Application of Information Technology (IT) Tools in Learning and Teaching Process in Private Higher Education Institutions in Bosnia and Herzegovina

Merdzana OBRALIC
International Burch University, Faculty of Economics[1]

Ali GOKSU
International Burch University, Faculty of Economics

Abstract

Aim: The aim of this study is to examine the level of IT usage by academics in institutions of higher education in Bosnia and Herzegovina. In order to reap the aim the objectives were management's willingness to support academics and the consequences of the quality application of IT in student learning.

Research method: The study adopted a field survey as the most appropriate research design for the investigation of the issues of interest. 116 academics (assistant professor, associate professor, and professor doctor) and younger academics (research assistant and senior research assistant) from the different academic fields, were different ages, and had different numbers of years of working experience at higher education institutions participated in the survey. In responding to the questionnaire, the participants gave information based on age, sex, nationality, experience, field and position; their self-reported IT usage patterns in teaching, their perception of institutional support for IT usage and their assessment of the impact of IT usage on learning. In answering the questions, the respondents indicated their agreement/disagreement with each given statement on a 5-point Likert scale. The aspects of IT Usage, Support and Learning were measured with 10 items each.

Findings: The results of this study indicate that the usage of IT has a positive impact on learning. They also show that the level of IT usage depends on the level of management support and the age and position of academic staff.

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[1] Address: francuskerevolucije bb, Ilidza, Sarajevo, Bosnia and Herzegovina, e-mail: mobralic@ibu.edu.ba, Telephone: +38761400989

Originality/Value /Deliverables: While similar studies exist however, this is the first study indicting the preference of practitioners and policy makers from Bosnia and Herzegovina. The practical implications are realistic implementation of IT tools in institutions of higher education. The academic implications are that the results of the study can be the useful resource for future research directions for developing nations like Bosnia and Herzegovina. Contextually it can motivate management to support academic endeavors in pursuit of exceeding customer (students) satisfaction in light of principles of TQM when it comes to the usage of IT.

Key words: Teaching and Learning, Distance Learning, Information Technology, Higher Education Institutions, Bosnia and Herzegovina

1 Introduction

The very fast changes in IT development demand an adjustment of society and impose their own rules on all systems, including the learning and teaching process. Learning is a continuous process that follows a man throughout his life, and the application of current tools in the education of children and adults is a very important activity that should be given the attention of all of society. The use of current tools has its advantages and disadvantages. Many things in life demand temperance, so it is also necessary to find temperance here. Technology itself presents an additional tool that provides for the effective application of activities; but how much it can help the social and intellectual development of users depends on how it is used and to what extent.Being an expert in some field means being familiar not only with all the benefits of that field, but also with the mistakes and drawbacks. Even though with work experience come wisdom, the fact of the matter is that professors today want to transfer knowledge to their students by the application of new technology. Therefore, they have to know about the technology themselves (Simonson, 2002).

No matter in which environment (virtual classroom-distance learning, and typical classroom-blackboard usage) and using which kind of technology, in order for students to acquire knowledge, firstly it is necessary to create a suitable atmosphere and good communication between professor and student (Carliner, 2002).The quality of a professor who knows more in comparison to the students and who continuously works on self-training, pedagogically speaking, is still the main and most important factor in all learning and teaching processes. All other things are nothing but variances in the learning and teaching process. Still, the quality of the educational process can be improved by the applications of some technologies. It is necessary for all included in the educational process to know which kinds of tools to use and in what way and in which field they should be used. This means that the total abolishment of the old system (classical educational process) and the implementation of a new system (distance learning, e-learning) do not contribute to development. One way to create safe and high quality database of knowledge for future upgrading is to adopt all good aspects of the former system and integrate it into the new (Schwartz &Beichner, 1999).

The main question that academics frequently ask themselves is: 'Is IT considered as a drawback during the teaching process rather then something that can help in the education process?' Considering IT as a current question rather than a future question, shows already

that the knowledge of IT and its application in the learning and teaching process will contribute a lot to the success of the entire educational system.

Teaching and learning communication in higher education implies the active usage of multimedia, hypertext, computers, the Internet and other modern technologies, so students can effectively, efficiently and flexibly acquire knowledge. The level of IT application while learning at faculties implies the usage of IT as text animation, various types of graphical representations, exercise, testing and recording the results of work, knowledge examination, animation, simulation, audio and video contents, online-mentors, links with archives on the Internet or web sites, etc. (Brandon, 1997).

The lack of quality information regarding the use of IT at universities, the need for professional training and the improvement of professors using IT is growing. It is all about changes in attitudes -towards the time and the environment- that are implied to the academics so they can accept the new roles: experts in content, technical staff, instructors, and personnel responsible for information, authors and assessors. Here, the professor is actually supposed to act as a manager. Besides the need for adopting curriculum, professors also need to be familiar with IT usage, which means working in groups, searching for information on the Internet, the activity of students who use computers on their own (Wodtke, 1993).

In the teaching and learning process at universities, academics frequently use the knowledge and experience they acquired through self-education, relying on student-centered teaching where the curriculum, the evaluation of knowledge and skills are based on memorization and the reproduction of the knowledge. Unlike the traditional way of teaching, where the professor is the only expert, the professor who uses IT has the opportunity to create an environment for learning and more active student participation in the teaching and learning process which includes the students' attitudes toward educational material, advanced IT tools and creation of content available to the public.

Help and support of academics is required for a constructive approach to the problem. In this way, the whole community will successfully face the new situation, conditioned by the adequate usage of materials and tools for student learning activities.

Teaching environment implies: possession of infrastructure (hardware, software platform, constant access to the Internet, provided area), technical support, temporal financial recourses for innovation and stimulus, access to relevant educational contents, and quality educational services and increase of users.

If we want academics to be valued in the market and be a part of today's world, we need to provide them access to IT. This means understanding the changes that are taking place in the educational process brought on by IT (Ribarić, 1994).

During the application of IT at university, even the students are required to be involved and take part while creating personal experiences of learning based on active and autonomous learning.

In this study some of the basic information and communication technologies used in the teaching and learning process will be presented in the following way: (1) explanation of basic IT items, and (2) presentation of practical examples of specific IT usage.

When it comes to fast improving information technologies, the educational system faces the difficult task of preparing students for a very dynamic environment whose final goals are lifelong learning and entry into a knowledge society. Therefore, the educational system must face the fact that students must be prepared for lifelong learning, which is considered to be an essential precondition for successful future acting in the knowledge society.

The only thing left is to find out the way, methods and the work program. To achieve the conditions it is necessary to educate academics not only theoretically, but to know how to use their knowledge in the daily educational process. This is not a simple task.

Importance in conducting this study is mainly due to the implementation of European principles and requests for such researches by the Bologna Research Center. Since Bosnia and Herzegovina is on the path of becoming future candidate and eventually joining European Union, this study can be used as a tool in rising new standards equal to those already implemented and used by EU nation members (Petrovic, 2011).

It is directly helping to the process of reconciliation between different ethnic groups in Bosnia & Herzegovina with history of major hostilities contributing to terrible and unfortunate war in early 1990s that has claimed more than 200,000 lives (Anderson, 2011).

Information itself used in this study is relevant. The implementation of Bologna process I still outgoing. While conducting this research, we have laid the foundations of implementation set forth by Bologna principles (Petrovic, 2011).

2 Review of Prior Theoretical and Empirical Research

2.1 Information Technology (IT)

Computers together with all other supportive programs in IT have become valuable and indispensable tools in all spheres of social life. On the one hand, they set new standards. On the other hand, they set new requirements for the educational system and educational policy that requires faster reforms and a faster transformation of Bosnian and Herzegovina society into a knowledge society. The knowledge society isn't something unknown for people living in this region. It transformed in to the successor of the already well known informational society. Now main factors of this social development are based on the accumulated knowledge and the quality use of (its) information (Schwartz &Beichner, 1999).

The information society (even knowledge society) is based on the use of IT where students are faced with the new work forms of technology and through them with the whole society. When it comes to IT in education, the term ITLET (Information Technology for Learning, Education and Training) represents the main element in all forms and models of distance learning. Following categories are different ways IT can be implemented (Silberschatz& Galvan,1994):

(1) Individual teaching and learning: implies practice and repetition while enhancing knowledge and skills, help finding data, access to databases, communication with experts in a specific field, text and table accounting processing, stimulation of working models of complex physical systems in order to understand the operation of the system.

(2)Group teaching and learning: includes e-mail communication, program support for presenting the project results of group work, video presentations, program support for video conferences for groups who are distanced in collaborative work, communication between remote locations.

(3) Pedagogical documents: means the recording and monitoring of students, recording at the faculty level, recording at the university level, administrative jobs, and supporting the work of management, accounting offices, student cafeterias, etc.

After many years of experience it is easy to recognize the advantages of IT usage in the teaching and learning process: Diversity, Interesting things, Modernity, Motivation, Communicability, Visibility, Going back and repeating until understanding, and Better retention of content.

In order to successfully transform information which will lead to a specific educational aim, IT is considered to be one of the main teaching tools with academics. Therefore(Hennessy & Patterson, 1990): (1) IT makes the preparation of lessons in some fields easier; IT makes an analysis of the educational process easier; (2) IT provides the performance of simulations, role-playing, and the practice of decision-making; (3) IT offers the possibility of lifelong development and professional development because it offers training through distance learning, asynchronous learning and user-customized learning; (4) IT motivates professors to break professional isolation. Academics can easily communicate with their colleagues, mentors, professional centers and material resources; (5) Academics can communicate with students no matter the distance; and (6) In the sense of virtual community, IT helps with the exchange of information, ideas and experience, project cooperation, the exchange of materials and communication with colleagues and students.

IT supported learning implies at least 3 different approaches (Horton, 2003):

IT supported learning is considered very beneficial and acceptable for students who interact with IT, and its main aim is to improve already existing teaching technology by making teaching and learning communication more dynamic and effective. IT supported learning assumes the form of educational multimedia software, computer simulations, virtual reality, artificial intelligence, etc.

IT supported research is used in both theoretical and empirical research at higher educational institutions. IT support is especially important in theoretical research, because today's book titles, studies and congress proceedings are usually presented in electronic form - web sites, portal library, publishing houses, faculties, etc..

IT supported distance-learning implies the unconditional use of computer, telecommunication tools, cable TV, etc. Distance can often cause problems for academics and students who are away from educational institutions. Today's academics and students very often achieve communication, the exchange of ideas and experiences, by using telecommunication tools, cable TV, etc. It reduces unnecessary and sometimes complex travelling for academic between different universities or places.

Now academics can give lectures at their own universities and students from other universities can listen and follow these lectures via the Internet. Therefore, academics have the opportunity to transmit important information using various IT options (speech, video, data); a key factor of distance learning.

2.2 The Use of IT in the Educational Process

Nowadays, Information Technology has changed educational technology completely and presents an aspect of integrated learning wherein IT is carried out in all areas of the teaching and learning process, and in that way, deepens the quality of transforming and acquiring knowledge. Based on experiences in different countries, it can be concluded that the connection between IT and other contents exists. But they need to be created for the needs of the educational process and other fields. For example, in Scandinavian countries it can be easily seen that IT usage in the classroom is connected to native language and grammar, foreign language, mathematics natural sciences, physics, chemistry, history, geography, philosophy, logic, physiology, sociology, politic, economy, art and music (Brandon, 1997).

The use of IT in the educational process during learning influences: (1) students' motivation for learning, (2) students' ability for logical thinking, (3) students' success in education, (4) students' ability for self-research, (5) students' met cognitive skills, (6) students' developing attitudes towards finding mistakes, (7) students' development of cooperativeness, (8) development of students' responsibility, and (9) students' feedback.

Critical thinking in the classroom has been central theme in the education field; however, with the dramatic increase of IT usage for teaching and learning, the mechanisms by which critical thinking was fostered and used has changed. The potential of IT to create and exploit learning opportunities is endless and we have barely scratched the surface. There have been some studies reported on IT for learning in higher education (Akyüz&Samsa, 2009; Krumbacak, 2007; Yang, 2008) but they are scarce. The body of knowledge has been relatively small and limited in context and most of CT type of studies was related to elementary and high school education excluding the context of IT usage and CT (Marin & Halpern, 2011).

2.3 The Internet

The Internet is huge set of interconnected computer networks that connect millions of computers throughout the world. The Internet has no owner. No one controls it nor censors it. For the Internet there is not any law or rule. In 1972, the U.S. Department of Defense for the first time connected a number of computers into one network that was named Arpanet. E-mail came about that same year. Development of personal computers, their networks and ability to connect combined together evolve in to the Internet in 1991 (Horton, 2003).

The Internet is one of the inventions that have brought the most changes in education. Thanks to the Internet, today there is unlimited access to resources from the whole world. Therefore, every individual can become part of lifelong learning community. The number of new Internet users in the world is constantly rising.

Today more than a hundred million users in the world use the Internet; statistical data shows that almost half of the population of Europe uses the Internet. The Internet provides communication on a global level and it offers new resources for education and entertainment. However, the Internet has its disadvantages as well as its advantages. It depends on who uses it. The development of IT and its interactivity and the increase of communication opportunities represent a risk for all users, especially for youngsters. But if we want children and youngsters to know how to manage despite the negative aspects of the Internet, we need them to be knowledgeable and know how to correctly use IT. Restricting children access from using the Internet will not resolve the problem but rather cause opposite effect.

Surfing the Internet and apparent communication have become a part of the teaching and learning process in the European Union. According to research done by the European Commission, educational institutions in the Union have high speed Internet access which enables easy access to quality content from the Internet. In the EU, more than 96% of educational institutions have access to the Internet, and 67% of them to broadband.These numbers do vary from one country to another. For example, in Scandinavian countries, 90% of educational institutions use broadband, meanwhile in Greece, Poland, Cypress and Lithuania, it is only 35%. There is no difference between more and less settled places when it comes to using the Internet at educational institutions. The difference is visible, however, regarding the use of broadband, for which there is no established infrastructure in villages (Saettler, 1968).

2.3.1 The Usage of the Internet in the Teaching and Learning Process

The usage of the Internet is desirable in many segments of education and the Internet is applied at many levels (Turoff, 1995): (a) Interpersonal exchanges, individuals communicate by e-mail with other individuals and groups, mailing lists, news groups, Internet bulletin boards, etc.; (b) students chat about titles they chose by themselves; global classrooms; (c) two or more classes study together predefined topic; electronic appearances; (d) subject-matter specialists from universities, businesses, government or other educational institutions can serve as electronic mentors to students who want to explore specific topics in an interactive format; electronic mentoring; (e) an expert from a field helps students research some topic and students ask questions about specific topics and the experts can answer them; question-and-answer services; (f) all or some participants in communication act as some other person (for example, as well-known historical figures); (g) information collecting, collection, gathering and comparing information: information exchange, information collecting and exchanging of specific topics, database creation; (h) information is organized in a way other students can use it; Electronic Publishing; (i) publishing e-news, telefieldtrips; (j) problematic project (Problem-solving projects), information searches; (k) several students or groups get together to create a text or picture; parallel problem solving; (l) gathering and discussing; virtual gatherings; (m) imitating the real events, social action projects; simulations; and (n) discussing and taking action (for example, petitions, collecting humanitarian assistance, etc.) when it comes to real events in the world.

E-monitoring is also known as tele-mentoring, mentoring, virtual mentoring as well as cyber mentoring. It has been considered as possible solution to logistical constraints; for example, limited staff expertise in technological field (Bierema& Merriam, 2002; Ensher, Heun, &

Blanchard, 2003; Harris & Jones, 1999; O'Neill, 2004; O'Neill & Harris, 2004; Single & Muller, 2001). It was possible to defined as a relationship established between a more senior and/or experienced individual (mentor) and a lesser skilled or experienced individual (mentee or protégé), who are primarily using electronic communications with intend to develop advanced skills, confidence, knowledge and cultural understanding of the protégé to help him/her to succeed (Thompson, L., Jeffries, M., and Topping, K., 2010).

2.4 Electronic Learning (E-learning) of Students

Electronic learning has been one of the emerging needs of the information age. Therefore a lot of potential was seen in distance learning development (Kader, 2011). The development of e-learning infrastructures depends on many factors. Therefore, it is impossible to list any basic steps that must be implemented in that process. All educational processes consist of systems made up of multiple, interconnected components. The understanding of these components in e learning is very important for making the educational process more effective and quality (Keegan, 1986).

Terms such as "ideal" vs. "non-ideal", i.e. real system, are often used by scientists when they point to what they aim to achieve.The ideal online system for education would be the one which is from the beginning developed with no staff and cost limitations and which in not resistance limited for changes compared to the previous way of working (Gerrity, 1976).

The real system is the one that contains some of the following: limited sources, legal system, administrative system and work policies. The important factor is curriculum, which needs to constantly be improved.

It is very important for every educational system -each discipline, section, school, faculty, institution or company- to define its mission and the specific aims which are to be considered while planning and designing (Fallon and Brown, 2003). Many internal and external factors must be understood, calculated for expectation and taken into consideration. Still, the two most important elements that any system should be based on are the needs of students and the expected results of the learning process (knowledge, skills, etc.).

Ideally, the expected results of the learning process are the basic form for creating course content, materials and attitudes used in the learning process. When those main parameters are defined, the development team takes responsibility for those contents to be transformed from the domain of theory into material that will be enabled by the learning management system (LMS). The system interface provides digital sources and additional services.Once completed it should be connected to the IS of the educational institutions system as additional component(Carliner, 2004).

From a students' point of view, it is seen as a single access point to the all courses provided by additional services through a portal. In the end, in order to provide a continuous process of improvement based on course results and the feedback information of all participants in learning process, it is necessary to define an adequate system of quality control.

For this to happen, the process must be future oriented and strategically planed. Creating an e-learning plan has an important role in the process. E-learning planning is a strategically significant process in educational institutions. A carefully created plan of the e-learning process helps to identify priorities for the development of an institution and its

function under the conditions that are imposed by IT learning use. According to DEECD School Infrastructure ICT Progression Strategy, there should be four developing steps or levels in the implementation process of electronic education (Elloumi, 2000).

The changes that are suggested in the e-learning plan must be in accordance with the needs of each course and its participants. The development of concepts and policies, the use of a pilot projects, the evaluation of self-internship efficiency, and constant discussions and debates on e-learning are needed, especially when it comes to pedagogical work. In every step of the development, from printed to online materials, the pedagogical purpose of the course must be applied. It requires the education of the development team members of all profiles regarding the pedagogical possibilities of new mediums. During the last 50 years, permanent scientific and technological breakthroughs have had a scientific influence on leaning needs and styles. Therefore, the process of learning cannot be separated according to the places and time of acquiring knowledge (faculties) and places and time for the implementing of acquired knowledge-working places (Fisher, 2000).
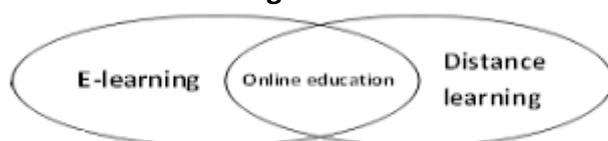
2.5 Distance Learning

Figure 2.1 Distance learning and e-education (Fallon & Brown, 2003)

Distance learning is a system and process for connecting learners with distributed learning resources. The term distance learning is defined differently in each country. Therefore, there are many definitions of distance learning. What all of these definitions have in common is the fact that they are all about an instructive forms of work that is realized by writing, audioand video and computer technology. Process itself is shown to be very useful when it comes to establishing communication between students and professors in distance places (Fallon & Brown, 2003).

Distance learning characterizes followings: Temporal and spatial separation of professor and students; Two-way communication; Institutional accreditation; the use of interactive multimedia tools; the possibility of meeting participants face to face.

Since there are many definitions of e-learning, a universal definition does not exist. Academics generally talk about the concept of an e-learning system. Today, it is very obvious that you will bemore often faced with the concept of e-learning education in teaching and learning systems, i.e. Distance learning system advances the educational process itself because it provides an IT environment (Simonson, Smaldino, Albright &Zvacek, 2002).

In order to implement new technologies which will deliver training, store and communicate knowledge require trainers to be technologically literate. In other words, they must

understand the strengths and weaknesses of new technologies and implementation issues such as overcoming users' resistance to change (Markovic 2009).

A few years ago, IBM became the first company to present their concept of electronic learning as an aid to the learning process and continuing education for adults. During the first electronic learning program presentation, the experts of IBM noticed that it was technology which would very quickly become a part of people's lives. The concept of their program is not much different from e-education. In the fact, the main focus is on electronic materials. Courses itself are modified, narrowly specialized and have to be paid for (Fallon & Brown, 2003).

There are differences in terms of electronic education and electronic learning: (1) Electronic education (e-education) represents the study of a wider variety of subjects and courses via the Internet, computer and electronic material support, and (2) E-learning includes specialized courses, which are paid for, and serve as additional education for adults and workers.

In terms of computer systems, distance learning stands for a system in which the user receives certain knowledge via the computer at a specific time and in an interactive manner, that is, by solving problems (by following, reading and listening to certain sets of instructions and presentations). It organizes curriculum according to the individual needs of its users as well as enables monitoring of their individual progress (Volodymir&Olexanndr, 2002). The idea of e learning does not eliminate existing educational methods and technologies, but serves as an appropriate addition to the educational process.

E learning is based on the massive expansion and decreased price of Internet services, cost and time savings, and the possibility of the dissemination of new knowledge in virtually unlimited conditions (distanced places).

2.6 Academic Competences

2.6.1 Information Literacy

The main tasks of the Bologna Declaration is everybody's desire to implementIn order to achieve this, there are many activities that should be completed in higher educational institutions in Bosnia and Herzegovina. These activities are obligatory when it comes to IT and the redefinition of already existing teaching and learning processes. It is actually IT infrastructure restoration and rebuilding. These infrastructures should unite all organizational units of universities into a unique academic network.

In order to form unique academic network following must be obtained (Hennessy & Patterson, 1990): (1) A communication infrastructure of integrated computer at universities; (2) Softwarespecially designed for distance learning; (3) Library IS; (4) the process of computerization is regulated by norms at the university; and (5) IS Management.

In Bosnia and Herzegovina, the situation is not very acceptable when it comes to the effective usage of IT in higher education. The main problems in this segment are: inadequate training of academics in using ICT, and still inadequate provision of educational facilities through these

infrastructures. The reason for these unfavorable conditions is lack of information literacy (Sebesta, 2003).

Information literacy represents the need for information and having the ability to identify what information is needed, how information is organized, how to retrieve it, and use new information given in order to make the best decision. Sources of information are: books, journals, computers, TV, movies, the Internet, etc.

Information literacy includes abilities such as: recognition of need, finding information, analyzing and evaluating information, using information, and publishing information (Mayer, 2001).

To sum up, an information literate individual is the person who learned how to learn. The individual knows how to organize knowledge, how to find information needed and how to recycle and reuse found information in a way others can learn from it. This individual is prepared for lifelong learning because he/she can always find the information needed for any kind of task or decision they face.

Academics are the ones who firstly should have the ability to deal with a huge network of information, to find proper information, select it and evaluate it; these are IT abilities and skills.

If competence is defined as recognized expertise then a question comes up: What are the competences professors needs today? What kind of professor is required today (and tomorrow) by the university?

Answers to this question are not easy. There are many ways to answer it. In theory and education practice there is a difference between starting points and ways of finding answers (Thomas, 2000).

Some of those starting points are: (a) Theoretical starting points set by experts for education; (2) Changes in society and as a result of those changes, the new role of professors; (3) The list of competences of successful professors; (4) The results of quality control evaluation studies; (5) The list of practical qualifications a professor needs to possess; (6) The reform of previous education levels; (7) International competence and the integration of academics into international trends.

2.6.2 The New Role of Academics

Based on previously conducted researches by academics when it comes to competence many authors share same opinions which clearly shows their interest as well aswillingness to adopt to new changes and challenges in today society. One of those changes is the fact that IT interferes more and more in every sphere of our lives and in education especially. Although, nobody and nothing can substitute or replace a good professor, the new technologies can help professors to share some routine work. Therefore, they have more time for motivating and getting students to learn better.

Another analysis conducted by Eurydice's Office 2003, shows that different country are thinking beyond classic competence related to teaching and learning. Same analysis shows that beside basic requirements there are different fields considered to be new competences, one being IT supported teaching (Razdevsek&Pucko, 2007).

2.7 IT – Education and Training
On one hand, quality training of professors, and on the other hand, using IT in every activity at university will bring not only material and cost savings but will also enrich the work and lives of students and professors. Academic networks provide changes in education, such as: from teaching to learning, from professors to mentors. In that context, there are two terms referring to education: WBE and WBT (Kalata, 2001).

WBE – (Web Based Education) the learning process supported by web service also known as the WEB (Web Based Education) represents hypermedia based instructional programs.
Web portals and web sites offer free information to the end-users; provide entertainment, different types of communication between people, etc. (Kalata, 2001).

WBT concept – (Web based Training) represents an ideal way of delivering training to individuals in the world at any time via the Internet. The most common form of WBT is CBT (Computer-based training) that transforms information by the technologies and methodologies by the www, the Internet and intranets (Kalata, 2001).

Distance learning provides a unique work form in cases when the instructor and the student are not in the same place. When it comes to distance learning, depending if communication is provided, there are two models that we differentiate (Fallown& Brown, 2003):
(a) Synchronous models (web tools used in distance learning: text-based chat system, audio conference, Internet voice telephone service and virtual reality system); and (b) Asynchronous models (web tool used in distance learning: e-mail, e-conference, newsgroups and collaborative workspace).

Related terms with online learning are web-based learning and technology-based learning. Nowadays, the trend of using e-learning and e-supported learning is rapidly expanding.
The expression "lifelong learning" in developed countries stands for continuous and professional learning as well as self-development. This term is not just related to childhood and the classroom, but to learning throughout life.
Development of an ICT infrastructure has become the main precondition for the successful implementation of e learning (Volodymir&Olexanndr, 2002).

2.8 E-learning Components

Software was designed in order to obtain a stimulating virtual environment for learning. Making and saving multimedia educational materials in electric form as well as delivering these materials and tasks to students while testing their knowledge has been enabling through it (Milosavljevic, 2006).

The learning results of each student must be saved in a database in order to follow and analyze his/her learning process. The communication between students and professors is realized by e-mail or forum. This closed and controlled learning system that modulates a stimulating environment for learning is called a Learning Management System (LMS). A good LMS should be standardized, with current support standards and rules for learning based on the web. LMS automates event administration during the learning process, unlike LCMS (Learning Content Management System) that enables the author of the course to create, register, save, manage and publish content for learning by web (Carliner, 2004).

Content

Content represents the basic element of structure. There is no e learning without it, or even education. Any kind of electronic document can be considered as e-learning content. To improve the learning and thinking process, the content is often used in electronic form. It represents the digital program or presentation that different strategies and norms of e learning must follow. It is necessary for it to be integrated into a management system that provides specific feedback information (information from instructor, student, manager and etc.)

Technologies have been constantly changing and developing. The starting point of an e-learning course is to motivate students, make them objective-centered in the course and in practice. Following requirements should be fulfill by the good e-learning course(Hall & Brown, 2001): (1) the choice of teaching in accordance with a student and his pace of learning; (2) ease of use and navigation; (3) precisely defined and measured targets; (4) logically structured content which encourages active learning; (5) practical examples, cases, simulation and graphical reviews; (6) opportunities to practice and suitable feedback; (7) progress evaluation; and (8) feedback from student.

The form itself depends on various factors including student background (level of education, computer knowledge, etc.), processed materials (theory, practical activities) and technical opportunities (computers, network, and access to the Internet). According to the above factors, various types of online courses might distribute the content: Functional, Distributional, Interactive, and Group. These types of courses do not necessarily exclude each other, although, it might happen.

Functional courses

Online functional training provides students content which offers functional and practical information about online courses. The primary objective of online courses is to give students online access to course contents and rules that can affect their results. Also, there are instructions that can make student-professor communication easier, applying assignments and exchanging information about marks and comments (Sebesta, 2003).

The following elements make up the content in a functional course: course description, the starting page of the course, appropriate links, e-mail communication, giving assignments by e-mail, feedback and assignment marks, information about lecturers, and Digital Reading Room (DRR) and links with extra material.

Distributional courses

Distributional courses are used to provide students with needed material and documents. The materials are necessary for students to satisfy the goals of the course. Besides the above

elements, there are additional elements a distributional course should have (Sebesta, 2003): (1) The materials authorized for usage during the course (instructions, chapters, tasks, laboratorial tasks, etc.); (2) Extra materials; (3) External sources used in learning; (4) Audio and video components; and (5) Printed materials. The main purpose of distributional courses is to provide necessary material for students during the course.

Interactive courses

Interactive courses are courses that contain materials. These materials encourage students to work interactively. Materials can be used internally (for a specific course) or the component of other source can be used as well. Interactive content implies achieving expected results during a specific course. Besides the use of functional and distributing elements, an interactive course implies the following (Sebesta, 2003): (1) Interactive material for specific courses (simulation, illustration, maps and pictures); (2) External interactive material related to the courses; (3) Interactive student support materials (skills testing); (4) Online quizzes; and (5) Online exams.

What primarily determines the interactive course is its aim to motivate students to understand the educational process interactively.

Group courses

A group course implies interpersonal interaction, instead of interaction with materials, between the students and professor. Group courses provide a great opportunity for intellectual exchange and human interaction while using online lectures.
Two elements that comprise the course are(Powell & Thomas, 2000): (1) Conferences and discussions (peer to peer activities designed to satisfy the aims of the course); and (2) If pedagogical and practical needs are to be satisfied the following should be included: voice over IP conferencing, video over IP conferencing, chat rooms.

3 The Methodology of Study

3.1 Research Objectives

The main objective of this study is to determine the level of IT usage by academics in institutions of higher education in Bosnia and Herzegovina, management's willingness to support academics, and the consequences of the quality application of IT in student learning.

It is of particular interest to find out if information technology at private institutions of higher education in Bosnia and Herzegovina helps academics teach more efficiently; if management in private institutions of higher education in Bosnia and Herzegovina encourage academics to integrate information technology into the education process; and if the usage of IT at private institutions of higher education in Bosnia and Herzegovina changes the way students learn.

3.2 Research Design

The study adopted a field survey as the most appropriate research design for the investigation of the issues of interest. A survey questionnaire (attached in the Appendix) was developed on the basis of prior similar studies and specialists' suggestion.

The form itself was designed to collect the respondents following information based on age, sex, nationality, experience, field and position; their self-reported IT usage patterns in teaching, their perception of institutional support for IT usage and their assessment of the impact of IT usage on learning. In answering the questions, the respondents indicated their agreement/disagreement with each given statement on a 5-point Likert scale. The aspects of IT Usage, Support and Learning were measured with 10 items each. Cronbach alpha coefficients calculated for usage, support and learning were all above recommended value of 0.7, thus indicating reliable measures.

3.3 Subjects and Procedure

Subjects for the study included 116 academics (assist. prof, assoc. prof, and prof. dr.) and younger academics (res. assist, and senior res. assist.) from the following universities: (1) Federation of Bosnia and Herzegovina: Faculty of Law Kiseljak, Faculty of Graphic Arts Kiseljak, Faculty of Education Travnik University, Faculty of Economics, Travik University, Faculty of Economics, Vitez University, International University of Sarajevo, and International Burch University; (b) The Republic of Serpska: Faculty of Management and IT, Slobomir P University – Doboj and Mechanical Engineering, Istocno Sarajevo University.

Intuitions in Bosnia and Herzegovina are different in many ways starting from the size to the level of education they offered. Also there is a major difference in various fields of study offered at these intuitions as well as their heritage being from different ethnic groups. Some other differences between the intuitions are being domestically or internationally. Having different ethnic groups brings up the importance of need for joint participation of all the academics belonging to these groups in order to establish quality future student life as well as the survival of their common country they all share and live in.

The respondents came from different academic fields, were different ages, and had different numbers of years of working experience at higher education institutions. Most are members of different nationalities and ethnic backgrounds. Being known thought the history as multicultural and multiethnic it is crucial for Bosnia and Herzegovina to host such vast variety of student with such different ethnic and national backgrounds. Another important aspect to this matter is the recent war fought between some of these ethnic groups. Having such a large selection of academics with different backgrounds can contribute greatly towards inter-ethnic reconciliation. From a total number 116 of respondents, 67 of them were male and 49 female. The survey was conducted in printed (sent 90 received 76) and electronic (sent 50 received 40) formats. With 82% valid responses received, the study achieved an excellent response rate for this type of research.

The responses were collected, encoded and analyzed using SPSS 17 statistical program.

4 Results and Discussion

The summary results of descriptive, correlation and regression analyses performed are presented in Tables 4.1, 4.2, 4.3 and 4.4.

4.1 Descriptive Results

Table 4.1 presents respondents (academics) minimum, maximum, average and standard deviation values concerning: total work experience, academic experience, IT use, management support for using IT tools in the teaching process, and its learning benefits at private higher education institutions in Bosnia and Herzegovina.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
experience	116	1.00	39.00	13.1638	10.41399
academic experience	116	1.00	39.00	9.7845	9.85883
usage of IT tools	116	1.60	4.90	3.7052	.67898
management support	116	1.50	5.00	3.1147	.74311
Learning	116	2.00	4.90	3.6000	.56384
Valid N (listwise)	116				

When it comes to the age of respondents, they are middle aged people (the average age is 38). The youngest respondent was 22, while the oldest was 64.

The information about work experience tells us that the respondents in general have fewer years of work experience. Their average work experience is bit over 13 years. The respondent with the fewest years of work experience had only 1 year of experience, while the respondent with most work experience had 39 years of service.

The important indicator in Table 4.1 is also information about academic experience. Also the respondent with the fewest years of academic work experience had only 1 year of academic experience, while the respondent with the most academic work experience had 39 years of service. The average of academic experience is 9.78 years.

When it comes to the nationality, the respondents were from 2 nationalities. They were not asked to express their ethnic identity.

Regarding the usage of IT tools at private educational institutions in Bosnia and Herzegovina, how much they actually help academics to teach their students efficiently, the results show the minimum average response is 1.6 (82nd respondent), and maximum is 4.90 (106th respondent). The average is: 3.705.

On the question of how much the management of private higher education institutions in Bosnia and Herzegovina encourages academics to integrate IT in the teaching and learning process, the results show that the minimum support is 1.5 (84th responder) and maximum is 5 (106th responder). The average is 3.1147.

While using IT, how academics at private higher education institutions in Bosnia and Herzegovina change the way students learn during lessons, the results show the minimum change of students' learning is: 2.00 (82nd respondent) and the maximum is 4.90 (98th respondent). The average is 3.600.

4.2 Correlation Coefficients

Table 4.2 Correlations Coefficients

	Sex	age	experience	academic experience	field	position	nationality	*usage of IT tools*	management support	learning
sex	1	.304**	.276**	.223*	.073	.209*	.096	-.146	-.139	-.202*
age	.304**	1	.970**	.865**	.089	.849**	-.269**	-.449**	-.204*	-.199*
experience	.276**	.970**	1	.879**	.046	.854**	-.211*	-.427**	-.207*	-.205*
academic experience	.223*	.865**	.879**	1	.110	.885**	-.254**	-.405**	-.211*	-.181

field	.073	.089	.046	.110	1	.156	.057	.097	.110	-.003
position	.209**	.849**	.854**	.885**	.156	1	-.237*	-.334**	-.259**	-.157
nationality	.096	-.269**	-.211*	-.254**	.057	-.237*	1	.248**	.079	.054
usage of IT tools	-.146	-.449**	-.427**	-.405**	.097	-.334**	.248**	1	.445**	.616**
management support	-.139	-.204*	-.207*	-.211*	.110	-.259**	.079	.445**	1	.638**
learning	-.202*	-.199*	-.205*	-.181	-.003	-.157	.054	.616**	.638**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Age and usage of IT Tools

Observing the correlation between age and the use of IT we can say the correlation is significant (r= -.449, p=0.01). It is inversely proportionate, meaning the older the academic, the less use of IT tools.

Respondents' Experience and the Usage of IT Tools

When it comes to an academic's experience and their usage of IT tools, we can say the correlation between a professor's experience and the usage of IT tools is significant (r=-.427, p=0.01). It means the more experienced academics use less IT tools.

Responders' Position and the Usage of IT Tools

According to measures for correlation between the respondent's position at a institution of higher education and the usage of IT tools, we can say it is significant (r=.-334, p=0.01). We can conclude that the respondents in higher positions (associate professors and professors doctors) at faculties use IT tools less during the teaching and learning process, while at the same time the respondents in lower positions (research assistants, senior research assistants and assistant professors) use IT tools more during the educational process.

The Usage of IT Tools and Management support

The correlation between the respondents' usage of IT tools and management support of academics and students is significant (r= .445, p=0.001) It is positive. There is a clear connection between the usage of IT tools and management support; this means there is more use if there is more management support.

Management support and learning

The correlation between management support and learning is significant (r= .638, p=0.001). It is also positive. This brings us to the conclusion that there is a connection between management support and learning. So, for teaching and learning it is necessary to have management support.

Learning and the Usage of IT Tools

Here the correlation between learning and the usage of IT tools is significant (r= .616, p=0.01). It is positive. The result show that learning and the usage of IT tools are connected in a way that learning and teaching is not complete without the usage of IT tools at private institutions of higher education.

4.3 Regression Coefficients

In view of the significant correlations found among demographics, usage, support and learning variables, a series of stepwise regressions were carried out to determine the main influencing factors on usage and learning. The results are shown in Tables 4.3 and 4.4.

Table 4.3 Regression Coefficients (Dependent Variable: use)

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constants)	3.712	.330		11.237	.000
Age	-.039	.009	-.615	-4.279	.000
Sup	.361	.072	.395	5.019	.000
Pos	.135	.068	.291	1.995	.048

When it comes to the usage of IT tools at private institutions of higher education (faculties and universities) according to the analysis carried out, we can conclude than the important factors are:
   a) Age (t=-4.279, p< .001),
   b) Management support (t=5.019, p<.001),
   c) Position of the academic (t=1.995, p<0.05).

Among these three variables the academic's position is not as important as the other two variables.

Table 4.4 Regression Coefficients (Dependent Variable: learn)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constants)	1.253	.211		5.946	.000
Sup	.344	.054	.453	6.397	.000
Use	.344	.059	.415	-5.850	.000

The results in Table 4.4 indicate that IT usage and management support jointly affect the success of teaching and the learning process.

    d) Usage (t=-5.850, p< .001),
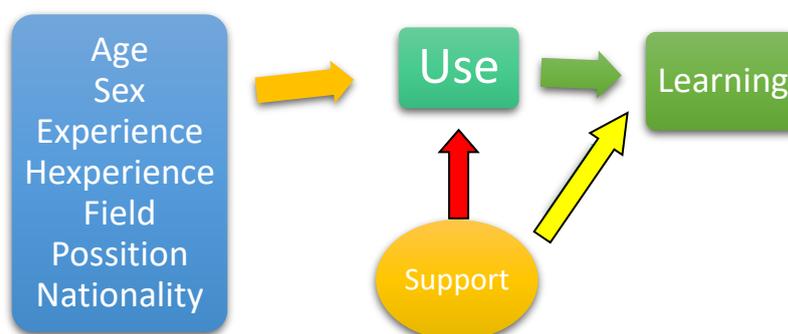   e) Management support (t=6.397, p<. 001),

4.4 Empirical Model

Figure 4.1 Empirical Model

According to the results shown, we can conclude the following:

- The ages and positions of the academics affect the usage of IT at higher education institutions
- The usage of IT at the private higher education institutions (faculties and universities) directly affects the learning and teaching process.
- Management support directly affects the usage of IT and the learning and teaching process.

Conclusion

This study examined the personal characteristics and IT usage behavior of academics, institutional support for IT usage and their impact on learning quality at private universities in Bosnia and Herzegovina.

In summary, the findings indicate that older, more experienced academics in higher positions were less likely to use IT than their younger colleagues. The reason may be potentially found in the different nature of their teaching roles (id. Conceptual/theoretical versus empirical/practical). In general, greater IT usage resulted in better learning outcomes. By using IT, academics at private higher education institutions are changing the way that students learn and thus helping students to learn more efficiently and effectively. Finally, management support was found to be an important factor in both IT usage and learning outcome. Overall, management at private higher institutions is found to encourage academics to integrate IT in their teaching and learning process.

While these are some encouraging findings, one still needs to be aware of the study limitations in terms of specific context, limited number of subjects and perceptual measures. Further research is recommended to overcome these limitations by repeating the study in other contexts, subjects and methods and to expand current research to other issues (eg. IT characteristics).

Currently, southeaster part of Europe is in the transition process. While this transition process itself is rather smooth in majority of territories surrendering Bosnia and Herzegovina, comparing to its neighbors, Bosnia and Herzegovina is facing more challenging obstacles making this transition process difficult in many way. Some of its major obstacles are due to the recent ethnic conflicts causing major infrastructure destructions as well as large number of people being killed or misplaced. Poor economic growth and political instability are also key factors considered to be major obstacles for today's technology advancement and its benefits in educational field such is distance learning. Even though, road to recovery has been slow and in many cases painful, people who live here truly believe Bosnia & Herzegovina has a bright future and in years to come will be considered as nation worth to be recognized with Europe's most advanced and respected nations in many different aspects including technological capabilities in learning sector. At the moment Bosnia and Herzegovina definitely is still in need of help, so this research was conducted and devoted as a small contribution to its future prosperity.

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