Appreciations and Constraints for ICT Use in Higher Education in Algeria

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Abstract: Algeria is witnessing a significant shift in its university system with a growing number of students from year to year due to its youthful population and a dynamic transition in the integration of information and communication technologies (ICTs). The use of ICT by teachers and students raise important reflections. We present in this paper some aspects concerning the conditions and constraints related to the use of ICT in higher education in Algeria. We discuss the basic infrastructure elements that can contribute significantly to the integration of ICT in higher education. The used methodology is descriptive and analytical. Data are analyzed qualitatively and quantitatively. We show that the constraints and difficulties related to the integration of ICT in higher education are mainly due to a lack of infrastructure and support.

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1. Introduction

Currently we are witnessing a significant shift in the information society, and this is illustrated by the rapid growth of imposed ICT in all sectors.

The higher education sector has not been spared by this technological advance, which makes the learning process (Mehdi Karami, 2013) very flexible open learning, distance learning, e-learning and virtual learning). ICT has become an important resource among resources of development and growth of countries that are characterized by global competitive advantages.

One of the most important pillars of economic development in developed countries is the ability to acquire skills and knowledge that are the basis of creativity and excellence. There is no doubt that improving the level of education and skills development is a strategic factor for countries aspiring to achieve excellence in a world characterized by intense competition. Given the role played by the university in the training of responsible executives scientifically in the service of society, this depends on the teacher. Therefore the product quality of university teaching depends on the nature of the interactions which result from the availability of the teacher and an adequate technological potential (Thierry Karsenti, 2008).

The importance of ICT on the teacher side and its use in the educational process is the main guarantor for achieving excellence in the ecosystem that is characterized by intense competition, trade globalization and a rapid technological development. The success of states and countries is measured by the scientific and cultural achievements in all areas of life.

We are currently experiencing a digital revolution, thus we must follow this great development in the field of ICT. Therefore, we must pay particular attention to the university role in the training of executives, using this technology in the educational process.

2. Importance of the study

In the light of this evolution in ICTs and its adoption by countries and institutions in order to increase the efficiency and competitiveness, the importance of this study lies in:

- The use of ICT in the educational process that contributes to the improvement of teacher performance and increased learner knowledge
- The importance of meeting the challenges of many students and their various trends.

A. Objectives of the study

The purpose of this study is to know:

- The importance of ICT in the educational process on the teachers side
- The use of these means by gender, age, level of knowledge
- The reasons for the use of ICT by teachers in the educational process.
- Obstacles and constraints to the use of ICT in the educational process.

B. Problematic

According to the importance of the study and its objectives the problem is defined as follows:

« Use of ICT in the educational process by teachers of higher education»

C. Presentation of the study methodology

The methodology is descriptive and analytical. A questionnaire was designed to gather opinions in order to classify and analyze them and, by distributing the questionnaire to the academic staff of both the faculty of economics, management science and business studies from the University of Oran and the National Institute of Telecommunications and information & Communication Technology.

The questionnaire consists of several items, all intended to know the level of utilization of ICT by teachers in the educational process (Yildirim, 2007). The SPSS software was chosen for data processing.

D. Study population and sample

The study population consists of academics in higher education. The sample consists of teachers of the Faculty of Economics, Management Science from the University of Oran and the National Institute of Telecommunications and Information and Communication Technology. It includes 91 teachers, 60% holding the State Doctorate, doctorate of Science and magister for different grades (Professor, Associate and Assistant professors...) according to data collected by researchers from the university administration.

Because of the researchers willingness to investigate the responses of all teachers the questionnaire was distributed randomly (by e-mail and on-line), to teachers (150), in the middle of the second semester of the academic year from 2011 to 2012.

3. Theorical approach

Academic institutions are facing major challenges, most teachers use traditional teaching (Tezci, 2011)

They are still dependent on blackboards and chalk. They use the method of memorization although the development of means of communication and information in this century is characterized by the computer.

The reasons of using Information and Communications Technologies are numerous and diverse:

A. Large census and diversity

Every year a large number of students of different levels invade universities, which makes communication, dialogue and discussion difficult or almost impossible in the auditorium. Faced with this new situation, the population explosion and the challenges of globalization, it is necessary for universities to find solutions to adapt and grow using and integrating ICT in educational process to meet the needs of students and society (Jo Shan, 2013).

B. Organizational transformations

There is no doubt that the current situation in which live academic institutions should be reviewed in its educational and administrative organization in order to achieve their goals (Mojgan Afshari 2012)

C. Competition

The competition has become fierce between universities especially with the implementation of the new educational system LMD with regard to proposed programs and channels, which makes the choice of the university to which the student wishes to access, based on objective criteria.

Faced with this situation, universities need to adopt strategies to be more attractive to students and teachers.

D. Information and Communication Technologies

The rapid technological development that characterizes the world requires academic institutions to take advantage of its benefits. The integration of this technology into the educational process (Al-ruz 2011) has become an unavoidable necessity for the learner and instructor as well as academic institutions to absorb the large number of students (Choy, 2009).

The challenge is twofold; it lies in the difficulty of academic programs review, updating and control. ICT strengthens the interaction between the teacher and the learner and solves the problem of the absorption of many students.

Students can listen to a lecture several times if necessary communication resources exist *(podcast network...)* between the teacher and the learner. Several researches and studies have demonstrated the important role played by ICT in the educational process.

All these factors have pushed Algeria to integrate ICT in the educational process with a significant investment in this sector. The situation in which are the institutions pushes them to revise the educational organization, the role of the teacher and the learner.

E. The ICT importance in the educational process

Studies and field research indicate that the use of ICT in the educational process in all its phases contributes to increase the effectiveness of learning and knowledge acquired between all stakeholders in the process (Ellis, 2013).

ICT integration in the educational process has become a necessary challenge (Almekhlafi, 2010) and is considered as a means to respond to pressures that nations impose to reduce the costs of education and increase the effective teaching (Yuen, 2003)

ICT integration in the educational process leaves an impact on the methodology of teaching because it requires a new methodology to prepare and present lessons of the teacher so as to have a positive and

continuous interaction with the learner (Flanagan L, Jacobsen, 2003)

4. Results

Our survey was conducted through a questionnaire with open and closed questions, which consists of four parts: the first focuses on the identification, the second on the assessment, the third on the usage and the last on constraints. We used the SPSS software for the analysis of the results.

A. The basic characteristics of the sample

According to the data distribution of the population under study (Figure 1), the largest number of teachers have a degree of magister (75%), come second those with the awarded a Doctorate of State (15%), and the third place those with the new regime PhD (10%).

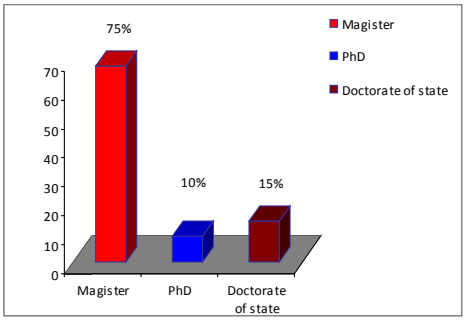

Figure 1. Population under study

Regarding the age groups of teacher involved in training (Figure 2), their age range is between 31 and 40 years (40%), followed by teachers with between 51 and 60 years old (29%). Teachers aged under 30 (14%), age between 41 and 50 years old is (12%), and in the latter age group over 60 years old (5%). It appears that the majority of teachers who have experience equal to or more than 21 years in the field of education (Figure3) represent (34%), coming just after, those who have an experience ranging from 6 to 10 years (29%), those less than 5 years, have reached (21%). Teachers with experience ranging from 11 to 15 years represent only (9%), it is the same for those who have an experience ranging from 16 to 20 years (8%).

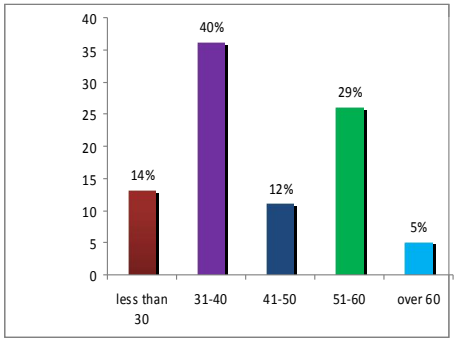

Figure 2. Population by age

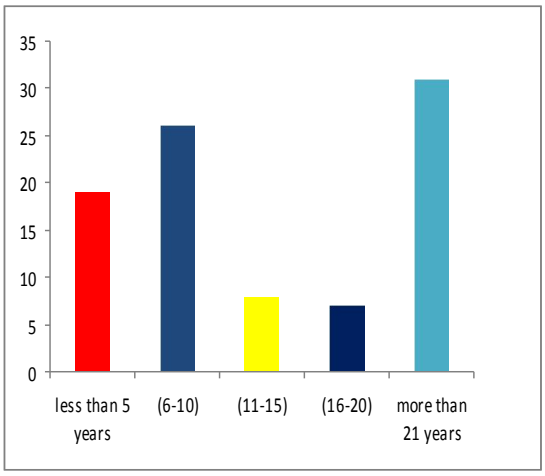

Figure 3. Teaching experience

The majority of teachers (77%) belong to the Faculty of Economics, Management Science and Business Sciences at the University of Oran, (23%) belong to the National Institute of Telecommunications and ICT of Oran (INTTIC) (Figure 4).

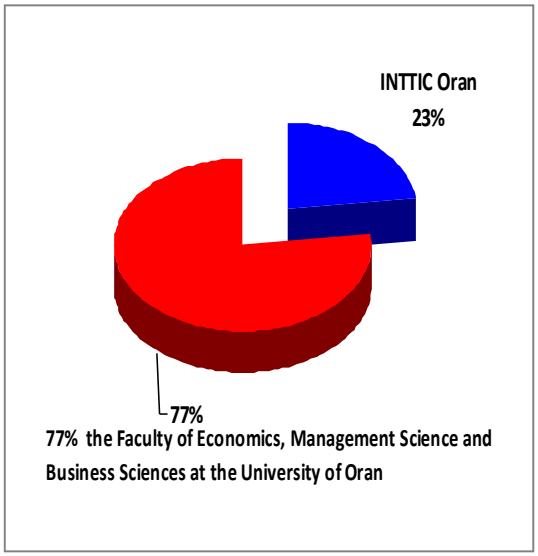

Figure 4. Distribution by institution

Among the independent variables (gender, age, experience, grade and learning institution), their data do not follow the normal distribution, the significance level (5%) Sig, the alternative hypothesis is accepted, while the age variable rejects the non statistically significant alternative hypothesis because Sig is higher than (5%) and therefore the data for this variable follows a normal distribution.

B. ICT importance for teachers

Our study consists in knowing the opinion of teachers on the use information & Communication technology in the educational process, where five types of assessments are asked (Figure5): very important, important, unimportant, meaningless, and unanswered (Chen, 2008).

The evaluation results and analysis of the teacher's views on information & communication technology in the educational process show (75%) consider them very important, and (24%) consider them important and (2%) consider them unimportant. The result chosen of this issue for the majority of teachers consider playing an important role in achieving the objectives of the educational process.

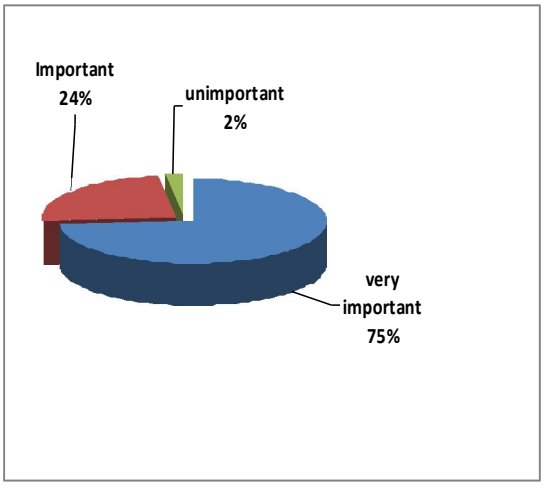

Figure 5. Appreciation of ICT by teachers

C. Use of ICT in the educational process

It is clear from the data analyzed (95%) of the total number of teachers who responded to the questionnaire have knowledge in ICT usage. Whereas (77%) actually use these resources in the educational process. This shows that the majority of teachers have understood the importance of the ICT means to raise the level of the educational process.

The number of times of use of ICT in the educational process by teachers (91), where we find 31% use them all the time, often 36% to 20% rarely, and 8% do not use them at all, and 5% did not respond.

It is clear from (Figure 6) that 89% of faculty members seek to use ICT in the educational process in order to improve the level and quality of education (Satender 2013). 79% are aware of the evolution of scientific research, 72% ensure a good understanding of teaching, 69% to course preparation, 61% to accelerate the delivery of courses, 56% download courses related to the class. 49% creating an interactive environment in the classroom and 22% participating in the forums.

The result shows that there are several relevant motivations relating to our study, which emphasize the importance of information in the educational process. It turns out that there is a strong statistical significance of the importance of these technologies to improve the level and quality of education with the least costs and time saving.

These results mean that all information on to the motivation for ICT usage accept the alternative hypothesis where the value of Sig is less than 5%.

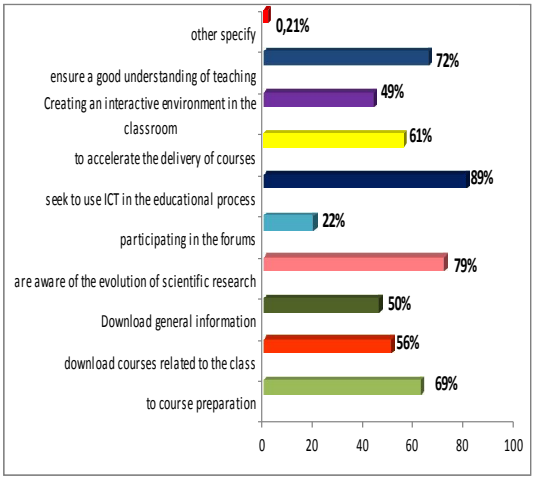

Figure 6. Use of ICT in higher education

D. Difficulties affecting the use of ICT by teachers in the educational process

Studies indicate that the uses of information technology in the educational process by teachers are facing various difficulties hindering the desired objectives.

We tried through this axis of the field study to identify the difficulties and obstacles that teachers face (Harri, 2009).

Table 1 shows that 47% of teachers agree that there is lack of facilities necessary for the use of ICT, 43% believe that the classrooms are not equipped for Information & Communication Technologies.

While 40% say it is a lack of means of Information and Communication Technologies, 35% agree that a large number of students represent an obstacle to the use of ICT and in the educational process, and to affirm that the faculty of economics, management science and Commercial Sciences is confronted with this phenomenon when comparing to the National Institute of telecommunications and ICT.

The lack of training in the use of these means is 30% and the non-encouragement of the administration in ICT usage in the educational process is 29%. 27% think that the pedagogical integration of ICT is modernity in the educational process and 19% believe that the use of the equipment may cause difficulties

for students and may not give importance. 16% consider that the nature of teaching determines or not the appeal to the use of Information Technology and Communication. 9% confirm that the equipment which is located at the institution is not available, while 4% attribute this to other difficulties. Finally, 11% are not interested at all.

The results obtained in this axis, confirm that there are a number of obstacles and difficulties that prevent teachers to use ICT in the educational process, in particular those related to the preparation, the availability of rooms, the type of equipment and its relationship with the subject taught.

Table 1: Difficulties encountered by teachers

Designation	**Frequency**	%
Insufficient training in this area	27	30%
Equipment may cause difficulties	17	19%
Classrooms are not equipped for ICT	39	3%
Lack of facilities necessary for the use of ICT	43	47%
Pedagogical integration of ICT is not clear	25	27%
Lack of means of ICT	36	0%
Equipment is not avalaible	8	9%
The nature of the lecture not require ICT	15	6%
Students do not give importance to ICT	17	19%
Large number of students	32	5%
No encouragement from the administration	26	29%
Other	4	4%
No Answer	10	1%

5. Conclusion

We tried in this study to identify the extent of use of ICT in the educational process by faculty, as well as identifying the difficulties that may affect their use in the educational process.

Through this study which concerned a sample of teachers in each school: Faculty of Economics, Management Science and Commerce on one hand and the National Institute of Telecommunications and ICT Oran (INTTIC) on the other hand, it was found that teachers who are motivated contribute to the integration of ICT in the educational process (Marianne R, 2011)

Based on the foregoing, we can say that it is time to raise awareness of education for the use of ICT in the educational process in order to raise the level of performance, and reduce the pressure of a high number of students who arrive each year to academic institutions, the impact of globalization and keep pace with developments in this field.

he most important action we need to focus on is to invest in the human element with a strong will to achieve excellence and leadership in an environment characterized by competition and continuous change (OCDE.2011).

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