PROMOTING
EFL PRE-SERVICE TEACHERS' SELF-DIRECTED LEARNING THROUGH ELECTRONIC PORTFOLIOS: A CASE STUDY

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ABSTRACT

PROMOTING
EFL PRE-SERVICE TEACHERS' SELF-DIRECTED LEARNING
THROUGH ELECTRONIC PORTFOLIOS:
A CASE STUDY

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The purpose of this study was to investigate the role of electronic portfolio building in development of self-directed learning by fostering reflective thinking through electronic journals and by compelling individual to take responsibility and control of one's own learning in a practicum course among pre-service teachers from the Department of Foreign Language Education, Middle East Technical University.

A qualitative case study research method was applied to analyze the data gathered from pre- and post-ICT surveys, pre- and post Self-Directed Learning Readiness Scales, interviews, and the electronic journals and artifacts demonstrated in pre-service teachers' web-based electronic portfolios. The data were collected from eight 4^{th} grade undergraduate pre-service teachers enrolled in School Experience course of the English Language Teaching program at METU during 2008-2009 Fall Term.

Electronic portfolios, having the opportunity to provide multimedia displays, allow the pre-service teachers to monitor the outcomes of their learning goals and strategies regularly and by monitoring their studies and reflections they review their own work and have a chance to evaluate their learning and teaching process. Essentially, portfolios transfer the responsibility of learning and decision making to the student with its dynamic process; when students are required to reflect on the information they acquire and on how they acquire this information, they begin to accept their learning practice as a process under their control. This study takes the constructivist stance that using ICTs tools, mainly electronic portfolios in this case, enhances reflective thinking, authentic self-assessment, self-management, and ownership over learning process and facilitates technological competence which all in all foster self-direction in learning.

Keywords: Electronic Portfolios, Reflective Journal, Teacher Education, Pre-Service Teacher

ÖZ

ELEKTRONİK PORTFOLYOLAR İLE YABANCI DİLLER EĞİTİMİ BÖLÜMÜNDEKİ ÖĞRETMEN ADAYLARININ KENDİ KENDİNE ÖĞRENME BECERİLERİNİN DESTEKLENMESİ:
BİR DURUM ÇALIŞMASI

Ayan, Didem
Yüksek Lisans, İngiliz Dili Öğretimi
Tez Danışmanı: Doç. Dr. Gölge Seferoğlu

Ocak 2010, 85 sayfa

Bu çalışmanın amacı elektronik portfolyo çalışmasının ODTU Yabancı Diller Eğitimi Bölümünde uygulama dersi alan öğretmen adaylarının elektronik günlükler yoluyla yansıtıcı düşünmelerini ve kendi öğrenimlerinin sorumluluğunu ve kontrolünü almalarını sağlayarak kendi kendine öğrenmeleri üzerindeki rolünü incelemektir.

Aday öğretmenlerin çalışma öncesi ve sonrası yapılan teknoloji becerileri anketleri ile öz-denetimli öğrenme ölçekleri, mülakatları ve web-tabanlı elektronik portfoyolarında sergilenen elektronik günlükleri ile portfolyo ürünlerinden oluşan verilerin analizleri için nitel durum çalışması metodu uygulanmıştır. Çalışma verileri ODTÜ İngiliz Dili Eğitimi bölümünde kayıtlı 4. Sınıf Okul Deneyimi dersi öğrencisi sekiz aday öğretmenden 2008-2009 eğitim öğretim yılı güz döneminde elde edilmiştir.

Elektronik portfolyolar öğretmen adaylarının öğrenim hedeflerinin ve stratejilerinin sonuçlarını düzenli olarak takip etmelerini sağlar ve öğretmen adayları çalışmalarını ve yansıtıcı günlük yazılarını izleyerek kendi gelişimlerini gözden geçirip öğrenim ve öğretim süreçlerini değerlendirme imkanı elde ederler. Temel olarak, elektronik portfolyolar dinamik bir süreç olmaları sayesinde öğrenim sorumluluğunu ve karar verme yetisini öğrenciye devreder; öğrencilerden edindikleri bilgi ve bu bilgiyi nasıl öğrendikleri üzerinde yansıtma yapmaları beklendiğinde, öğrenim uygulamalarını kendi kontrolleri altındaki bir süreç olarak kabul etmeye başlarlar. Bu oluşturmacı yaklaşımı temel alarak bilgi ve iletişim teknolojisi araçlarının, özellikle de elektronik portfolyaların kullanımının yansıtıcı düşünce, özgün öz-değerlendirme, öz-yönetim, ve öğrenim sürecinin sahiplenmesi becerilerini geliştirdiği ve teknolojik yeterliliklerini arttırdığını, sonuç olarak bu becerilerin kendi kendine öğrenme yetisini geliştirdiğini öngörmektedir.

Anahtar Kelimeler: Elektronik Portfolyo, Yansıtıcı Günlük, Öğretmen Eğitimi, Öğretmen Adayı

To my beloved husband and my parents

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ABBREVIATIONS

EFL	:	English as a Foreign Language
ICT	:	Information and Communication Technology
SDL	:	Self-Directed Learning
SDLR	:	Self-Directed Learning Readiness
SDLRS	:	Self-Directed Learning Readiness Scale

CHAPTER I

INTRODUCTION

1.0. Presentation

This chapter starts with background information to the study in Section 1.1. This is followed in Section 1.2 with the purpose of the study and the research questions. In Section 1.3, overview of the methodology conducted in this study is presented. Section 1.4 presents the significance of the study; followed with the definition of terms in Section 1.5. Finally, Section 1.6 gives a brief summary of the Chapter.

1.1. Background to the study

Information and communication technologies have become a major factor in all phases of our lives. Especially in educational field competency in information and computer technologies (ICT) is a crucial need both for learners and teachers. It is evident that most of the teachers, both experienced and novice are hesitant about integrating ICT into the teaching process due to their technological illiteracy (Moursund & Bielefeldt, 1999; Yıldırım, 2000). Digital age, whilst promoting opportunities for the teaching and learning environment, is still a prejudiced barrier to overcome for many novice and experienced teachers (Hartnell-Young & Morriss, 2007). Teachers' positive attitudes towards computer technology and competency in using the technology have become important factors for the effective use of ICT in teaching practice for educational purposes (Milbrath & Kinzie, 2000). As Vannatta (2000) pointed out, ICT proficiency and integration among education faculty members were limited to basic internet skills like word processing and internet

activities; hence, increased technology proficiency among teachers can lead to a parallel achievement in K-12 educational settings. Once the pre-service teachers feel comfortable in using technology for their learning purposes, they will not hesitate to integrate technology into their educational curricula in their future classrooms. The need for competency in technology, therefore, necessitates related education starting from initial phases of teacher training programs. This is the main factor that prompted this study on the use and impact of electronic portfolios in teacher education programs.

The second factor that contributed to this study has emerged from the literature. Portfolio development has been a question of research in the educational field in recent years. Advocates suggest that portfolio development plays important roles in the representation and development of teacher knowledge (Carney, 2001). According to Courts and McInerney (1993), "Portfolios should help learners become integral and conscious participants in the learning process" (p.85). Many studies emphasize the role of electronic portfolios over traditional paper-based portfolios in authentic self-assessment, critical-thinking and problem-solving skills (Sunal, McCormick, Sunal & Shwery, 2005). As Sunal et al. (2005) states "claims are made that e-portfolios have greater capacity to foster authentic self-assessment because their developers can restructure them relatively quickly and enhance them using technological applications" (p.81). It is also claimed that electronic portfolios have impacts on self-directed learning of preservice teachers. According to Knowles (1975) self-directed learning is "a process in which individuals take the initiative, with or without the help of others, to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes" (p.18. cited in Huang, 2006). Huang in her dissertation (2006) investigates the impact of electronic portfolios on self-directed learning and states that "developing E-portfolios helped the preservice teachers set their goals for learning, review their goals periodically, gain a better understanding of their teaching and learning, and continue their professional growth as teachers" (p.131). Additionally, Stowell, Rios, McDaniel, and Kelley (1993) contend that the portfolio development process represents the growth and provides

the student teachers with a foundation for goal setting, reflection, and introspection. Similarly, According to Sizer (1984) portfolio use has become a medium to trigger students' skills and abilities to reflect, analyze, and develop intellectually. Although research and literature on the use, purposes and benefits of portfolios are voluminous, there is limited literature on the use of electronic portfolios in language teacher education programs and their impact on pre-service teachers' self-directed learning development (Huang, 2006; Kocoglu, 2006; 2008; McKinney, 1998). It is evident that portfolios serve as a medium for the students to document and demonstrate accomplishments to meet a standard, an objective or a goal (Barton & Collins, 1997; Sewell et al., 2005; Shaklee et al., 1997). However, electronic portfolios owe their popularity to offering multimedia features and assessment possibilities that provide authentic assessment and self-evaluation, and allowing knowledge construction; "process portfolios, in particular, are expected to benefit the creator's ability to self-regulate and monitor their own learning, thereby developing their meta-cognitive awareness and abilities and aptitudes for lifelong learning and learning how to learn" (Abrami & Barret, 2005, p. 8). Electronic portfolios, having the opportunity to provide multimedia displays, allow the pre-service teachers to monitor the outcomes of their learning goals and strategies regularly and by monitoring their studies and reflections they review their own work and have a chance to evaluate their learning and teaching process. Essentially, portfolios transfer the responsibility of learning and decision making to the student with its dynamic process; when students are required to reflect on the information they acquire and on how they acquire this information, they begin to accept their learning practice as a process under their control. Responsibility stems from setting learning goals, developing plans to accomplish them, using the information, and verifying accomplishment of these goals (Johnson and Rose, 1997) and "the amount of responsibility the learner accepts for his or her own learning" defines self-directed learning where "the self-directed learner takes control and accepts the freedom to learn what they view as important for themselves" (Fisher, King, & Tague, 2001, p. 516).

Statement of Purpose

The purpose of this study is to analyze the role of electronic portfolio building in development of self-regulated learning by fostering reflective thinking through electronic journals and by compelling the individual to take responsibility of one's own learning in a practicum course among the pre-service teachers from Middle East Technical University Department of English Language Teaching. The research utilizes a qualitative research methodology as a case study which seeks to answer the following main and secondary research questions:

1. In what ways does the process of electronic portfolio development in a practicum course contribute to pre-service teachers' self-directed learning?
   a. What is the role of reflective journal writing in developing self-directed learning?
   b. What is the role of promoting technology skills through electronic portfolios in developing self-directed learning?
   c. How do an electronic portfolio as an online tool and its artifacts affect self-directed learning?

1.2. Overview of Methodology

In order to address the questions which this study strives to answer, a qualitative research method was employed. A case study method was adopted to gather in-depth data. The researcher identified the case of this study as the role of electronic portfolio building in development of self-regulated learning by fostering reflective thinking through electronic journals and by compelling the individual to take responsibility of one's own learning in a practicum course among the pre-service teachers. The study was conducted with eight pre-service teachers enrolled in a practicum course in the undergraduate program of English Language Teaching in the Department of Foreign Language Education at Middle East Technical University (METU), Turkey. The data for the research study were collected from pre- and post-ICT surveys, pre- and post-

self-directed learning readiness scales, interviews, archived records of pre-service teachers' electronic journals and artifacts demonstrated in pre-service teachers' web-based electronic portfolios. Triangulation of data is achieved by collecting data from various sources in order to ensure the trustworthiness and credibility of the research findings.

The electronic portfolios were created on a web-based user-friendly tool "Wordpress" by the participants. The participants were informed with a presentation by the researcher about the definitions, purposes, a short review of literature of the electronic portfolios and creation of their e-portfolios on the first three weeks of the School Experience Course. The participants started to write entries in their e-portfolios as soon as they started their observations at their schools. The portfolios were aimed to have 6 main sections, namely, autobiography, teaching philosophy, reflections on the articles covered in the lessons, reflections on the school observations (electronic journals), lesson plans, and instructional technologies. The participants were asked to write their observations for each week they visited their schools, however they were neither forced to write entries nor checked by their instructor. During the process the electronic journals were regularly checked by the researcher to see the pre-service teachers participation, and at the end of the study the journals were analyzed using Hatton and Smith's (1994) framework of reflectivity to see the progress of the participants' reflectivity level through the e-portfolio development process which was assumed to contribute to the self-directed learning of pre-service teachers. Similarly, since another important feature of e-portfolios that contributed to self-directed learning according to the related literature was taking responsibility of one's own work (Brockett & Hiemstra, 1991; Guglielmino, 1977; Hiemstra, 1994; Merriam, 2001; Song & Hill, 2007; Fisher et al., 2001), the artifacts from the e-portfolios of the pre-service teachers were examined by the researcher to see whether the participants owned their e-portfolios and developed their artifacts accordingly and regularly.

The ICT competency and attitudes survey was adapted from the UBC Scale of ICT Literacy in Teacher Education (UBC ICT LITE Scale) designed by the Faculty

Technology Committee of University of British Columbia (Guo, 2006). After pilot studies and revisions, it was administered to pre-service teachers before they started their e-portfolios at the beginning of the term and the same survey was given once more after they finished the process of developing their e-portfolios at the end of the term to examine the change in their ICT competencies and attitudes towards the use of technology in education with the help of e-portfolio building. The survey composed of 3 sections; demographics, ICT competency and attitudes towards ICT.
The instrument to measure the self-directed learning readiness level of the pre-service teachers was adopted from a scale developed for the nursing educators (Fisher et al., 2001). The Scale consisted of 40 items covering the sub-themes of self management (n = 13), the desire for learning (n = 12) and the self control (n = 15). The pre-scale was administered with the volunteer pre-service teachers before they started their e-portfolios. After they completed their e-portfolios at the end of the term, the same scale was given to the participants as a post-test to see whether there were any changes in pre-service teachers' level of self-directed learning in accordance with the development of e-portfolios. The scales were analyzed qualitatively and in light of the affirmation by Fisher et al. (2001) as "given that the total scores for this sample were normally distributed, it can be concluded that a total score greater than 150 indicates readiness for SDL" (p. 520) the scores of the pre and post-scales were computed and compared to get an insight for the qualitative analysis.

At the end of the study eight participants were interviewed concerning their e-portfolio development process. The interview questions were based on (a) attitudes and perspectives about electronic portfolios, (b) self-directed learning and e-portfolios (c) reflective journals (d) information technologies and (e) their future plans. The data gathered from interviews were examined and interpreted to justify the results collected from ICT surveys, SDLR scales, electronic journals and artifacts from the e-portfolios.

1.3. Significance of the Study

Portfolios are one of the most widely used assessment tools to evaluate the teacher candidates' performance on their school experiences. Similarly, preservice teachers enrolled in the Department of Foreign Language Education at Middle East Technical University are assigned to prepare paper-based portfolios as a partial fulfillment of their school experience course on their 7th semester to demonstrate evidences on their observations and studies throughout this course. Since the context of this research, namely the school experience course for the pre-service teachers, is already familiar with the portfolio development process in terms a formative assessment with paper-based portfolios prepared by the pre-service teachers at the end of the term, the researcher predicted that development of an electronic portfolio instead of the existing paper-based portfolio requirement will lead to a positive impact on students' self-directed learning development. Paper-based portfolios are assessed as the product for learning; whereas an electronic portfolio demonstrates both product and the process of the learning. As Sandholtz, Ringstaff, and Dwyer (1997) state, "Technology is a catalyst for change in classroom processes because it provides a distinct departure, a change in context that suggests alternative ways of operating. Technology can drive a shift from a traditional instructional approach toward a more eclectic set of learning activities that include knowledge-building situations for students" (as quoted in Dimock and Boethel, 1999, p. 20). This study recognizes the notion that information and communication technologies are crucial to teacher education for both learning and teaching; and takes the constructivist stance that using ICTs tools, mainly electronic portfolios in this case, enhances reflective thinking, authentic self-assessment, self-management, ownership over learning process, and empowerment and facilitates technological competence which all in all foster self-direction in learning. In addition, there is little research evidence to show the impact of electronic portfolios on self-directed learning in an educational context, thus this study is an attempt to contribute to the literature with its results concerning the potential of electronic portfolios in educational contexts and effects of electronic portfolios on self-directed learning. The results of this study can also be beneficial

for teacher education programs to consider the potential and efficiency of electronic portfolios as assessment or professional development tools.

1.4. Definition of Terms

Pre-service teacher: A pre-service teacher, in this study, is a student who is enrolled in a teacher education program at Middle East Technical University.

Practicum: All types of observations, teaching experiences, and early field works like student teaching and/ or internship experiences completed after the course work in relation to the a pre-service teacher education program (Zeichner, 1992).

Portfolio: A personalized and purposeful collection of work demonstrating the student's progress, accomplishments and professional experiences of over time.

Electronic portfolio (e-portfolio): Collection and organization of portfolio artifacts in multimedia displays in an electronic form. In this study e-portfolio refers to a design that enhances reflective thinking, authentic self-assessment, self-management, ownership over learning process, and empowerment and facilitates technological competence which all in all fosters self-direction in learning.

Self-directed learning: Knowles (1975) defines self-directed learning as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes" (p. 18). Self-directed learning is taking the responsibility of one's own learning to make decisions about the goals and effort, and reflect on his/ her accomplishments of those goals.

Self-directed learning readiness: Self-directed learning readiness is defined by Wiley (1983) as "the degree the individual possesses the attitudes, abilities and personality characteristics necessary for self-directed learning" (p. 182).

ICT (Information and communication technologies): Various types of technological tools and resources used to communicate, and to create, spread, store, and/ or manage information such as computers, the internet, broadcast technologies, etc.

Reflection: John Dewey (1933) describes reflection as ‘‘active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends’’ (p. 118). However, this study embraces the definition by Hatton and Smith (1995) as reflection is a “deliberate thinking about action with a view to improvement” (p. 39).

1.5. Summary

Technology is one of the most important tools contributing to the expectations and needs of teaching and learning environments. As new skills and knowledge are needed for educational reforms, technology plays an significant role in meeting the need for creating new methods of teaching, learning and/ or assessment. Portfolios have been recognized as an effective form of authentic assessment since the late 1980s (Barton & Collins, 1997; Sewell et al., 2005). They serve as a medium for the students to demonstrate their competencies and accomplishments (Barton & Collins, 1997; Sewell et al., 2005, Shaklee et al., 1997). According to Bartell, Kaye and Morin (1998) learning and teaching portfolios promote students’ reflection skills and the ownership of the learning process, emphasize empowerment and self-assessment, and used for exploring, extending, showcasing and reflecting on personal learning, thus contribute to the professional development. This study recognizes the notion that information and communication technologies are crucial to teacher education for both learning and teaching; and takes the constructivist stance that using ICTs tools, mainly electronic portfolios in this case, enhances reflective thinking, authentic self-assessment, self-management, ownership over learning process, and empowerment and facilitates technological competence which all in all foster self-direction in learning. The purpose of this study is to analyze the role of electronic portfolio

building in development of self-regulated learning by fostering reflective thinking through electronic journals and by compelling the individual to take responsibility of one's own learning in a practicum course among the pre-service teachers.

CHAPTER II

REVIEW OF LITERATURE

2.0. Presentation

This chapter presents the review of related literature for the conducted study. The chapter deals with three main topics; portfolio development in teacher education, reflective thinking, and self-directed learning.

2.1. Portfolio Development in Teacher Education

Information and communications technologies (ICT) have become a major factor in all phases of our lives. Teachers' attitudes towards technology and competency in using the technology are important factors for the efficient use of ICTs in K-12 classrooms (Milbrath & Kinzie, 2000). It is evident that most of the teachers, approach to integrating ICT into the teaching process hesitatingly due to their technological illiteracy (Moursund & Bielefeldt, 1999; Yıldırım, 2000). Sime and Priestly (2005) assert that "Positive attitudes to the role of ICT in teaching are crucial in influencing teachers' decisions to use technologies in their teaching" (p. 140).

Merrill et. al (1996) state that "instruction is a science and that instructional design is a technology founded in this science… a technology for the development of learning experiences and environments which promote the acquisition of specific knowledge and skill by students" (pp. 5-6).

In the last two decades, scholars and researchers have become interested in the role of portfolios in educational settings (Barton & Collins, 1993; Carroll, Potthoff &

Huber, 1996). According to Courts and McInerney (1993), "Portfolios should help learners become integral and conscious participants in the learning process" (p. 85). The best kinds of portfolios include both the documentation of teaching, and the documentation of student learning (Shulman, 1998). Sunal et al. (2005) defines a portfolio as a collection of student work exhibiting the student's efforts, progress and achievements, consisting of artifacts, evidence and reflections documenting the developer's knowledge and competencies in teaching. Wolf and Dietz (1998) have identified three types of portfolios emerged in practice, the learning portfolio, the assessment portfolio, and the employment portfolio. Learning portfolios are personal collections of teaching evidences which promote reflection and ownership over the learning process. Assessment portfolios are selective collections of teaching evidences collected as stated by an educational organization to provide information about the teacher's competencies. Employment portfolios are collections of information selected to be presented to prospective employers for a teaching position.

Barton and Collins (1993) summarized the benefits of using portfolios in teacher education as follows:

- Empowerment: the shift of ownership of learning from faculty to learner
- Collaboration: the ability to allow learners to engage in ongoing discussions about content with both peers and teachers
- Integration: the ability to make connections between theory and practice
- Explicitness: the learner's focus on the specificity of purpose for the portfolio
- Authenticity: direct link between artifacts included and classroom practice
- Critical thinking: provided by the opportunity to reflect on change and growth over a period of time.

(as cited in Kocoglu, 2008, p. 78)

Portfolios shift the responsibility and ownership of learning to the learner and encourage students to reflect on their own learning (Krause, 1996; Stone, 1998). The portfolio writing process can "promote ownership of the learning process, foster

reflection, enhance teaching, and provide concrete evidence of achievement" (Johnson, Kaplan, & Marsh, 1996, para. 50). Similarly, Fingeret (1993) asserts that self-assessment through portfolios enables students to reflect on their learning and the way of learning. Lyons (1999) pointed out that the process of portfolio development facilitates preservice teachers' articulation of their teaching philosophy and Wade and Yarbrough (1996) also asserted the role of portfolios in promoting a reflective stance for the pre-service teachers to engage in and allow them to reevaluate their experiences by "revisiting and revising their ideas over time" and using those insights in their future careers (p. 64). Mansvelder-Longayroux, Beijaard and Verloop (2007) claim; "Reflection in the portfolio is not only a response to a particular problem or a particular issue of teaching practice; it is also concerned with linking different experiences over time" (p. 50).

Electronic Portfolios

Electronic Portfolios provide the developers with the opportunity to demonstrate various learning styles through a variety of tools the program allows. These sources include power point presentation, sounds, images, photos, videos, etc., creating opportunities for learning and the articulation of that learning (Hartnell-Young and Morris, 1999). In addition, Mullen et al. (2005) pointed out that the interactive and sometimes online characteristics of electronic portfolios have the potential to bring a depth and richness to students' work. Woodward and Nanlohy (2004) note that electronic portfolios when compared with paper based portfolio ''provide the audience with greater insight regarding the achievement and successes of the author due to the variety of data sources that could be included'' (p. 229).

The use of electronic portfolios has become popular in teacher education programs. The electronic portfolio allows learners to express their work and take ownership over their own ability to plan and assess and reflect upon their learning. While many teacher education programs have used electronic portfolios as an assessment tool, others use electronic portfolios to develop teacher candidate's reflective skills and improve technology skills. E-portfolios give users a sense of ownership, facilitate

reflecting thinking, support collaboration, enhance authentic self-assessment, supply easy access of artifacts, and provide opportunities to review and improve their studies (Song, Scordias, Huang, & Hoagland, 2004, p. 2943). These features of electronic portfolios allow teachers to reflect more on their own work and thus engage in on-going professional development. With the on-going nature of the E-portfolio, students have the chance of developing and reviewing their portfolio artifacts whenever and wherever they can. Additionally Georgi and Crowe (1998) state that such problems as storage, maintenance, and transportation can be solved through the use of electronic portfolios.

Electronic portfolios help students take their own responsibilities, enhance learner autonomy and reflective thinking, foster ownership, and contribute to self-directed learning as a consequence (Brockett & Hiemstra, 1991; Fisher et al., 2001; Guglielmino, 1977; Hiemstra, 1994; Merriam, 2001; Sizer, 1984; Song & Hill, 2007; Stowel et al., 1993). Taking responsibility of their own learning help students to promote self-directed learning skills which will lead to a life-long learning as independent learners (Kriewaldt, 2001).

2.2. Reflective Thinking

Reflective thinking has been viewed as one of the most important components of teaching practice in educational literature. With the introduction of the concept of 'reflection' by Dewey, the educators and scholars made efforts to redefine, review, repeat or extend the definition of reflection after Dewey. The definition of the term has been a controversial issue since then. Dewey (1983) defined the term reflection as "an active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds supporting it and future conclusions, to which it tend" (p.43). Schön (1983, 1987) extended the definition by Dewey and bounded reflection with action and claimed that the teacher could achieve professional development through continuous reflection and interaction with students. He described the occurrence of reflection in two time frames: "reflection-on-action" and

"reflection-in-action" Reflection-in-action refers to the instantaneous reflection and action of the teacher during teaching, including a level of critical reflection. The teacher is so competent that she/ he can consciously consider the action she takes and modify her doing. Reflection-on-action takes place before and after the action demanding a think back process of the teacher; evaluating and reflecting on what has happened after the lesson. It engages reflection on an incidence, action or a person, which is examined after the event from different perspectives. Dewey (1983) described the attributes that contribute to the development of reflection as open-mindedness; recognizing other points of view, responsibility; considering the consequences of actions, and whole-heartedness; analysis of beliefs with the aim of learning something new. Valli (1997), following Dewey, described reflective teachers as practitioners who "can look back on events, make judgments about them, and alter their teaching behaviors in light of craft, research, and ethnical knowledge" (p.70). Hatton and Smith (1995) also contributed to the literature with a definition of reflection and described reflection as a "deliberate thinking about action with a view to improvement" (34).

Amid all these definitions there was a need to put the theory into the practice. As Gelter (2003) stated reflections is not spontaneous, but a conscious activity to be learnt. Similarly Taggart and Wilson (2005) claimed that in order to make logical decisions on educational issues reflective thinking links theory and practice. Thus, though the conceptualization by Dewey and Schön has been highly common and acknowledged among scholars and practitioners; scholars and researchers extended the debate of defining the term towards maintaining frameworks for the levels of reflectivity to link the theory with the practice. For this purpose Van Manen's (1977) framework defined three levels of reflection; technical rationality, practical reflection and critical reflection. Technical rationality refers to "application of educational knowledge and of basic curriculum principles for the purpose of attaining a given end", the second level practical reflection involves making practical choices by taking the quality and nature of the educational experiences into account. The third level critical reflection involves moral and ethical criteria. Similarly Valli (1997) proposed a five-level hierarchical framework that involved the stages of technical

reflection, reflection-in and on-action, deliberative reflection personal reflection and as the highest level critical reflection. Wallace (1991) presented a three-level model for reflective practice that links theory and practice and supports teacher development. The three stages of his model included pre-training stage, the stage of professional training and the professional competence stage.

Ho and Richards (1993) conducted a study with 10 teachers in Hong Kong to investigate whether journal writing enhanced reflective thinking. They offered a five-level framework of types of reflectivity based on topics to evaluate the reflective journals.; theories of teaching; approaches and methods used in the class; evaluating teaching; teachers' self-awareness of their teaching; and the last category included questions about teaching and asking for advice. Of varying tools or techniques employed by the researchers and educators to foster critical reflection, journal writing has been known as the most common and effective practice.

Another remarking study conducted to investigate the level of reflectivity was that of Hatton and Smith's (1994). In their study they investigated the levels of reflection in writing tasks. The study was conducted with teacher education students. After analyzing the written data, Hatton and Smith identified four types of writing: (1) descriptive writing, (2) descriptive reflection, (3) dialogic reflection and (4) critical reflection (1995). Descriptive writing is defined as the description of the events, incidences or literature in declarative sentences without the purpose of giving a reason or a justification. However, in the descriptive reflection the writer presents the reason or the justification of his/ her narrative following the declarative sentences. Dialogic reflection is defined as a 'stepping back' and evaluating or criticizing the events through a discourse with self "using qualities of judgment" and alternative suggestions. Critical reflection, finally, is the awareness of the social, historical or political context of the events and/ or actions and influence of these contexts (Hatton & Smith, 1995, p. 48).

Since portfolios were claimed to facilitate the involvement of the students in the evaluation of their own learning (Fenwick & Parsons, 1999), the use of portfolios in promoting reflective thinking has also been the focus of the research studies in teacher education. Research has demonstrated that the use of portfolios trigger reflection on one's own performance and makes it a habitual action after the initial experience (Grant & Huebner, 1998). Similarly Sunal (2007) stated that "claims are made that e-portfolios have greater capacity to foster authentic self-assessment because their developers can restructure them using relatively quickly and enhance them using technological applications. Portfolios help students review and modify their studies by triggering reflective thinking. According to Foote and Vermette (2001) this reflectivity makes portfolios a life-long learning tool which enhances professional development rather than acting as a simplified collection of selected works.

2.3. Self-Directed Learning

Literature on self-directed learning listed some attributes that contribute to self-directed learning as self-management, (Candy, 1991, Garrison ,1997) motivation, (Corno, 1992; Garrison, 1997) learner control (Candy, 1991), collaboration (Guthrie, Alao & Rinehart, 1997; Temple & Rodero, 1995), and taking responsibility of one's own learning (Merriam, 2001). Cafarella (1993) defines the aspects of self-directed learning that differ from other types of learning as; self-directed learners set their learning goals, determine the ways to accomplish these goals, decide on the evidence of these accomplishments and evaluate them. Thus, self-directed learners are the reflective practitioners, managers and owners of their learning process by taking responsibility of their own learning. Self-directed learning is an important aspect of adult education. It is both a goal of adult education and the process that leads to successful learning (Merriam, 2001). According to Merriam (2001), SDL has three goals: (a) learners taking the responsibility for their own learning; (b) the promotion of emancipatory learning and social action; and (c) the fostering of transformational learning.

Knowles (1975) defined self-directed learning as "a process in which individuals take the initiative, with or without the help of others, to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes" (p. 18). Self-directed learning views learners as responsible owners and managers of their own learning process, integrating self-management with self-monitoring (Bolhuis, 1996; Garrison, 1997). Self-directed learning takes place either inside or outside the formal learning settings and requires the learner to take responsibility for establishing his or her own learning objectives, strategies, resources and evaluation (Merriam & Cafferella, 1991). According to the literature self-directed learners demonstrate a greater awareness of their responsibility in making their learning meaningful and monitoring themselves (Garrison, 1997). They are curious and willing to try new things (Lyman, 1997), view problems as challenges, desire change, and enjoy learning (Taylor, 1995). Taylor (1995) also found them to be motivated and persistent, independent, self-disciplined, self-confident and goal-oriented. Self-directedness is not a state of manner, it is an acquired skill; taking responsibility of their own learning help students to promote self-directed learning skills which will lead to a life-long learning as independent learners (Kriewaldt, 2001).

Several studies focused on the assessment of self-directed learning (Fisher et al. 2001; Guglielmino, 1977) The Self-Directed Learning Readiness Scale by Guglielmino (1977) is the most common and well-known scale to be used in educational contexts. Guglielmino suggested that there are eight aspects of self-directed learning which are

- Self-concept as an effective learner,
- Openness to learning opportunities,
- Initiative and independence in learning,
- Acceptance of responsibility for one's own learning,
- Love of learning,
- Creativity,

- Ability to use basic study skills and problem solving skills,
- Positive orientation to the future

(as cited in Huang, 2006, pp. 78-79)

However, some studies revealed that there were doubts concerning the validity and reliability of Guglielmino's SDLRS (Field 1989, 1991; Straka 1995, Straka & Hinz 1996). Another instrument developed to assess self-directed learning readiness level is the scale that was developed for nursing education by Fisher et al (2001). This scale suggests three categories as the aspects of self-directed learning; self-control, desire to learn and self-management.

There are two main categories of research on self-directed learning (Merriam & Caffarella, 1991). The first type of research views self-directed learning as a form of study. This research includes the verification studies of Tough (1971). Tough discovered that 68% of the learning projects were planned by the learners themselves, 12% consulted a group, 8% consulted an individual, and 3% of the learners consulted another learning source. The second type of research focused on the personal characteristics of the self-directed learner. Hiemstra (1994) in her study articulated the attributes that self-directed learning should include as following;

- Individual learners can become empowered to take increasingly more responsibility for various decisions
- Self-direction is best viewed as a continuum or characteristic that exists to some degree in every person and learning situation
- Self-directed learning does not necessarily mean all learning will take place in isolation from others
- Self-directed learners appear able to transfer learning, in terms of both knowledge and study skill, from one situation to another
- Self-directed study can involve various activities and resources, such as self-guided reading, participation in study groups, internships, electronic dialogues, and reflective writing activities

- Effective roles for teachers in self-directed learning are possible, such as dialogue with learners, securing resources, evaluating outcomes, and promoting critical thinking
- Some educational institutions are finding ways to support self-directed study through open-learning programs, individualized study options, non-traditional course offerings, and other innovative programs. (para.3)

2.4. Summary

This chapter presented the review on the literature. The literature review was given in three main titles; portfolio development in teacher education, reflective thinking and self-directed learning.

CHAPTER III

METHOD

3.0. Presentation

This chapter presents the methodology and procedures employed in the study. In Section 3.1 some general considerations about the research methodology are given. Following this, Section 3.2 focuses on the research design; the research questions are reviewed and general description of the context and participants is presented. Section 3.3 describes the data collection procedures and instruments used in the study. In Section 3.4 data analysis procedures are presented. The chapter concludes with a summary in Section 3.5.

3.1. Research Methodology

Qualitative Case Study Research:

Case study research is the most common research method employed by researchers in educational field. Case studies are generally qualitative and interpretive and contextual forms of research (Van Lier, 2005). The unit of analysis is a significant factor in the case study. Rather than an individual or a group, it is a system of action (Tellis, 1997). Stake (1995) defines case study as "both a process of inquiry about the case and product of that inquiring" whereas Yin (1989) emphasizes case studies' features of real-life context, blurred boundaries and "multiple sources of evidence". He also contends that case study is "the preferred strategy when 'how' and 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some-real life contexts" (Yin, 1995). Case studies can comprise single or multiple cases, employing an

embedded design with multiple levels of analysis within a single study (Yin, 1989). Case studies usually use blended data collection methods of interviews, questionnaires, archives and observations. The data may be qualitative or quantitative or a mixed method can be employed.

The researcher in this study takes the qualitative case study research as the research methodology since the study explains an educational phenomenon in detailed description in a real-life context with multiple sources of data. A case is the unit of an analysis. The researcher identified the case of this study as the role of electronic portfolio building in development of self-regulated learning by fostering reflective thinking through electronic journals and by compelling the individual to take responsibility of one's own learning in a practicum course among the pre-service teachers.

3.2. Research Design

Research Questions:

This study aims to answer the following research questions;

1. In what ways does the process of electronic portfolio development in a practicum course contribute to pre-service teachers' self-directed learning?
   a. What is the role of reflective journal writing in developing self-directed learning?
   b. What is the role of promoting technology skills through electronic portfolios in developing self-directed learning?
   c. How do an electronic portfolio as an online tool and its artifacts affect self-directed learning?

Research Context:

The study was conducted in a practicum course, School Experience, in the undergraduate program of English Language Teaching in the Department of Foreign Language Education at Middle East Technical University (METU), Turkey. The

department offers theoretical courses like methodology and linguistics for the first three years of the program, and for the last two semesters, besides theoretical courses the students have two practice courses; school experience and practice teaching. This study was conducted with the pre-service teachers who are enrolled in school experience course in their 7th semester. The aim of the course is to prepare pre-service teachers for the future teaching practice. They have 1 hour of on-campus theoretical lesson with their instructors and 3 hours of field visit to a primary or secondary school they are assigned by the department. Pre-service teachers are asked to fulfill observation and application tasks in a primary or secondary school that they will be scheduled under the supervision of a cooperating teacher. They are also required to do a microteaching in their assigned schools. At the end of the course they are expected to prepare a student file (a paper-based portfolio) to present their artifacts, that is the observation reports, completed tasks, lesson plans, teaching materials, etc. Therefore, the context of the program and the course is suitable for the purpose this study as the study seeks to investigate the impact of electronic portfolios on pre-service teachers' self-directed learning skills.

Participants:

The study was conducted with 8 pre-service teachers (7 females and 1 male) enrolled in School Experience course (FLE 417) in the English Language Teaching program of the Department of Foreign Language Education at METU in Ankara/ Turkey at 2008-2009 Fall term. The selection of the participants can be described as a convenience sampling, since at the beginning of the study 21 pre-service teachers were volunteered to participate in the study; whereas, the data could be collected from 8 participants with whom the study was furthered. The participants were assigned to visit a primary or a secondary school that was scheduled for them by the department. They were required to observe the class they were attending and fulfill the observation reports and tasks they were given by their instructor and present a microteaching to be observed and evaluated by their mentor teacher and their instructor. They visited these schools for 3 hours a week, and had a seminar at their faculty with their instructor 1 hour a week. They prepared their electronic portfolios

as a partial requirement of their course as an alternative to preparing a project or a student file.

3.3. Data Collection Procedures

For this case study data was derived from (a) electronic portfolios (electronic journals and artifacts) (b) ICT competency and attitudes towards ICT surveys, (c) Self-directed Learning Readiness Scales, and (d) interviews.

Electronic Portfolios

Prior to the study the researcher had a meeting with the cooperating instructor of the 3 sections of School Experience course and they determined to assign e-portfolios as a requirement of the course, but with alternative options of preparing a project, an e-portfolio or a student file. The researcher attended 3 sections of School Experience course being taught by the same cooperating instructor and explained the scope and purpose of her study with a brief instruction about paper-based and electronic portfolios. 21 pre-service teachers volunteered for the study and signed the consent form. The following week the researcher gave explanations and instructions related to the development of the e-portfolios using a well-known and user-friendly web 2.0. tool "Wordpress" to the pre-service teachers in 3 sections. "Wordpress" was decided to be used as the service provider due to its availability for serving privacy options for the users; moreover, it was free and the detailed instructions of use were available on the site for the new-users. The researcher helped the pre-service teachers open their accounts and guided them throughout the study by either face-to-face meetings or e-mails. The portfolios were determined to have 6 main sections, namely, autobiography, teaching philosophy, reflections on the articles covered in the lessons, reflections on the school observations (electronic journals), lesson plans, and instructional technologies by the instructor of the course and the researcher. The participants were asked to write their weekly observations on their school experiences to their electronic journals to foster reflectivity; however they were neither forced to write entries nor checked by their instructor regularly, the journals

were not covered in the seminars as well. The researcher checked the electronic journals regularly to record the pre-service teachers' participation and archived them. The journals were analyzed using Hatton and Smith's (1994) framework of reflectivity to see the progress of the participants' reflectivity level through the e-portfolio development process which was assumed to contribute to the self-directed learning of pre-service teachers. Similarly, since another important feature of e-portfolios that contributed to self-directed learning according to the related literature was taking responsibility of one's own work (Brockett & Hiemstra, 1991; Fisher et al., 2001; Guglielmino, 1977; Hiemstra, 1994; Merriam, 2001; Song & Hill, 2007), the artifacts from the e-portfolios of the pre-service teachers were examined by the researcher to see whether the participants owned their e-portfolios and developed their artifacts accordingly and regularly. The screenshots of the pages were archived in chronological order. The artifacts were the evidence for pre-service teachers' regular engagements in their portfolios as a proof of self-directed learning.

ICT Competency and Attitudes toward ICT Survey

The ICT competency and attitudes survey was adapted from University of British Columbia (UBC) Scale of ICT Literacy in Teacher Education (UBC ICT LITE Scale) which was designed by the Faculty Technology Committee of University of British Columbia to "evaluate pre-service teachers' competencies, knowledge and dispositions related to ICT" (Guo, 2006, p. 90). In the original instrument there were four sections; demographics, ICT competencies, frequency of use of ICT, and the pre-service teachers' attitudes toward ICT. For this study the UBC ICT LITE Scale was adapted and piloted to investigate the change in the volunteered pre-service teachers' competencies and attitudes toward ICT technologies before and after electronic portfolio development process. Since the number of the participants in this study was limited to have a quantitative analysis, the Scale was adapted and conducted as a survey and analyzed with a qualitative approach. The adapted instrument to be used in this study contained 51 items and 3 sections in total; 13 items for demographic information, 23 items dealing with ICT competencies with ranging from "None" to "High" degree, and 15 5-point Likert type items for attitudes toward ICT in education. To establish face validity two faculty from Department of

Foreign Language Education were consulted to examine the survey. As the consensus was reached on the design of the survey, the instrument was piloted to ensure the readability of the items and directions, and to compute the value of Cronbach's Alpha for reliability.

The instrument was first conducted as a pilot study with 18 graduate students and 30 undergraduate pre-service teachers enrolled in three sections of School Experience course in the English Language Teaching program, Department of Foreign Language Education, METU. The survey composed of 3 sections; demographics, ICT competency and attitudes towards ICT. The students were asked to answer the questions and comment on the questions, wording and the organization of the instrument. After the pilot study the findings showed that competency part had a reliability over 0,85 however the attitudes part (with reversed items) had a lower reliability of approximately 0,60. According to the comments of the students both ICT competency and attitudes towards ICT sections were revised and some new items were added about internet activities. The revised survey (see Appendix B) was sent via e-mail to 21 students who volunteered for the study before they started writing their portfolios. However only 15 of the students sent the instrument back; 14 females and 1 male. For the ICT competency section the 4–point Likert-type scale was coded as 1=None, 2=Low, 3=Medium, 4=High. The ICT competency section consisted of 23 items with a reliability of 0,890 (see Table 3.1).

Table 3.1. Reliability Statistics of ICT Competency Section

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,890	,862	23

For the attitudes toward ICT section, 5-point Likert-type scale was coded as 0=don't know, 1=strongly disagree, 2=disagree, 3= agree, 4=strongly agree. There were 5 reversed items; item 40, 44, 48, 50 and 51. These items were reversed coded; 0=don't

know, 1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree. The attitudes toward ICT section consisted of 15 items with a reliability of 0,713 (see Table 3.2).

Table 3.2. Reliability Statistics of Attitudes toward ICT Section

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,713	,840	15

The ICT competencies and attitudes survey was administered to the pre-service teachers as pre- and post-tests; before and after they completed their e-portfolios, to analyze the change in competencies and attitudes of the pre-service teachers in relation with the e-portfolio development process.

Self-directed Learning Readiness Scale:

Though the most common instrument to be used to measure the level of self-directed learning readiness in educational field was Guglielmino's (1977) Self-directed Learning Scale (SDLRS), there were doubts concerning the validity and reliability of this instrument according to some researchers (Field 1989, 1991; Straka 1995, Straka & Hinz 1996). Hence, this study made use of another widely used instrument; the SDLRS which was designed for the nursing educators and used both in educational and nursing education fields (Fisher, et al., 2001). As mentioned by Fisher et al. (2001) for the development of the research scale, at the first stage the item bank was analyzed for the content validity by an expert panel with Reactive Delphi Technique to gain consensus with at least 80% agreement (see Table 3.3), and then the questionnaire was administered with a convenience sample of 201 nursing students.

Table 3.3 Summarized results of Delphi rounds (Taken from Fisher et al., 2001, p. 519)

Round	Total items	Items deleted	≥80% agreement	Unsure but retained for following stage
1	93	18	58	17
2	75	23	45	7

For the data analysis, first item–total correlation coefficients were conducted to test item unidimensionality, then for the reliability estimation a principal components analysis was performed on the remaining 42 items (Table 3.4) and Cronbach's coefficient alpha was computed for the internal consistency of each component. In the rotated factor analysis two items (I need to be in control of what I learn; and I often review the way nursing practices are conducted) were found to load on none of the components using a cutoff loading of 0.30, thus these two items were dropped from the scale. According to results of the data analysis the computed values of Cronbach's coefficient alpha for the total scale (n=40) and three components were found as 0.924, 0.857, 0.847 and 0.830. The initial questionnaire which was subjected to Delphi technique panel included items related to nursing context; however, since the final version of the scale did not contain items on nursing practices or profession, the scale was announced to have potential to be used in other contexts of student populations. (Fisher, et al., 2001).

Table 3.4. Rotated Factor Matrix (Taken from Fisher et al., 2001, p. 523)

Item	Factor 1	Factor 2	Factor 3
I manage my time well	.**758**	.019	.182
I am self disciplined	.**701**	.217	113
I am organized	.**694**	.093	.179
I set strict time frames	.**615**	.175	.158
I have good management skills	.**606**	.053	.230
I am methodical	.**597**	.189	304
I am systematic in my learning	.**573**	.156	.118
I set specific times for my study	.**514**	.177	.223
I solve problems using a plan	.**510**	.278	–.135
I prioritize my work	.**487**	.095	.022
I can be trusted to pursue my own learning	.**423**	.209	.322
I prefer to plan my own learning	.**363**	.051	.195
I am confident in my ability to search out information	.**315**	.207	.223
I want to learn new information	.172	.**845**	.007
I enjoy learning new information	.194	.**830**	–.002
I have a need to learn	.338	.**745**	– .046
I enjoy a challenge	.157	.**690**	.180
I enjoy studying	.339	.**611**	–.083

I critically evaluate new ideas	.204	**.465**	.224
I like to gather the facts before I make a decision	.282	**.438**	.225
I like to evaluate what I do	.334	**.419**	.367
I am open to new ideas	–.023	**.404**	.176
I learn from my mistakes	.067	**.403**	.299
I need to know why	–.055	**.384**	.304
When presented with a problem I cannot resolve, I will ask for assistance	.152	**.308**	.220
I often review the way nursing practices are conducted	**– .012**	**.295**	**.285**
I need to be in control of what I learn	**.183**	**.267**	**.260**
I prefer to set my own goals	.103	.067	**.681**
I like to make decisions for myself	– .037	.027	**.600**
I am responsible for my own decisions/actions	–.042	.335	**.527**
I am in control of my life	.232	–.107	**.474**
I have high personal standards	.231	.209	**.473**
I prefer to set my own learning goals	.263	.128	**.452**
I evaluate my own performance	.433	.219	**.447**
I am logical	.417	.102	**.443**
I am responsible	.360	.052	**.439**
I have high personal expectations	.218	.339	**.434**
I am able to focus on a problem	.228	.102	**.412**
I am aware of my own limitations	.149	.245	**.408**
I can find out information for myself	.216	.044	**.381**
I have high beliefs in my abilities	.215	.239	**.380**
I prefer to set my own criteria on which to evaluate my performance	.295	.236	**.362**

In this study the instrument to measure the self-directed learning readiness level of the pre-service teachers was adopted from this SDLR scale developed for the nursing educators (Fisher et al., 2001). The Scale was a 40 item Likert-type scale for measuring the pre-service teachers' level of self-directed learning ranked on five-point scale from "1" to "5" in three domains of self management (n = 13), the desire for learning (n = 12) and the self control (n = 15). The pre-scale was administered with the volunteered pre-service teachers before they started their e-portfolios. After they completed their e-portfolios at the end of the term, the same scale was given to the participants as a post-test to see whether there were any changes in pre-service

teachers' level of self-directed learning in accordance with the development of e-portfolios.

Interviews

Patton (1990, as cited in Kay, 2005) clarifies three types of interviews; informal conversational interview, general interview guide approach, and standardized open-ended interview. The first type, informal conversational interviews are unstructured, conversational interviews for which the researcher designs different questions for each participant who can be interviewed on different occasions with an open-ended time limit. In the general interview guide approach, interview questions are designed in advance to be conducted to all participants; however the order and the phrasing of the questions may differ from one respondent to the other. The standardized open-ended interviews are the most structured of all types which requires the same questions for all respondents with the exact order and wording (Kay, 2005). This study employed the general interview guide approach since it provides the researcher with flexibility to some extent and practicality in compiling the data. As Kvale asserts (1996) the qualitative research interview should be "neither strictly structured with standardized questions, nor entirely non-directive" (pp. 30-31). The interview questions were designed by the researcher based on the needs of the study and the related literature. For the validity of the interview, the questions were piloted by the researcher in advance with 5 pre-service teachers enrolled in School Experience course, but from different sections. The questions were revised using the feedback from the pilot study.

The volunteered pre-service teachers were interviewed by the researcher related to their electronic portfolio development process at the end of the term. The researcher examined eight participants' e-portfolios and prepared interview questions according to the need of the study, the data gathered from the e-portfolios and related literature review. The interview questions (see Appendix A) included 5 sections; (a) attitudes and perspectives about electronic portfolios, (b) self-directed learning and e-portfolios (c) reflective journals (d) information technologies and (e) their future plans. The interviews were audio-taped with the consent of the participants. The data

gathered from interviews were examined and interpreted to justify the results collected from ICT surveys, SDLR scales, electronic journals and artifacts from the e-portfolios.

3.4. Data Analysis Procedures

This section will focus on the analysis procedures of the gathered data from electronic portfolio artifacts, electronic journals, ICT competency and attitudes toward ICT surveys, Self-directed Learning Readiness Scales and interviews in respect to the main and secondary research questions.

In order to answer the main research question of this study "In what ways does the process of electronic portfolio development in a practicum course contribute to pre-service teachers' self-directed learning?" the data collected from the instruments were analyzed in accordance with the secondary research questions under the main research question.

To answer the first secondary research question "What is the role of reflective journal writing in developing self-directed learning?", the electronic journals of the pre-service teachers in their electronic portfolios were analyzed using Hatton & Smith's (1995) framework of types of reflections to see the reflectivity level of pre-service teachers' writings and the interviews were interpreted to support and justify the results of the analysis. Hiemstra (1994) contends in her study that self-directed study can comprise a variety of activities like self-guided reading, involvement in study groups, internships, electronic dialogues, and reflective writing activities. The portfolio writing process can "promote ownership of the learning process, foster reflection, enhance teaching, and provide concrete evidence of achievement" (Johnson, Kaplan, & Marsh, 1996). Similarly, Fingeret (1993) asserts that self-assessment through portfolios enables students to reflect on their learning and the way of learning. Accordingly, the pre-service teachers' reflections on their observations and experiences in their practice teaching are of key importance to the

development of reflective thinking which consequently enables e-portfolio development to play a role in self-directed learning.

Hatton and Smith (1995) introduce 4 types of reflection in their framework; descriptive writing, descriptive reflection, dialogic reflection and critical reflection. Descriptive writing is defined as the description of the events, incidences or literature in declarative sentences without the purpose of giving a reason or a justification. However, in the descriptive reflection the writer presents the reason or the justification of his/ her narrative following the declarative sentences. Dialogic reflection is defined as a 'stepping back' and evaluating or criticizing the events through a discourse with self "using qualities of judgment" and alternative suggestions. Critical reflection, finally, is the awareness of the social, historical or political context of the events and/ or actions and influence of these contexts. (Hatton & Smith, 1995, p. 48)

The electronic journals of the pre-service teachers were analyzed using the following codes based on the types of reflection presented in Hatton and Smith's (1995) framework; descriptive writing= (1), descriptive reflection= (2), dialogic reflection= (3), critical reflection= (4). The frequencies of these codes were computed to see how reflective the pre-service teachers were in their journals (see Appendix D). The journals were analyzed by two raters in order to provide inter-rater reliability. The two raters had a consensus on the analysis of the journals by the present framework. The reflectivity levels based on weekly values were, then, compared to the change in the computed values in pre-service teachers' SDLR scales to see what kind of a relation there is between the changes in reflectivity levels and self-directed learning levels. Additionally, participants' responses to the interview questions related to the sections (b) self-directed learning and e-portfolios and (c) reflective journals were examined and interpreted in order to support and justify the results obtained from analyses of electronic journals and SDLR scales.

In order to answer the second sub-question "What is the role of promoting technology skills through electronic portfolios in developing self-directed learning?",

pre- and post ICT Competency and Attitudes Toward ICT surveys were examined. The survey was composed of three sections; demographic information, ICT competencies, and attitudes toward ICT. The answers of the pre-service teachers to the ICT competencies section of the survey were coded as "None"= (1), "Low"= (2), "Medium"= (3), "High"= (4) and (0) for the questions which were left blank. The answers to the Attitudes toward ICT section of the survey were coded as "Don't know"= (0), "Strongly disagree"= (1), "Disagree"= (2), "Agree"= (3), and "Strongly agree"= (4). There were 5 negatively stated items (40, 44, 48, 50, 51) in this section which were reverse coded as "Don't know"= (0), "Strongly disagree"= (4), "Disagree"= (3), "Agree"= (2), and "Strongly agree"= (1). In order to see the change in competencies and attitudes of the pre-service teachers before and after the e-portfolio development process the survey was conducted both at the beginning and at the end of the term and the answers to the both pre- and post surveys were listed, examined and interpreted. Since the number of the participants was not appropriate for a quantitative analysis compared to the number of the questions in the survey, a statistical analysis could not be employed. For the justification of the analysis, the interview questions related to the information technologies were examined and interpreted accordingly.

To answer the third sub-question "How do an electronic portfolio as an online tool and its artifacts affect self-directed learning?", the answers of the pre-service teachers to the questions in pre- and post-Self-directed Learning Readiness Scales were analyzed and in light of the affirmation by Fisher et al. (2001) as "given that the total scores for this sample were normally distributed, it can be concluded that a total score greater than 150 indicates readiness for SDL" (p. 520) the scores of the pre and post-scales were computed and compared to get an insight for the analysis. The students were asked to describe themselves by indicating the extent to which the item was descriptive of their own characteristics. Each item was assessed using a 5-point Likert scale where a score of 1 denoted 'strongly disagree' and a score of 5 denoted 'strongly agree'. Once more the interpretation of the interviews were used to justify the results of the analysis, for the interpretation 3 sections of the interviews were used; (a) attitudes and perspectives about electronic portfolios, (b) self-directed

learning and e-portfolios and (e) their future plans. Additionally, the observations of the electronic portfolios of the pre-service teachers and the artifacts in these e-portfolios were presented as the evidence of the effect of e-portfolios on self-directed learning since, as the related literature supports, e-portfolios help students take their own responsibilities, enhance learner autonomy and reflective thinking, foster ownership, and contribute to self-directed learning as a consequence (Brockett & Hiemstra, 1991; Fisher et al., 2001; Guglielmino, 1977; Hiemstra, 1994; Merriam, 2001; Sizer, 1984; Song & Hill, 2007; Stowel et al., 1993).

3.5. Summary

This chapter presented the methodology employed in the present study. The case study research methodology was used since this study explains an educational phenomenon in detailed description in a real-life context with multiple sources of data. The research design section introduced the descriptions of the context, participants and instruments. The data collection procedures were presented with the explanations regarding the instruments. Data analysis procedures were explained in accordance with the main and secondary research questions.

CHAPTER IV

RESULTS AND DISCUSSION

4.0. Presentation

This chapter presents the findings of the study in accordance with the research questions and the discussions on the findings respectively. In section 4.1 the research questions are reminded. Section 4.2 gives a detailed description of the participants regarding the demographic information obtained from the ICT survey. The demographics include the age, gender, ICT facilities and accessibilities of the participants. Following, in sections 4.3, 4.4, 4.5 and 4.6 the results of the analysis in accordance with the research questions are presented respectively and the findings are discussed.

4.1. Research questions

In this study the researcher aimed to investigate the role of electronic portfolio building in development of self-directed learning by fostering reflective thinking through electronic journals and by compelling the individual to take responsibility of one's own learning in a practicum course. Accordingly the researcher presented her main and secondary research questions as following;

1. In what ways does the process of electronic portfolio development in a practicum course contribute to pre-service teachers' self-directed learning?
   a. What is the role of reflective journal writing in developing self-directed learning?

b. What is the role of promoting technology skills through electronic portfolios in developing self-directed learning?
c. How do an electronic portfolio as an online tool and its artifacts affect self-directed learning?

In order to give an answer to the question of the role of electronic portfolios in development of self-directed learning, it is essential to first define the aspects that constitute self-directed learning. Literature on self-directed learning listed some attributes that contribute to self-directed learning as self-management, (Candy, 1991, Garrison ,1997) motivation, (Corno, 1992; Garrison, 1997) learner control (Candy, 1991), collaboration (Guthrie, Alao & Rinehart, 1997; Temple & Rodero, 1995), and taking responsibility of one's own learning (Merriam, 2001). Cafarella (1993) defines the aspects of self-directed learning that differ from other types of learning as; self-directed learners set their learning goals, determine the ways to accomplish these goals, decide on the evidence of these accomplishments and evaluate them. Thus, self-directed learners are the reflective practitioners, managers and owners of their learning process by taking responsibility of their own learning. In attempt to answer the research questions of the role of reflective journals, technology skills and electronic portfolio in developing self-directed learning these three attributes will be addressed to justify the case.

In the following sections the researcher will present the findings of her study in relation with three secondary research questions respectively, together which let the researcher to answer the main question of her study. Along with the findings, the discussions will be presented. In presentation of findings and discussions the researcher selected only the most representative quotes in order to avoid repetition.

4.2. Participants

The study was conducted with eight pre-service teachers enrolled in a practicum course in the undergraduate program of English Language Teaching in the

Department of Foreign Language Education at Middle East Technical University (METU), in Ankara, Turkey. The participants were from different sections of the course given by the same instructor. 7 of the 8 participants were female and 1 participant was male. All of the participants stated that they previously attended a course on computer technology skills; had a computer and internet access at their residences, used Windows as their computer operating system and none of them had an experience on using or developing electronic portfolios. Two of the participants asserted to have internet access at home, the rest of the 6 participants at the dormitory. While 5 participants wrote that they spent 3-5 hours a day on the internet, Bilge and Esra stated that they spent 0-2 hours a day on the internet in their pre-test and 3-5 hours in the post-test. Hale stated that she spent 6-10 hours a day.

4.3. The Role of Reflective Writing in Developing Self-Directed Learning

This study recognizes the notion that information and communication technologies are crucial to teacher education for both learning and teaching; and takes the constructivist stance that using ICTs tools, mainly electronic portfolios in this case, promotes self-directed learning by facilitating reflective thinking, self-management, and ownership of the learning process. In search of the answer to the question whether developing electronic portfolios promotes self-directed learning, the first secondary research question was "What is the role of reflective journal writing in developing self-directed learning?" In order to answer this question the electronic journals of the pre-service teachers in their e-portfolios were analyzed using Hatton and Smith's framework of types of reflectivity. The data were coded as descriptive writing= (1), descriptive reflection= (2), dialogic reflection= (3), critical reflection= (4). The frequencies of these codes were computed and tabulated (see Appendix D).

The pre-service teachers wrote their observations and comments on their experiences of the field visits starting from the first week. They were expected to write journals for a total of eleven weeks. Analysis of the journals will be presented with quotations from the writings.

According to the findings descriptive writing in the journals outnumbered the other types of reflectivity levels. In electronic journals of all participants for eleven weeks the total number of descriptive writings was 416, descriptive reflection was 348, dialogic reflection was 112, and critical reflection was 24. However, while 5 participants had more descriptive writing type of reflectivity, 3 participants had more descriptive reflection. The total number of the dialogic and critical reflections was lower compared to the other two types of reflectivity.

Bilge was one of the pre-service teachers whose descriptive writing outnumbered other types of reflection. Analysis of Bilge's reflective journals revealed; 68 descriptive writings, 43 descriptive reflections, 13 dialogic reflections and 4 critical reflections. The loading of the descriptive writings were mainly on the first 5 weeks. Descriptive reflections were loaded on 4^{th}, 5^{th}, 6^{th} weeks and the last 3 weeks, similarly dialogic reflections were loaded on 5^{th}, 6^{th} weeks and the last 3 weeks. The loading of critical reflections were on the last 2 weeks. In Bilge's journals the most apparent pattern was descriptive writing, she switched to descriptive reflection and dialogic reflection only when she focused on her observations of the cooperating teacher's teaching methods. At the first weeks of her journal writing the distribution of reflectivity types were dispersed. While talking about the course of the events, the lesson in general and the students she used descriptive writing, and she employed dialogic reflection when she discussed her cooperating teacher's way of conveying the lesson. However, when she talked about her own methodology and activities she prepared and presented, she gave justifications for her actions;

> "As for the teacher, she treats students very kindly and sympathetically, but does not endeavor for teaching something to them. Maybe, if she compelled them to study and made them love English, the students would have more English language knowledge." (Dialogic reflection)

> "However, I think it was a really and enjoyable lesson for the students because, in their lessons, they mostly learn grammar via grammar-translation

method. The teacher teaches the subjects by writing some sample sentences on the board and students practice them by studying with worksheets. However, our lesson was a communicative one which enabled students to talk. They learned by doing and talking" (Descriptive reflection)

"In the second hour, the teacher divided the class into two groups. One of them would discuss about "organizing ideas in speaking" and the other one "organizing ideas in writing." And the students wanted us to join them so the teacher distributed us to the groups. I was with four boys and in writing group. Thus, we started to write about how we organize our thoughts in writing." (Descriptive writing)

Towards the end of her journal writing process Bilge started to put her writings in a hierarchical order; she started her writing with a descriptive writing, gave the justification of that incident with descriptive reflection and following them she presented her own comment and critiques on the incident:

"This week I observed a different kind of activity done by our cooperating teacher. She let the students play Chinese Whisper. There were three rows in the classroom and the teacher said a sentence to the students in the front and s/he conveyed it to the students back. The sentence was whispered to the last students and s/he said it to the class. And s/he wrote it on the board and, of course, there were some mistakes in the sentence. Thus, the teacher corrected them." (Descriptive writing)

"I think it was a good technique to show the students the correct structure by this activity." (Descriptive reflection)

"However, it could be done more enjoyable for the students by using some more entertaining and creative sentences." (Dialogic reflection)

Bilge used critical reflection mostly on her comments on the educational system and

teaching as a profession;

> "I got surprised with this explanation, but then thought that they do not have something to do with this situation because the system requires it and the students are right for their demand."

> "I believe that a teacher should care both teaching and dealing with his/her students' problems, interests, characteristics, etc."

> "I think a teacher should always use such kind of colorful and joyful activities to attract the students' attention. Or else, the lesson will become a boring and a classical one"

> "All in all, this course has contributed to my teaching experience by enabling me to see real teaching and learning environment. I saw how the teaching issue is taken up in schools and decided to be an idealist teacher to present the best teaching techniques by using the technical opportunities."

Bilge did not employ a pattern in her journals; she titled her journals as "Reflection Report on First Week", "Reflection Report on Second Week" My reflection on Sixth Week". In her writing she did not have a basic subject on which she presented her observations, but she narrated what happened in the classroom. This might be the reason that the frequency of her descriptive writings was more than the other types of reflection in her journals.

Another pre-service teacher who had more descriptive writing type of reflectivity was Esra. Her writings revealed three types of reflectivity; descriptive writing with a frequency of 56, descriptive reflection with a frequency of 43 and dialogic reflection with a frequency of 2. Similar to Bilge's writings, Esra's journal lacked weekly subjects to focus on and she did not have titles for her reflections. She mainly talked about what she observed in the classroom; accordingly her reflectivity level was framed around descriptive writing and descriptive reflection.

> "The 10th grade students were too noisy because they had an exam before the lesson and they were discussing the questions in their exams. Teacher got difficulty to make them silent. (descriptive reflection) Teacher had mentioned simple present in previous lesson and the topic of this lesson was the usage frequency adverbs in the sentences with present tense. Teacher followed the order in the book. She wrote some exercises and made the students complete them. (descriptive writing)"

Esra's journals revealed that she was mainly concerned with the methodology of teaching while observing her cooperating teacher; however she showed no interest in suggesting remedies for what she criticized in her journals which led to a low level of dialogic reflection.

Of the pre-service teachers who had high frequencies of descriptive reflections, Hale's analysis revealed; 42 descriptive writings, 61 descriptive reflections, 21 dialogic reflections and 0 critical reflections. The loading of the frequencies for descriptive writing was mostly on the last four weeks; descriptive reflection was on the first four weeks, and dialogic reflection was on the first three weeks. In her journals it was evident that she often tried to both give reasons to justify (descriptive reflection) and give alternative perspectives along with criticisms (dialogic reflection) for what she observed instead of solely narrating the events in the classroom.

> "Although time management is a required component for an effective lesson, I observed that my mentor teacher did not pay much attention to that. She lost the very first five minutes of the lesson by dealing with taking attendance, preparing the materials. Then, she lost time while trying to switch on the projector. I believe that the teacher should be careful about the first and the last five minutes of the lesson as it is very important just because the students can be easily motivated and distracted in these two time intervals. Also, the teacher should be careful about the fact that the students' motivation is too

low at the very end of the lesson, so she should not focus on the important parts at the end of the lesson."

Descriptive writing was used by Hale to introduce the incidences to comment on. Following, she used descriptive reflection to justify her comments on the incidence and from time to time she tried to suggest solutions to or an alternative way of coping with problems. In her interview she stated that her reflections made her think about alternative perspectives;

> "I think writing reflective journals was beneficial, because in the classroom we only took notes about what happened but while writing reflective journals we have the chance to think about them; 'this happened, but was it right or wrong? What would I do if I were the teacher'; since they made us think about these, they were beneficial."

Another pre-service teacher who had a high frequency of descriptive writing was Büşra. However, Büşra was also the one who had the highest frequency of critical reflection among all participants with a frequency of 24 critical reflections. The topic based approach was the apparent pattern of her journals. Her title for the weekly journals was; 'Plus or Minus Atmosphere', 'Examination of What?', 'Teaching to Self and Being a Self in Language Programs', 'Any Alternative Assessment or Educational Reform', etc. For each week she determined a topic based on her observations in the classroom and designed her discussion around that issue. Following excerpt illustrates her introduction to her reflection titled 'Teaching to Self and Being a Self in Language Programs';

> "My fourth week in A.B. Elementary switched my attention into the sincerely student centered circumstances not only leading to academic success but also valuing self beings of the students through the realization of individual identities. My mentor teacher's adaptation of such an approach which ranks valuing the students' self-identities as priority let me draw the bold bordered answers of the questions that how to behave and not how to behave in a

English language class in terms of coming up with the desirable profile of students"

Starting from the first week Büşra's journals were embedded with her views and personal comments;

"My first week in "A. B. Elementary School" let me construct a framework in my mind regarding not only the path to teach English to young learners in an efficient and permanent way but also the ideal environment that should be provided in every school addressing to these ages between 7 and 15. apart from some minor defects, my first impression of this school and the teachers along with the general student characteristics is far from the increasing deteriorating educational circumstances in Turkey."

Melis was also among the participants who had high frequency of descriptive writing, however, similar to Büşra's journals Melis composed her journals based on topics and dedicated her weekly journals on the title of that week. What was distinctive in Melis's and Büşra's writings was that both in the introduction and conclusion they tend to be more reflective compared to the other paragraphs of their journals. Following are the introduction and conclusion samples from one of Melis's journals titled 'Exam papers make you smile';

"Today our students had their second English exam. They had their exam in the first hour and we checked the papers after they had the exam. Therefore we could do no observation this week. However there is still something to write about this week because of the exam papers of the students. What you expect from them and what they write on the exam are sometimes so different."

"As I said before, their answers are so clever and unexpectable. However, to avoid this kind of situations and increase the reliability of the exams, teacher

should give the instructions clearly and provide examples so that students will be sure what they are expected to and will do better in a test."

Upon the analysis of the reflective journals, the findings revealed that the journals of pre-service teachers employed mostly descriptive writing and descriptive reflection. as Clarke (1995) pointed out "if reflective practice is to be an important aspect of the practicum, student teachers should be provided with opportunities not only to practice teaching but also to theorize about the practice" (p. 259). It was evident that the concept of reflective writing had different implications for each of the pre-service teachers; Esra viewed reflective journal writing as a course task and she stated that she would not keep those journals if she were to use her e-portfolio as a show case, since what were written there were so simple and unofficial. For Dilara her reflective journals were a medium for demonstrating her progress as a teacher;

"May be when we look back, we will say 'I experienced these, I thought like that'; sometimes I look back and see what I was thinking during that lesson was different, and what I did in other lessons was different. When I write there, I can track down my progress, positively or negatively."

In their interviews both Bilge and Esra explained the benefits of using an electronic portfolio over a paper-based one. Although the analysis of their journals revealed a loading on descriptive writing and descriptive reflection following this, Esra stated that using an online tool forced her to write her reflections regularly and on time which made her a more organized person by fostering self-discipline and having her reflections online enabled her to read what she had written before and provided her with the opportunity to see and understand her mistakes related to her concept of teaching. Additionally, Bilge asserted that not only the journal writing, but e-portfolio was a process itself due to being an online tool and it enabled her to 'reflect on her reflections' when she reverted and examined her writings, contributing to her reflective thinking. This comment can be equated with what Mansvelder-Longayroux, Beijaard and Verloop (2007) claim; "Reflection in the portfolio is not only a response to a particular problem or a particular issue of teaching practice, it is

also concerned with linking different experiences over time" (p. 50). Schön (1983, 1987) relates the occurrence of reflection with action and describes the occurrence of reflection in two time frames: "reflection-on-action" and "reflection-in-action" Reflection-in-action refers to the instantaneous reflection and action of the teacher during teaching, including a level of critical reflection. The teacher is so competent that she/ he can consciously consider the action she takes and modify her doing. Reflection-on-action takes place before and after the action demanding a think back process of the teacher; evaluating and reflecting on what has happened after the lesson. It engages reflection on an incidence, action or a person, which is examined after the event from different perspectives. Thus what Bilge asserts finds place in Schön's (1983, 1987) description of reflection-on-action; looking back upon what has happened and reflect on that experience from a critical point of view. Regardless of the reflectivity level computed according to the framework, it is essential to recognize that writing reflective journals enabled the preservice teachers to evaluate their observations and comment on them, thus provided a room for authentic self-assessment. The process of reflection becomes an on-going process with the existence of online availability of electronic portfolios, which allows the users to go back and 'reflect on their reflections'. Similarly McKinney (1998) pointed out in his study that the participants associated the role of electronic portfolios in reflective thinking with the electronic format of the portfolios they developed rather than the process of portfolio development.

Additionally during the interviews Bilge told that reflective journals helped them to evaluate what they have experienced and observed in their field visits. Melis claimed that not only while writing, but also reading their reflective journals later on helped her find something she had not noticed before; they provided a different point of view. She also asserted that writing reflective journals on her observations and reviewing those writings from a different point of view contributed to her teaching philosophy. Similarly Lyons (1999) pointed out that the process of portfolio development facilitates preservice teachers' articulation of their teaching philosophy and Wade and Yarbrough (1996) also asserted the role of portfolios in promoting a reflective stance for the pre-service teachers to engage in and allow them to

reevaluate their experiences by “revisiting and revising their ideas over time” and using those insights in their future careers (p. 64).

Self-directedness is not a state of manner, it is an acquired skill; taking responsibility of their own learning help students to promote self-directed learning skills which will lead to a life-long learning as independent learners (Kriewaldt, 2001). The findings revealed that writing reflective journals in an electronic portfolio helped the pre-service teachers develop reflective thinking skills; their reflections urged them to see the strengths and weaknesses of the current practice of teaching at primary and secondary schools as well as their own practices. Writing and revisiting their journals enabled them to reflect on their reflections and this process of self-evaluation helped them generate their philosophies of teaching and contribute to their development of reflective thinking which is one of the aspects of self-directed learning. Moreover, what Melis stated in her interview revealed the fact that writing reflective journals in their electronic portfolios also played a role in her taking the initiative and responsibility of her own learning, which is another attribute for the development of self-directed learning ;

> “People wrote their reflections like narratives, but I wanted my reflections to look like an essay, I tried to write what kind of consequences I came to, what I learned at the end while writing my reflections”

4.4. The Role of Technology Skills in Developing Self-Directed Learning

The second sub-question that contributed to the main research question was ‘What is the role of promoting technology skills through electronic portfolios in developing self-directed learning?’ In order to answer this question an ICT competency and Attitudes toward ICT survey was administered with the participants. The survey contained 51 items and 3 sections in total; 13 items for demographic information, 23 items dealing with ICT competencies with ranging from “None” to “High” degree, and 15 5-point Likert type items for attitudes toward ICT in education. For the ICT

competency section the 4–point Likert-type scale was coded as 1=None, 2=Low, 3=Medium, 4=High. For the attitudes toward ICT section, 5-point Likert-type scale was coded as 0=don't know, 1=strongly disagree, 2=disagree, 3= agree, 4=strongly agree. There were 5 reversed items; item 40, 44, 48, 50 and 51. These items were reversed coded; 0=don't know, 1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree. The answer of the participants to the survey questions in sections of ICT Competency and Attitudes toward ICT was computed according to the codes and tabulated (see Appendix E).

According to the results, in ICT Competency section the scores of Bilge, Elvin, Esra, Dilara and Hale were higher in their post-tests which were conducted after the portfolio development process; however scores of Melis, Murat and Büşra were lower in the post-tests. In Attitudes toward ICT section the results were similar; scores of Bilge, Elvin, Esra, Dilara and Büşra were higher in the post-tests, but Melis, Murat and Hale presented lower scores in the post-tests. The score distribution was as follows; Bilge's score for pre-test was 75, post-test was 89 for competency section and pre-test was 55, post test was 59 for attitudes section, Elvin's score for pre-test was 69, post-test was 72 for competency section and pre-test was 45, post test was 54 for attitudes section, Esra's score for pre-test was 89, post-test was 90 for competency section and pre-test was 47, post test was 51 for attitudes section, Dilara's score for pre-test was 69, post-test was 81 for competency section and pre-test was 45, post test was 51 for attitudes section, Hale's score for pre-test was 82, post-test was 91 for competency section and pre-test was 60, post test was 56 for attitudes section, Melis's score for pre-test was 87, post-test was 84 for competency section and pre-test was 54, post test was 51 for attitudes section, Murat's score for pre-test was 84, post-test was 83 for competency section and pre-test was 59, post wtest was 58 for attitudes section and lastly, Büşra's score for pre-test was 91, post-test was 87 for competency section and pre-test was 44, post test was 51 for attitudes section. The in-depth examination of the surveys showed that there were mostly slight changes in the answers in surveys; e.g. in Melis's pre-test for the item 'use spreadsheet document to calculate and display information' she answered 'high' in the pre-test, but 'medium' in the post test, and for the item 'I feel confident to use

technology in my classroom' she scored 4 (strongly agree) in the pre-test but 3 (agree) in the post-test. Besides, there were some significant changes as well, e.g., in Bilge's competency section the items 'Modify an image or graphic with the computer', 'Insert movie clips and recorded sound to a web page', 'Make hyperlinks to a web page' and 'Design, develop, publish and present products using technology resources' were marked as low in the pre-test, but high in the post-test which was an evidence of the effect of developing electronic portfolio on their ICT skills, since they uploaded images, videos, clips, links on their electronic portfolios. Likewise, Büşra marked the item 'Using computer technologies in my job will only increase my workload' as 'Strongly disagree' in her post-test while she marked the same item as 'Don't know' in her pre-test. This was also an evidence for the effect of e-portfolio development process as it showed that Büşra felt confident and competent in using technology in her future classroom after developing her electronic portfolio.

In the interviews about ICT competencies and attitudes toward ICT, the participants articulated some difficulties in using Wordpress as the host of their e-portfolios. Wordpress was determined as the service provider for the e-portfolios by the instructor and the researcher due to the availability of privacy options since the instructor of the course suggested that the service provider should both be free and have a password protection to provide privacy for the students' reflective journals on their observations so that they could write their observations without any hesitations of being read by their cooperating teachers. However the participants indicated that they encountered many problems in the program such as not being able to paste a lesson plan on the page, or wasting too much time uploading an image due to the slow nature of the program. Similarly, Melis stated that at the sixth week of her e-portfolio process she lost all her artifacts ad reflective journals she had uploaded previously while trying to change the outlook theme of her portfolio and neither she nor her instructor was able to bring the data back, so she had to write everything from the beginning.

One of the distinctive remarks in the interviews was that the preservice teachers admitted that they marked mostly the answer 'high' in their pre-tests since they

attended the course CEIT (Computer Education and Instructional Technology) in the previous terms; however while developing their portfolios they encountered many difficulties and asked for help when they needed. Besides, throughout the term many students asked for guidance from the researcher related to portfolio construction issues; in the interviews they also stated that there was a collaboration among the students related to the technical aspects of their e-portfolios; Kübra told that they were always asking questions about how to upload a word document, or change the size of a picture, and they came together to help each other's e-portfolios from time to time. The interviews revealed that while developing their e-portfolios and working on the technicality of their e-portfolios, the pre-service teachers were in charge of their learning; they opened their accounts in Wordpress, they designed the outlook of their e-portfolios, they decided what artifacts to put and how they put them in their portfolios; as a link or an uploaded image or just copy and paste, and they revisited their previous posts and evaluated their artifacts; when they encountered a technical problem they dealt with it by themselves or asked for help to learn how to deal with it or found ways to overcome the problems. As a consequence of this process, it is evident that developing their portfolios as an electronic version on a web 2.0 tool allowed the participants take control of their learning process. As the responsible owners and managers of their e-portfolios they decided what to do and how to do it by taking the initiative. The findings made it clear that the technological side of developing e-portfolios increased pre-service teachers' self-control and self-management skills compelling them to take the responsibility of their own learning and in consequence these developments contributed to pre-service teachers' self-directedness in learning.

4.5. Effect of Electronic Portfolios on Self-directed Learning

The third sub-question that contributed to the main research question of the study was 'How do an electronic portfolio as an online tool and its artifacts affect self-directed learning?' In order to answer this question Self-Directed Learning Readiness Scale which was developed by Fisher et al (2001) was administered with the pre-

service teachers before they started building their e-portfolios and after they completed them with the aim of investigating the change in the participants' self-directed learning readiness level as a consequence of developing an electronic portfolio. The SDLR scales were coded as (1)= strongly disagree, (2)= disagree (3)= unsure, (4)= Agree, (5) Strongly agree and the results were tabulated accordingly (see Appendix F).

The results were examined in all three sections of the scale; self-management, desire to learn and self-control. According to the results all participants' SDLR scores were higher in their post tests except for Melis. Her score in her ICT survey was lower as well. Through an in-depth investigation of her ICT surveys, SDLR scales, reflective journals and interview it could be seen that she lost her enthusiasm and motivation due to losing her data in her e-portfolio at the sixth week because of a technical problem in Wordpress. Furthermore, in her interview, she stated that before she started developing her e-portfolio she was so confident in ICT tools so she mostly marked high scores in pre-ICT survey; however, when she started her e-portfolio she saw that there were many aspects of the internet that she was not aware of. This might be another reason of the difference in her pre- and post-ICT surveys. According to the results Bilge's score increased from 153 to 183; Elvin's score increased from 158 to 160; Esra's score increased from172 to 182; Dilara's score increased from 155 to 163; Hale's score increased from 154 to 195; Murat's score increased from 149 to 152; Büşra's score increased from 152 to 172 and Melis's score decreased from 193 to 191 with a minor change. The results of the SDLR Scale indicated that the process of e-portfolio development clearly contributed to the self-directed learning readiness of the pre-service teachers.

The artifacts presented in the e-portfolios were also the evidence for this research question. The participants were willingly engaged in the technicality and appearance of their e-portfolios; they changed their themes (wordpress skins) regularly, they organized the pages, sub-pages and posts, they uploaded images related to each reflective journal. The pre-service teachers willingly demonstrated their learning and teaching products by uploading them on their e-portfolios. Most of the pre-service

teachers' e-portfolio included photos of their school, pictures and images related to their journals, the worksheets they prepared for their microteaching, theme songs they used in their microteaching, collaboration works, none of which were required by the instructor of the course. According to Garrison (1997), self-management – one of the dimensions which accomplish self-directed learning – can be developed by taking control of the learning context with the aim of attaining the learning objectives. The pre-service teachers' enthusiasm in demonstrating their products in their e-portfolios in the best way they could developed their self-management skills. The pre-service teachers personalized and embraced their e-portfolios, and while talking about this, they often mentioned that the reason for their organized and dedicated work is its being "electronic" portfolio. Melis expressed her feelings on her e-portfolio as;

> "Preparing and submitting paper-based tasks or student files is something we are familiar with. However, since e-portfolios are new and original for us, it took my interest, so I wanted to add different and original things in my e-portfolio, change the theme of the pages, I uploaded pictures, etc. Though we are adults now, it was like a game for us, it wasn't a boring process like writing a paper-based portfolio. I was so organized and punctual in this process and I believe it played a role in my self-development."

Similarly Büşra maintained that;

> "If it were an ordinary task, we wouldn't make such dedicated efforts, or think about it all the time; it wouldn't be such a nice product."

When their ideas about the difference between paper-based portfolios and electronic portfolios is asked in the interviews Hale mentioned that;

> "At first, I thought we would put only our reflections and observation sheets in the electronic portfolios, just like we did with the paper-based portfolio in our previous school experience course. I didn't think we would put such creative things and pictures. It is better and more enjoyable now".

Dilara, also stated that;

> "Absolutely it is better now. We were able to do changes on our e-portfolios. When we prepared paper-based, there were only reflections and observation sheets, nothing else; but now we included our autobiography, teaching philosophy, what we did with instructional technologies, and I had so much fun while doing these; I did it and everybody else can see and appreciate it. It both helped me to develop myself and I think other people can benefit from my artifacts and reflections."

With the help of electronic portfolios the pre-service teachers took the initiative of the control and responsibility of their own learning process. It can be seen from the artifacts of the e-portfolios and the interviews with them that the pre-service teachers made considerable efforts on their e-portfolios and they are proud of the product they created. Most researchers and scholars believe that online learning transfers the control of the instruction to the learners (Garrison, 2003; Gunawardena & McIssac, 2003). Similarly in a study conducted by Vonderwell and Turner (2005) on pre-service teachers' online learning experience in a technology application course, the participants indicated that the context of the online learning experience fostered their responsibility and initiative towards their own learning by providing more control over their learning and helped them use the resources more effectively.

4.6. Summary

This chapter demonstrated the results and discussions drawn from the analyses of electronic journals and artifacts of pre-service teachers in their e-portfolios, ICT Competency and Attitudes toward ICT survey, Self-directed Learning Readiness scale and interviews that were conducted at the end of the study.

The study aimed to answer the main research question "In what ways does the process of electronic portfolio development in a practicum course contribute to pre-

service teachers' self-directed learning?" with the help of secondary research questions;

a. What is the role of reflective journal writing in developing self-directed learning?
b. What is the role of promoting technology skills through electronic portfolios in developing self-directed learning?
c. How do an electronic portfolio as an online tool and its artifacts affect self-directed learning?

The researcher defined the self-directed learning attributes as self-management, reflective thinking and taking the control and responsibility of one's own learning. The main research question was answered in the light of this definition by presenting the findings of the analyses in relation with three secondary research questions respectively.

CHAPTER V

CONCLUSION

5.0. Presentation

This chapter presents the concluding remarks of the study. It is followed by limitations of the study and implications and suggestions for future research.

5.1. Conclusion

The purpose of this study was to investigate the role of electronic portfolio building in promoting self-directed learning by fostering reflective thinking through electronic journals and by compelling the individual to take responsibility and control of one's own learning in a practicum course among pre-service teachers from Department of Foreign Language Education, Middle East Technical University. In order to give an answer to the question of the role of electronic portfolios in promoting self-directed learning, the researcher first identified the aspects that constitute self-directed learning. Literature on self-directed learning listed some attributes that contribute to self-directed learning as self-management, (Candy, 1991, Garrison ,1997) motivation, (Corno, 1992; Garrison, 1997) learner control (Candy, 1991), collaboration (Guthrie, Alao & Rinehart, 1997; Temple & Rodero, 1995), and taking responsibility of one's own learning (Merriam, 2001). Cafarella (1993) defines the aspects of self-directed learning that differ from other types of learning as; self-directed learners set their learning goals, determine the ways to accomplish these goals, decide on the evidence of these accomplishments and evaluate them. Thus, self-directed learners are the reflective practitioners, managers and owners of their learning process by taking responsibility of their own learning.

With reference to the findings of this case study, the conclusions will be presented in three sections as the evidences for the three attributes of self-directed learning; (1) Reflective Thinking, (2) Self-management, and (3) Taking ownership and responsibility of one's own learning.

Reflective Thinking

The findings revealed that writing reflective journals in an electronic portfolio helped the pre-service teachers develop reflective thinking skills; their reflections urged them to see the strengths and weaknesses of the current practice of teaching at primary and secondary schools as well as their own practices. Electronic portfolios helped the pre-service teachers look back upon what has happened and reflect on those experiences from a critical point of view. Furthermore, writing and revisiting their journals enabled them to 'reflect on their reflections' and this on-going process of self-evaluation within the online feature of electronic portfolios helped them generate their philosophies of teaching and contribute to their development of reflective thinking.

Self-Management

The interviews revealed that while developing their e-portfolios and working on the technicality of their e-portfolios, the pre-service teachers were in charge of their learning; they opened their accounts in Wordpress, they designed the outlook of their e-portfolios, they decided what artifacts to put and how they put them in their portfolios; as a link or an uploaded image or just copy and paste, and they revisited their previous posts and evaluated their artifacts; when they encountered a technical problem they dealt with it by themselves or asked for help to learn how to deal with it or found ways to overcome the problems. As a consequence of this process, it is evident that developing their portfolios as an electronic version on a web 2.0 tool allowed the participants take control of their learning process. As the responsible owners and managers of their e-portfolios they decided what to do and how to do it by taking the initiative. The findings made it clear that the technological side of developing e-portfolios increased pre-service teachers' self-control and self-

management skills compelling them to take the responsibility of their own learning and in consequence these developments contributed to pre-service teachers' self-directedness in learning. The interviews also revealed the fact that writing reflective journals in their electronic portfolios played a role in taking the initiative and responsibility of their own learning.

Ownership of One's Own Learning

It can be seen from the artifacts of the e-portfolios and the interviews with them that the pre-service teachers made considerable efforts on their e-portfolios and they are proud of the product they created. The pre-service teachers personalized and embraced their e-portfolios, and while talking about this, they often mentioned that the reason for their organized and dedicated work is its being "electronic" portfolio. They studied on their e-portfolios with enthusiasm; they owned their e-portfolios, thus they took the ownership of their own learning process by working on their e-portfolios willingly, actively and devotedly with the pursuit of demonstrating their products in their e-portfolios in the best way they could. The findings confirmed the fact that the experience of working with electronic portfolios shifts the ownership and responsibility of the learning process to the learner; thus facilitates the development of self-directed learning skills (Graves & Sunstein, 1992; Krause, 1996; Kriewaldt, 2001).

Finally the SDLR Scales indicated that the pre-service teachers developed their skills of self-control, self-management and their desire to learn throughout the process of electronic portfolio development. Additionally the interviews proved the conclusions drawn from the SDLR Scale and confirmed the fact that pre-service teachers demonstrated control over their e-portfolios, took responsibility for and ownership of their learning process, reflected on their observations and achievements, and ended up the process of portfolio development process as responsible and self-directed learners.

All in all electronic portfolios, having the opportunity to provide multimedia displays, allow the pre-service teachers to monitor the outcomes of their learning

goals and strategies regularly and by monitoring their studies and reflections they review their own work and have a chance to evaluate their learning and teaching process. Essentially, portfolios transfer the responsibility of learning and decision making to the student with its dynamic process; when students are required to reflect on the information they acquire and on how they acquire this information, they begin to accept their learning practice as a process under their control. With all this in mind, it is possible to conclude that electronic portfolios in this case, enhances reflective thinking, authentic self-assessment, self-management, and ownership over learning process and facilitates technological competence which all in all foster self-direction in learning.

5.2. Limitations

Generalizability is an important factor for the research studies. This study cannot offer generalizability to the population due to the convenience sampling procedure adopted by the researcher. The participants were provided with two types of portfolios as a summative assessment by their instructor at the beginning of the term, thus the volunteer participants were subjective towards the electronic portfolio development process. Furthermore, the study was conducted with the 4th grade pre-service teachers in one practicum course; therefore, the participants in this study cannot be the representatives of the present language teacher education.

Another limitation of the study is the lack of collaboration. Collaboration is one of the most common components in reflective journal writing. Şanal-Erginel (2006) affirmed in her study that collaboration has an important role in promoting reflection. However, in this study online peer feedback or collaboration in terms of online comments to the electronic journals or the other artifacts in the e-portfolios were not allowed by the instructor of the course. The collaboration among the pre-service teachers in terms of asynchronous online communication could have an impact on the reflectivity level of the participants.

This study was limited to a one-semester period of e-portfolio development process. The participants had attended an ICT course, namely CEIT; however they were not familiar with electronic portfolios. The short span of the study and unfamiliarity with electronic portfolios might hinder some results related to self-directed learning since self-directedness is a context bound skill; learners can demonstrate different levels of self direction according to the familiarity of the learning situation they are exposed to (Candy, 1991).

5.3. Implications and Recommendations for Future Research

This study demonstrated the role of electronic portfolios in promoting self-directed learning skills of eight pre-service teachers enrolled in a practicum course. The data showed that e-portfolios promoted self-directed learning by fostering reflective thinking through electronic journal writing and by facilitating the shift of responsibility, control and ownership of the learning process to the learner. Though this study cannot be generalized to all teacher education contexts, it contributes to the understanding the instructional value and benefits of electronic portfolio which is still an unfamiliar concept for teacher education settings in Turkey; thus it has implications for research in the field of computer technology use in teacher education. Teacher education practices in EFL settings in Turkey provide the pre-service teachers with both theoretical and practical knowledge throughout the undergraduate program of English Language Teaching. However, difficulties in applying the theory into practice in real-life educational settings for novice teachers and the lack of support on their practices from either their universities or the Ministry of Education after starting the profession lead to deterioration of the knowledge on the profession. At this point electronic portfolios act as a bridge between the past and the future; the theory and the practice; the undergraduate education and the profession; throughout the transformation of the student from a pre-service teacher to a novice teacher. The integration of electronic portfolios in teacher education curriculum will allow the teacher educators and the pre-service teachers to have a better understanding of and control over e-portfolios to be able to use them for

educational purposes both during the undergraduate studies and in future career of the pre-service teachers. Though the use of electronic portfolios in teacher education is a common practice in many countries, it is still a novel application in Turkish teacher educational contexts. However, this application will allow teacher educators to foster and monitor professional development of student teachers, assess the progress of their students; additionally it will provide opportunities for student teachers to learn to reflect on their practices, to organize and keep their teaching documents safe for future use, to keep track of their professional development, to understand the standards of the teaching profession, and to enhance their technology skills. One important defect of the teacher education program as derived from the results of this study is the lack of training on reflective thinking which seems to be the most apparent reason for the infrequency of critical reflection in the pre-service teachers' reflective journals. The integration of electronic portfolios in teacher education curriculum will provide a room for training on writing reflective journals and gradually foster reflective thinking skills of pre-service teachers which will eventually lead the implementation of critical reflectivity.

The integration of electronic portfolios necessitates a profound preparation. First of all, the clarification of the purpose of using electronic portfolios in that department is fundamental. Will it be used for educational purposes like fostering student self-direction in learning; promoting reflective thinking, or will it be used for assessment purposes? Besides, the tool to be used as a base for electronic portfolios should be investigated, examined, and tested before implementation. There are several tools to be adopted to build either personal or institutional e-portfolios. As a personal storage tool electronic portfolios may be developed through weblogs, wikispaces, googledocs, or Microsoft office tools like Word or Power Point. On the other hand, for a broader use institutional e-portfolios would be recommended. For this purpose the institution may use its own server to build and install an electronic portfolio system to be used by all students throughout the institution. However, this kind of a study would necessitate sufficient technology access, training, and technical support both for the faculty and the students. An easier way to provide institutional electronic

portfolios is to adopt commercial hosted services like PebblePad or TaskStream. Still, this solution will have financial considerations and technical support as well.

According to Abrami and Barret (2005), building process e-portfolios require both time and assistance in learning to use these tools, since they have a complex theoretical mechanism and more than technical knowledge is necessary to benefit from them. Similarly, Koçoğlu, Akyel and Erçetin (2008), in their study in which paper-based portfolios were favored by the EFL preservice teachers over electronic portfolios and found to be more effective in facilitating critical reflection, pointed out that "The limited success of electronic portfolios in promoting critical reflection can be overcome, particularly if portfolios are part and parcel of continuing professional development, not just a one-off project in teacher training" (p. 17). It is necessary to conduct a longitudinal study on electronic portfolios and self-directed learning in EFL settings to see the lasting effects of electronic portfolio development process from initial years of teacher education to the first years of practice.

Electronic portfolio development is a novel idea for many teacher educators in Turkey. Thus, it is essential to create opportunities for teacher candidates to engage in instructional technologies so that they can convey their technology proficiency in K-12 educational settings. The researchers who wish to conduct further studies on electronic portfolios should take into account the technical considerations and context of the e-portfolios. Additionally, it should be acknowledged that since electronic portfolio development has not been included in the curricula yet a thorough instruction, guidance and technical support are necessary for the implementation of e-portfolios into practicum courses.

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APPENDICES

APPENDIX A

Interview Questions

A) Attitudes and Perspectives about Electronic Portfolios:

1) Have you ever heard about electronic portfolios before you volunteered for this study?

2) What are the differences between your first thoughts about the electronic portfolios at the beginning of the study and now?

- What do you think about the aims of developing an e-portfolio now?
- What did you acquire n from this study?

3) What were you expecting to acquire when you first started this project?

4) Why did you choose to prepare an electronic portfolio instead of a traditional one?

5) Are you pleased with the e-portfolio you have completed?

6) What are the negative and positive aspects of preparing an e-portfolio?

- How many hour a week did you study on your e-portfolio?

7) What are the benefits of owning an e-portfolio?

B) Self-Directed Learning and E-Portfolios:

1) Did you make a plan before you started your e-portfolio?

- Have you set any goals – weekly/ monthly?

2) Can you tell me the your stages of preparing the e-portfolio?

3) Could you study on your e-portfolio regularly?

4) Was it effective on your studies that this project was online and controlled by your instructor regularly?

- Was it the reason for your regular study?

5) Could you manage your time?

6) How did you decide which artifact to put in your e-portfolio?

- Have you put your previous studies in your e-portfolio? Why?

7) How did you uploaded your audio –visual artifacts? (scan/ link/ copy-paste)

8) What kind of problems did you encounter while working with your e-portfolio?

- How did you overcome these problems?
- Did you ask for support? If so, from who did you ask for support?

9) Did you collaborate with your friends during e-portfolio development process?

10) Did you ask for help from your friends?

11) What kind of skills did you acquired at the end of this process?

12) What did you learn from this study as a prospective teacher?

13) Did you get any feedback from your friends or instructor?

- How did they affect your studies?

C) Reflective Thinking:

1) Who did you view as an audience while writing your reflective journals?

2) What did you learn as a teacher from writing reflective journals?

3) Did you get any feedback from your friends or instructor?

a. How did they affect your studies?

4) What is the impact of writing reflective journals on your learning?

5) What is the role of reflective journals in e-portfolio development?

D) Information and Communication Technologies:

1) Do you think about using any web 2.0 tool after this study?

2) Do you think that developing e-portfolio has contributed to your technological skills? How?

3) What do you think about computer assisted learning or instructional technologies?

4) Do you think about using technology in your future classroom?

- Was developing an e-portfolio effective on this decision?

5) Would you use e-portfolios as an assessment tool in your future classroom?

E) Future :

1) Will you continue your studies with your e-portfolio next term?

2) Do you think about continuing your e-portfolio after you graduate?

- How will it look like?
- What kind of changes would you do?

3) Do you think that it worths all those efforts and time?

4) Do you think this study has contributed to your professional development? If so, in what ways?

APPENDIX B

ICT Competency and Attitudes toward ICT Survey

ICT COMPETENCY AND ATTITUDES SURVEY
FOR PRE-SERVICE TEACHERS

I. Please write the necessary information for the open-ended items and choose the option that fits your situation for the multiple-choice items:

1. Name: _____

2. Gender: Male ☐ Female ☐

3. Age: _____

4. Section: _____

5. Have you previously attended a course on computer technology skills?

Yes ☐ No ☐

6. Did you have any experience on using or developing electronic portfolios before?

Yes ☐ No ☐

7. Do you have ready access to a computer at your residence? Yes ☐ No ☐

8. What computer operating system do you have at home?

None ☐ Mac ☐ Windows ☐ Linux ☐ Other ☐

9. What kind of computer do you have? None ☐ Desktop ☐ Laptop ☐

10. Do you have internet access on this computer? Yes ☐ No ☐

11. Where do you **most frequently** access the internet?

Home ☐ University ☐ Internet cafe ☐ Library ☐ Friend's house ☐ Dormitory ☐

12. How many hours **a day** do you spend on the internet?

0-2 hours ☐ 3-5 hours ☐ 6-10 hours ☐ More than 10 hours ☐

13. Where did you learn your computer skills? (You can choose more than one option)

Have none ☐ Self-taught ☐ High school ☐ University ☐ Friends/Relatives ☐ Other ☐

II. ICT Competency: Please indicate your degree of current competence for each of the activities listed below.

"None": Cannot perform the task "Low": Can perform the task with assistance,

"Medium": Can complete the task "High": Can teach others how to perform the task.

14. Create or modify a word processor document. None ☐ Low☐ Medium ☐ High☐

15. Use spreadsheet (excel) document to calculate None ☐ Low☐ Medium ☐ High☐

and display information.

16. Make a copy of a file. None ☐ Low☐ Medium ☐ High☐

17. Create a folder or a directory. None ☐ Low☐ Medium ☐ High☐

18. Use a scanner to create a digital image on a computer. None ☐ Low☐ Medium ☐ High☐

19. Use a digital camera to create an image on a computer. None ☐ Low☐ Medium ☐ High☐

20. Place an image or graphic into a document. None ☐ Low☐ Medium ☐ High☐

21. Create a presentation e.g., power point or slide show. None ☐ Low☐ Medium ☐ High☐

22. Make a web bookmark or favorite. None ☐ Low☐ Medium ☐ High☐

23. Download files to your computer. None ☐ Low☐ Medium ☐ High☐

24. Install an application or program onto a computer. None ☐ Low☐ Medium ☐ High☐

25. Save or use an image from a web page. None ☐ Low☐ Medium ☐ High☐

26. Modify an image or graphic with the computer None ☐ Low☐ Medium ☐ High☐

27. Use advanced word features e.g. charts, tables or templates. None ☐ Low☐ Medium ☐ High☐

28. Use information from the web for a project or assignment. None ☐ Low☐ Medium ☐ High☐

29. Use search engines such as Google, or AltaVista. None ☐ Low☐ Medium ☐ High☐

30. Send or receive an e-mail message with an attachment. None ☐ Low☐ Medium ☐ High☐

31. Participate in an online discussion or newsgroup. None ☐ Low☐ Medium ☐ High☐

32. Create and upload a web page on World Wide Web. None ☐ Low☐ Medium ☐ High☐

33. Insert graphics, clip art and/or digital pictures to a web page. None ☐ Low☐ Medium ☐ High☐

34. Insert movie clips and recorded sound to a web page. None ☐ Low☐ Medium ☐ High☐

35. Make hyperlinks to a web page. None ☐ Low☐ Medium ☐ High☐

36. Design, develop, publish and present products (e.g., web pages, videotapes) using technology resources. None ☐ Low☐ Medium ☐ High☐

III. As a prospective teacher, please indicate your level of agreement with these statements.

	Don't Know	Strongly Disagree	Disagree	Agree	Strongly Agree
37. I am interested in learning more about how to use technology in the classroom.	☐	☐	☐	☐	☐
38. I would like to use educational technology in my classroom.	☐	☐	☐	☐	☐
39. Integrating technology across subject maximizes student learning.	☐	☐	☐	☐	☐
40. It's not really important for teachers to know how to use technology.	☐	☐	☐	☐	☐
41. I feel confident to use technology in my classroom.	☐	☐	☐	☐	☐

42. I would like to use computer technologies as an instructional resource	☐	☐	☐	☐	☐
43. New technologies have a positive effect in transforming.	☐	☐	☐	☐	☐
44. I do not plan to use technology in my future classroom. instruction	☐	☐	☐	☐	☐
45. I would like to use technology for assessment and evaluation in my classroom.	☐	☐	☐	☐	☐
46. I would like to use multimedia to explore different ways to represent concepts.	☐	☐	☐	☐	☐
47. Computer technology will increase the quality of education.	☐	☐	☐	☐	☐
48. Using computer technologies in my job will only increase my workload.	☐	☐	☐	☐	☐
49. With the use of computer technologies I can create instructional materials to enhance my teaching.	☐	☐	☐	☐	☐
50. The thought of using computer technologies in the classroom frightens me.	☐	☐	☐	☐	☐
51. I think that computer technologies are confusing.	☐	☐	☐	☐	☐

If you have any comments or anything to add, please write here:

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your participation in this survey.

APPENDIX C

SELF-DIRECTED LEARNING READINESS SCALE

Name:

Surname:

Gender:

Dear friends,

This survey is conducted to reveal the self-directed learning readiness of pre-service teachers, to be used in a Master Thesis. Please read all the statements and mark the most appropriate option that fits you.

1: Strongly disagree **2: Disagree** **3: Unsure** **4: Agree** **5: Strongly agree**		**5**	**4**	**3**	**2**	**1**
1	I manage my time well					
2	I am self disciplined					
3	I am organized					
4	I set strict time frames					
5	I have good management skills					
6	I am methodical					
7	I am systematic in my learning					
8	I set specific times for my study					
9	I solve problems using a plan					
10	I prioritize my work					
11	I can be trusted to pursue my own learning					
12	I prefer to plan my own learning					
13	I am confident in my ability to search out information					
14	I want to learn new information					
15	I enjoy learning new information					
16	I have a need to learn					

17	I enjoy a challenge					
18	I enjoy studying					
19	I critically evaluate new ideas					
20	I like to gather the facts before I make a decision					
21	I like to evaluate what I do					
22	I am open to new ideas					
23	I learn from my mistakes					
24	I need to know why					
25	When presented with a problem I cannot resolve, I will ask for assistance					
27	I prefer to set my own goals					
28	I like to make decisions for myself					
29	I am responsible for my own decisions/actions					
30	I am in control of my life					
31	I have high personal standards					
32	I prefer to set my own learning goals					
33	I evaluate my own performance					
34	I am logical					
35	I am responsible					
36	I have high personal expectations					
37	I am able to focus on a problem					
38	I am aware of my own limitations					
39	I can find out information for myself					
40	I have high beliefs in my abilities					
41	I prefer to set my own criteria on which to evaluate my performance					

APPENDIX D

Frequencies of reflectivity levels in electronic journals

Reflectivity Level	Participants	Total	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
(1) Descriptive Writing	**Bilge**	**68**	7	11	7	6	7	6	3	5	10	3	3
	Elvin	**27**	5	5	5	3	1	2	1	3	2	-	-
	Esra	**56**	8	5	6	5	5	6	6	7	3	5	-
	Dilara	**54**	12	4	9	6	7	5	5	4	1	1	-
	Hale	**42**	12	3	2	3	3	6	4	2	4	2	1
	Melis	**76**	8	3	1	9	6	4	9	11	6	11	8
	Murat	**38**	-	6	3	5	6	3	4	4	3	4	-
	Büşra	**55**	5	5	6	8	6	1	2	4	6	6	6
(2) Descriptive Reflection	**Bilge**	**43**	3	1	3	6	5	5	1	2	5	3	9
	Elvin	**39**	5	6	2	3	7	5	2	3	6	-	-
	Esra	**43**	6	3	1	5	1	4	5	9	5	4	-
	Dilara	**55**	11	6	3	6	4	3	10	6	2	4	-
	Hale	**61**	9	6	6	9	3	5	1	3	5	3	11
	Melis	**57**	10	7	5	8	4	4	3	5	5	4	2
	Murat	**11**	-	2	1	1	2	0	2	1	1	1	-
	Büşra	**39**	3	3	2	2	2	3	7	2	5	3	7

APPENDIX D - continued

Frequencies of reflectivity levels in electronic journals

Reflectivity Level	Participants	Total	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
(3) Dialogic Reflection	**Bilge**	**13**	1	1	1	0	3	1	0	0	1	2	3
	Elvin	**15**	1	3	1	0	2	2	2	3	1	-	-
	Esra	**2**	0	1	0	0	0	0	0	0	1	0	-
	Dilara	**22**	2	7	4	3	3	0	1	0	1	1	-
	Hale	**21**	3	5	3	0	2	1	2	0	3	1	1
	Melis	**11**	0	1	1	0	0	1	0	1	6	0	1
	Murat	**4**	-	0	2	1	0	0	1	0	0	0	-
	Büşra	**24**	1	4	5	0	1	6	3	1	1	2	0
(4) Critical Reflection	**Bilge**	**4**	0	1	0	0	1	0	0	0	0	1	1
	Elvin	**5**	0	0	1	0	0	1	2	0	1	-	-
	Esra	**0**	0	0	0	0	0	0	0	0	0	0	-
	Dilara	**4**	3	0	0	0	0	0	0	0	1	0	-
	Hale	**0**	0	0	0	0	0	0	0	0	0	0	0
	Melis	**0**	0	0	0	0	0	0	0	0	0	0	0
	Murat	**0**	0	0	0	0	0	0	0	0	0	0	0
	Büşra	**11**	1	0	1	1	2	2	3	1	0	0	0

APPENDIX E

Scores in ICT Competency and Attitudes toward ICT Survey

		ICT Competency	Attitudes toward ICT	Total
Bilge	**Pre-test**	75	55	130
	Post-test	89	59	148
Elvin	**Pre-test**	69	45	114
	Post-test	72	54	126
Esra	**Pre-test**	89	47	136
	Post-test	90	51	141
Dilara	**Pre-test**	69	45	114
	Post-test	81	51	132
Hale	**Pre-test**	82	60	142
	Post-test	91	56	147
Melis	**Pre-test**	87	54	138
	Post-test	84	51	132
Murat	**Pre-test**	84	59	143
	Post-test	83	58	141
Büşra	**Pre-test**	91	44	135
	Post-test	87	51	138

APPENDIX F

Scores in Self-Directed Learning Readiness Scale

		Self-management	Desire to learn	Self-control	SDLR (total)
Bilge	**Pre-test**	50	43	60	153
	Post-test	55	53	73	181
Elvin	**Pre-test**	48	50	60	158
	Post-test	51	48	61	160
Esra	**Pre-test**	56	52	64	172
	Post-test	57	53	72	182
Dilara	**Pre-test**	50	42	63	155
	Post-test	50	47	66	163
Hale	**Pre-test**	43	42	69	154
	Post-test	64	57	74	195
Melis	**Pre-test**	62	57	74	193
	Post-test	61	57	73	191
Murat	**Pre-test**	40	44	65	149
	Post-test	45	44	65	154
Büşra	**Pre-test**	51	42	59	152
	Post-test	52	50	70	172

APPENDIX G

A Sample Reflective Journal

Gaining Experience and Confidence by Practicing

This week, I had the opportunity to teach in two different classes. When my cooperating teacher entered the class, she wanted me to teach present and past habits via role-play activities. I surprised since I was not prepared, but I tried my best to teach the topic in an enjoyable way, and it really worked. Firstly, I gave a brief explanation about the topic since they dealt with the topic before. Then, I wanted the students to form sentences about their past and present habits. Afterwards, I wanted a student to act out like an old man, and another student to act out like a teenager. They behaved as if they were on a bus, and they talked about their present and past habits. The student who was acting out an old man focused on his past habits, and the student who was acting out the teenager focused on her present habits. Sometimes they could not find the correct words to use, but I helped them and the activity was a really successful one. Then, our cooperating teacher and my friend, namely Alperen acted out the same roles. Since our teacher is old she provided a better context for the activity. The students really enjoyed the activity. After the lesson, I asked whether my cooperating teacher was satisfied with my performance or not, and she said she liked it, and teaching without preparation is more important than teaching by making a preparation in advance.

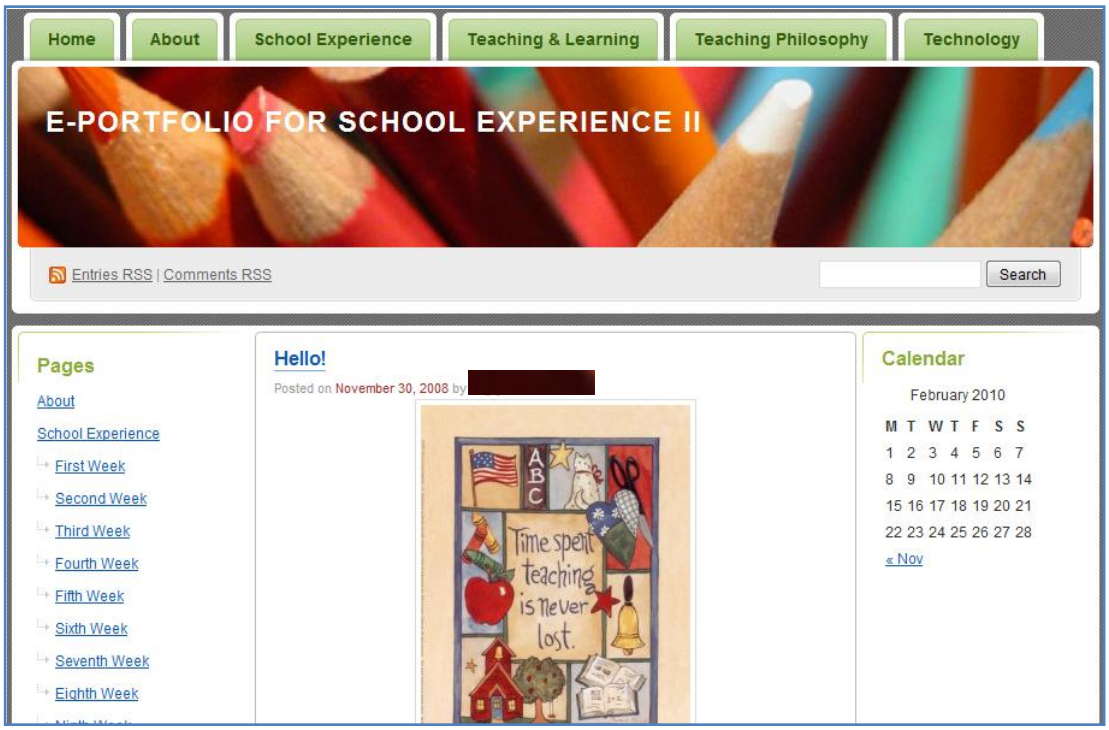
In another class, namely in 10-I, we were going to give a presentation about teaching reading, and our teacher from the university would come to watch the lesson, so we were nervous, but our teacher did not come. Then, we decided to videotape the lesson, and Alperen helped us to videotape the lesson. Birsel did the pre-reading activity by making students guess the topic of the story from some pictures, and teaching some vocabulary items. Then, I read the story. I did not read the end of the story, and wanted the students to guess what would happen at the end

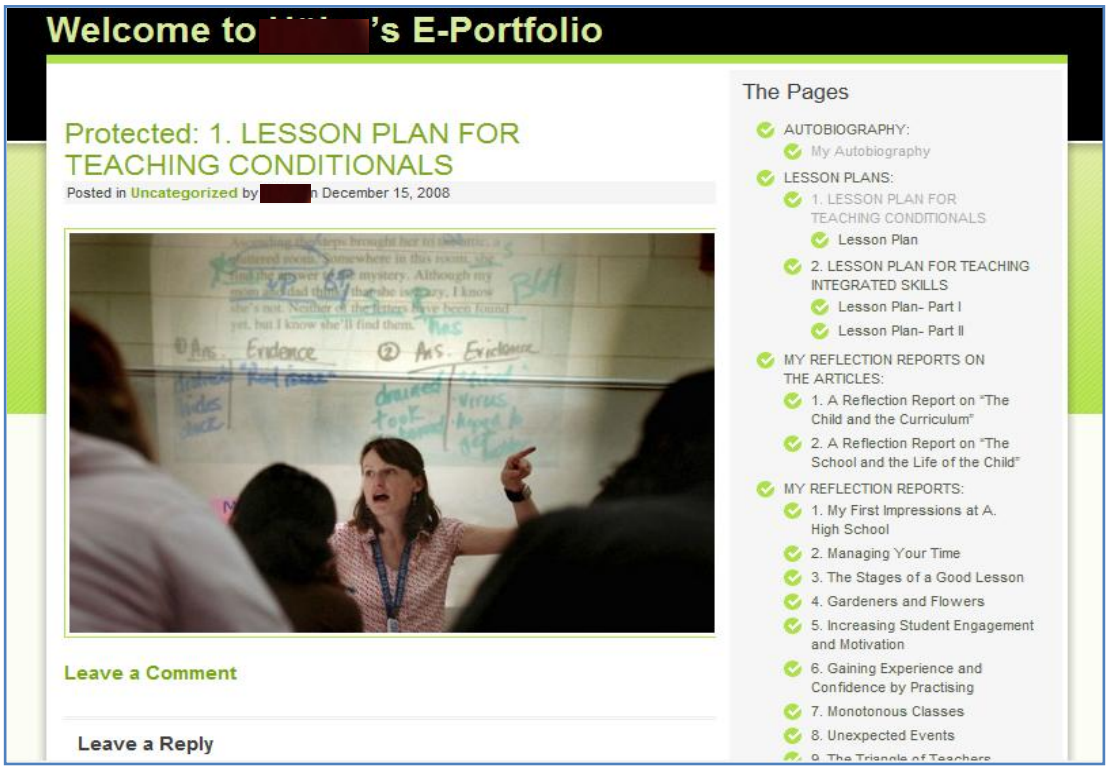
of the story. Some of them formed true estimates. Later, I read the end of the story, and wanted them to write different endings for the story in groups of four, and they really enjoyed this activity very much. Afterwards, the groups shared their endings, and I gave the students a mark out of ten, and wrote their marks on the board. Then, the bell rang, and I had the opportunity to ask my cooperating teacher's opinion about the presentation. She did not say anything about the content of the presentation, but she just focused on the voting part. She said that I should do the voting part confidentially, but this was not a prepared part since I just decided it while I was teaching, and doing it confidentially would take much more time, and I did not have much time. She also said I should write the marks by using the whole board instead of using the right part, but I did not think it was a big problem since I did not write a very important explanation or example on the board, but I just wrote a mark. Of course, she may not see the things from my perspective, but she may also say something positive to encourage us since we really studied a lot for the presentation. Also, I wanted to share an important conversation which took place during the break. The students wanted to talk to us, and they said that they liked the way we teach them, and they wanted us to be their English teachers. They also talked about their exam, and they said the questions were really difficult, and we should examine the questions. So, we wanted a copy of the exam paper from the teacher and she said she would bring one. Although we reminded her to bring a copy, she didn't bring.

To cut the long story short, my teaching experiences helped me to realize that there is not a big difference between going to the class by making a preparation in advance, and going without preparation as long as a teacher is enthusiastic, knowledgeable, and creative enough to deal with it. Moreover, these mini teaching sessions helped me to gain more confidence and experience in teaching a subject. I am feeling sure of myself now.

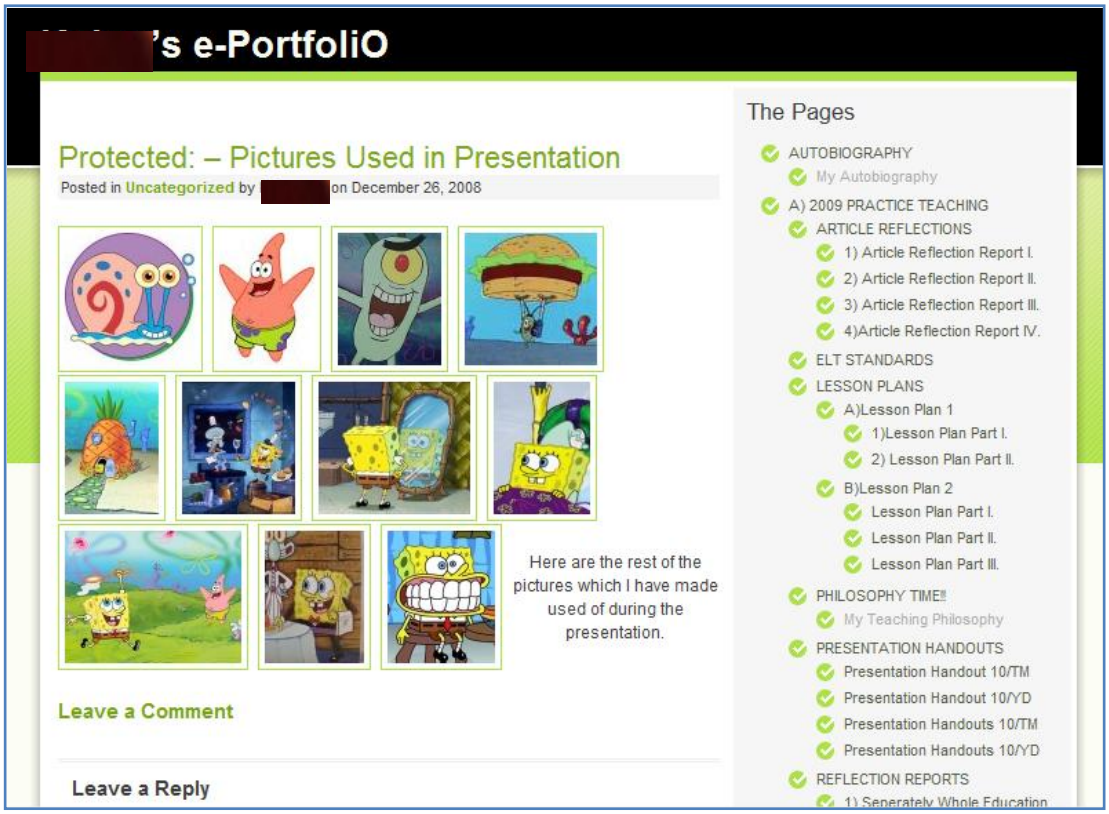
APPENDIX H

Screenshots of Participants' E-Portfolios






[redacted]'s E-Portfolio for School Experience
blog
reflections on my observations at school experience
my autobiograpy
my teaching philosphy
reflections on the articles of john dewey
lesson plans
instructional technology
Search
A Blog for School Experience
Blogroll
WordPress.com
WordPress.org
Meta
Log in
Protected: Hello!!
Leave a Comment
Hi! I am [redacted] I have prepared this e-portfolio to present my school experience observations. I hope you will enjoy and make use of it!!
teacher
teacher
Filed in Uncategorized 1 year, 4 months ago

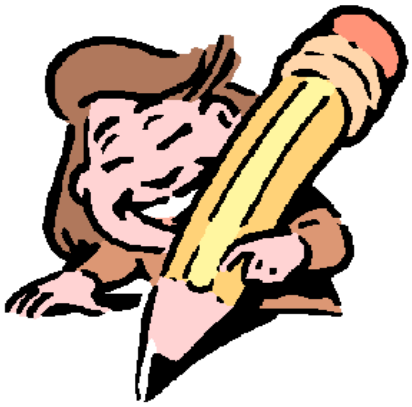

[redacted]'s e-PortfoliO
Protected: – Pictures Used in Presentation
Posted in Uncategorized by [redacted] on December 26, 2008
Here are the rest of the pictures which I have made used of during the presentation.
Leave a Comment
Leave a Reply
The Pages
AUTOBIOGRAPHY
My Autobiography
A) 2009 PRACTICE TEACHING
ARTICLE REFLECTIONS
1) Article Reflection Report I.
2) Article Reflection Report II.
3) Article Reflection Report III.
4)Article Reflection Report IV.
ELT STANDARDS
LESSON PLANS
A)Lesson Plan 1
1)Lesson Plan Part I.
2) Lesson Plan Part II.
B)Lesson Plan 2
Lesson Plan Part I.
Lesson Plan Part II.
Lesson Plan Part III.
PHILOSOPHY TIME!!
My Teaching Philosophy
PRESENTATION HANDOUTS
Presentation Handout 10/TM
Presentation Handout 10/YD
Presentation Handouts 10/TM
Presentation Handouts 10/YD
REFLECTION REPORTS

Welcome to [redacted]'s E-Portfolio

home | autobiography | assignments | reflection reports — school experience ii | tasks | lesson plans | my teaching philosophy | instructional technology | reflection reports — practice teaching

search go!

Protected: MY TEACHING PHILOSOPHY IN THE LIGHT OF ALL MY REFLECTIONS (30.11.2008)



We, as human beings, have this great need to get or learn something in order to survive and get ourselves accustomed to the things and people around us. At this point, the importance of teaching 'properly' comes to the stage. I say 'proper teaching', not just teaching, because this process yields to productive and constructive results only if the right way is followed by the teachers. In order to carry out this, a crucial responsibility falls on us, as prospective teachers; it is to set our teaching philosophy and follow it in the process of teaching. What I would like to

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