THE JOURNAL OF TEACHING ENGLISH FOR SPECIFIC AND ACADEMIC PURPOSES
Vol. 4, N° 1, Special Issue, 2016, pp. 113–121

UDC 811.111'243:(004.4+004.032.6) (535)

ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN THE FOUNDATION INSTITUTE AT THE UNIVERSITY OF NIZWA - ATTITUDES, PROBLEMS AND SOLUTIONS

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Abstract. *Information and communication technology has been considered as potentially powerful enabling devices for educational transfer and reform. Owing to the important role of technology in today's life in general and in education in particular, this case study focused on identifying the factors that facilitate or impede adoption of the use of information and communication technology in class, and English teachers' attitudes and beliefs about the use of technology in the teaching process. To this end, a thirty-item questionnaire was adapted, piloted, validated, and distributed among 42 English teachers at the Foundation Institute of the University of Nizwa in Oman. The questionnaire asked about teachers' general attitudes towards information and communication technology, as well as their individual use of information and communication technology in class. Data analysis reveals that, in general, teachers have positive attitudes toward using information and communication technology, and, according to them, negative attitudes can be mainly caused by technology malfunctioning. No relationship between teachers' experience and their use of information and communication technology is identified, as well as teachers' eagerness to receive more training in information and communication technology.*

Key words: *information and communication technology, English language teachers, University of Nizwa, Oman*

1. INTRODUCTION

As we move forward in the 21st century, the use of technology becomes more and more integrated with our daily lives. Many papers have investigated the use of information and communication technology in language education in the Omani context with a focus on students, materials and related methodology (e.g., Beatty & Nunan, 2003; Lee, 2005; Mehta, 2012; Warschauer, 2000), but less research has been concerned with the actual implementation of information and communication technology on an institutional level and the difficulties that come with it. In order to fill this gap in the current research context and because of the importance of this issue, the Foundation Institute at The University of Nizwa which prepares students in English Language, Mathematics, Life Skills and Digital Literacy before they take up their majors in various studies, conducted this case study. It aimed to investigate to what extent information and communication technology is adopted in the

Submitted February 20th 2016, accepted for publication March 20th, 2016

Foundation Institute through analyzing teachers' skills and attitudes, and the factors that hinder the adoption process and suggest possible solutions for problems that have been discovered.

The Foundation Institute makes use of various tools and computer programs mandatory for every teacher and offers a wide range of tools for every staff member. Teaching materials are available online, tablet and smart phone apps were designed to accompany language books, all grades are entered online and starting 2016 the Foundation Institute is going to introduce Moodle for material assignment. It is reasonable to say that the Foundation Institute at the University of Nizwa is above Omani standards in its use of information and communication technology, therefore it is important to find out if teachers are indeed ready to embrace all aspects of the digital boom and "ride the wave" as Chun (2007) stated or if they are just bystanders pretending to be part of the emerging digital classroom they do not fully understand or appreciate. To examine this matter, a questionnaire was designed to study teachers' attitudes, knowledge and beliefs about information and communication technology and also their opinion about the quality of the technology provided by the University which will be explained in detail in the following sections.

2. BACKGROUND

2.1. Changing teacher roles

Teachers' attitudes towards technology is a sensitive, yet important and relevant question. Teachers (and often even head teachers) with many years of experience have little knowledge of available technology and are puzzled when the topic arises. Warschauer (2000) contends that "technology (...) does create possibilities for new forms of behavior and of education" (p.61). However, its use may require special knowledge and competencies. Moreover, "traditional role of teachers as sources of knowledge discontinues as teachers fulfill new roles; meanwhile the majority of teachers and educators "peacefully" continue their work in the spirit of old mentality and methodology, i.e. following the classical paradigms" (Kovács, 2011, p.31).

The result of changing roles is that a substantive proportion of experienced teachers is wary of the introduction of innovative methods, and denies their use even if they have been introduced in their institutions. Claims among teachers are made about the doubtful efficacy and the inferiority of technology-infused teaching, compared to classic methods. Such claims can easily undermine the success of the introduction of new technologies amongst teaching staff. Albrini (2006) believes that successful implementation of information and communication technology largely depends on teachers' attitudes. Therefore, the role of the teacher as a motivator, facilitator, role model and information source, is crucial when introducing technology for learning purposes in the language classroom.

2.2. Adoption of new technologies under ideal circumstances

Rogers (2003) pointed out that the adoption of new technology under ideal circumstances happens through dissemination. Plotted over a length of time, the pace of adoption resembles an S curve. The distribution of adopters is categorized as normal distribution or a bell curve. Rogers identified five categories of people along the curve, which are innovators, early adopters, early majority, late majority and laggards (see Fig.

1 for more information). Consequently, adoption is a linear process that is slow at the beginning but when it reaches early adopters, it speeds up, then slows down again when closing in to full adoption i.e. when all members of a community use the new technology. Identifying the factors that slow down adoption is a key to speeding up the process.

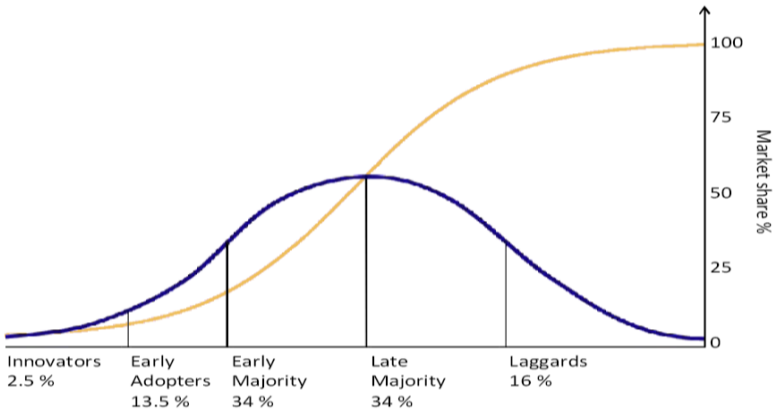

Fig. 1 Bell and S curve of adoption
Adapted from: Stamas (2012)

2.3. Technology currently used at the foundation institute

The basic means of communication at the Foundation Institute of the University of Nizwa is by e-mail. Every teacher has a university e-mail address which enables them to communicate with their colleagues, the administration and their students. Various teaching materials and administrational documents are uploaded and shared on Google Drive. Teachers can access these materials and documents provided that there is adequate internet connection and proper hardware. Teachers can also upload and share material via Drive with students and each other. Live documents that require input from teachers (such as attendance sheets, schedules, etc.) are sent out in the form of Google Documents. This allows teachers to work collaboratively on a document in real-time. Google Sheets is an easy-to-use survey tool that immediately shows answers in a spreadsheet. It is very simple to analyze the results; thus, the Foundation Institute uses Sheets for opinion polls whenever necessary.

Eduwave is a software which is currently used to enter grades for students as well as keep attendance. Moodle Learning Management System is a central tool for assigning learning materials and tasks to students in their majors. It has not yet been introduced as a mandatory tool by the Foundation Institute and it is only haphazardly used by some teachers. However, the Foundation Institute is preparing to launch Moodle as their primary tool for material management from the year 2016.

All classrooms are equipped with a PC and a projector connected to it. Teachers can log in and use the internet to access their files and more. There are several interactive whiteboards available for shared use in class, however they are poorly maintained and teachers are required to sign up for their use in advance. It is important to mention that over 90% of teachers own a Smartphone or a tablet that could be used in class as an educational tool.

3. Study Design

3.1. Scope and focus of the study

The primary aim was to identify factors that facilitate or impede adoption of the use of information and communication technology in the English language classroom. In other words, the focus is to investigate the reasons why some English language teachers are reluctant to use technology and suggest possible solutions for making its use widespread among all teachers. The secondary focus is to further investigate attitudes and beliefs of the English language teachers in the Foundation Institute towards using technology, their awareness of new technology and tools, as well as the extent of using them in the classroom.

3.2. Research methods and methodology

This paper is a case study as the method provides "a holistic focus" and is an effective tool to "understand the case in depth, and in its natural setting, recognizing its complexity and its context" (Punch, 1998, p.150). To reduce the burden of data collection Google Docs form was used to collect data. As Al-Issa and Al Bulushi (2010, p.47) point out, online questionnaires are "significantly more convenient than a paper-and-pencil questionnaire" and are "very user friendly". The questionnaire was an adapted and modified version of the Technology Implementation Questionnaire designed at the Concordia University in Montreal, Quebec (Abrami, Wozney &Venkatesh, n.d.). The questionnaire included 30 items in five-point scale format in three sections. Section one measured teachers' general attitudes towards information and communication technology, section two gathered background information such as years of experience or preferred teaching methodology, and section three focused on the specific use of information and communication technology in class for various purposes. The content validity of the original questionnaire was tested by expert researchers after piloting and subsequently was modified based on their comments.

Face-to-face interviews were also conducted to ensure teachers interpreted the questions in the intended way and also because according to Punch they are "one of the most powerful ways for understanding others" (Punch, 1998, p. 175). More importantly, face-to-face interviews would reduce the risk that teachers who are less experienced in using information and communication technology would shun responding to the questionnaire sent in an online format and scrutinizing a topic that is sensitive for them. Therefore, face-to-face interviews also enhanced the accuracy of the study.

3.3. Research Participants

The population of the study were 72 faculty members of the Foundation Institute of whom 42 teachers responded either by completing the questionnaire or by signing up for interviews, which is a 58% response rate. All participants were English Language instructors with a minimum qualification of BA or higher. The sample represents an age group between 26 to 62 and a wide range of teaching experience from 3 years to more than 25, both aforementioned features in even distribution. There is no significant difference in the ratio of genders either.

3.4. Data analysis methods

Google Docs saves responses in a Microsoft Excel compatible spreadsheet format. Excel in turn allowed for frequency-based descriptive analysis by calculating percentages and also for a wide range of quantitative analysis utilizing Pivot tables. Pearson's product-

moment correlation coefficient was used to measure linear correlation between using information and communication technology and the selected factors.

4. Discussion and Findings

4.1. Attitudes towards information and communication technology

Al-Zaidiyeen, Mei, and Fook (2010), claim that use of information and communication technology in class largely depends on teacher's attitudes towards it. As a starting point, answers indicate that teachers at the Foundation Institute have mostly positive attitudes towards technology. The majority find it a valuable instructional tool that makes teachers feel more competent as educators. As analysis revealed respondents who describe their teaching style to be largely student-centered (e.g. cooperative, discovery learning) also believe that information and communication technology gives teachers the opportunity to be learning facilitators instead of information providers. In other words, teachers with the right tools are better able to promote collaborative and also autonomous learning, approaches which are both sought for in modern, competent language education (Warschauer, 2002, p. 457).

4.2. Reliability of technology

Reliability of technology is a major factor that all teachers labeled of paramount importance, both in the questionnaire and during interviews, influencing their attitudes towards the adaptation of information and communication technology in class (Williams, Boone, & Kingsley, 2004). Helpdesk support for office workstations is fairly well rated among teachers. However, in-class maintenance of computers, projectors and interactive whiteboards is haphazard. Interviews shed light on situations where a blown fuse took more than a week to replace, making all technology-related class work impossible. Situations like this quickly undermine trust in information and communication technology, significantly slowing down the adoption process, and creating a negative attitude towards the technology

4.3. Teaching experience and use of information and communication technology

Responses led to the conclusion that lack of extensive teaching experience does not result in less frequent use of information and communication technology in class. This is contradicting the findings of Russell, Bebell, O'Dwyer and O'Connor (2003) who came to the conclusion that more experienced teachers incorporate information and communication technology more in class work as they do not have as many issues with classroom management or adapting to the curriculum as their less experienced colleagues, thus they can concentrate on incorporating information and communication technology better. On the contrary, the analysis shows that teachers with less experience are as enthusiastic using new technology as more experienced teachers and they also boldly experiment in this field.

4.4. Importance of training

An analysis of data shed light on the phenomena that teachers who replied they would never or rarely use information and communication technology in class would often spend more than ten hours in front of their computer in their free time weekly. However, answers also show that the majority of the aforementioned teachers have not received

adequate training in using technology, and these same teachers also strongly agree with the statement that information and communication technology is effective only if teachers have previously received sufficient training. Thus, the importance of training cannot be overemphasized as it would facilitate in-class use of information and communication technology among teachers who are avid users of computer and technology. In general, but turn away from it during their teaching because of the lack of proper training.

4.5. Compatibility of educational software and curriculum

Over two-thirds of the participants "strongly agree" or "agree" with the statement that information and communication technology in class is only effective when resources connected to the curriculum are available and easy to access. This is in accordance with the study conducted by Williams, Boone and Kinsley (2004) which concluded that teachers are more likely to use educational software if it is designed to meet curriculum needs both in outcomes but also in usability. In other words, teachers would shun from the use of technology if materials connected to the curriculum are not available or difficult and uncomfortable to use.

5. RECOMMENDATIONS

5.1. Maintain a positive approach

According to the survey, 70% of the Foundation Institute faculty holds positive attitudes towards the use of information and communication technology in class, and only 4% rejects it completely. Looking back to Rogers' adoption curve it might take a very long time for the last 4% of laggards to adopt information and communication technology use and we also have to accept that some teachers will never do so either due to deep disbelief in its efficiency or personal reasons. However, it is crucial to win the support of the 26% who marked their attitudes as 'indifferent' as they are significant in number.

The best way to create positive attitude towards information and communication technology is to keep teachers interested in it. Ways for keeping up interest are, for example, focus group meetings and newsletters. The aim of these is to keep up the 'conversation' between teachers, i.e., to make them share their experiences and encourage each other to find out more about e-learning. All in all, it is of the utmost importance that the new methods are regularly and openly discussed and researched to help eliminate the occasional murk surrounding technology. It might be true that technology will never replace the teacher, but teachers who know how to use these tools will sooner or later replace those who do not.

5.2. Increase reliability

To increase reliability, the first and most important step is to invest in reliable equipment. Although it might seem to be common sense, more than often reliability is sacrificed for lower prices which in turn would result in higher maintenance costs. Also it should be ensured that it is clear for teachers to whom they can turn if there is an equipment or software malfunction, and if errors and maintenance steps are well documented and traceable. Teachers should be confident when asking for assistance. Also, responsibilities should be clear and transparent. If teachers feel there is adequate

institutional support behind maintenance, they will be more confident in the use of information and communication technology.

5.3. Invest more time and resources in training

Alharbri (2013) contends that "…most teachers seem to lack the time needed to learn to use and apply technology in meaningful ways into the curriculum" (p.4). This citation supports the finding of the present case study that since over two thirds of the respondents have labeled training as "very important", teachers should invest proper time and resources into it. Training can be a variation of demo lessons, training sessions, in-house workshops, mentoring, and collaboration in small groups between colleagues on different proficiency levels. Teachers should also have opportunities to share their experiences (positive or negative) and discoveries with information and communication technology on a forum or periodical meetings. If the proper amount of time and resources is invested in training staff in using technology, it is going to increase not only the level of overall proficiency but also reduce maintenance costs and encourage the innovative and productive use of equipment and software. Teachers, who are more familiar with the equipment and programs, are more capable of solving basic problems, such as knowing which cable to attach into which socket, or respond with efficiency to basic software malfunction.

5.4. Tailor digital materials

The Foundation Institute at the University of Nizwa has digitalized materials and have made them available online via Google Drive, thus greatly simplifying teachers' work with them not having to search extensively for online or digital material. However, online syllabi should not be simply online editions of printed materials, but, with the help of the teacher, classwork and online materials should "form a coherent entity together" (Banados, 2006, p.540). When utilizing information and communication technology in class, a major task of the teacher is to form and keep harmony between online and printed class materials, and of faculty material designers to ease this process by linking online materials with printed materials as closely as possible. In order to avoid the "detachment" of the online tasks from the classes and the formation of a "one and a half syllabus" it is important that online materials should connect as closely as possible to the materials of the face-to-face classes and teachers have to take part in selecting and assigning the online materials and should also be involved in evaluating them (Salomon, 2005, p.13). Thus, the materials used can maximize the results.

6. Conclusion

The Foundation Institute at the University of Nizwa has already achieved great results in dealing with problems that hinder the application of information and communication technology in the institution, for example, lack of e-learning culture, lack of quality assurance and improper syllabus design resulting in lack of connection between materials and information and communication technology (Diaz, 2010). By demonstrating exemplary commitment, it aims to further improve the integration of technology in its everyday work. Application of a variety of tools takes time to gain ground and even more time for teachers to adapt them. Just as air transport has not been considered a novelty for long

decades by now, we can only wait until information and communication technology will also cease to be the hot topic of English language teaching-related conversation and will smoothly blend into the bustle of everyday teaching life.

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