

EFL Teachers' Beliefs toward Using Computer Technology in English Language Teaching

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Received: December 16, 2011 Accepted: January 8, 2012 Published: May 1, 2012

doi:10.5296/jse.v2i2.1174 URL: <http://dx.doi.org/10.5296/jse.v2i2.1174>

Abstract

Computers have made many of our everyday tasks easier and faster and made our society more productive. Some important variables such as the classroom teacher and the teacher's beliefs towards the effective uses of computers have been overlooked in EFL classrooms. The impact of teachers' beliefs on classroom instruction specifically in English Language Teaching (ELT) has been paid enough attention by previous researchers, but little research has been conducted to establish a similar relation between teachers' beliefs and uses of computer technology. The goals this paper are to define teacher beliefs, explain the process of forming beliefs, discuss the relationship between beliefs and integration of computer technology, review teachers' beliefs and computer knowledge, elaborate teachers' beliefs and computer technology training, examine Technology Acceptance Model (TAM), and state the contribution of computer technology to English language teaching. It is expected that by gaining a better understanding of knowledge of EFL teachers' beliefs about teaching, learning, and computers, we might gain a greater understanding for why more EFL teachers aren't using computer technology in their EFL instruction.

Keywords: Computer Technology, Teacher Belief, Integration, Knowledge, Training, Contribution

1. Introduction

Computers are increasingly widespread, influencing many aspects of our social and work lives, as well as many of our leisure activities. As more tasks involve human computer interaction, computer skills and knowledge have become more positively correlated with both occupational and personal success. Therefore, as we move into a technology based society, it is important that classroom experiences with technology be equitable and unbiased for males and females. In most cases, the teacher is key to effective implementation of the use of computers in the educational system and given that teachers have tremendous potential to transmit beliefs and values to students, it is important to understand the biases and stereotypes that teachers may hold about the use of computers and the factors that act as facilitators to teachers' positive computer usage (Askar & Umay, 2001). Therefore, the decision regarding *whether* and *how* to use computer technology for instruction rests on the shoulders of classroom teachers. If we are to achieve fundamental changes in classroom teaching practices we need to examine teachers themselves and the beliefs they hold about teaching, learning, and computer technology. Full integration of computers into the educational system is a distant goal unless there is reconciliation between teachers and computers. To understand how to achieve integration, we need to study teachers and what makes them use computers (Marcinkiewicz, 1993). Cuban (1997) supported this and stated that it's not a problem of resources, but a struggle over core values.

No matter how sophisticated and powerful the state of technology is, the extent to which it is implemented depends on teachers having a positive belief towards it (Huang & Liaw, 2005). In this paper, definition of teachers' beliefs, the process of forming teacher beliefs, teachers' beliefs and integration of technology, teachers' beliefs and computer knowledge, teachers' beliefs and computer technology training, Technology Acceptance Model (TAM), and contribution of computer technology to English language teaching are explained in detail.

2. Definition of Teachers' Beliefs

A belief is defined as any proposition that begins with the phrase "I believe that." Beliefs that have multiple links to other beliefs are considered to be "core" or central beliefs: "The more a given belief is functionally connected or in communication with other beliefs, the more implications and consequences it has for other beliefs" (Rokeach, 1972, p. 5). Thus, core beliefs are the most difficult to change, as their connections to other beliefs need to be addressed as well (Richardson, 1996). Teacher belief systems consist of a very large number of interacting, intersecting, and overlapping beliefs (Pajares, 1992). According to Hermans et al., (2008), belief systems consist of an eclectic mix of rules of thumb, generalizations, opinions, values, and expectations grouped in a more or less structured way. Many have suggested that these belief systems influence how teachers use technology in the classroom (Windschitl & Sahl, 2002; Angers & Machtmes, 2005; Hermans et al., 2008). In a study by Haney, Lumpe, Czerniak, and Egan (2002), teacher beliefs were found to predict subsequent classroom action for five of the six teachers observed. In general, teachers with more traditional beliefs will implement more traditional or "low-level" technology uses, whereas teachers with more constructivist beliefs will implement more student-centred or "high-level" technology uses

(Judson, 2006; Roehrig et al., 2007). Hermans and his colleagues noted “traditional beliefs had a negative impact on integrated use of computers” (p. 1499).

Researchers investigating teachers’ adoption of technology have described “Pedagogical evolution” (Hennessey et al., 2005, p. 186) as teachers incorporate more technology into their practices. The authors described a “gradual but perceptible shift in subject practice and thinking” (p. 186). Other researchers have reported similar findings (Windschitl & Sahl, 2002; Mills & Tischner, 2003; Levin & Wadmnay, 2005). In a 10-year longitudinal study of the Apple Classrooms of Tomorrow (ACOT) program, teachers’ observations of changes in their students prompted them to reflect on their current beliefs about teaching and learning, which then led to changes in their pedagogical beliefs (Sandholtz & Ringstaff, 1996; Sandholtz, Ringstaff, & Dwyer, 1997). There are also value beliefs. They are the perceived importance of particular goals and choices (Anderson & Maninger, 2007). In other words, teachers’ value beliefs with regards to technology are based on whether or not they think technology can help them achieve the instructional goals they perceive to be most important (Watson, 2006). When a new pedagogical approach or tool is presented, teachers make value judgments about whether that approach or tool is relevant to their goals. The more valuable they judge an approach or tool to be the more likely they are to use it. This is particularly true of technology (Zhao, Pugh, Sheldon, & Byers, 2002).

3. The Process of Forming Teachers’ Beliefs

Teachers’ beliefs are developed in the course of their careers. Teachers’ implicit theories of teaching are the products of teachers’ efforts to make sense of their experiences and to generate a basis for effective action in the classroom. These beliefs are acquired in a “clinically way of looking at the world” which is similar to the methods experienced by medical doctors. Given the unpredictability and uniqueness of classroom events, teachers have to resort to their own beliefs particularly in pedagogical situations when formal knowledge is not available, it is disconnected, or cannot be retrieved (Nespor, 1987). Teachers’ beliefs are shaped by personal experiences (Richardson, 1996). By personal experiences, Richardson (1996) includes aspects of life that go into the formation of world view; intellectual and virtuous dispositions; beliefs about self in relation to others; understandings of the relationship of schooling to society; and other forms of personal, familial, and cultural understandings. Ethnic and socio-economic background, gender, geographic location, and life decisions may all affect an individuals’ beliefs that, in turn, affect learning to teach and teaching” (p. 105). In particular, it seems that culture makes a differential effect on teachers’ beliefs.

The formation of beliefs and teaching practices are affected by other factors (Laurenson, 1995). Laurenson (1995) claims that because of the influence of behaviourism, there has been great pressure on teachers to align to a strict and rigid set of instructional objectives which has restricted teachers’ creativity. Also, administrative constraints like enforcing lesson plans, are accountable for the development of negative beliefs about teaching. Likewise, Laurenson (1995) suggests that teachers sometimes choose easier academic tasks that result in smooth learning environments rather than planning lessons where students are challenged with

difficult work. Laurenson (1995) stated that limited knowledge of the subject matter, such as knowledge of technology, inhibits teachers' ability to organize a lesson effectively. Finally, many teachers come from an education background where the only technology was the blackboard. Although funding, equipment, lack of time, and knowledge are known obstacles to successful technology integration, a critical component in meeting teachers' technology needs is responding to teachers' beliefs toward technologies (Lam, 2000). Teachers' beliefs are essential in considering how a teacher teaches, thinks, and learns. Hope (1997) wrote that teachers basically had to contend with two factors with technology adoption: (a) the psychological effect of change and (b) learning to use computer technology. Understanding teachers' beliefs toward technology plays an essential role in successful technology adoption.

Access to technologies increased teachers' "opportunities for successful teaching experiences, thereby contributing to greater confidence in their instructional ability. They also noted that teachers who interpret their interactions with computers as indicative of high ability grow in self-confidence, regardless of their experience" (Ross, Hogaboam-Gray, & Hannay, 1999, p. 93). Research reveals that before teachers use technology for instruction they must be personally convinced of its benefits and must see the utility of using a particular technology (Lam, 2000). Before technology is used in the classroom, teachers focus attention on their students. They want to know what impact it will have on students' learning outcomes (Higgins & Moseley, 2001). Teachers use technology because it motivates students and offers a different mode of presentation. Instead of using computers for drill and practice, more confident teachers use technology as an instructional tool to enhance students' learning (Lam, 2000). Successful technology adoption in teachers' classrooms is dependent upon school administrators providing an individualized, differentiated process of training and implementation (Gray, 2001).

4. Teachers' Beliefs and Integration of Technology

Some researchers studied the relationship between teachers' beliefs of the use of technology and their actual integration of technology in their classes (Simonsson, 2004; Eugene, 2006). Eugene (2006) investigated how teachers' beliefs may make an impact on the integration of technology in their classes. Thirty-two teachers responded to the questionnaire to measure their beliefs about teaching and technology integration. A classroom observation technique was also used to find out how teachers' beliefs may correlate with their teaching practices and the implementation of technology. It was found that there was a discrepancy between teachers' beliefs and their actual instructional practices of integrating technology. Teachers' teaching practices and the use of technology were found not to match their beliefs. Simonsson (2004) used a questionnaire to investigate the beliefs of 103 teachers toward the utilization of technology when incorporating cultural components of the curriculum. The findings of this study indicated that the utilization of technology is related to teachers' beliefs about the use of this tool and the extent to which other instructors employed technology in their teaching. A marginal result demonstrated that many teachers believed that technology might assist them to incorporate cultural issues to clarify important points.

Teacher beliefs strongly affect technology integration. Teachers' subject specific beliefs (Pajares, 1992), in particular their beliefs about educational technology and technology integration (Ross, Hogaboam-Gray, & Hannay, 1999), are obviously critical. Ross, Hogaboam-Gray and Hannay (1999), for example, in an extensive, two-year study of 263 Canadian teachers, found that teachers' confidence in their ability to use computers was the strongest indicator of technology use at the classroom level. Becker and Riel (1999) stated that the organization of classes by teachers indicates their beliefs about good teaching. Little research has been conducted to investigate how and why teachers use or fail to use technology (Zhao & Cziko, 2001). In the past few years, more researchers have realized the importance of exploring individual classroom teachers' beliefs of technology integration and its influence on their instructional practice (Saye, 1998; Owens et al., 2000; Ravitz, Becker & Wong, 2000; Riel & Becker, 2000). The meaning of technology innovation for individual secondary school teachers and their classrooms was explored by Saye (1998). This longitudinal in-depth study of teachers' dispositions in the classroom suggests that acceptance of instructional technology does not ensure a radical shift in educational practices and there still will be strong resistance to technology use in the classroom. Saye (1998) concluded that teachers' beliefs play the most important role in making decisions about technology use in classrooms. This idea that teachers' deeply held beliefs could facilitate or stand in the way of instructional change is certainly not new. Saye's research contributes to the evidence that teachers' beliefs about instruction and technology are important factors that determine whether or how teachers will use technology.

The overall classroom technology use among teachers is predicted by the combination of the amount of technology training, time spent beyond work week, and openness to change (Vannatta & Fordham, 2004). These researchers determined that a willingness by teachers to commit time above and beyond the call of duty and a risk-taking attitude are important in developing technology-using educators. Learning to use technology as an instructional tool requires willingness to make mistakes and to learn from them. To successfully implement the integration of a new technological tool, consideration of what the implementation will mean to teachers' personal beliefs and values is of great concern. Teachers who want to change are proactive, want to grow, and are reflective. They continually try to do what is best for their students (Wetzel, 2002). In a survey of over 2170 elementary and secondary teachers, Niederhauser and Stoddart's (2001) identified two discrete categories of beliefs about the effective use of computer technology: transmission-oriented, in which computers are used as teaching machines to present information, give reinforcement and track student progress; and constructivist-view, in which computers are used to collect, analyze and present information. It follows that teaching philosophy will be related to whether and how a teacher integrates computer technology.

According to student-centred teaching philosophy, it may take several years of use to integrate computer technology—that is, using the computer as a cognitive tool for knowledge construction rather than to replicate traditional tasks such as word processing, drill and practice, and information searching (Sandholtz et al., 1997; Ertmer, 2005). An inverse relationship between computer integration and beliefs may be true – that is, a teacher's pedagogical philosophy may be altered following the integration of computers. The changing role of the

teacher was identified by Schofield (1997) as a significant social impact of computer integration, along with increased student motivation and increased peer instruction. Following a computer integration intervention, teachers saw themselves as facilitators, interacted with students more, and conducted fewer whole group lessons.

5. Teachers' Beliefs and Computer Knowledge

Teacher knowledge has a significant impact on teachers' decisions. In order to help teachers change their practice, we must help them to expand and elaborate their knowledge systems (Borko & Putnam, 1995). For more than 20 years, teacher knowledge has been conceptualized using the framework proposed by Shulman (1986, 1987). According to Shulman (1986), teacher knowledge includes knowledge of the subject (Content Knowledge, CK), knowledge of teaching methods and classroom management strategies (Pedagogical Knowledge, PK), and knowledge of how to teach specific content to specific learners in specific contexts (Pedagogical Content Knowledge, PCK). Shulman (1987) also described four other categories that comprise the knowledge base of teaching: knowledge of the materials for instruction, including visual materials and media (curricular knowledge); knowledge of the characteristics of the learners, including their subject-related preconceptions (learner knowledge); knowledge of educational contexts, including classrooms, schools, district, and beyond (context knowledge); and knowledge of educational goals and beliefs.

Although media are mentioned in Shulman's definition of curricular knowledge (1986), technology skills and knowledge receive only cursory mention at best. One of the unintended consequences of this definition is that technology has yet to be integrated into the definition of good teaching (Fajet, Bello, Leftwich, Mesler, & Shaver, 2005). In other words, teachers can think they are doing a great job, even if they or their students never use technology. Although this may have been true 20 years ago, this is no longer the case. We need to broaden our conception of good teaching to include the idea that teaching is effective only when combined with relevant computer technology tools and resources. To use technology to facilitate student learning, teachers need additional knowledge and skills that build on, and intersect with, those that Shulman (1986) described. This additional knowledge has been conceptualized in a variety of ways including (Pierson, 2001; technological pedagogical content knowledge, TPACK, AACTE, 2008), pedagogical technology integration content knowledge (Brantley-Dias, Kinuthia, Shoffner, DeCastro, & Rigole, 2007). According to Angeli and Valanides (2009), these models are founded on the common principle that effective technology integration depends on a consideration of the interactions among technology, content, and pedagogy. That is, technology integration requires that pre- and in-service teachers understand: (a) the technology tools themselves, combined with (b) the specific affordances of each tool that, when used to teach content, enable difficult concepts to be learned more readily, thus resulting in the achievement of meaningful student outcomes (Angeli & Valanides, 2009).

Teachers need knowledge of the technology itself. Lawless and Pellegrino assert that "technological literacy has fast become one of the basic skills of teaching" (2007, p. 580). If teachers are going to prepare their students to be technologically capable, they need to have basic technology skills. This expectation is reflected in the NETS-T [teacher] standards (ISTE,

2008), first published in 1998. Since that time, the NETS-T has been adopted by the National Council for the Accreditation of Teacher Education (NCATE), as well as the vast majority of states (ISTE, 2003). Although most teachers graduating today are likely to be “digital natives” (comfortable using a variety of technology tools), the majority of in-service teachers is, or has been, expected to gain these skills through other means (additional courses, workshops, peer collaborations, etc). Knowing how to use technology hardware and software is not enough to enable teachers to use the technology effectively in the classroom. In fact, if this were true, there would be little gap between teachers’ personal and instructional uses of technology. But knowing how to use the tools is only the foundation. Teaching with technology requires teachers to expand their knowledge of pedagogical practices across multiple aspects of the planning, implementation, and evaluation processes. For example, when using technology as an instructional tool teachers must know how to: develop plans for teaching software to students, select appropriate computer applications to meet the instructional needs of the curriculum and the learning needs of their students, and manage computer hardware and software (Coppola, 2004).

According to Hew and Brush (2007), lack of these technology-related management skills can stop technology integration. To use technology to support meaningful student learning, teachers need additional knowledge of the content they are required to teach, the pedagogical methods that facilitate student learning, and the specific ways in which technology can support those methods. For example, as teachers involve their students in more interdisciplinary work their content knowledge needs to grow. Pedagogical knowledge also needs to expand to include ideas about how to “develop students’ abilities to work collaboratively or to take control of their own learning in an ICT-rich environment” (Webb & Cox, 2004, p. 277). Finally, teachers need to understand the relationships between the affordances of a range of ICT resources and the skills, concepts, and processes of a content domain (PCK). Based on their knowledge of both their learners and the subject, teachers need to be able to select the most appropriate computer technology resources to enable their students to meet the required learning goals.

According to Cennamo, Ross, and Ertmer (2010), to achieve technology integration that targets student learning, teachers need knowledge that enables them to:

- Identify which technologies are needed to support specific curricular goals
- Specify how the tools will be used to help students meet and demonstrate those goals
- Enable students to use appropriate technologies in all phases of the learning process including exploration, analysis, and production
- Select and use appropriate technologies to address needs, solve problems, and resolve issues related to their own professional practice and growth (p. 10).

Despite increasing number of technologies and level of technology education provided by teacher education programs, effective and high-level integration of technology into learning and teaching processes is still minority (Cuban, 2001; Ertmer, 2005; Hew & Brush, 2007). One reason for this can be type of technology courses offered to pre-service teachers. Past

research indicated that stand-alone courses solely focusing on technology literacy or awareness (knowledge about how to operate a specific tool or software) were not effective and sufficient. What is required is to offer well-designed and technology-enhanced methods courses emphasizing pedagogical strategies on how to use technology (Hasselbring et al., 2000). In this way, student teachers have the opportunity to observe an instructional model of technology use and understand what the role of technology should be in various teaching and learning contexts. Rizza (2000) concluded that increased exposure to technology activities during undergraduate years improved their competence and comfort levels with computers and reinforced basic computer skills such word processing and webpage construction. Similarly, Karchmer-Klein (2007) found that having student teachers watch and analyze experienced teachers' high-quality technology-supported instructions motivated them to use technology in their own future teachings.

Vannatta and Beyerbach (2000) found that technology integration into educational method courses increased pre-service teachers' technology proficiency. In a recent action research study, Keeler (2008) found that incorporating technology-rich instructional approaches into the social studies method course helped pre-service teachers become familiar with how to utilize technology in educational contexts and made them realize the usefulness and transferability of instructional technology techniques. Research also demonstrated that incorporating technology into method courses and training programs could transform views of technology and epistemological beliefs to constructivist orientations including active learning, problem solving, critical thinking and discovery (Howard, McGee, Schwartz & Purcell, 2000; Vannatta & Beyerbach, 2000).

6. Teachers' Beliefs and Computer Technology Training

If technology is to be integrated into the classroom and play a significant role in educational reform, teachers need to be prepared to use emerging technological devices, including computers, in ways that will facilitate teaching and learning. Despite the numerous plans to use technology in schools, however, teachers--the catalyst for educational reform, have received little training in this area in their teacher education programs (Vrasidas & McIsaac, 2001). Teacher preparation programs need to play a more proactive role in preparing new teachers to teach in technology-rich classrooms where teachers and students have access to computers. According to Gillingham and Topper (1999) teacher education administrators and faculty face the challenge of preparing future teachers for a classroom where technology plays a ubiquitous role. If we are of the opinion that teachers are the primary agents of change, then teacher education programs must be reformed so that prospective teachers can be better prepared to integrate various technologies in their teaching (Vrasidas & McIsaac, 2001). Other scholars interested in integrating technology in teacher preparation programs share this sentiment (Brownell, 1997; Fisher, 1997; Parker, 1997; Schmidt, 1998). Technology should be integrated in teacher preparation programs so that students can see technology in use. This will in turn influence the way they use technology when they become in-field teachers. The task of preparing teachers to use technology in their classroom practices should not be relegated to their post-college experiences, it has to begin with the training they receive in their college experience. Better preparing teachers is not a challenge that begins with teachers already in the

classroom; it begins earlier (The CEO Forum- School Technology and Readiness Report, 1999).

Results of research on the effectiveness of teacher preparation programs in preparing future teachers to integrate technology in their classes paint a bleak picture. The findings indicate that graduates of teacher preparation programs are not prepared to integrate technology in their classes (International Society for Technology in Education (ISTE), 2001; NCATE, 1997). The International Society for Technology in Education (1999) in a report entitled, *Teachers' Tools for the 21st Century: A Report on Teachers' use of Technology* used to conduct a survey with public school teachers to ascertain their use of computers and the Internet. Results from the survey indicate that only 10% of teachers surveyed felt "very-well prepared" to use technology in the classroom; another 23% reported feeling "well-prepared"; about 53% feeling "somewhat prepared" and 13% felt "not at all prepared" to use technology in their classes. This indicates that less than 50% of the teachers surveyed felt "well-prepared" to use computers in their teaching.

In 1999, The Milken Exchange on Education Technology commissioned ISTE to survey teacher preparation institutions to ascertain the status of technology education in teacher training programs across the United States. The report entitled, *Will New Teachers be Prepared to Teach in a Digital Age?* concluded that "teacher-training programs do not provide future teachers with the kinds of experiences necessary to prepare them to use technology effectively in their classrooms" (p.2). Other studies and reports (Fisher, 1997; Howland & Wedman, 2004) corroborate the view that teachers are not being adequately prepared to use technology in the classroom. Willis and Mehlinger (1996) synthesized the literature on technology in teacher education. From the studies reviewed, they concluded that most pre-service teachers know very little about effective use of technology in education teacher education, particularly pre-service, is not preparing educators to work in a technology-enriched classroom. They also found that despite the fact that many pre-service teachers were exposed to instructional technology coursework, it was not linked to pedagogy or their field experiences. As a result, teachers were unable to make the connection between what they had learned in theory and its practical applications in real classroom situations.

There is a relationship between educational reform and technology. It can also be further stated that teacher training is critical; teachers must feel prepared to use technology if they are to use it in their classes with their students. Brownell and Brownell (1991) noted that new teachers, adequately prepared, can act as change agents and accelerate the process of meeting students' needs for the Information Age. The report from the National Council on the Accreditation of Teacher Education (1997) posits a relationship between level of preparedness and technology use. Results of the survey indicate that teachers who felt prepared were more likely to integrate technology in the classroom than those who felt unprepared. Teachers play a significant role in determining whether technology is used and the extent to which technology will result in educational reform. Therefore, it is necessary that teacher education programs adequately prepare new teachers with skills necessary to integrate technology in their classes. Pre-service teachers must be taught with technology as well as exposed to ways in which technology can be

used in their classes if technology is to reform the education process (Brownell, 1997; Fisher, 1997; Parker, 1997; Schmidt, 1998; Pope, Hare & Howard, 2002; Howland & Wedman, 2004).

7. Technology Acceptance Model (TAM)

In 1989, Fred Davis developed the Technology Acceptance Model (TAM) to explain how and when users decide to accept and use a technology. Perceived usefulness (PU) and perceived ease of use (PEU) are key determinants of the Technology Acceptance Model (TAM) that lead to the actual usage of a particular technology or system. Perceived usefulness is defined as the degree to which an individual believes that using a particular system would enhance his or her productivity while perceived ease of use is defined as the degree an individual believes that using a particular system would be free of effort (Davis, 1989). Between the two, perceived ease of use has a direct effect on both perceived usefulness and technology usage (Adams, Nelson & Todd, 1992; Davis, 1989).

TAM theorizes that an individual's behavioural intention to adopt a technological system or innovation is determined by two beliefs, perceived usefulness and perceived ease of use. Davis (1989) has also found that there is a relationship between users' beliefs about a technology's usefulness and the attitude and the intention to use the technology. In addition, an individual may adopt a technology if he or she perceives it as convenient, useful and socially important even though they do not enjoy using the technology. Thus, there might be a possibility of a direct relationship between beliefs and intentions. Furthermore, it is suggested that there are external variables that affect both perceived ease of use and perceived usefulness (Davis et al., 1989).

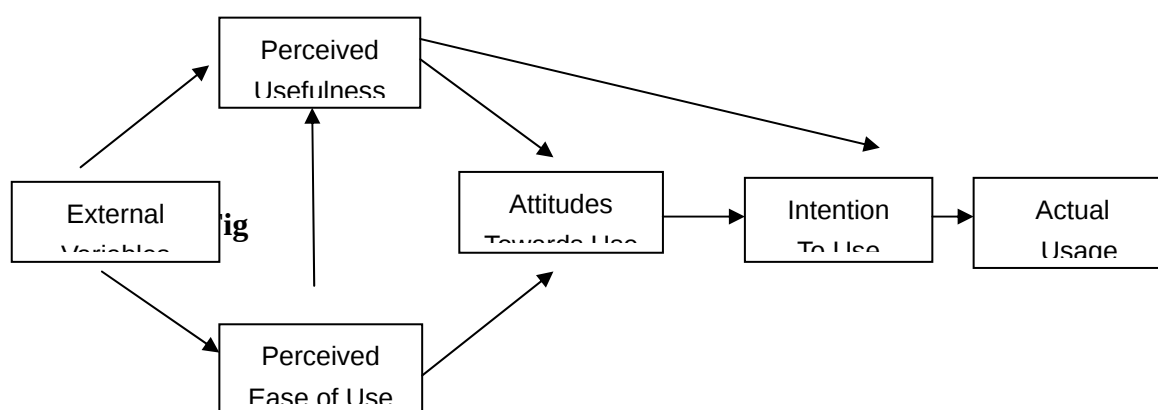


Figure 1. Technology Acceptance Model (TAM)

TAM is based on the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and explains how users' beliefs and attitudes affect their intention to use a specific technological device. TAM explains the interactions among attitudes, beliefs and intention to use technology. The two belief variables refer to perceived usefulness and perceived ease of use (Teo et al., 2009). Perceived usefulness refers to the subjective belief that the use of new technology will improve job performance and productivity.

Perceived ease of use refers to the subjective belief that the use of the new technology does not demand considerable time and effort. Recent studies have shown that the above variables affect users' intention to use and their attitude towards technology use (Cheung & Huang, 2002; Raaij & Schepers, 2008). Attitude has been doubtfully hypothesized to influence the behavioural intention to use the technology and was therefore not considered in later assessments of the model (Venkatesh & Davis, 2000). Although TAM's perceived usefulness concept implicitly includes task, the model has been criticized for the lack of task focus and its application revealed mixed results in information technology evaluations (Dishaw & Strong, 1999). According to the TAM, perceived usefulness and perceived ease of use are beliefs that are presumed to (1) influence attitudes toward new technology and (2) mediate the relationship between external variables and attitude (Davis et al., 1989).

8. Contribution of Computer Technology to English Language Teaching

The current study contributes to the literature about using computer technology and teacher beliefs in a number of ways. Firstly, if we hope to increase teachers' uses of computer technology, particularly uses that increase student learning, we must consider teachers' existing beliefs. Secondly, more insight has been obtained in the complex interplay of teacher variables affecting their adoption and implementation of computer technology use. Thirdly, computer technology policy-makers need to understand that teachers shouldn't be excluded from instructional planning when considering future educational computer technology use. Lastly, considering the impact of the teacher variables on classroom use of computer technology, teacher professional development should be aware of the direct and mediating impact of these variables. Specifically, the important role of teacher's motivation in using computer technology should be recognized.

9. Conclusion

It is important to remember that we do not need to change teachers' beliefs before we introduce them to various computer technology applications. A more effective approach might be to introduce teachers to the types of computer technology uses that can support their most immediate needs. This should increase teachers' confidence for using computer technology so that higher-level uses become more plausible. It is necessary to convince teachers of the usefulness and benefits of these resources in improving teaching and learning. This suggests the need for effective guidance, support and training for teachers in integrating computer technology resources into language instruction through more practical experience. The prominent factors that influence the use of computer technology resources are provision of efficient and effective training support, and more systematic incorporation of technology resources into the curriculum. It is necessary that we increase our understanding of teachers' beliefs as part of our efforts to increase teachers' computer technology skills and uses. This will not only enable teachers to use computers to their full potential but will enable students to reach theirs as well. While introducing computer technology resources to teachers, their beliefs should be emphasized and guidance and assistance should be provided on ways of integrating these resources into instruction. Those who plan to integrate particular technology resources need to provide the rational and grounding for better integration into language

instruction and learning. Teachers need to be provided with explanation, guidance and assistance from trainers and other colleagues, and also the opportunities to reflect and discuss the integration, share outcomes and possible problems with each other. To understand how to achieve better integration, we need to study teachers and what makes them use computers, and we need to study computer technology resources and what makes teachers want to or need to use them.

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