Critical Reflections on the Effective Implementation of ICTs in Moroccan Universities

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Abstract:
Computers offer several opportunities that encourage the promotion of teaching and learning experiences. Like many other nations, Morocco has understood the importance of using computers in schools and universities. For this reason, the Moroccan government has launched several projects aiming at the diffusion of Information and Communication Technologies (ICTs) in education system. Actually, ICTs are useful for both teachers and students in the sense that they help teachers develop professionally. Also, students can increase their achievements and become independent learners. This paper aims to examine the various factors that have high impact on English professors’ use of computer technologies for pedagogical purposes in Moroccan universities. Descriptive analysis of means, and standard deviations were used to analyse the collected data. Also, inferential statistics, mainly Pearson Product Moment Correlation, were employed to account for this correlation. The findings revealed that lack of institutional support has a big influence on professors’ decision to utilize or refrain from using ICTs in their classroom practices.

Keywords: ICTs, education system, computer technologies, pedagogical purposes, institutional support, classroom practices
1. Introduction

Molnar (1997) mentioned that there are two fundamental roles of schooling. The first important function is conveying culture and values to the next generation. The second significant mission is teaching students the right skills to cope with the real world. Moreover, without having technologically skilful human resources, our students cannot participate effectively in this era which is described as the period of global information (Molnar, 1997). Educational institutions did a magnificent work at preparing learners for an industrial age but not for the information age. Learners are in need of group and interpersonal skills, lifelong learning competences and qualifications to make effective use of technology to access information. A sophisticated technology-driven world is producing its own education in order to create the proper kind of citizens to be successful in the information age (Sherritt & Bason, 1996). Thus, schools and universities are required to prepare students to compete in today’s technological world (Heflich, 1997). In order to ensure continuity of education, innovation in teaching and learning is essential (Mansor, et al., 2017). Indeed, the adoption of technology within our educational systems will profoundly transform classroom practices. McKenzie (2000) maintained that the increasing demand for the workforce which is capable of matching job markets’ needs has compelled different educational institutions to change their classroom practice and adopt technologically based instruction.

It is apparent that computer technology has become an important part of our daily lives. “Whether or not we touch a computer, it is almost impossible to escape its daily influence on us; from speedy information transmittal, printouts, and receipts, to control of lights and temperature of our workplaces” (Deaton, 1990, p.1). If schools and universities tend to prepare learners for today’s job market, they should encourage the integration of computer technologies into the curriculum (Soine, 1996). If these educational institutions are not utilizing ICT, they are neglecting a significant portion of their learners’ environment (Cummings, 1998). In fact, “convergence of the economic necessities called into question the effectiveness of the educational system to prepare the future workforce with adequate amounts of human capital (knowledge, skills, and dispositions) to compete in world markets and economies” (Hornbeck & Salamon, 1991, p.65).

Therefore; teachers, in this information technological age, should know both the subject matter they instruct and the different effective ways this subject matter may be changed using computer technologies (Misha & Koehler, 2006). They are required to develop sufficient knowledge about technologies such as computers, the Internet and digital videos. This knowledge should incorporate how to install and remove several significant software programmes. In other words, they are required to master the necessary skills to operate different software tools especially word processors, Internet browsers, spreadsheets, and email (Misha & Koehler). This is due to the fact that there has been a shift from a focus on information transmission through books and chalk to a concentration on information processing via computers and the internet (Barker, 1994).
Numerous studies have indicated that there is a strong positive correlation between students’ achievements and the use of ICT in the classroom. Schacter (1999) carried out a meta-analysis of more than 700 research studies done within the state of West Virginia with samples of learners who had access to several kinds of technologies in their learning. He claimed that the targeted students showed “positive gains in achievement on research constructed tests, standard tests, and national tests” (p.9). Schacter’s feedback reinforced the necessity for instructors to include technology into the educational environment. Nova (2017) claims that technology gives positive impacts to students’ learning attitudes, including their interest, motivation, and learning styles. Similarly, Waxman, Connell, and Gray (2002) conducted a research study which reviewed both quantitative and quasi-experimental research publications from 1997 to 2002 related to the influence of computer technology on learners’ achievement. They found that the implementation of ICT within classroom practices has positive effects on students’ learning.

2. Literature Review

2.1. Moroccan Higher Education and Information Technology

The use of computer technology in the teaching and learning processes has been regarded as one of the main axes of the last educational reforms carried out in Morocco. Actually, several studies have found there is a strong positive correlation between the use of information technology and effective acquisition of foreign languages (Chapelle, 2001). For this reason, integrating information technology in Moroccan education, specifically in the teaching of foreign languages, has become a request among decision-makers, educators and other stakeholders.

His majesty king, Mohammed Sixth declared the period 1999-2009 the “education decade”. So as to ensure the successful integration of IT in Moroccan education, the government focused on five major themes which make up the foundation of the national plan aiming at increasing access to various computer infrastructures. These themes include education, governance, private sector development, e-commerce and access. As a result of this plan, the Moroccan government launched different projects intending to expand the infusion of computer technology in schools, universities and other educational institutions (Hamdy, 2007; Bounahai, 2014).

Morocco Wide Area Network (MARWAN) is considered as one of the most outstanding projects introduced by the Ministry of Higher Education to spread the use of computer technology within Moroccan higher institutions. The major goal of MARWAN project, which was initiated in 1997 and operated in 2002, was to guarantee professors’ access to both technological instruments and the Internet. It also intended to help professors develop a logical and satisfactory understanding of the importance of utilizing information technology in their classrooms. Moreover, it aimed to enable professors to share resources, encourage the promotion of ICT in Morocco and increase cooperation between Moroccan professors and their European counterparts (Hamdy, 2007; Belcadi, 2007).

Another significant project is the Moroccan Virtual Campus (CVM). This project started in 2002. It aimed at stimulating cooperation between e-learning plans within
different universities. It also intended to help students have access to different sources of knowledge, increase the proportion of self-learning and strengthen the quality of the educational content (Hamdy, 2007).

Computer Assisted Teacher Training (CATT) was launched and activated in 1999 in collaboration with the United States Agency for International Development (USAID). The main purpose of this project was to equip teacher training centres with the necessary technological instruments. Also, it aimed at providing adequate and appropriate computer training to instructors and creating a community web site (Hamdy, 2007).

2.2. Factors Influencing Professors’ Use of ICTs in Teaching Practices

There are several factors that affect teachers’ attitudes and their use of computer technologies in the process of learning and teaching. These factors incorporate age, gender, teaching experience, access to computers, computer experience, computer training, computer anxiety and institutional support (Sahin & Thompson, 2006; Bitner & Bitner, 2002; Dusick & Yildirim, 2000; Broos, 2005; Khaloufi & Laabidi, 2017).

Professors need training on the effective use of educational technologies so as to help them get rid of the fear which is often associated with their hesitation to make use of ICT (Javeri, 2003; Laabidi, 2016). In fact, fundamental knowledge of both hardware and software implementations is required so that teachers can promote the necessary qualifications to make successful use of the new innovations in their teaching practices (Hardy, 1998). According to Parish & Necessary (1996), the main variable that best account for teachers’ computer anxiety is the lack of computer training.

Previous literature also reveals conflicting findings regarding the influence of teaching experience upon the use of ICT in the classroom. Some researchers have reported that the effect of teaching experience is not very significant. For instance, Becker (1999) concluded that teaching experience should not be regarded as an important variable affecting the implementation of ICT in schooling. In the same context, Dusick and Yildirim (2000) stated that there is not any significant correlation between computer usage and teachers’ teaching experience. In the same framework, Shegog (1997) conducted a research study to investigate professors’ attitudes regarding computer integration on the basis of their age, gender, teaching experience, ethnicity, and computer experience. The researcher concluded that teaching experience should not be a predictor of professors’ attitudes toward the use of computer technology in the teaching process.

Access to computer technology means the presence of computers in the school and at home. It means also the availability of up to date hardware and software (Reilly, 1996). Teachers’ level of computer and internet access is considered as one of the most significant factors that would shape their attitudes regarding computer usage in the classroom (Marcus, 1986). Accessibility to reliable technological equipments that are needed for effective technology integration reflects teachers’ positive attitudes toward the incorporation of ICTs in the classroom (Guessoum, 2006).
Actually, most researchers agree that accessibility to technological instruments has boosted in schools and universities. However, “the capacity of educators to use technology in classroom instruction has not kept pace with the increased access to technology” (Sandholtz, 2001, p.349). Also, “the knowledge, beliefs, and attitudes of teachers have shaped what they choose to do in their classroom and explain the core of instructional practices that have endured over time” (Cuban, 1993, p.256).

Administrative support is a decisive factor in the effective integration of instructional technologies (Atkins & Vasu, 2000; Nachmias et al., 2004; Van Melle et al., 2003). According to Bower (2001), administrative support is a significant factor which is thought to have a big effect on professors’ attitudes toward the use of computer technology for teaching purposes. Institutional support such as incentives for teachers is very significant to the effective adoption of computer technologies into education. Institutional encouragement incorporates helping teachers develop the ability to access the Internet and other computer accessories such as the data projector, printer, digital camera and the scanner. It should also include pedagogical back up such as recommendations for ways on how to select the most suitable software (Sife et al., 2007). Thus, administrative support must be provided for teachers to facilitate their integration of computer technologies in classroom practices (Bitner & Bitner, 2002).

Many previous studies that were conducted to investigate teachers’ use of the new innovations in education reported that administrative support affected successful implementation of ICTs in the classroom. For instance, Cameron & Ulrich (1986) concluded that insufficient administrative back up represented a significant barrier to the effective use of computer technologies in Nigerian educational institutions. Moreover, Sife et al. (2007) found that obstacles discouraging teachers from embracing the new technologies included inadequate administrative, technical and financial encouragements. Hsin-Kai et al. (2007) found that most teachers involved in their study were reluctant to integrate computer technologies in their teaching practices due to the lack of administrative assistance provided by their educational institutions.

Bailey & Lumley (1997) reported that effective administrators are those who firmly believe that computer technology is an efficient instrument which is expected to change the traditional methods that were used to teach students. So, administrators should understand that computer “technology integration presents a shift in values in our views of teaching and learning, and raising the level of awareness of this conflict is not only necessary, but also a fundamental component to successful change” (Fullan, 1991).

3. Research Methodology

3.1. Research Question and Hypothesis

The current paper aims to answer the following research question: is there any correlation between professors’ use of ICTs in teaching and the levels of institutional support? From the previous research question, the following null hypothesis was developed: there is no significant correlation between professors’
integration of computer technologies in their classroom practices and the levels of support provided by their educational institutions.

3.2. Participants

The participants consisted of professors of English working in public and private Moroccan higher institutions during the academic year 2015-2016. This included professors teaching in the faculties of letters and human sciences as well as those who teach in other higher institutions such as the multidisciplinary faculties. As shown in figure 1, the total number of participants was 163. The majority of respondents who completed the survey indicated that their gender was male (n = 114), 69.9%. Of the remaining respondents, 49 (30.1%) reported that their gender was female.

Figure 1: Distribution of participants by gender.

Figure 2 shows that the professors participating in this study were from thirteen different Moroccan universities. The highest percentage of the respondents 21.5% (n =35) taught English language at Moulay Ismail University followed by Sidi Mohammed BenAbdellah university, 14.1% (n = 23). Of the 163 participants, 11.7% (n = 19) taught at Mohammed V. The data showed that the representation of Mohammed I was somewhat less, 4.3% (n = 7), equal with both Ibnou Zohr and Soultane Solimane universities.

Figure 2: Distribution of participants by university of affiliation.
As shown in Figure 3, more than half of the participants (n = 87; 53.4%) reported that they possessed an average level regarding the degree of their computer skills. Also, a quarter of the respondents (n=42; 25.8%) stated that they were advanced when using computer technologies. Only nine professors (5.5%) announced that their computer skills level was very low.

Figure 3: Distribution of participants by their computer skills.

3.3. Data Analysis Procedures

Inferential statistical analysis was used to answer the main research question: is there any correlation between professors’ use of computer technology and the level of institutional support? Pearson Product Moment correlation was utilized to explore the strength of the relationship between two continuous variables which were professors’ use of computer technology (the dependent variable) and the level of institutional support (the independent variable). Pearson’s correlation was utilized to investigate if any significant relationship exists between the previously mentioned variables.

4. Findings and Discussion

It is clear from Table 1 that there is a strong positive correlation between the two variables, 

\[ r = 0.59, \ p < .01. \]

In other words, as the level of institutional support increases, the use of computer technologies increases as well. Furthermore, the p value (p=0.000) is less than the significant level set at 0.01 (2-tailed). Therefore, the null hypothesis stating that there is no significant correlation between professors’ use of ICT in teaching and the level of institutional support can be rejected.
Table 1: Correlation between professors’ use of ICT and the level of institutional support

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Professors’ Use of ICT in Teaching</th>
<th>The Level of Institutional Support</th>
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<tr>
<td>Professors’ Use of ICT in Teaching</td>
<td>Pearson Correlation</td>
<td>1</td>
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<td></td>
<td>Sig. (2-tailed)</td>
<td>.598**</td>
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<tr>
<td></td>
<td>N</td>
<td>163</td>
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<tr>
<td>The Level of Institutional Support</td>
<td>Pearson Correlation</td>
<td>.598**</td>
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<td></td>
<td>Sig. (2-tailed)</td>
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<td></td>
<td>N</td>
<td>163</td>
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**. Correlation is significant at the 0.01 level (2-tailed).

To further explore the relationship between the use of ICT and the degree of institutional support, a scatter plot was created (Figure 4). It is apparent from the scatter plot that the two variables strongly and positively correlate. Also, it is clear that the relationship between the variables is strong because the data points are moderately clustered around the straight line. The coefficient of determination ($r^2 = 0.35$) indicates a 35% of shared variance between professors’ use of ICTs and the level of institutional support. That means that 35% of the variability in professors’ use of ICTs in instruction is accounted for by the level of support provided by their institutions. This suggests that there are other independent variables that explain teachers’ adoption of ICTs in teaching processes.

Figure 4: Means plot for professors’ use of ICT and the level of institutional support
Correlation analysis showed that there is a significant positive correlation between the dependent variable (ICT use) and the independent variable (institutional support). The findings from the survey revealed that professors who tend to integrate computer technology in their teaching have received high levels of institutional back up. The results of the present study supported the findings of previous research studies. For instance, Bower (2001) found that the level of institutional assistance would have a positive association with teachers’ attitudes towards the adoption of the modern technological tools in the classrooms. Additionally, Marcus (1986) reported that the degree of administrative support correlated with the implementation of computer technology in education. Pajo & Wallace (2001) found similar results.

5. Conclusion

In this study, it was found that lack of institutional support had high impacts on professors’ willingness to integrate ICT in universities. Therefore, support for computer technology implementation should be widely available. Actually, administrators are recommended to offer support to instructors through helping them overcome the challenges they face while utilizing information technology in the classrooms. Support may take the form of materials, technological equipments, professional development courses, and training to learn how to integrate ICT effectively into the curriculum. Accordingly, administrators of institutions of higher learning could provide different incentives such as workload reduction and compensation for those offering technological support to others. To guarantee successful and effective ICT implementation, universities should provide professors with specific technological training in the form of extensive workshops that focus on how to make effective use of modern technological tools in their teaching. This simply means that training programs which only offer basic computer skills are inadequate to help professors make successful use of ICT in the classrooms. Training programs should go beyond the mastery of the basics. Indeed, specialized training courses should aim at the acquisition of other significant educational techniques associated with planning instruction, designing teaching activities, and evaluating technology implementations. By providing quality training for professors, policy-makers would aid the expansion of technologically integrated instruction and thus prepare students to face the challenges of the twenty-first century.

References


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