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The Impact of ICT Training Through Wikis on In-Service EFL Teachers[1]: Changes in Beliefs, Attitudes, and Competencies

El impacto en profesores de inglés en formación de la instrucción en TIC a través de Wikis: cambios en las creencias, actitudes y competencias

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The development of information and communication technology (ICT) invites teachers to abandon traditional roles and act more as mentors, exploring the new media themselves as learners and thus acting as role models for their students (Fitzpatrick & Davies, 2003). For turning students into producers of online content and creating a collaborative learning environment, wikis appear to help foreign language teachers to infuse ICT in their classrooms (Kovacic, Bubas & Zlatovic, 2007). Within this context, results from an action research project carried out in four public schools suggest that beliefs, attitudes, and competencies can be impacted positively when working on the use of new technologies with in-service English teachers.

Key words: Attitudes, beliefs, competencies, English language teaching, information communication technology

El desarrollo de las tecnologías de la información y la comunicación (TIC) invita a los profesores a abandonar sus roles tradicionales para actuar más como mentores que exploran los nuevos medios como aprendices y actúan como modelos para sus estudiantes (Fitzpatrick & Davies, 2003). Por volver a los estudiantes productores de contenido en línea y crear ambientes de aprendizaje colaborativos, los wikis parecen ayudar a los profesores de lenguas extranjeras a infundir TIC en sus salones de clase (Kovacic, Bubas & Zlatovic, 2007). En este contexto, los resultados de un proyecto de investigación acción desarrollado en cuatro colegios públicos sugieren que las creencias, actitudes y competencias pueden ser

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impactadas positivamente cuando se trabaja en el uso de nuevas tecnologías con profesores de inglés en ejercicio.

Palabras clave: actitudes, competencias, creencias, enseñanza de lengua inglesa, tecnologías de la información y la comunicación

Introduction

In the field of English language teaching, ICT in general and hypermedia in particular can provide an authentic learning environment where language learners can explore reference materials, participate in discussions, work as teams on different projects, and create multimedia resources (Padurean & Margan, 2009). Within this context, an action research project carried out by a group of university teachers emerged as an opportunity to contribute to the training of in-service English as a Foreign Language (EFL) teachers from public schools in the use of ICT in their classes. This study aimed at identifying the impact that training in new technologies can have on EFL teachers' beliefs, attitudes, and competencies. The following research question guided this inquiry:

What impact can training in ICT have on the beliefs, attitudes and competencies of a group of English teachers from public high schools in Bogota?

Consequently, this study had two objectives:

• Identify the beliefs, attitudes and competencies that this group of EFL teachers have about ICT.
• Determine the impact that training in ICT had on these EFL teachers.

Literature Review

Beliefs, Attitudes, and Competencies

There is no consensus about the concept of belief in current literature, yet several authors have provided definitions that allow for understanding it within the context of this study (Pajares, 1992; Woods, 1996; etc.). Most authors accept the concept of belief that Dilts (1999) favors when he states that beliefs are the judgments and evaluations that people make of themselves, others, and the world surrounding them. According to Hampton (1994), teachers' beliefs or "personal constructs" determine how they approach their teaching and affect the materials and activities they choose for the classroom. Similarly, Golombek (1998) affirms that changes in teachers' beliefs facilitate changes in their teaching practices. In terms of teacher beliefs and ICT, Jimoyiannis and Komis (2007) state that teachers' beliefs about ICT can be *positive*, *neutral,* or *negative*, which impact whether they see technologies as effective

tools for instruction and learning. In a similar vein, Padilla, Páez, and Montoya (2008) find that teachers' beliefs can be classified in three basic groups: *realist* (effective position), *idealist* (utopian position), and *confrontational* (negative position).

Just like beliefs, attitudes do not have a single definition. One of the most significant definitions, however, is the one Coll (1987) presents: A tendency to behave in a consistent and persistent way concerning determined situations, objects, events, or people. With regard to attitudes towards ICT, Watson (1998) maintains that the development of teachers' positive attitudes is a key factor both for enhancing computer integration and avoiding teachers' resistance to computer use. Similarly, Kersaint, Horton, Stohl, and Garofalo (2003) maintain that teachers who have positive attitudes towards technology are more inclined to use it and incorporate it into their teaching. Teachers' attitudes, maintains Sancho (1994), range from *technophilia* to *technophobia*; technophilia refers to a conviction that technologies are a source of solutions for pedagogical problems and technophobia expresses a rejection of technological innovation due to its tendency toward dehumanization. When discussing attitudes about technological innovation, Rude-Parkins, Baugh and Petroako (1993) state that there are three types of teachers: *innovators* (teachers who are determined to assume technology purposefully), *resisters* (teachers who actively question technological changes) and *leaders* (teachers who adopt a reflective position about the pros and cons of technological innovations).

Competency, too, can be a difficult concept to define. However, Pivetta (2010) maintains that it is possible to identify two unifying concepts, already mentioned by Leboyer (2003), in the different definitions. The former relates to the "power to decide about something;" in other words, competency is regarded as a set of actions or decisions that a person can adopt. The latter refers to the fact of "having knowledge." In education, competencies are the continuous and autonomous performances of individuals, requiring cognitive, attitudinal, and procedural knowledge to face and solve concrete situations with the available resources and strategies (Araujo, 2007). When discussing ICT competencies, UNESCO (2008) established three approaches to education: *technology literacy*, *knowledge deepening*, and *knowledge creation*. Each of these approaches entails a set of skills for teachers (see Table 1).

ICT and Education

Toomey (2001) defines ICT as those technologies that are used for accessing, gathering, manipulating and presenting or communicating information. To him, these technologies are characterized by the increasing convergence of computer-based, multimedia and communications tools and the rapid rate of change that distinguishes these tools and their use. Recently, Anderson (2010) states that ICT is an all encompassing term that includes the

Table 1. Approaches to ICT Education (UNESCO, 2008)

Approach	Technology Literacy Approach	Knowledge Deepening Approach	Knowledge Creation Approach
ICT	Teacher competencies related to the technology literacy approach include basic digital literacy skills along with the ability to select and use appropriate off-the-shelf educational tutorials, games, drill-and-practice, and web.	Teacher competencies related to the knowledge deepening approach include the ability to manage information, structure problem tasks, and integrate open-ended software tools and subject-specific applications.	Teachers who show competency with the knowledge creation approach will be able to use ICT to support the development of knowledge creation and critical thinking skills of students and create knowledge communities for students and colleagues.

full range of electronic tools by means of which people gather, record and store information, and by means of which they exchange and distribute information to others.

With regard to education and ICT, Di Benedetto (2005) states that ICT must become an integral part of the general education curriculum so that students are prepared to meet future technology challenges. Other authors have also argued for the importance of ICT in education. Tinio (2003), for instance, states that education needs to turn to ICT in order to increase learner motivation and engagement, facilitate the acquisition of basic skills, and enhance teacher training. Kozma (2005) advocates a range of potential impacts that ICT can have when applied to education. These include (a) student outcomes such as increased knowledge of school subjects, improved attitudes about learning, and the acquisition of new skills needed for a developing economy; (b) teacher and classroom outcomes such as development of teachers' technology skills and knowledge of new pedagogical approaches, as well as improved mastery of content and attitudes toward teaching; and (c) other outcomes such as increased innovativeness in schools and increased access of community members to adult education and literacy.

ICT and English Language Teaching

Not only do English teachers, explain Quin and Shuo (2011), need to possess basic ICT skills in the use of word processors, PowerPoint, Video Editor and access to the Internet, but also they need to be able to develop pedagogical knowledge to efficiently integrate ICT into the English curriculum. To them, the integration of ICT can lead to diversification not only in English content, contexts and pedagogical methods, but also in

teaching environments. This diversification can ultimately help English teaching become more interactive, flexible, and innovative. However, Skourtou and Kourtis-Kazoullis (2002) warn that this improvement will not take place if transformative pedagogy and collaborative critical inquiry are not used to help relate ICT to curriculum content and students' and teachers' experiences. Similarly, Motallebzadeh (2005) points out that the use of ICT requires change in the way teachers think about teaching and their teaching practices. Such a change is not an easy job because as Van de Ven and Poole (as cited in Motallebzadeh, 2005) state, the change is not simply a transition from traditional teaching to teaching with technology, but is a change involving what they call a shift in teaching paradigms: a shift in the way of thinking about teaching.

Wikis[2] and English Language Teaching

For turning students into producers of online content, enabling peer-to-peer learning, and creating a collaborative learning environment (Kovacic *et al.*, 2007), the authors of this study opted to use wikis in the training sessions with in-service EFL teachers as a concrete tool and space to work with new technologies in the foreign language classroom. In the field of English language teaching, several authors have argued for the use of wikis. Leuf and Cunningham (2001) claim that for being fully editable websites that users can visit, read, re-organize, and update, wikis appear to be excellent tools for language teaching and learning. To Lund (2006), the production and appropriation of language in wikis go beyond individualistic and mentalist approaches to language learning since they make possible the development of activities that demand multiple participants, establish collective goals, assist language production, and allow the follow-up of individual contributions through time. For their part, Gimeno and García (2009) state that wikis are closely associated with project-based and problem-based language learning practices where students and teachers alike contribute to the construction of knowledge and the sharing of findings. As a result of the pedagogical value and the teaching potential, researchers opted to work with them.

Method

Action research (AR) guided this study. AR is part of the qualitative approach since it does not manipulate the context to isolate variables and prove cause-effect relations (Johnson, 2005). On the contrary, it seeks the description and comprehension of the situation and the

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2 A wiki is a group of web pages that allows users to add content (files, presentations, audio, videos), similar to a discussion forum or blog, but also permits others to edit the content (Arreguin, 2004). Duffy and Bruns (2006) maintain that what distinguishes wikis from other content management systems is the fact that they can be interconnected and organized as required.

involvement of the participants (McKernan, 1999; Sandín, 2003). From this perspective, the process of AR is regarded as a set of reflexive cycles, which begin with a plan, continue with action, include observation on the action, and demand reflection.

This specific AR study consisted of two cycles. The first cycle consisted of a series of four sessions[3] in which researchers and teachers initially discussed ICT, ICT in education, technophobes and technophilias as well as ICT challenges for education in the 21st century. Subsequently, there were six sessions devoted to learning how to use wikis. This was a rather instrumental stage since teachers were more concerned with understanding the mechanics of wikis than reflecting on their pedagogical use in the classroom. However, remarks were constantly made about their potential uses and impact on the language classroom.

The second cycle consisted of seven sessions in which researchers and teachers moved from practicing with the creation and use of wikis to reflecting on the pedagogical implementation of wikis in the foreign language classroom. The sessions were designed based on principles and guidelines taken from social constructivism, project-based learning, and cooperative language learning. Teachers were given guidelines and examples of how to use wikis in their classrooms. Also, they were encouraged to design their own projects and activities. Unfortunately, due to time constraints, teachers' first actual attempts could not be observed and examined.

Context and Participants

The study was conducted by a group of university professors from the University of La Salle. It had the participation of 20 EFL teachers from 4 public high schools in Bogotá. The schools were located in the Kennedy and Fontibón neighborhoods. These schools have students from the first, second, and third social strata.[4] Their ages range from 10 to 18. Researchers worked with the teachers in charge of English in the morning shift. For this study, variables such as age, sex, academic formation, or professional experience were not considered. Because of time and space constraints, the study employed *a convenience sample*: the selection of the most accessible subjects (Marshall, 1996). See Table 2 about the schools and the teachers who participated.

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3   These sessions were designed following what Gayetzky (2005) calls "total workshops." These workshops consist of group meetings in which people carry out a project and study a specific topic. These meetings combine activities such as group work, general discussions, and exercise development. Among the advantages of these workshops, it is possible to talk about cooperative work, pro-activity, creativity, and reflection.

4   In Colombia, social strata refer to the classification of residential properties created by the government according to factors such as the owners' poverty level, access to public services, and location. Social strata range from 1 (very low) to 6 (high).

Table 2. Schools and Teachers

School	Alfonso López Pumarejo	Costa Rica	Saludcoop Sur	Manuela Ayala
Number of participants	Six	Six	Two	Six
District	Kennedy	Fontibón	Kennedy	Fontibón
Equipment	It has a computer room with 20 computers equipped with basic programs and slow Internet.	It has a computer room with 20 computers and a video beam.	It has a computer room, but the access is restricted.	The school has a computer room without Internet and limited access to teachers.

Data Collection Instruments

First cycle. The instruments used in this cycle were:

Surveys. Based on principles established by Cea D'Ancona (1998) and Burns (1999), the survey was designed with three sections: The first section sought information to identify the participants, the second section gathered the participants' beliefs and attitudes towards the use of new technologies in education using open-ended questions, and the last section sought to determine the level of expertise with ICT through multiple choice questions (see Appendix 1).

Diaries. The use of field journals (Burns, 1999) was suggested for teachers and researchers to "describe" their experiences during their encounters with the groups of teachers in the high schools. Through this instrument, anecdotes, experiences, and reflections were collected as soon as the sessions were over. This information allowed noticing and tracing the beliefs, attitudes, and competences of teachers.

Second cycle. The data collection instruments of this cycle were:

Questionnaires. Questionnaires allow the collection of three types of information (Burns, 2010): factual (background, experiences, etc.), behavioral (actions, routines, etc.), and attitudinal (opinions, interests, values, etc.). In this regard, Wallace (1998) maintains that as introspective techniques, questionnaires let participants report their own perceptions, experiences, and values. The questionnaire had three content blocks with multiple choice statements and rating scales.

Interviews. Interviews can be understood as a conversation with a purpose (Burgess, 1984). To Wolcott (1988), interviews are any activities that a field researcher applies in order to intrude a natural context with the intention of obtaining information directly from the participants. This study employed semi-structured interviews made individually using a guide with the topics and suggested questions (see Appendix 2).

Data Analysis

Miles and Huberman (1994) suggest a basic model to both make sense of the data and to share interpretations with an audience. They define data analysis as consisting of three concurrent flows of activity: *data reduction* (selecting, focusing, simplifying, abstracting, and transforming the data)*, data display* (converting organized information into an immediately available, accessible, compact form so that the analyst can see what is happening), and *conclusion drawing/verification* (deciding what things mean and noting regularities, patterns, and explanations).

The process of data analysis for this study consisted of a mixture of different techniques and coding procedures. On the one hand, the researchers used what several authors called *descriptive research* or *statistics*, which consists of collecting data that describe events to then organize, tabulate, represent, and describe through graphs and tables to facilitate the comprehension of information (Glass & Hopkins, 1984). On the other hand, the researchers used *content analysis*. This method consists of examining social communication artifacts: written documents or transcriptions of recordings. This analysis seeks to make inferences when identifying systematically and objectively the special features of messages (Norton, 2009). This mixture of different techniques and procedures sought to increase the methodological triangulation of the study because, as Freeman (1998) maintains, "triangulation is about what makes something sturdy, able to support its own weight, and therefore dependable" (p. 96).

Findings

First Cycle

In regard to beliefs, the analysis of the surveys showed that initially there was evidence of resistance to working with technology mainly because teachers had poor ICT skills, they did not know how to use new technologies to teach languages, or their schools did not have the necessary resources. At the end of the first cycle, the analysis of the diaries suggested that there was an acceptance of the capacity of ICT to dynamize the teaching practice and to work as a motivating element in students' learning. Teachers appeared to believe they could use new tools such as wikis both to innovate their classes and to meet their students' interests and

needs. Teachers' beliefs, then, seemed to move from a rather technophobic posture, in which technology appears to be strange and difficult, to a technophilic position where the potentials and benefits of technology are acknowledged. Results also suggested a tendency to believe in the importance of appropriate instruction in ICT for teachers and students in order for them to use ICT effectively.

When studying attitudes, it was possible to determine that at first some teachers showed a lack of positive disposition towards receiving training in the educational use of ICT. Also, some teachers displayed fears and unfamiliarity with the actual use of technology in the teaching and learning of foreign languages. These unfavorable attitudes seemed to emerge as Francis-Pelton and Pelton (1996) maintained "Although many teachers believe computers are an important component of a student's education, their lack of knowledge and experience lead to a lack of confidence to attempt to introduce them into their instruction" (p. 1). At the end of the first cycle, the analysis of the diaries suggested that teachers tended to move from negative attitudes to more positive ones since they were more actively involved in the sessions asking questions about how to use the technological resources with educational purposes and helping others figure out how wikis worked. In fact, all the groups asked the researchers to schedule more training, which suggested that their disposition and interest had increased.

Finally, in terms of ICT competencies, surveys showed that teachers, in a rather basic way, could use word processing, internet navigation, emails, file navigation, presentation packages, and spreadsheets. However, they did not know or use databases, curriculum management systems, or educational software. Nor did teachers know how to use web-based resources or tools as part of their classes. These results suggested most teachers' ICT competency was in what Kabakçi (2009) called a "survival stage;" a phase in which teachers still struggle with technology and use it only for direct instruction. At the end of the first cycle, teachers were aware of a variety of specific applications that wikis have to help people access information, collaborate, and carry out projects. Concretely, teachers were able to register at a wiki platform, personalize their wikis, edit and publish new pages, insert files, images and videos, and create hyper links. See general results from the first cycle in Table 3.

In general, the results from the first cycle suggested that if EFL teachers are to use ICT to make teaching flexible, create rich learning environments, try out new teaching methods, support collaborative learning, and motivate students, they do not simply need to receive training in technological and computers skills, but to engage in formative processes where they reflect on how to use new technologies to support meaningful and effective learning environments. In other words, EFL teachers should not only familiarize themselves with ICT, the procedures to use them, but they should be informed about how to use it deliberately and successfully in their language classrooms. In such an endeavor, the transformation of

teachers' beliefs and attitudes through the work on ICT competencies is not only necessary but possible, as several studies have shown (Fullan, 1991; Leung, Watters & Ginns, 2005).

Table 3. Results From the First Cycle

Category	Change	
Beliefs	From a technophobic position, in which technology seems strange and difficult,	to a balanced position, in which difficulties are recognized, but advantages and potential are noticed.
	Most teachers regard ICT as an educational booster capable of dynamizing their teaching and motivating their students.	
	Teachers deem it important that they and students receive adequate preparation in the use of ICT.	
Attitudes	From apathy and a lack of intrinsic motivation	to a more genuine interest in the use of wikis and the Internet in general.
	Most teachers moved from an ambivalent attitude to a favorable attitude reflected in their number of questions, their constant participation, and their autonomous attempts to experiment with the use of ICT.	
Competences	From a rather limited use of ICT	to an initial use of ICT (Wikis)
	Most teachers know how to satisfactorily: 1. Use search engines. 2. Register at Wikispaces©. 3. Create and personalize a wiki. 4. Locate multimedia resources (videos, sound clips, etc.) 5. Insert images and videos in a wiki.	

Second Cycle

Results of the analysis of the data collected after seven sessions devoted to reflecting on the pedagogical implementation of wikis in the foreign language classroom were as follows:

In terms of beliefs, results suggested teachers had what Boza, Tirado, and Guzmán-Franco (2010) called reformist and humanistic beliefs (see Figure 1). Not only did they seem to believe that ICT can help restructure the teaching of English (reformist beliefs) but also

they appeared to believe that ICT could enhance individual growth (humanistic beliefs). These beliefs may have been a result of a change in teachers' perceptions about the importance of knowing and using new technologies in order to face the increasing challenges of the school and the new needs of today's generations. Following Aguaded, Tirado, and Cabero (2008), it is possible to assume that such beliefs could indicate teachers' interest or desire to challenge or alleviate a culture of reproduction and repetition derived from traditional educational models.
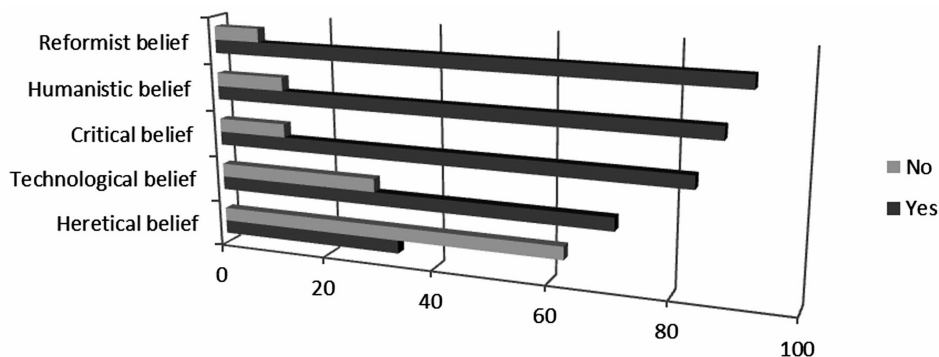
Figure 1. Participants' ICT Beliefs

With regard to attitudes, results seemed to confirm the presence of relatively favorable dispositions towards the use of technology in the language classroom, which appeared to encourage teachers to develop more creative activities. These results appeared to confirm what Álvarez, Cuellar, López, Adrada, Anguiano, Bueno, Comas, and Gómez (2011) found in their study: The perceptions and attitudes that teachers have about new technologies are determining factors when integrating them in the formative processes (Figure 2). Together with "enthusiasm," there was some degree of anxiety related to the use of ICT-based activities and resources. However, instead of being experienced as a negative or harmful factor, results from the second cycle suggested that most teachers lived this apprehension as a *facilitating anxiety*, which consists of a state of alert and eagerness before a challenging activity followed by an effective answer (Sieber, O'Neil, & Tobias, 1977).
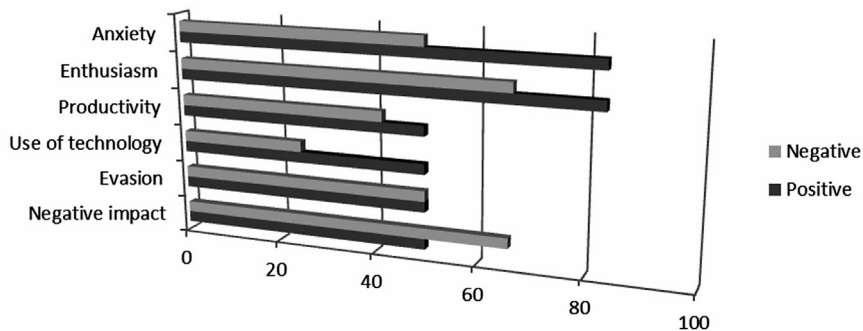
Figure 2. Participants' ICT Attitudes

In terms of ICT competency (Figure 3), results showed that participants' basic competencies increased in terms of the operational system (use of files, folders, basic programs, etc.), e-mail (sending and receiving files, using address books, etc.), and necessary attitudes towards ICT (openness, responsibility and critique towards the contributions of new technologies). More importantly, teachers appeared to be more interested in exploring "new pedagogies" that allowed them to create web-based resources and design online learning environments successfully. These results seem to confirm Toro, Ochoa, Villegas, and Zea's (2004) ideas when they maintain that it is not enough that Colombian teachers have basic ICT competencies such as knowing basic information systems, organizing information through files and folders, surfing and searching the Internet, knowing digital libraries and databases, etc. To them, teachers need to acquire what they call desirable competencies (e.g. creating interactive multimedia concept maps, building personal websites, participating in audio and videoconferences, etc.) in order to become facilitators and guides in new learning environments.

Figure 3. Participants' Basic ICT Competencies

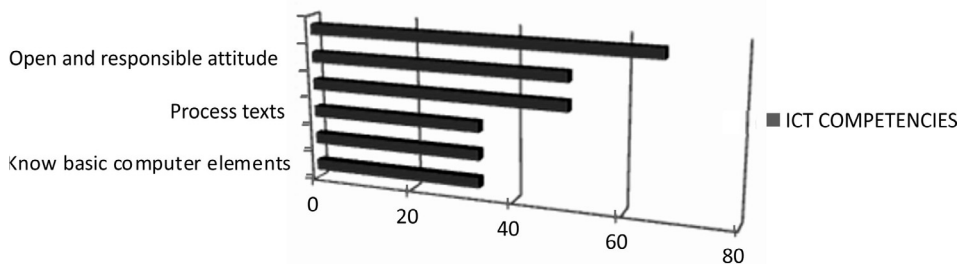In regard to wiki competencies (Figure 4), besides having initial knowledge about the creation of wikis and the use of their basic tools, EFL teachers seemed to regard them as viable options to complement and change some of the traditional teacher-centered activities and resources of the foreign language classroom. This finding seems to confirm one of the good properties that Martínez-Carillo (2007) states language teachers associate wikis with: the diversification of the learning contexts. This diversification can be found in teachers' desire to learn to create well designed and varied wikis.
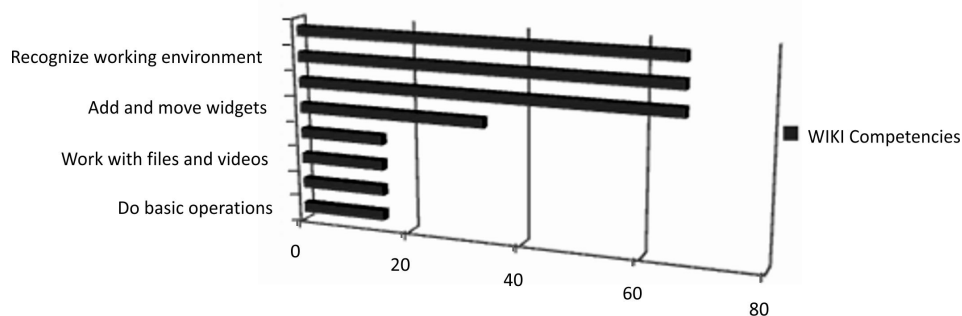
Figure 4. Participants' Wiki Competencies

Finally, the content analysis of the interviews showed that teacher training in new technologies does not only seem to impact positively the development of positive or favorable ICT beliefs, attitudes and competencies, but also it seems to favor the enrichment of the teaching-learning process (see Figure 5). This enrichment seems to result from the fact that training in ICT tends to open up space for the innovation of classroom practices and the deepening of knowledge about technological resources. The results from the analysis of the interviews seem agree with what Solarte, Urbano, and Triviño (2007) found in their study about ICT instruction: Instruction on ICT concepts and procedures cannot simply help teachers learn to read and write with the new language of technologies, but more importantly can encourage them to reflect on the challenges and opportunities that using ICT entails.

Pedagogical Implications

Results from this study seem to suggest that in order to provide in-service EFL teachers with effective training in the integration of ICT in the language classroom, it is important to

Classroom innovation/transformation
Lack of teacher formation (collective)
Anxiety/Apprehension due to ignorance
Lack of equipment or resources
Deviation/Poor use of technology by students

Figure 5. Content Analysis of Interviews

give them opportunities to work with technological spaces such as wikis and to discuss topics such as social constructivism, project-based teaching, and cooperative language teaching (see Appendix 3 for a didactic proposal developed in the study). Such work allows EFL teachers not simply to know about new technologies and their potentials for language teaching, but mor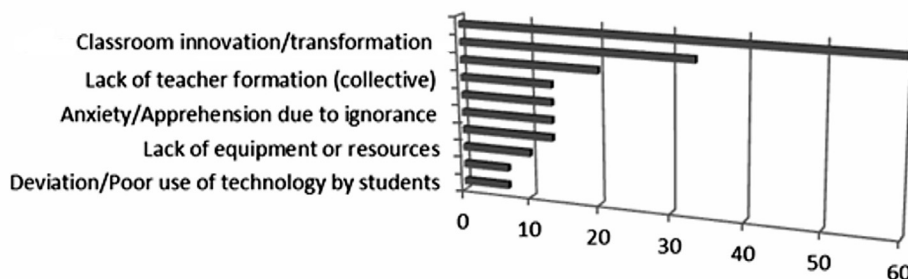e importantly, it seems to encourage them to reflect on what they can do in their classes thanks to the mediation of ICT. Several authors (Jonassen, Peck, & Wilson, 1999; Palloff & Pratt, 1999; Pear & Crone-Todd, 2002) state that working with new technologies can help teachers provide learners with problem-based activities and experiences, which in turn help learners construct meaning and knowledge in ICT contexts. In this regard, Escontrela and Stojanovic (2004) affirm that teachers need to be offered an integral approach to the use of ICT because, more than learning and teaching contents, they need to be instructed on how to design learning environments directed at generating knowledge, solving problems, and transforming reality. Consequently, Motallebzadeh (2005) following Widdowson (1990) states that EFL teachers should not just receive technological instruction, but be given technological education. The former simply regards teachers as technicians in need of standard operating procedures whereas the latter considers them as interpreters capable of making decisions in their English classroom.

Conclusions

The technological advances, it seems, may make the English teaching-learning process more interactive and dynamic thanks to the new resources, environments, and processes that they offer (Angulo & Guatibonza, 2008). These new tools, however, present a challenge to students and teachers, the latter being the first ones in need of acquiring new strategies to make effective use of the dynamics that the Internet, computers, and new technologies offer.

Similarly, Jung (2005) maintains that modern developments of innovative technologies have provided new possibilities to the teaching profession, but at the same time have asked teachers to continuously retrain themselves and acquire new knowledge and skills while maintaining their jobs. As a result, English teachers need to be trained in the pedagogical use of ICT before being able to implement them in the everyday practices and processes of their language classrooms.

Among its findings, this study appears to show how important it is to take into account in-service EFL teachers' beliefs, attitudes and competences when training them on the use of new technologies in their language classrooms. ICT training should, among other things, aim at providing teachers with a structured formation in technology-based activities and environments so that they can abandon traditional roles in order to explore and design new learning environments. This formation can, ultimately, help teachers integrate and use ICT in their classes so that their students are ready for the new requirements of the knowledge society.

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Appendix 1: Survey (Fragment)[5]

La Salle University - School of Education Sciences

BA in Spanish, English, and French

Research project about the integration of education-oriented technologies in foreign languages in Bogota's public schools.

Diagnostic Survey About ICT Knowledge

Objective: This survey aims to inquire about teachers' degree of familiarity with the operation of computers and ICT tools in relation to education. We appreciate your cooperation.

I.Complete the following information:

Teacher's name: _____

Institution where you work: _____

1. Age range:

   ☐ 25 to 35   ☐ 36 to 45   ☐ 46 to 55   ☐ 55 and older

2. Last level of training:

   ☐ Normal school   ☐ University   ☐ Specialization
   ☐ Master's degree

   ☐ Doctorate degree

3. Section you teach:

   ☐ Pre-school   ☐ Elementary   ☐ Junior high school ☐ Senior high school

II. What isyour opinion of the following topics:

4. In regard to technologies and their application, you feel:

   ☐ Intimidated   ☐ Ignorant   ☐ Indifferent   ☐ Familiarized

   ☐ Dependent   ☐ Expert

   Others: _____
   _____

   Why? _____
   _____

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5   The original survey was conducted and analyzed in Spanish.

Appendix 2: Interview (Fragment[6])

La Salle University - School of Education Sciences

BA in Spanish, English, and French

Research project about the integration of education-oriented technologies in foreign languages in Bogota's public schools.

(Beliefs)

1. Do you think that ICT enhance foreign language education? Yes? No? Why?

2. Do you think that the use of ICT in foreign language education encourages participants to think of new ways of teaching and learning? Yes? No? Why?

3. Do you think that ICT tend to democratize education in foreign languages? Yes? No? Why?

4. Do you think ICT in foreign language education have disadvantages? Yes? No? What?

5. Do you think that the use of ICT requires critical positions about language education? Yes? No? What?

   (Attitudes)

6. How do you feel toward the use of ICT? Would you be curious, anxious, fearful, excited, etc.? Why?

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6   The original interview was conducted and analyzed in Spanish.

Appendix 3: ICT integration in the EFL classroom[7]

Propuesta basada en Project-based work and Cooperativa Languaje Learning

Preparación del proyecto
- Valoración/diagnóstico
- Proyección y metas de aprendizaje: comunicativas, TIC, proyecto, etc.
- Planeación de actividades y evaluación

Desarrollo del proyecto
- Aprestamiento competencia TIC
- Pasos y procesos
- Seguimiento: observaciones y asesorías

Conclusión del proyecto
- Socialización del proyecto
- Evaluación del proceso

Nueva preparación
- Nueva valoración/diagnóstico
- Nuevas metas de aprendizaje

Preparación
- Determinar el nivel de lengua y manejo de las TIC de los estudiantes y establecer sus necesidades, intereses y objetivos.
- Considerar recursos físicos y habilidades cognitivas/afectivas/sociales de los estudiantes.
- Instituir un tema y decidir un proyecto relevante para el grupo.
- Determinar los objetivos, tareas y etapas, habilidades cooperativas, tamaño y formación de grupos, materiales, tiempo de observación, evaluación.
- Utilizar estándares básicos y habilidades del siglo XXI que incluyen aprendizaje y motivación, vida y carrera, y medios y tecnología.
- Analizar los productos requeridos en el proyecto para dividirlos en unidades de conocimiento o habilidades concretas.
- Establecer un "cronograma de proyecto" para saber cuándo u qué hacer, lograr y evaluar.

Desarrollo
- Trabajar/desarrollar estrategias de acceso y manejo de la información.
- Presentar/practicar manejo de imágenes, videos, audios, presentaciones, páginas, etc.
- Fomentar hábitos de colaboración y expresión multimedial.
- Analizar los productos requeridos en el proyecto para dividirlos por unidades de conocimiento o habilidades concretas

- Diseñar etapas para la práctica de habilidades cruciales para el proyecto (técnicas de investigación, presentación) o para el aprendizaje de información esencial (vocabulario, contenido, principios básicos).
- Crear un esquema/cronograma para esbozar las etapas y actividades importantes del proyecto.
- Agrupar los estudiantes apropiadamente.
- Monitorear, tomas notas, ofrecer ayuda y retroalimentación.
- Verificar el desarrollo del proyecto de acuerdo con las metas del proyecto.

Conclusión
- Programar una sesión para compartir el resultado del proyecto.
- Establecer requisitos sobre qué y cómo mostrar/explicar el proyecto.
- Revisar los objetivos y etapas del proyecto para recapitular y discutir no solo el contenido sino el proceso y los resultados del proyecto.
- Planear evaluación y reflexión para darle a los estudiantes la oportunidad de discutir y analizar el proceso observado, la interacción del grupo y los resultados.
- Animar a los estudiantes a pensar en lo que han aprendido y en cómo aplicarlo en otros contextos.