Blog-enhanced ICT courses: Examining their effects on prospective teachers' ICT competencies and perceptions

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ABSTRACT

Blogs are used as a technology support tool in teaching–learning processes in contemporary schools, especially in higher education. This paper examines the effects of using blogs on prospective teachers' perceived ICT competencies and perceptions in blog-enhanced ICT courses. Both quantitative and qualitative research approaches were used in the data collection and analysis processes. The findings indicate that most of the participants perceived blogs to be an important tool that changed their ICT perceptions in a positive way and familiarized them with ICT. The participants also perceived the use of blogs as important for the acquisition of ICT competencies.

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1. Introduction

The Internet offers resources for learning anytime/anywhere, which allows extensive flexibility in learning processes. However, face-to-face (F2F) communication is still considered the richest medium because of its potential for intensive interpersonal communication and building social relations. According to the related literature, both approaches have some limitations. Dziuban, Hartman, Juge, Moskal, and Sorg (2006) and Rivera, McAlister, and Rice (2002) examined student satisfaction while using these learning modes (F2F, fully online, and blended), and found that the blended learning model produced the highest satisfaction scores. Many research studies further suggest that blended approaches provide the most powerful learning opportunities for students by combining the benefits of both (Gedik, Kiraz, & Ozden, 2006; Horton, 2000; Osguthorpe & Graham, 2003; Zenger & Uehlein, 2001).

If teachers are going to be prepared for future generations, they need to be trained as confident and competent users of F2F, fully online, and blended learning environments. Researchers have suggested that one of the best ways to accomplish this aim is to encourage teachers to use Information and Communication Technologies (ICT) in different classroom environments (Adelsberger, Collis, & Pawlowski, 2002; Goktas, Yildirim, & Yildirim, 2008). The current belief is that this can only be achieved through appropriate training which provides ICT related courses designed for the individual's competency level. If that criterion is met, then scholars argue that ICT training should enable prospective teachers to more effectively transfer their knowledge, skills, and experiences to their future students (Brush et al., 2001).

Existing studies indicate that traditional methods of teaching ICT, such as lectures, are not an effective way for learners to acquire ICT competencies or to gain more positive ICT perceptions (Goktas et al., 2008; King, 2003; Thompson, Bull, & Willis, 2002). Instead, learners should interact with new information in ways that enable active inquiry to facilitate meaningful learning (Barab & Duffy, 2000; Daugherty, 2005; Jonassen, 2005; Land & Hannafin, 2000; Partlow & Gibbs, 2003). To elaborate, learners should be given opportunities to create their own meaning-making processes in order to construct their own knowledge. As students actively engage with learning activities and contexts, they become capable of moving to higher levels of cognition that involve applying, synthesizing, and evaluating knowledge. This system exemplifies a constructivist learning environment, which includes active learning, authentic instructional tasks, collaboration among students, and diverse and multiple learning formats. The constructivist learning approach views teaching as a process that involves

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helping learners to create knowledge through interactive and authentic learning experiences. The teacher's role is to guide students toward experiences that will facilitate meaningful learning. Any instructional activities in which students merely passively assimilate knowledge are minimized (Barab & Duffy, 2000; Jonassen, 2005; Land & Hannafin, 2000).

A blended learning environment encourages active learning through the use of authentic instructional activities and interactive communities of learners. When educators use blended learning environments, they usually provide an online learning tool. Extensive research indicates that blogs can be used as an online learning tool to provide students with equal access to important information, to expand students' understanding of specific issues, and to direct students to explore additional materials (Cameron & Anderson, 2006; Farmer & Bartlett-Bragg, 2005; Goktas, 2009; Luehmann, 2008; West, Wright, Gabbitas, & Graham, 2006; Williams & Jacobs, 2004). Blogs can encourage engagement in authentic instructional activities and involve interactive communities of learners. Creating and maintaining a weblog using specially designed blogging software is a quick and easy process, and an instructor can use this format to publish course materials and post announcements, presentations, timetables, and other information on the web (Clyde, 2005; Goktas, 2009; Wassell & Crouch, 2008). In fact, the trend of using blogs as an instructional and learning tool is increasing rapidly every day. Extensive research further indicates that well designed blogs provide multiple educational benefits in the context of teaching and learning (Clyde, 2005; Ellison & Wu, 2008; Goktas, 2009; Holzberg, 2003; Wassell & Crouch, 2008). For example, blogs can:

- motivate learners,
- foster collaboration and cooperation among students,
- offer opportunities for group work,
- allow learners to develop and express their ideas,
- invite feedback from others,
- enhance analytical and critical thinking,
- offer authentic tasks,
- enrich the learning environment,
- promote different instructional practices,
- allow students to develop skills expertise,
- encourage learner–learner, learner–content, and learner–instructor interaction, and
- promote the building of scaffolds for higher level thinking and learning.

In addition to the aforementioned benefits, blogging changes the flow and content of courses from a traditional track of learning to a more participatory venue. As a result, students become more active and more responsible for their own work (Ladyshewsky & Gardner, 2008). Their curiosity can be better stimulated, as blogs have been shown to have potential for increasing students' interest and engagement in learning (McPherson, Wang, Hsu, & Tsuei, 2007). They also can be used to suggest applications in classroom practice and to encourage students to actively explore course concepts (Papastergiou, Gerodimos, & Antoniou, 2011).

The basic focus of this study emerged from the consideration that using blogs in ICT courses can enhance students' perceived technological competencies, while promoting their active engagement. While blog use has been shown to be an effective teaching tool in the training of prospective teachers, an uninvestigated question remains as to whether these new teachers will go on to use blogs or other ICT in their own future classrooms. Many prospective teachers are not very familiar or experienced with ICT when they enter universities. Thus, they may lack the confidence or desire to personally employ them, even if they are required to use blogs for a short time in school.

In that context, this study examined the effects of blog use in ICT courses on prospective teachers' perceived ICT competencies and on their perceptions during the learning process. For this purpose, a blog-enhanced learning environment was designed and tested in a set of university ICT courses. The results are hopeful, and can help practitioners in the field to design and implement their own blog-enhanced ICT or related courses. Issues that are critical to students' successful development of ICT competencies and positive perceptions are discussed. The research questions which guided the study are:

1) What are the effects of blogs on prospective teachers' perceptions of ICT?
2) What are the effects of blogs on prospective teachers' perceived ICT competencies?

2. Method

2.1. Overview

This is a descriptive case study, which focuses on two blended ICT courses offered by an instructor and a teaching assistant to prospective teachers in Turkey. Both quantitative and qualitative methods were employed during the data collection and analysis processes to provide triangulation by confirming or complementing each other.

2.2. Participants

Three-hundred thirty nine first-year prospective teachers participated in this study. These participants were selected during three consecutive academic years from three different cohorts of first-year prospective teachers: 125 participants from 2007 to 2008, 112 participants from 2008 to 2009, and 102 participants from 2009 to 2010. All of the participants were prospective teachers enrolled in two semesters of undergraduate ICT courses (Computer I and Computer II) in the Primary Social Science Teacher Training Department at a large Turkish state university. Among these, 116 prospective teachers in the first year, 99 prospective teachers in the second year, and 92 prospective teachers in the third year completed a questionnaire needed for the study. Overall, 193 of the prospective teachers were males,

and 114 were females. Most of the participants (91.8%) reported that this study was their first experience with blogs. Demographic data are provided in Table 1.

2.3. Course content, design, and procedures

Computer I and II courses are offered for prospective teachers in their first year. Each course is a full semester in length and meets for three credit hours per week. The broad learning goals of the courses include understanding and applying basic ICT skills. These Computer I and II courses utilized blogs during the period of this study. A main blog was used to deliver the courses. During the semesters, prospective teachers were expected to follow the course main blog like as a learning management system (LMS) with limited functions. It included goals, content, and schedules of the course, main tasks, assessments, the syllabus, course documents, announcements, external links, videos, a discussion environment, and other supporting materials. The instructor stated the following goals for the Blog-enhanced version of the ICT courses:

- To enable the prospective teachers to gain experience and to achieve the course goals,
- To familiarize the prospective teachers with basic ICT applications,
- To motivate the prospective teachers to participate in the class activities,
- To enhance the prospective teachers' ICT competencies, and
- To help the prospective teachers to understand how to integrate ICT into a learning environment.

The blog-enhanced versions of the ICT courses required learners to take responsibility and control over their own learning experiences. This process was facilitated by instructional activities and assignments designed by the instructor. In the first semester, the prospective teachers were divided into teams to form a collaborative learning environment. For this purpose, each team was assigned a topic, and they were required to create and present a blog by the end of the second semester (see Appendix). As a constructivist effort, the blogs were supposed to involve cooperative and collaborative learning, the use of authentic resources, active applications of researched knowledge, and the construction of a solution to an open-ended problem. Topics were selected from the primary social sciences curriculum and assigned to each team randomly. The prospective teachers had to discuss issues with their teammates via exchanged comments and had to prepare a concluding presentation. They prepared instructional materials related to their topics using MS Word, Excel, and PowerPoint files and presented their files via their blogs. When a team finished their blog, their associated MS Word, Excel, and PowerPoint files were uploaded to their blog. If the prospective teachers experienced problems using the blogs, they were encouraged to post questions on the course Main Blog. They could also ask for assistance from their instructor or from more capable peers during the F2F classes, if necessary.

As seen in Table 2, three tasks were assigned to the participants during weeks 5, 9, and 13 of the first semester as part of their regular class activities. During the second semester, the teams developed a blog about their topics, completed blog-enhanced tasks in weeks 3, 5, 7, 9, 11, and 13, and posted all of their class assignments.

Table 1
Participants' demographics, collected in 2007–2008, 2008–2009, 2009–2010.

	2007–2008		2008–2009		2009–2010		Overall	
	f	%	f	%	f	%	f	%
Gender								
Male	74	63.8	62	62.6	57	62.0	193	62.9
Female	42	36.2	37	37.4	35	38.0	114	37.1
Home computer								
Have home computer	36	31.0	23	23.2	45	48.9	104	33.9
No home computer	80	69.0	76	76.8	47	51.1	203	66.1
Internet access at home								
Yes	29	25.0	17	17.2	25	27.2	71	23.1
No	87	75.0	82	82.8	67	72.8	236	76.9
Previous experience with computer use								
None	50	43.1	57	58.2	34	37.8	141	46.4
2–4 years	47	40.5	31	31.6	40	44.4	118	38.8
5–7	9	7.8	7	7.1	14	15.5	30	9.9
8–10	5	4.3	2	2	1	1.1	8	2.6
More than 10 years	5	4.3	1	1	1	1.1	7	2.3
Frequency of Internet Usage								
Everyday	20	17.2	11	11.1	26	28.3	57	18.6
Often	51	44.0	41	41.4	42	45.7	134	43.6
Once a week	17	14.7	26	26.3	12	13.0	55	17.9
Rarely	28	24.1	21	21.2	12	13.0	61	19.9
Previous experience with blogs								
None	95	81.9	85	85.9	69	75.0	249	81.1
None but I know what they are	9	7.8	8	8.1	13	14.1	30	9.8
I have read a blog at least once	5	4.3	5	5.1	4	4.3	14	4.6
I read blogs regularly	2	1.7	–	–	–	–	2	0.7
I have left at least one blog comment	1	0.9	–	–	–	–	1	0.3
I am a blogger	4	3.4	1	1.0	3	3.3	8	2.6
Personal web page								
Have a personal webpage	5	4.3	5	5.1	1	1.1	11	3.6
Do not have a personal webpage	111	95.7	94	94.9	91	98.9	296	96.4

Table 2
Flow of the course.

Semester and Week	Stages
Semester 1-Week 5	– Blogs were presented and introduced to the prospective teachers. (What is a blog? How can we use them?) – The main blog (course blog) was presented to the prospective teachers. The prospective teachers had not previously taken a blog-enhanced course; this necessitated an introduction on how to use the course blog in the first F2F lecture.
Semester 1-Week 9	– The prospective teachers were divided into teams, and each team had to design and develop an instructional blog about their topics. The topics selected from the primary social sciences curriculum were assigned to each team randomly. – A step-by-step guide was distributed to the prospective teachers about developing a blog.
Semester 1-Week 13	– The prospective teachers discussed in class how they could enhance a blog by posting on the course main blog./A discussion was organized about features of blogs as instructional tools and sample projects./ The prospective teachers were invited to share their ideas and knowledge about their topics through the course main blog and team blogs.
Semester 2-Week 3	– Each team had to add to their blog photographs, videos, graphics, links (to other web sites or blogs), and pictures related to their topic.
Semester 2-Week 5	– Each team had to develop a Word document about their topic and share it on their blog.
Semester 2-Week 7	– Each team had to develop a PowerPoint presentation about their topic and share it on their blog.
Semester 2-Week 9	– Each team had to develop an Excel worksheet about their topic and share it on their blog.
Semester 2-Week 11	– Every team's blog was examined by one faculty member, one K-12 teacher, and five prospective teachers to identify instructional problems within the projects and to make required comments about revisions.
Semester 2-Week 13	– Each blog had to be presented (showcases) to the whole class.

2.4. Data collection

A questionnaire, F2F interviews, and a focus group interview session were used to collect data in order to provide the researchers both rich and in-depth data about the effects of blogs on the prospective teachers' ICT competencies and perceptions. A questionnaire and a semi-structured interview protocol were developed, based on the research questions and a review of related literature (Graham, Cagiltay, Lim, Craner, & Duffy, 2001; Jacovi, Shahar, & Soroka, 2004; Mukawa, 2006; Wassell & Crouch, 2008). The instruments were reviewed by a three-member expert panel and a Turkish linguist, and modified based on their comments. Then, a pilot test was administered with 34 prospective teachers; this had a reliability score of 0.83 (Cronbach's Alpha coefficient). The final version of the questionnaire consisted of 11 items, each answered using a five-point Likert scale ranging from strongly agree to strongly disagree (strongly agree = 5, strongly disagree = 1). Another pilot study was conducted with two prospective teachers to determine whether the interview protocol was acceptable, and if any additional interview questions were needed.

2.5. Data analysis

Quantitative responses were analyzed by organizing, coding, and using the statistical analysis software SPSS 14.0. The data from the three different cohorts were initially combined, and then means, percentages, frequencies, and standard deviations of the questionnaire items were calculated.

The qualitative responses were analyzed by means of transcribed text data reduction, data display, and a conclusion drawing/verification phase, based on content analysis (Miles & Huberman, 1994). Data reduction activities included coding to represent, classify, and organize the data into pre-identified categories and themes (research questions). Data display refers to organizing and compressing information based on patterns and themes so as to permit conclusion drawing. During this phase, data classified within themes was labeled and organized into data display matrices and structured summaries. Conclusion drawing and verification required the researcher to draw meaning from the displayed data. This final phase included noting, comparing, contrasting, clustering, triangulation, and propositions.

3. Findings

3.1. The effects of blogs on prospective teachers' perceptions of ICT

3.1.1. Quantitative results

The major focus of this study was to examine the effects of blogs on the participants' perception of ICT. As indicated in Table 3, the majority of the participants from all of the cohorts expressed positive perceptions about the effects of blogs on their general perceptions of

Table 3
Prospective teachers' perceptions of the effects of blogs on ICT perceptions.

Item number	Statements	% Overall					Means			Overall	
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	2007–2008	2008–2009	2009–2010	M	SD
5	I think blogging increases the quality of my teaching professionally, in relation to ICTs.	1.3	1.0	7.3	35.3	55.1	4.46	4.30	4.50	4.42	0.78
3	I am capable of providing ICTs-based instruction with the help of blogging.	0.7	3.3	7.0	38.9	50.2	4.34	4.27	4.42	4.35	0.80
1	I think blogging (using and preparing blogs) has changed my perceptions towards ICTs in a positive way	1.3	4.6	9.2	35.9	49.0	4.30	4.31	4.18	4.27	0.90
6	I believe blogging enhances/increases my motivation to learn ICTs.	1.3	3.3	11.8	41.8	41.8	4.22	4.15	4.20	4.19	0.87
7	I thought, I can create some things related to ICTs, when I published my blog.	1.3	5.3	12.3	36.8	44.4	4.22	4.12	4.18	4.18	0.93
2	*I think blogging has changed my perception towards ICTs in a negative way.*	*53.1*	*27.2*	*8.2*	*5.9*	*5.6*	*4.07*	*4.22*	*4.23*	*4.16*	*1.15*
4	When I became familiar with blogging, I decided to use ICTs in my future class (es).	2.7	2.3	18.3	35.9	40.9	4.20	3.93	4.15	4.10	0.96
	Overall						4.26	4.19	4.27	4.24	

ICT. The findings show that items 5 ($M = 4.42$) and 3 ($M = 4.35$) were rated as the most influential factors, while items 4 ($M = 4.10$) and 2, a negative triangulation ($M = 4.16$), were rated as the least influential factors.

3.1.2. Qualitative results

During the qualitative phase, the respondents were asked several questions to obtain in-depth data about their experiences using the blog(s). Analysis results of the interview data, in agreement with the results from the questionnaire, indicate that almost all of the participants associated blogging with their positive perceptions of ICT. The majority of the prospective teachers claimed that using blogs enabled them to gain familiarity with computers. The prospective teachers particularly felt that blogging helped them to enhance their self-confidence and self-motivation, and that it also promoted sharing successful ideas and practices. The following quotes were taken from the interview transcripts as illustrative representations of these particular conclusions:

Regarding self-confidence:

"Blogs allow us to gain self-confidence through sharing knowledge with people from all around the world and seeing what we can do with the computers."
"In my opinion, the most important contribution is that, in the past we used to criticize others' sites, but now after setting up our own website, we realized that everything is easy [i.e., they could easily create sites that best suited their own needs] and this increased our self-confidence."
"…the first time we were asked to prepare a blog, I thought it would be very difficult. But as we started to do it, it became easy. It affected my thoughts positively, because I have different ideas about philosophy and sports in my mind, and I'd like to share them. I'll definitely use blogging to post my views about these subjects."
"I would say that 'I have more control over the computer,' after the blog applications we have done this year. Especially, blogs gave me self-confidence over the Internet. While creating a web page was a dream for me, I've formed a blog."
"After creating a blog, people can even think of designing a web page now. So, I've created a blog. I believe that I can also design a web page as an upper-level attempt."

Almost all of the participants stated that blogging offered unlimited opportunities to experiment (on this, and self-confidence):

"The fact that blogs give us limitless opportunity to try enhances our self-confidence. We can also try to develop new things outside the classroom. Frankly, I am more courageous now, as we can correct the mistakes. I think, I can easily correct a mistake I have made; thus I try a lot."
"Getting started with blogs, we hesitated. But we gained confidence as we did it. The blog is a very powerful tool."

The participants stated that using blogs helped the prospective teachers to recognize contemporary technologies and to use them in their lives (on this, and motivation):

"When I first discovered qualities which I had not been aware of before, I wanted to use the computer more. Moreover, when I realized that I could easily do things such as publishing on the web, which I previously believed that I could not do, I developed a great interest in Internet use."
"When we achieve something [with a] computer, it encourages us, and we gain confidence regarding computers."
"To me, most importantly, it was an activity that increases one's enthusiasm to study the lesson harder. And because it improves one's research skills, it motivates someone for the class. Therefore, I would like it to be used in all courses."
"I have a personal computer at home. The computer has an Internet connection, too. However, I had rarely used the Internet before. I was not really interested in the Internet. But, now, immediately after I learn something new, I think of preparing a blog on that new subject and publishing it on the Internet."
"For example, we had created a blog about the topic of our country's resources. Students may learn our country's resources from books, but in the blog, we tried to explain it by enriching the content visually through using maps from some specific web sites and different videos. Students can read books, and something from the book may be retained in their minds, but more long lasting learning can take place via blogs, because it depends more on the visual elements."

On new purpose and the sharing of knowledge:

"Before my blog experience, I was spending too much time playing computer games. However, [now that] I have started using blogs, I do not play computer games as much as before. Even if I play computer games, I have started to develop blogs about these games. I realized how enjoyable it is to share my knowledge with others. This is really satisfying for me."

"I could share the things that I can do with the computer on the Internet. I think this was one of the biggest contributions of the course."

3.2. The effects of blogs on the prospective teachers' perceived ICT competencies

3.2.1. Quantitative results

The second major focus of this study was examining the effects of blogs on the prospective teachers' perceived ICT competencies. As seen in Table 4, the findings show that items 11 ($M = 4.32$) and 9 ($M = 4.30$) were rated as the most influential factors, while items 8 ($M = 3.97$) and 10, a negative triangulation ($M = 4.15$), were rated as the least influential factors in all of the examined years. Based on these results, it can be said that a majority of the participants believed that using blogs is an effective way to acquire ICT competencies.

3.2.2. Qualitative results

The interview responses supported the questionnaire ratings concerning the effects of blogging on the participants' perceived ICT competencies. The qualitative findings revealed four major blog attributes which boosted the participants' confidence that they could attain higher ICT competencies.

- Blogs are free, easy to use, and can be handled with limited technical skills.
- Blogging entices subjects to practice computer skills.
- Blogs help to familiarize prospective teachers with the Internet and computers through a variety of functions and uses.
- Blogs reinforce prospective teachers' memorization of what they learn about computers by encouraging continuous practice, and by focusing attention upon real-world experiences.

The following excerpt was taken from one of the participants' interviews about the contributions of blogs to his perceived ICT competencies:

"The theoretical part of the class was not easy. I dislike anything that is taught theoretically. I think practice sessions are more effective. In these classes, I learned a lot about computer skills while trying to develop a blog. My first blog was not working very well; however, I did not stop. I tried something else, and I asked my instructor and my friends for advice. Then, I developed a much better blog. I believe that if we try to do something, we can achieve it eventually. One of the best ways of improving my own blogs was to watch other bloggers and learn from their suggestions."

"We continuously practiced. We updated the blog every week and frequently added things to the blog, including images, videos, etc. So, by exercising and practicing, we learned it faster, and we have become more expert on the subject."

As in the statement above, many participants emphasized that the blogs encouraged the students to be more active in their educational settings. They argued that using blogs helped them to recall what they saw and heard in their courses, and they also remarked that students could more readily perceive abstract concepts as concrete examples with the help of ICT.

Concerning the effects of blogs on the participants' familiarity with computers and related skills, one student said:

"If you are a blogger, absolutely, you spend more time with computers. By the way, this helps to enhance not only your [positive] perceptions of ICT but also your ICT skills…this [also] allows us to become aware of our ICT skills. Before my blog experience, I was not interested in computers as much as I am now. Once you know about blogs, you feel that you can do anything with computers. You can explore new ideas about blogs and computers, and you become eager to try them. Using blogs regularly, you can absolutely improve your ICT skills."

This perspective was reinforced by several other prospective teachers' comments:

"Technology is like Math; in other words, it is enjoyable when you can do things, and it is boring when you cannot understand…Blogs help you to understand the technology."

Table 4
Prospective teachers' perceptions of the effects of blogs on ICT competencies.

Item number	Statement	% (Whole)					Means			Overall	
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	2007–2008	2008–2009	2009–2010	M	SD
11	I think blogging helped me to improve my knowledge and skills regarding how to use ICTs in my future profession.	0.0	2.2	5.5	39.6	52.7	4.34	4.19	4.43	4.32	0.82
9	I think blogging helped me to improve my general ICTs knowledge and skills.	3.3	1.1	6.6	33.0	56.0	4.28	4.27	4.37	4.30	0.90
10	*I do not think blogging helped me to improve my ICTs knowledge and skills.*	*59.6*	*21.3*	*9.0*	*4.5*	*5.6*	*3.98*	*4.28*	*4.22*	*4.15*	*1.20*
8	I think once I was familiar with blogging, my success in this course increased.	3.3	7.8	11.1	34.4	43.3	3.91	3.96	4.07	3.97	1.11
	Overall						4.12	4.17	4.27	4.18	

"Blogs offer us the thought that we can do something useful with computers. The teachers of the information age should be equipped with ICT skills."

"Frankly, I did not think that I could design a web page. I believed that it is very difficult. After finishing this course, now I think I can even design a web page with a little bit more effort."

"We have learned more information about doing research on the Internet. It was practical for us."

"By preparing blogs, we have learned what we can do with [web pages] and what we can acquire from [them]. We have also learned how easy it is to design a web page; [and] what we can and cannot add to it."

4. Discussion

4.1. The effects of blogs on prospective teachers' perceptions of ICT

The effects of blogs on the prospective teachers' perceptions of ICT were examined. The participants were found to be enthusiastic about blogging, and after they had used them, they were well aware of the opportunities available through blogging. A majority of the participants stated that using blogs was enjoyable. The findings also show that most of the participants perceived that blog use was an important factor in familiarizing them with computers and in changing their negative perceptions of ICT. They became more daring in the expression of their ideas through ICT usage.

Among the most important advantages that the participants pointed out are that blog use enabled the prospective teachers to understand ICT, and to use them in their lives as well as in their careers as teachers (Coutinho, 2007). Additionally, blogging enhanced the participants' self-motivation, which is a necessary driver for learning. Blogs were used in this study as a channel for student self-expression and networking. Fullwood, Sheehan, and Nicholls (2009), who reported similar results in their study, argued that self-expression, networking, and identity management are strong motivators for users. This is also in agreement with the findings of Farmer and Bartlett-Bragg (2005). According to the participants, blogs are a useful and easy tool with which to practice basic ICT skills. This perception can be defined as an indicator of their belief that using a blog will enhance performance, and therefore it is also an indicator of their self-motivation to use ICT.

The blogs in this study allowed the participants to share knowledge and experiences, and to be aware of their peers' opinions. Daugherty (2005) found that "students are motivated when they can create, share, and build upon knowledge and ideas in dialogue with their peers" (p.3). Also, in our observations, blogging helped to enhance the participants' self-confidence. This is considered one of the most influential factors that encourage motivation (Bandura, 1986).

This study further demonstrates that blogs can be a practical learning tool. Using the blogs helped the participants not only to learn how to use ICT more effectively, but also how to design ICT-mediated activities in their field. A previous study (Kerawalla, Minocha, Kirkup, & Conole, 2009) also stated that "the students' experiences of blogging increased their awareness of the technology and their personal explorations enabled them to devise strategies on how they would use blogs in their teaching" (p. 40). Therefore, blogging positively contributed to the development of the prospective teachers' ICT-related vision and to their disposition to use ICT in their future classrooms.

4.2. The effects of blogs on the prospective teachers' perceived ICT competencies

The second point examined in this study was the effects of blog use on prospective teachers' acquisitions of ICT competencies. The findings show that the majority of the participants perceived blog use as important in this respect. Based on the observations and personal experiences of the instructors, using blogs helped the prospective teachers to grow individually and enabled them to become digital citizens.

The main advantage of using a blog is to provide opportunities to apply a particular ICT to enhance the participants' learning. A meaningful context is needed, such as prospective teachers applying an ICT within a learning environment. Ausubel (1962) stated that learning occurs by integrating and assimilating existing and new knowledge in different ways. In agreement with Ausubel, Bruner (1966) claimed that, if students make connections between new and existing information, they can learn and understand new information better. This is similar to the concept of Vygotsky's knowledge construction (1978). In keeping with these ideas, Merrill (2007) identified certain fundamental learning principles, based on his study of numerous instructional design models and theories. These principles are: "(1) activation of prior experience, (2) demonstration of skills, (3) application of skills, and (4) integration of these skills into real world activities." He further suggested that learning is promoted when:

- learners are engaged in solving real-world problems,
- existing knowledge is activated as a foundation for new knowledge,
- new knowledge is demonstrated to the learner,
- new knowledge is applied by the learner, and
- new knowledge is integrated into the learner's world.

This study revealed that the participants perceived blogging as an activity that is aligned with all of the aforementioned factors. In addition, Poling (2005) stated that "blogging as a classroom application allows for enhanced comprehension and communication among students as well as the ability to build deeper understanding across the curriculum" (p. 12). Blogs provide an appropriate learning environment for individuals to construct their own knowledge, a finding that is aligned with the thinking of Ferdig and Trammell (2004). It can also be noted that although blogs did not offer the fullest functions of an LMS, they did create a powerful platform for distributing materials and sharing information.

It is obvious from their responses that nearly all of the participants felt that blogs assisted their personal learning process. In agreement with these findings, Papastergiou et al. (2011) found that blogging activities offer a better connection with the learning goals of ICT courses, including understanding and applying basic ICT skills. In this study, the blogs provided an opportunity for the students to practice their ICT knowledge, as well as a venue for acquiring real pedagogical experience. Designing and developing blogs provided authentic learning opportunities to integrate ICT into field experiences. Therefore, blogs became an important feature of their projects and added another dimension to the prospective teachers' learning in the course. Hopefully, these prospective teachers will be able to integrate ICT into their own classrooms when they begin their careers as teachers (Coutinho, 2007).

This study shows that blogging enabled the participants to gain practical experience while accomplishing their course goals. Many researchers have reported the positive effects of encouraging prospective teachers to use ICT during a practicum (Goktas et al., 2008; Lisowski, Lisowski, & Nicolia, 2006; Ornstein & Lasley, 2004). This study additionally suggests that prospective teachers need to learn not only theoretical concepts but also how to integrate these concepts into practice. The results indicate that blogging can help individuals to apply what they have learned in their own teaching practices. The study finally provides evidence that blogging can be a practical learning tool and very helpful when attempting to understand basic ICT competencies.

5. Conclusion and implications

ICT related courses should be embedded in practice rather than being offered as isolated content, so that prospective teachers can understand the reasons for designing such materials and for using ICT (Goktas et al., 2008; Mishra & Koehler, 2006). Practical experience is needed to develop ICT skills. One clear finding of this study is that blogs provide opportunities for the participants to gain real experience and to practice using them as tools to support a classroom environment. Blogs may also help prospective teachers to integrate ICT into their own classrooms. The overall results indicate that using blogs:

- helped to make prospective teachers' perceptions of ICT more positive, and helped prospective teachers to become familiar with ICT;
- motivated the prospective teachers to participate in their class activities;
- contributed to the development of the prospective teachers' vision and to their disposition to use the ICT, which in turn led to improved knowledge and competencies which may be used in their future classrooms;
- could influence their acquisition of ICT competencies;
- provided opportunities to support ICT courses;
- enabled the prospective teachers to gain experience and practice while accomplishing the goals of the ICT course;
- provided authentic learning opportunities to integrate ICT into field experiences; and
- assisted the participants in their application of what they gained from their own practices.

Appendices

Two screenshots of selected group blogs

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