The Effect of Web-based Instructional Learning Environment on Enhancing Microteaching Experience in English Language Teacher Education

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ABSTRACT

In second language teacher education programs microteaching has always been a significant technique to help bridge theory to practice and prepare the trainees (i.e., preservice teachers) for real classroom contexts. The expected benefits from 10-15 minute-microteaching sessions are the communication among the trainees and supervisor, collaboration with each other, and reflection on the teaching. However, due to some constraints such as time and big class size, these benefits may not be derived easily. The related literature discussed these challenges quite extensively and offered some solutions. However, there are relatively fewer studies which explored preservice teachers' gains when technology is integrated into the traditional microteaching sessions. Therefore, this study aims to explore how the effect of a designed Web-based instructional learning environment (hereafter WeBILE) was perceived by the participating preservice teachers on developing their communication, collaboration and reflection in microteaching process. In so doing, 52 Kurdish preservice English language teachers were asked to use the WeBILE for six weeks. Both quantitative and qualitative data were collected from questionnaires, the system analytics, reflection journals, and semi-structured interviews. The results of the data analysis reveal that the designed WeBILE has been perceived quite effective in supporting and improving the preservice teachers' microteaching practice and solving the defined microteaching problems by creating opportunities for communication, collaboration and reflection in microteaching process among the preservice teachers.

Keywords: Microteaching, Web-based instructional learning environment, Second language teacher education, Program evaluation, Iraq

ÖZ

Yabancı dil öğretmeni yetiştiren eğitim programlarında mikro öğretim tekniği, teoriyi uygulamaya koymak ve öğrencieri (yani öğretmen adaylarını) gerçek sınıf ortamlarına hazırlamaya yardımcı olmak açısından her zaman önemli bir teknik olmuştur. 10-15 dakikalık mikro öğretim oturumlarında hedeflenen faydalar, öğretmen adaylarının birbirleriyle ve ders hocasıyla mikro öğretim konusundaki iletişimleri, öğretmen adaylarının birbirleriyle işbirliği içinde çalışmaları ve izledikleri kısa derse ilişkin yansımaları olarak sıralanabilir. Bununla birlikte, zaman kısıtlılığı ve sınıfların kalabalıklığı gibi bazı kısıtlamalar nedeniyle, bu faydalar kolayca elde edilemeyebilir. İlgili alanyazın, mikro öğretime ilişkin bu zorlukları oldukça kapsamlı bir şekilde tartışmış ve bazı çözümler önermiştir. Ne var ki, geleneksel mikro öğretim oturumlarına teknolojinin entegre edilmesi durumunda öğretmen adaylarının elde ettikleri kazanımları araştıran çalışmalar oldukça azdır. Bu nedenle, bu çalışma tasarlanmış bir Web tabanlı bir öğrenme ortamının (bundan sonra WeBILE olarak anılacaktır) katılımcı öğretmen adaylarının mikro öğretim sürecindeki iletişimlerini, işbirliklerini ve yansımalarını geliştirmedeki etkisinin nasıl algılandığını araştırmayı amaçlamaktadır. Bu amaçla 52 Kürt kökenli İngilizce öğretmen adayından WeBILE'yi altı hafta kullanmaları istendi. Hem nicel hem de nitel veriler anketlerden, sistem analitiğinden, yansıtma günlüklerinden ve yarı yapılandırılmış görüşmelerden toplandı. Veri analizi sonuçları, tasarlanan WeBILE'in, öğretmen adayları arasında mikro öğretim sürecinde iletişim, işbirliği ve yansıtma fırsatları yaratarak, öğretmen adaylarının mikro öğretim uygulamalarını desteklemede ve geliştirmede ve tanımlanan mikro öğretim problemlerini çözmede oldukça etkili olarak algılandığını ortaya koymaktadır.

Anahtar Kelimeler: Mikro öğretim, Web tabanlı öğrenme ortamı, Yabancı dil öğretmen eğitimi, Program değerlendirmesi, Irak

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Chapter 1

INTRODUCTION

1.1 Background to the Study

Since the past five decades, the quest for better preparation of second/foreign language teachers, English language teachers in this study, has been a major focus of applied linguists and educational research. Historically, the epistemology of language teacher preparation has undergone significant changes and developments. According to Burns and Richards (2009), the origins of particular approaches to teacher training for second language teachers date back to 1960s, when the prospective teachers were given short training programs and certificates specifically designed to enhance their knowledge and practical classroom skills. During this period, teaching profession, as Schulz (2000) states, was considered as an innate skill rather than acquired knowledge. In the subsequent years, the focus of foreign language teacher preparation was shifted from transmission modes and training in knowledge and skills to the development of the identity and teaching experiences of the prospective teacher through dialogical, reciprocal and practical inquires of language teaching (Freeman, 2009; Richards, 2008).

In the related literature, there is a broader examination of alternative conceptualizations of English language teacher education (ELTE) in a way that it is seen as a form of reflective practice (Schön, 1983; 1987; Shulman, 1987) and socializing into practices of the community of practice (Singh & Richards, 2009; Tsui,

2009; Wenger, 1998). Moreover, ELTE has also been influenced by sociocultural theory (Burns & Richards, 2009; Lantolf, 2000), the field of teacher cognition (Borg, 2009), situational understanding of practice in terms of building a cognitively-driven process through reflective teaching (Kumaravadevelu, 2012), the need to respond to the status of English language as current and future international language (Crystal, 1997; Graddol, 1997; Pakir, 1999; Richards, 2008), and globalization and technological advancements in the world.

English language teacher education programs encompass both theoretical knowledge bases and practical component like English as a foreign or second language (EFL/ESL) methodology, including microteaching and practicum. Within such ongoing developments in the field, the connection of theoretical knowledge with the practical skills has been one of the most important objectives and concerns of English language teacher education (Bell, 2007; Ching, 2014; Corder, 1976; Johnson, 1996; Mergler & Tangen, 2009; Retelj & Puljić, 2016; Ünver, 2014). It has been strongly recommended that ELTE programs should link theory to practice and focus on prospective teachers' process of making sense of theory by practicing the theory in the teaching context (Johnson, 1996; Retelj & Puljić, 2016). Furthermore, it is revealed that those teacher education programs that connect theoretical courses with practical field experiences are more effective than those which do not consider such connection (National Academy of Education, 2006).

One of the most common techniques that have been employed to bridge theory to practice in ELTE is microteaching. Generally, microteaching is defined as a process in which a pre-service teacher practices teaching focusing on a narrow topic in a reduced period of time and with a small group of colleagues (Roberts, 1998; Singh,

2010). Although microteaching has been found effective for teacher preparation in various fields and provided them with a valuable form of instructional practice (Karçkay & Sanli, 2009; Kpanja, 2001), it has waned and become less fashionable in the past two decades (Grossman, 2005; Ralph, 2014; Wright, 2010). The major reason for such decline in the use of microteaching for teacher preparation is reported to be its heavy reliance on behaviorist, traditional, and conservative philosophies of teaching, which focus mostly on outcomes rather than performance (Ornstein & Hunkins, 2013; Wright, 2010).

Due to the advancements in technology and attempts to improve the practical experience, there has been a rebirth of microteaching, but in a new form, in ELTE programs (Wright, 2010). In the past few years, much research has called for a reflective microteaching as a means of improving pre-service teachers' teaching experience and addressing some of the problems of real classroom practice (Amobi, 2005; Donnelly & Fitzmaurice, 2011; Farrell; 2008; I'anson, Rodrigues & Wilson, 2003; Lin, 2014). In addition, Kilic (2010) proposes the learner-centered microteaching model to enhance prospective teachers' teaching competences in teacher education programs. Moreover, microteaching has also been re-examined through the integration of various technological tools to develop pre-service teachers' practical skills, collaboration, and reflection (Bozyigit, 2016; Diana Jr., 2013; Kpanja, 2001; Lin, 2014). Furthermore, the recording feature of technology has been used as a way for preparation for or delivering microteaching. Additionally, such feature is also utilized as a basis for feedback and self-reflection, as a tool for collaborative learning and a means for gaining a more objective perspective on their own teaching practices in a non-threatening environment (Ekpo-Eloma, Arikpo & Catherine, 2013; Rich & Hannafin, 2009; Savas, 2012; Tripp & Rich, 2012).

Furthermore, research has also been conducted to investigate the impact of particular components of microteaching, such as feedback sessions (Chawla & Thukral, 2011; Koc & Ilya, 2016), lesson planning, implementation and evaluation (Al-Methan, 2006; Aydin, 2013; Can, 2009), assessing teaching behaviors (Sherin, 2003), reflection and collaboration (Lin, 2014; Saraswati, 2013), on enhancing prospective teachers' teaching experience. Also, the effect of microteaching on enhancing preservice teachers' self-efficacy (Arsal, 2014; Cinici, 2016) and critical thinking skills (Arsal, 2015) has been explored carefully. Despite the usefulness of previous studies on the use and integration of some technological features into the microteaching process, there is a need for a reconsideration of the microteaching process through the integration of more advanced technological features like web-based instruction into the process and improving the microteaching practice in the ELTE programs both locally and internationally.

1.2 Statement of the Problem

Research has shown that microteaching is an effective means of bridging theory to practice and developing pre-service teachers' practical teaching skills (Karçkay & Sanli, 2009; Retelj & Puljić, 2016). In the past two decades, due to the advancements in technology and attempts to improve the practical experience, there has been a rebirth of microteaching, but in a new form, in English language teacher education (ELTE) programs due to the advancements of technology and integrating many new technological features. There are studies which have called for reform-oriented teaching in teacher education programs through the integration of technology into microteaching sessions as technology-enhanced microteaching provides pre-service teachers with opportunities to see how this change benefits their learning outcomes and professional development (Diana Jr.; 2013; Wright, 2010).

In this respect, many studies have investigated the use of technology for developing the microteaching experience of pre-service teachers through utilizing the recording feature of technology (e.g. Bozyiğit, 2015; Ekpo-Eloma, Arikpo & Catherine, 2013; Kpanja, 2001; Yamamoto & Hicks, 2007; Rich & Hannafin, 2009; Tripp & Rich, 2012; Tülüce & Çeçen, 2017), microblog (Lin, 2014), online microteaching (Kusmawan, 2017), virtual reality and web conferencing (Dixon, Hall & Shawon, 2019; Ledger & Fischetti, 2019), and Zoom and YouTube by webinars (Roza, 2021). It can be concluded from these studies that such technological features were mainly used either as a means of presenting the trainees' microteachings or improving their reflective practice. However, they did not investigate the use and effectiveness of these technological features on improving the students' experience in the other components of microteaching such as preparation and planning and the teaching process. Moreover, these studies did not provide the learning resources, learning tasks, and learning supports (Oliver & Herrington, 2001) to enhance the students' both theoretical knowledge and practical opportunities about the microteaching components. Finally, in these studies there was no focus on designing a particular web-based instructional learning environment following essential design features corresponding to the current developments in the educational technology. Therefore, there is a need for developing a deeper understanding about how the use of technology can improve the preservice teachers' microteaching in the ELTE programs.

Similarly, at the local level (i.e. Kurdistan region of Iraq), there are some contextual problems waiting to be addressed. First, no study has been detected on the use of technology in the microteaching process in the ELTE programs. Second, one of the major weaknesses of the ELTE programs was reported as inadequate provision of practical opportunities (including microteaching) to the pre-service teachers (Omar,

2017). Most importantly, from my professional experience as a teacher educator in an ELTE program in the region, microteaching process is inadequately practiced due to big class size (between 30-50 students) and limited class time (3 hours per week in which one hour is devoted for microteaching), a situation which hardly creates practical opportunities for reflection and communication about the process. This has left the Kurdish EFL pre-service teachers underprepared for the practicum and future profession. To bridge the above mentioned research gap, the need for a deeper re-examination of the integration of technology in the microteaching process through considering all its components at a time and in one online learning environment is considered timely and necessary.

1.3 Purpose of the Study

This study, then, aims at exploring the perceptions of the pre-service teachers about the effect of a particular web-based instructional learning environment (henceforth, WeBILE), in a form of learning management system (LMS), designed to improve the pre-service teachers' microteaching experience, considering all its components, in the ELTE program at Raparin University. To this end, the following research questions are addressed:

1. What are the pre-service teachers' perceptions about the nature of the web-based instructional learning environment (WeBILE) for microteaching?
2. What are the pre-service teachers' perceptions about the effectiveness of the web-based instructional learning environment (WeBILE) for improving their microteaching process?
3. What are the pre-service teachers' perceptions about the effect of the WeBILE on enhancing their communication and collaboration for microteaching?

1.4 Significance of the Study

It has long been accepted that prioritizing and enhancing microteaching experience play a prominent role in developing pre-service teachers' professional practice (Bell, 2007; Karckay & Sanli, 2009; Kpanja, 2001; Ralph, 2014; Retelj & Puljić, 2016; Singh, 2010; Wallace, 1991). In addition, previous studies have also acknowledged the integration of technology, specifically web-based learning environments, into ELTE programs to develop pre-service teachers' practical experience and prepare them for future challenges like using and applying such advanced tools in their teaching, and catching up with digital-literate generation (Darling-Hammond, 2010; Johnson, 2006; Moeller & Park, 2003; Okan & Taraf, 2012; Reinders, 2009; Saltan, Özden & Kiraz, 2016). Thus, research on the design, implementation and evaluation of web-based instructional learning environment for pre-service EFL teachers' microteaching development can be a significant contribution to the process of ELTE program both locally and internationally.

Moreover, the information and results provided in this study can also have some important benefits for local and international EFL pre-service teachers. Due to the ever-growing influence of technology in teacher preparation programs, it is expected that the intended WeBILE in this study will improve these teachers' microteaching experience since it provides authentic and constructive learning tasks, enhances collaboration among the participants, creates chances for giving reflective feedback to their colleagues and ultimately gaining more understanding about the teaching process in the real-world environment.

The study is also expected to contribute to an understanding of the effect of a web-based instructional learning environment in ELTE programs, and provide a solid base for empirical study of EFL pre-service teachers to perform authentic educational tasks. Furthermore, considering the fact that there is a relatively limited research in the area of web-based instruction for microteaching purposes, and its impact on enhancing microteaching experience in ELTE program, the insights gained in the present study will pave the way to both teacher educators and instructional designers for planning, designing, implementing and evaluating more quality web-based instructional environments, with regard to pedagogy and technological innovation in ELTE programs, in a manner that it facilitates virtual learning and instruction, and teacher professional development.

Finally, this study which addresses an educational problem of a real learning environment like a classroom in a particular context can have three more implications (Herrington et al., 2007). First, scientific outputs of this study provide the readers with evidence-based heuristics, which are expected to inform their future development, implementation decisions, and problem-solving skills. Second, the designed artefact (i.e. the web-based instructional learning environment for microteaching), as a practical output of this study, can solve teaching, learning, and performance problems of those people who involve in this study, and any other related learning context. Finally, the use of authentic and collaborative activities with the help of educational technology, as societal and contextual factors, is expected to enhance the participants' microteaching skills in the ELTE program.

Chapter 2

LITERATURE REVIEW

This chapter provides a comprehensive description of and detailed information about the related literature. This chapter is composed of four major sections. The first section provides a detailed description of issues relating to web-based instruction including nature of web-based instruction, web-based instructional designs and learning theories, and models of web-based instruction. The following section presents a comprehensive description of user acceptance of technology. The third section deals with issues in second language teacher education in which its international and local historical developments are provided. Finally, relevant issues in microteaching in second language teacher education are described.

2.1 Issues in Web-based Instruction

Since the past few decades, the Internet and World Wide Web (the web) have provided fresh impetus for educators and computer-assisted instructional designers to design, develop and deliver interactive instruction, because both the Internet and the web have been acknowledged as an influential and dominant tool of super database of resources that facilitate global interaction (Hites & Ewing, 1997; Huang, 2000). Therefore, the web has begun to supply learners with a new and broad range of learning opportunities and experiences (Wise, 1996), and it has changed what, how, when and where we learn (Chan et al., 2001) and we teach in the modern world. All these have made the web become a popular growing phenomenon in the field of education, specifically in foreign language education (Oliver & Herrington, 2001).

2.1.1 Nature of Web-based Instruction

Web-based instruction (WBI) has been conceptualized in many ways. It has been shown that WBI is "a hypermedia-based instructional program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported" (Khan, 1997, p.6). Moreover, Relan and Gilliani (1997) added that WBI is the implementation of instructional strategies in a "constructivist and collaborative learning environment" (p. 43), with the help of the possibilities that the web provides. In addition, another definition comes from Brown and Green (2016), who believed that WBI is the practical application of knowledge about learning, information technology and methods of analysis to "create a situation where learning is most likely to effectively occur" (p. 5). It can be understood from these definitions that an effective WBI has two major features; first, it is driven towards achieving a desired end or outcome, and second, it utilizes information technologies as a means of delivering the content.

The increasing use of the web in education, specifically in foreign language education, is mostly due to its numerous design features. The flexibility of web-based education can be clearly noticed in its asynchronous feature. In other words, web-based education eliminates time and place constraints, in which learners can receive instruction and participate in many types of course-related activities like group discussions and collaborative tasks at any time and in any place. Research has shown that this asynchronous feature has made web-based education to be a more practical option for those who have busier lifestyles and a wiser choice for those instructors who wish to enhance learners' interaction because virtual interaction is mostly unlimited (O' Donoghue et al., 2001; Perez-Prado & Thirunarayanan, 2002; Seng & Mohamad, 2002). Moreover, Oliver and Herrington (2001) added that the flexibility of web-based

education is also attributable to its capacity to tailor various courses to the needs of learners and provide support for different ways of program delivery and achieving instructional goals.

Another essential feature of web-based education is cost-effectiveness. Compared to traditional classrooms, web-based education is less expensive and confirmed as a low cost means for distributing and delivering information and resources to learners (Salmon, 2000). Furthermore, Oliver and Herrington (2001) believe that this cost-saving opportunity is most likely due to the ability of web-based education to be used for mass delivery. In addition, the results of a study conducted by Whalen and Wright (1999) provided two reasons for the cost-effectiveness of web-based education; first, time is reduced in delivering instructional courses, and second, such courses are designed with the potential that they will be used with a wider range of learners without having additional costs.

Previous research has revealed more features of the web in education, which cannot be found in the traditional instruction. For instance, Yıldırım, Özden and Aksu (2001) confirmed in their study that hypermedia learning environment is significantly better than traditional instruction in terms of helping learners retain particular knowledge in specific subject areas. In addition, Oliver and Herrington (2001) claimed that web-based learning has become popular because it provides chances for enhanced learning, in which learners are helped to become "self-sufficient and capable self-learners" (p. 1). Similarly, Cook (2007) confirmed that web-based learning can provide the opportunity for individualized learning, in which the learners have greater control of the learning environment and more freedom to select among multiple learning

opportunities. He further claimed that web-based learning can also be easily updated so that it meets the needs of the learners.

Other instructional features of web-based education include interactivity and richness of resources. Studies have concluded that due to the availability of various means of communication like e-mail, chat, and discussion groups, learners' interaction is enhanced, which will have a highly positive effect on improving student learning (Berge & Collins, 1995; Driver, 2002; Gedik, Kiraz & Özden, 2013; Salmon, 2000). For instance, Gedik, Kiraz and Özden (2013) concluded in their study that web-based instruction provides learners with great opportunities for arousing their interest and participation, and improving their interaction, communication and interaction. Moreover, Lapadat (2003) concluded that web-based learning environments help quieter or more introverted learners, like females and racial minorities (Byers, 2005) to have more participation and be more expressive in group discussions of the learning environment. Concerning the richness in resources, the web provides numerous databases of documents, libraries, journals, galleries and software, which can be easily accessed by learners through web-based learning environments (Green, 1997). It is worth noting that the number of such databases is increasing dramatically because everyday thousands of documents in all domains of knowledge are uploaded to various web servers.

Due to the increasing use of web-based and online instruction in education, studies have reinvestigated the design features of such instruction. A review, for example, by U.S. Department of Education (2009) on studies conducted between 1996 to 2008 about specific design features on online instruction has showed that the presence or absence of specific technology tools like discussion boards, online quizzes, and

embedded video, the degree of interaction among students or with teachers, and the degree of learner control and learner reflection were determining factors of the success of failure of online instruction. Moreover, Vai and Sosulsky (2011) proposed that in order for an online instruction to be effective, it should include essential design features like clear language and writing style, related and appropriate visuals, collaborative activities, engaging resources, and assessment and feedback tools.

Furthermore, Moore (2013) in his theory of transactional distance presented three basic design features of an online instructional learning environment, which were instructional dialogue (i.e., the degree of constructive interaction between the students and teacher to build the students' knowledge), program structure (i.e., the rigidity or flexibility of the program's educational objectives, teaching strategies, and evaluation methods), and the autonomy of the learner (i.e., to what extent the students are free to choose what to learn, how to learn, and how much to learn).

It was found in Jaggars and Xu's (2016) review of previous studies on the design features of online instructional learning environment that these studies seemed to have common agreement on four general areas of features, namely, i) to what degree the interface of the learning environment is well organized and easy to navigate; ii) to what extent learning objectives and performance standards are clear; iii) the extent to which interpersonal interaction on the learning environment is strong and diverse; and iv) the extent to which technology is effectively used.

All in all, the advancement of technology has revolutionized the way people learn and teach in various fields. The vast availability of Internet and computers and the wide global use of them have provided instructional designers with unique instructional

capabilities and design features, like flexibility, cost-effectiveness, interactivity, resource richness, and accessibility to achieve their instructional goals in a more effective way.

2.1.2 Web-based Instructional Designs and Learning Theories

The notion of instructional design, or method design (Richards & Rogers, 2011), is known as a framework for planning, developing and evaluating instruction. More specifically, it is a systematic process of analyzing learning needs and goals, developing instructional specifications and designing instructional materials and activities to meet the learning needs, and the evaluation of their effectiveness or convenience throughout the entire instructional process (Brown & Green, 2016). This structured process has been continuously under the consideration of scholars and practitioners since the last century. For instance, at the beginning of the 20th century, the instructional principles and designs of John Dewey and Edward Thorndike were among those efforts made to develop a relationship between the science of psychology and the practical application of learning theory in learning environments (Tennyson, 2010). Since then, the notion of instructional design in educational settings has been affected by the proceeding learning theories and applied scientific approaches to the social sciences, and most of the instructional practices and methods have been designed in reflection to the popular learning theories, teaching approaches, and technological advancements of the time.

A number of these learning theories have been utilized in web-based instructional designs to provide frameworks for the explanation of student interactions within web-based learning environments and guide the design and use of these environments. Two of these learning theories that have provided basic foundations of web-based instructional learning environments are Behaviorism and Cognitivism. Traditionally,

it was believed that human learning is similar to animal learning (Chastain, 1976). This belief created opportunities for many scholars to have a growing interest in animal behavior, which led to the growth of experimental psychology and, ultimately, the emergence of behaviorism (Hadley, 2001).

In the behaviorist theory, learning is viewed as directly observable behavior, which can be measured by behavioral responses in the learner to particular stimuli. Moreover, behaviorists believe that learning is a process of conditioning by instruction that can guide and shape the learning through sequences of *stimuli*, *responses*, *feedback*, and *reinforcement*. It is worth noting also that behaviorist school of learning does not consider the role of mental operations in the learning process; rather its focus is more on external and observable performance of the learner.

In addition, Ormrod (2007) stated that although behaviorism consists of a set of learning theories, they all share three common epistemological beliefs. First, they consider that learning principles are generalizable across species. Furthermore, they also believe that focusing on observable behaviors is important to evaluate the learning outcomes. Finally, since all living organisms naturally possess "blank slate" (Ormrod, 2007, p. 48), their mind can be shaped and formed to produce desirable responses and behaviors after giving particular stimuli. Such epistemological beliefs were dominant in the process of learning until the mid of 20th century (Brandt & Perkins, 2000), and reflected in the work of many notable scholars like Pavlov, Thorndike, Watson and Skinner.

These beliefs about learning were also reflected in the work of instructional designers of the time. Teachers were in control of the complete learning and teaching process,

and their instructional goals and activities aimed to develop individual learning, which was completely deprived from the context outside the learning environment (Valcke, 2001). Furthermore, learners were evaluated on the basis of their observable performance or overt behaviors, and the evaluation means were designed only by the teachers. Thus, the major role of instructional designers was to *instruct* teaching and learning, and focus more on the structure and presentation of the learning materials than the learners as passive recipients of the instruction (Jonassen, 1991).

On the other hand, in the following years, scholars started to move from behaviorism to cognitive learning theory, which focuses on the mental process of the learner. Congnitivists, additionally, insist on the mind as the agent of learning and maintain that learning results from internal and mental activity of the learner (Brandt & Perkins, 2000; Hadley, 2001). From a cognitivist view, learner's mind, like a computer, is considered to be highly complex, which "processes information through a series of different processes that work together as a complete system" (Brown & Green, 2016, p. 28). It is worth noting that the cognitive perspective has been highly influenced by Vygotsky, Dewey, Piaget and Bruner, whose work has provided basic foundations in generating this learning theory.

Instructional designers, following cognitivism, believe that learning is best achieved through various learning strategies like memorization, drill and practice, deduction, and induction that are designed depending on the type of desired leaning outcomes (Atkins, 1993; Jonassen, 1991; Reeves & Reeves, 1997). Moreover, Snow (1997) stated that the instructional methods designed on the basis of cognitive perspective focused mostly on learning conditions, individual differences and incorporating various formative assessment procedures, which required the learners to produce

knowledge resulted from particular strategies such as problem-solving, organizing information, reducing anxiety, developing self-monitoring skills, and enhancing positive attitudes (Winn, 1993).

Until the last decade of the 20th century, behaviorist principles were essential for the design and use of educational technology (McKenna, 2004). Later, within the developments in cognitive theory of learning, there has been a move away from the objective view of knowledge, which is the focus of behaviorist perspective, as separate from the learner to a focus on the learner as the knower (Herrington & Standen, 2000). This new way of approaching learning has led to the birth of Constructivism, which is a set of learning theories and pedagogical approaches that see learning as construction of knowledge through reflecting on experience (Brandt & Perkins, 2000; Brooks & Brooks, 1999; Brown & Green, 2016).

Moreover, constructivism, as a variant of cognitivism, is based on the belief that knowledge does not exist outside the mind of the learner; rather it is constructed through interacting with others. Despite having different positions on the notion of constructivism, Duffy, Lowyck and Jonassen (1993, p. 1) contended that there is general agreement that "the importance of the authenticity of the learning task and context in which the student works and the importance of collaborative learning as a means of developing a richer understanding" are essentials of constructivist perspective. Furthermore, Duffy and Cunningham (1996, p. 171) maintained that the wealth of literature has shown that there are two commonly agreed tenets of constructivism, namely, learning is an active process of constructing rather than acquiring knowledge, and instruction is a process of supporting construction rather than communicating knowledge.

Constructivist perspective on learning, according to Duffy and Cunningham (1996), is mostly classified into two complementary views. One view is cognitive constructivism that sees learning as a process in which learners build their own knowledge by constructing schemas, or mental models from interactions with their environment. On the other hand, sociocultural constructivism focuses on the social and cultural contexts of learning as basic tenets of learning process. Additionally, although both views are centered on the belief that learning is an active construction of knowledge and meaning by the learner (van Merrienboer & de Bruin, 2014), cognitive constructivism prioritizes the mental construction of the learner; whereas, sociocultural constructivism emphasizes the social context of the learning environment (Ewing et al., 1998; Neo, 2003).

Instructional practices, according to Valcke (2001), which are designed on the principles of constructivism have particular characteristics. Teachers are seen as coaches or facilitators rather than controllers of the teaching and learning process. Moreover, learners, as a part of social context or the team, have an important role and responsibility in controlling and achieving the learning process. Furthermore, instructional activities include real-life tasks like problem-solving, discussion, role-play, and collaboration activities. Finally, the real-world is considered as the educational context and the learning environment. However, it is worth noting that since such instructional learning environments increase learner freedom in the learning process and teachers are facilitators, researchers caution that constructivst perspective should not be seen as “hands off” approach; rather, teachers should have responsibility in managing and monitoring the learning and teaching process (Jonassen et al., 1993; Westera, 1999).

Previous studies have shown that although both behaviorist and cognitive theories of learning have strongly influenced the design of web-based instructional learning environments, constructivist view of learning is more supported in the literature and now it is the dominant approach in designing technology-based educational environments (Ally, 2008; Atkins, 1993; McKenna, 2004; Westera, 1999). Moreover, Reeves (1999) supported constructivist perspectives in the manner that their application in technology-based learning environments has more far-reaching effects on enhancing teaching and learning than those of behaviorism. Furthermore, Squires (1999) also contended that constructivist approaches provide most educationalists with more possible learning benefits of using educational technology than behaviorism does.

However, nowadays, these learning perspectives have been doubted for whether they are practical and applicable in the real-world environments, and bear close resemblance to normal learning tasks (Laurillard, 2002; Richardson, 1987). In addition, some anthropologists and sociologists (e.g. Lave & Wenger, 1991; Vygotsky, 1978), who considered learning in a broader context, have also claimed that effective and meaningful learning occurs in social and cultural situations. All these doubts, have led many instructional designers to shift their attention from these learning theories to situated learning theory, another essential tenet of constructivism (Ally, 2008; Hung, Looi, & Koh, 2004).

Situated learning theory, first generated by Brown, Collins and Duguid (1989), and later expanded by Lane and Wenger (1991), strongly emphasizes the importance of authentic activities in the learning process. Moreover, Oliver and Herrington (2001) defined the theory as a learning design which strongly emphasizes “bridging the gap

between the theoretical learning that occurs in the formal instruction of the classroom and the real-life application of the knowledge in the work environment." (p. 78). In addition, the theory rejects the behaviorist view of learning because it deprives knowledge from the learning situation. Furthermore, it argues that learning and cognition are basically situated within particular contexts and cultures, and also underlines the value of active participation in the learning process occurring in authentic contexts, which are meaningful and purposeful for the learners (Brow, Collins & Duguid, 1989).

In the last few decades, situated learning theory has attracted many scholars' attention, and, therefore, they tried to identify and summarize the key features and components of the theory. McLellan (1995), for example, summarized the main components of situated learning as "apprenticeship, collaboration, reflection, coaching, multiple practice, and articulation of learning skills" (p. 7). Moreover, Herrington and Oliver (1995, 2000) provided more detailed features of situated learning, and contend that any learning environment designed based on situated learning needs to have nine elements, which are:

1. authentic context that reflects the way the knowledge will be used in real life.
2. authentic activities which are ill-defined and have real-world relevance.
3. access to expert performance and the modelling of processes, in a manner that "learners often learn through interactions with those who are more experienced and with experts." (Herrington & Oliver, 2000, p. 180)
4. multiple role and perspectives that provide the learners to investigate the learning environment from different perspectives and various viewpoints.
5. collaborative construction of knowledge which are provided through tasks and addressed to a group like pairs and small groups, rather than an individual.

6. reflection to provide opportunities for the learners to reflect on their learning.
7. articulation to enable tacit knowledge to be made explicit.
8. coaching and scaffolding by the teacher at critical times in an open-ended learning environment.
9. authentic assessment for learning within the tasks to evaluate and assess the learning outcomes.

Brown, Collins and Duguid (1989) claimed that situated learning theory can be converted to a model of instruction with practical classroom applications if it is further investigated and developed. This claim has led many researchers to identify the critical aspects of situated learning and enable it to be used as a teaching method or model that can be applied in the classroom (Oliver & Herrington, 2001). For example, Korthagen (2010) investigated situated learning to see whether it has any implications for the understanding of teacher behavior and teacher learning, and the pedagogy of teacher education. He, moreover, concluded that situated learning perspective, as a learning model, can have an important place in teacher education, and can lead to concrete implications for the pedagogy of teacher education.

In addition, Squires (1999) showed that situated learning can have profound implications for the design of many learning environments. Furthermore, some other studies have tried to expand and refine the notion of the theory to a more comprehensive and far-reaching framework for the design of particular learning environments. For instance, Herrington and Oliver (1995, 2000), Oliver and Herrington (1999, 2001) clearly showed that situated learning can be used as a strong framework to design successful technology-based learning environments, and in their studies they have provided a strong practical framework to guide the design of online

learning environments, which are based on situated learning perspective. In one of their studies, Herrington and Oliver (2000) presented that situated learning characteristics can be applied to web-based learning environments (see Figure 1), and such application will enable "teachers to craft learning activities that take advantage of the unique opportunities and affordances of the Web" (p. 189).

Learning Elements	System Features
Authentic contexts	• content presented in ways reflecting intended use • the problems give relevance and meaning to the coursework
Authentic activities	• real-life problems are presented to the learners • problems require open-ended inquiry • the problems are non-structured learning activities
Expert performances	• sample solutions are provided to guide learners in problem-solving processes • access to Web sites of experts and experienced others add to the information sources
Multiple perspectives	• access to multiple Web sites for information • a variety of media sources, e.g. print, video • groupings provide different perspectives • best solutions present alternative perspectives
Collaboration	• group-based activities encourage collaboration • the open-ended problems require group-based decision making
Reflection	• the open-ended questions require definition and description • peer assessment necessitates reflective processes
Articulation	• group-based problem solving requires students to create solutions to open-ended problems • summarised solutions necessitate articulation and explanation of learning
Coaching and scaffolding	• Students are supported by other group members • materials are available to model problem-solving processes • e-mail access to tutors provides learner support
Authentic assessment	• Assessment strategies assess the processes of learning as well as the products • peer-assessment ensures students became critical reviewers of others' work

Figure 2.1: Elements of situated learning with supporting on-line activities and affordances (Herrington & Oliver, 2000, p. 187)

It can be understood from the aforementioned studies that utilizing situated learning for the design of web-based learning environments is still an area of further

investigation, because the majority of the related studies were conducted in the past few decades. This claim was also supported by the results of a report prepared by Computing Educational Research Group in 2008, in which it is revealed that "a search of the literature showed a scarcity of studies that had used [situated learning theory] for the design of learning environments" (p. 9). Therefore, further research should be conducted on the implementation of situated learning in the design of web-based learning environments.

In this current study, constructivist theory of learning is utilized. More specifically, its basic elements like social constructivism and situated learning are considered as the solid background of shaping the web-based learning environment aimed to design in this study.

To conclude, it has been shown that the aforementioned theories of learning provide basic foundations for understanding the nature of learning within the design of web-based and other learning environments. Moreover, they also provide a broad knowledge about the widely known educational approaches that have strong foundations in behaviorism, cognitivism, and constructivism. It can also be understood from the previous related literature that although there is evidence about the use of behaviorism in the design of learning environments, most of the current efforts in research and the design of learning environments have been derived from constructivist approaches to learning (Harper & Hedberg, 1997).

2.1.3 Models of Web-based Instruction

Models in instructional design are defined as guidelines and procedures that can be used to design various learning settings (Brown & Green, 2016). Moreover, Nixon and Lee (2001) claimed that using these models to design and develop any instructional

learning environment can help to significantly reduce costs in training and education. Furthermore, it is also believed that the major role the models play in the design of instructional learning environments is to provide conceptual means to visualize and guide processes for producing guided learning (Gustafson & Branch, 1997). The review of literature on the models of instructional design shows that learning theories and historical development have had significant effects on the various models proposed for the design of instructional environments, in general, and web-based learning environments, in particular. Therefore, scholars have attempted to categorize the related models according to historical developments, like modern and postmodern models (Brown & Green, 2016); while some others have grouped the models based on the core tenets of learning theories like objectivist, constructivist, and mixed-method models (Nam & Smith-Jackson, 2007). I think, however, that categorizing the models based on the learning theories is easier to understand, because although some learning theories are thought to be traditional, they still have impact on the design of many learning environments.

To begin with those models which are connected to the instructivist and objectivist (i.e. behaviorism and congnitivism) perspectives of learning, Spector et al. (1992) proposed a model for computer-based instructional design which focuses on the relationship between the learner characteristics, the learning environments, and the quality outcome of computer-based instruction. Their model, described as a "cognitively oriented method for developing a useful and predictive process for designing [computer-based instruction]" (Spector et al. 1992, p. 45), consists of five interconnected stages, namely, analysis, design, production, implementation and maintenance (see Table 2.1). In addition, each of these stages are further explained through providing the relevant typical goals.

Table 2.1: Instructional Design Model (Spector et al., 1992, p. 45)

Phases of instructional design	Typical goals
Analysis	Define training requirements.
	Analyze target population.
	Establish performance levels.
Design	Specify instructional objectives.
	Group and sequence objectives.
	Design instructional treatments.
Production	Develop learning activities.
	Develop test items.
	Evaluate prototypes.
Implementation	Implement learning activities.
	Administer test items.
	Assess student results.
Maintenance	Revise course materials.
	Revise test items.
	Assess course effectiveness.

One advantage of this model is that it provides a linear process. However, instructional designers are likely to face difficulties in implementing the model because it does not show how to follow or implement the stages. Moreover, the model, according to Sadik (2002), is that the design of the model is based on the outcomes of behavioral and objectivist perspectives, which have been questioned by the constructivist theory of learning.

Another model relating to the objectivist perspective of instructional design comes from Dick and Carey (1996). Their model, known as Instructional Systems Design (ISD) (see figure 2), is an objectivist-oriented model which is used for designing technology-based instructional learning environments. Moreover, it consists of some interconnected stages which are presented in linear steps as a systems process and in iterative cycles, in which the output of one step is the input for the next step. Moreover, concerning how the model is applied in an instructional learning environment, Dick and Carey (1996) believed that although instructional designers are not restricted to

follow the stages as exactly provided in the model, they are advised to work through the model in an orderly fashion because following such order helps the instructional designers to "facilitate the transfer of learning to the performance environment, and conducting formative evaluations" (p. 58).

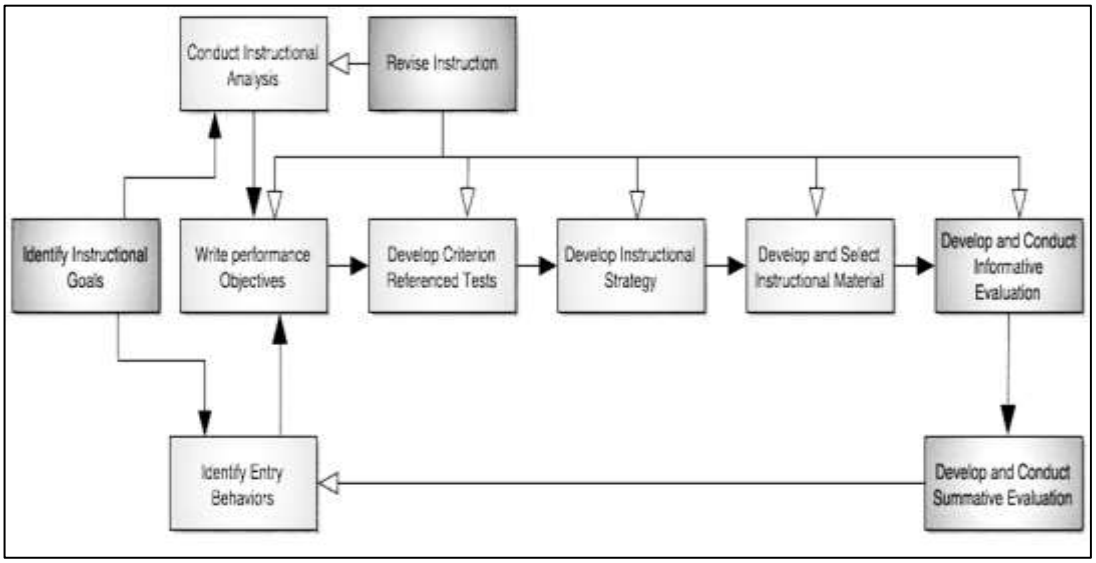


Figure 2.2: Dick and Carey's Instructional Systems Design Model (cited in Brown & Green, 2016, p. 9)

According to Brown and Green (2016), the model was influential for its time because "it was a significant departure from the more traditional approach of presenting information through some combination of lecture, textbook reading, review, and testing" (p. 10). Furthermore, Dick, Carey, and Carey (2009) also acknowledged an advantage of the model as it was designed to focus on the importance of assessing and refining the instruction, and provide guidance to bring improvements. However, the model was not free from criticism. Willis (1995), for instance, argued that one disadvantage of the model was that it supported the behaviorist perspectives of learning by claiming that the model was "firmly anchored in the foundationalist, empirical-rational, and behavioral-tradition" (p. 9). Additionally, in another study, Willis (2000, p. 9) explained that the basic principle of the model was linearity, which

if it is not closely followed, “chaos will be the result, the designers will be out of sorts, and learning will not occur”. Finally, Akbulut (2007) believed that this model is cumbersome when applied to real-life contexts because it is inflexible and follows rigid systematic orders.

Following similar perspectives of the learning theories but showing a different design plan, Kemp’s model (Morrison, Ross & Kemp, 2004) proposes a non-linear instructional design plan, which consists of nine core elements.

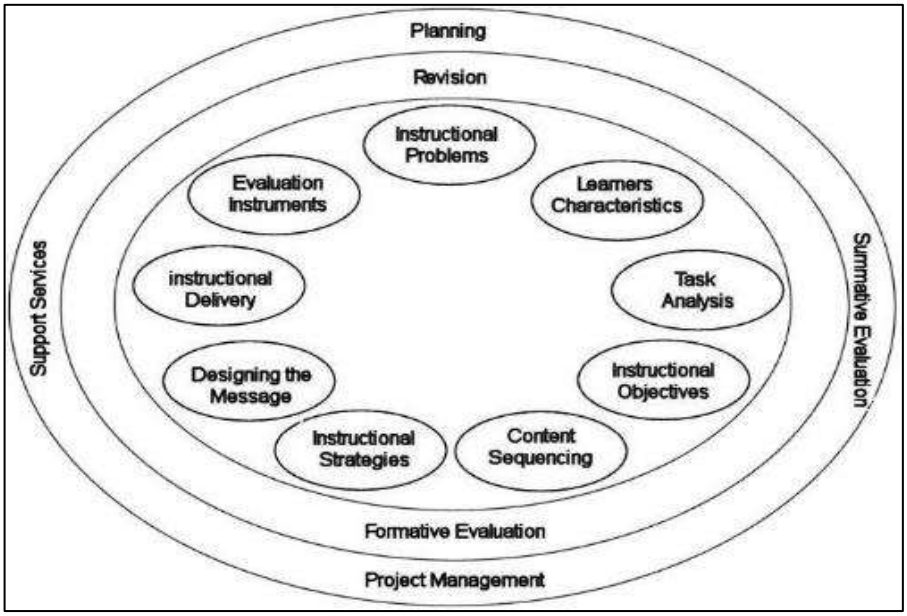


Figure 2.3: Kemp’s Model (Morrison, Ross & Kemp, 2004, p. 29)

It is clear from the model that the nine core elements presented are not systematic and predetermined, which means the instructional designer or instructor can begin with any element and proceed in any manner. Moreover, the inner circle of the model includes nine basic elements, which are explained by Morrison, Ross and Kempt (2004, pp. 7-8) as:

1. Identify instructional problems and specify goals for designing instruction.

2. Investigate learner characteristics that will affect the instructional decisions.
3. Identify subject content, and analyze task components related to stated goals and purposes.
4. Set the instructional objectives.
5. Do content sequencing within each instructional unit for logical learning.
6. Design instructional strategies so that each learner can master the objectives.
7. Design the instructional message and develop the instruction.
8. Develop evaluation instruments to assess the objectives.
9. Select resources to support instruction and learning activities.

In addition, the other two outer circles in the model represent both managerial and evaluation procedures, including formative, summative, and confirmative evaluations, which are all conducted during the design, development and implementation stages. Research has shown that this model has some particular characteristics that make it different from the other instructional design models. Gustafson and Branch (2002), for instance, claimed that Kempt's model is flexible for application due to its non-linearity and circular structure that help the instructional designer to "start anywhere and proceed in any order" (p. 29). This flexibility seems to be more applicable in real-life environments since the instructional designers are not required to use all nine elements during the design process. Furthermore, Akbulut (2007) added that, unlike Dick and Carrey's model, Kempt's model is circular and the interdependent elements of the model can be followed in any order depending on the needs of the instructional design process. He, further, showed that the model sees instruction from the perspective of the learners and places stronger emphasis on how to manage an instructional design process.

It can be understood from the aforementioned objectivist and instructivist models of instructional design that they share four common basic stages, namely, analyze, design, develop, and evaluate. Moreover, they, except Kempt's model, mostly follow rigid and inflexible procedures, which make the models difficult for application in real-life and particular learning environments, and also creates difficulties for the instructional designers to accustom their instructional design process according to the needs of the learning environment. Finally, Reigeluth (1996) stated that objectivist models of instructional design classify learners according to standardized categories, thereby promoting conformity and compliance in the instructional process.

To address these problems, the demand for more convenient instructional models has been increased by instructional designers in the past few decades. With the growing concern of the constructivist perspectives in learning and instruction, instructional designers have shifted their attention from the instructivist and objectivist models to constructivist ones so as to fulfil the needs of the learners and learning environments in the contemporary world. Therefore, many constructivist models have been proposed for the more effective design of the instructional learning environments.

Jonassen (1999), to name one, proposed a model to design constructivist learning environments. He believed that objectivist perspectives of instructional design consider that knowledge can be transmitted from the teachers by the use of technologies and acquired by the learners through following some rigid stages. Since knowledge cannot be transmitted but individually and socially constructed, "instruction should consist of experiences that facilitate such knowledge construction" (Jonassen, 1999, p. 217).

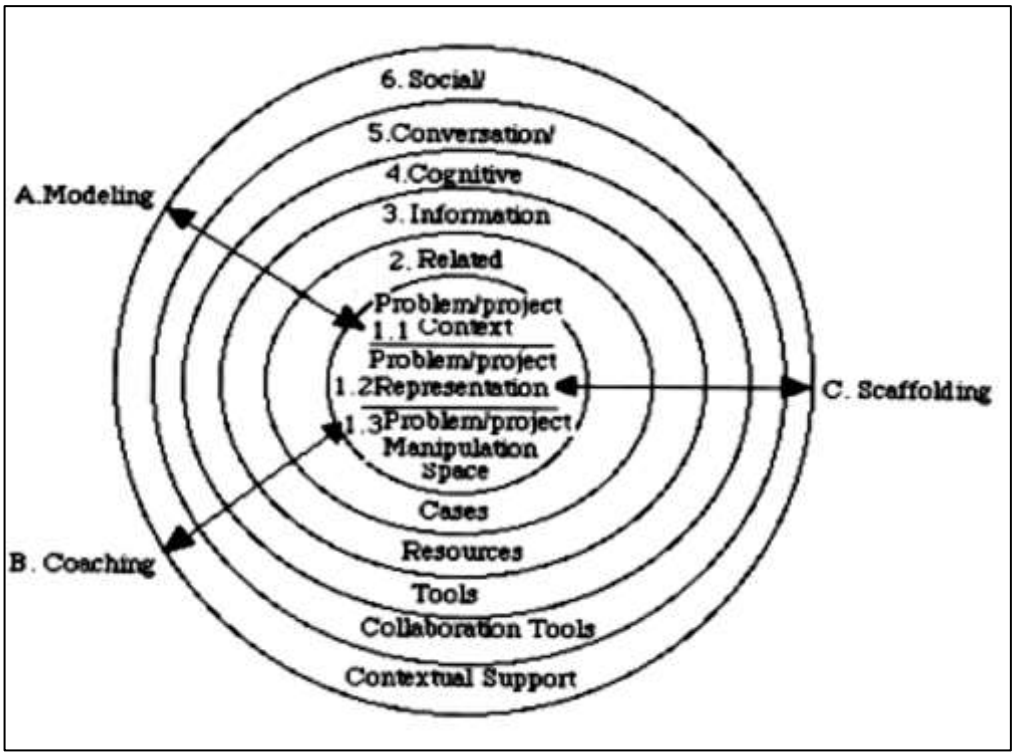


Figure 2.4: Model for designing Constructivist Learning Environments (CLEs) (Jonassen, 1999, p. 218)

It is apparent from the model that six components are essential for the successful design of any constructivist learning environment. Jonassen (1999, pp. 218-230) explained these components by starting with investigating the problem or case of the learning environment. He claimed that the "focus of any [constructivist learning environment] is the question or issue, the case, the problem… that learners attempt to solve or resolve." (p. 218). Moreover, it was further explained that such problem or issue should be interesting, related to the context, and engaging that are authentic, ill-defined and have controversial answers. The reason for starting with such problems or issues, according to Jonassen (1999), is that they motivate the learners to actively engage into the learning and problem-solving process. The following step is to provide access to a wide range of related experiences to which the learners, especially the novices, can refer. Jonassen (1999) believed that since novice learners lack experience, they should be provided with related experiences to understand and solve the problems

or issues. Furthermore, it was shown that such experience can be supplied through scaffolding learner memory and enhancing cognitive flexibility by providing the learners with multiple perspectives and interpretations about the investigated problems or issues. The third component of the model highlights that the learners should be provided with various informational resources like texts, visuals, and audios. This helps them to understand and investigate the problem easily.

Jonassen (1999, p. 225) claimed that World Wide Web is one of the most sophisticated and effective means by which the learners, if carefully guided, can have access to a wide range of related resources. The other two components of the model stress two types of tools, namely, cognitive or knowledge-construction, and conversation and collaboration tools. The former is clarified as that since the learners deal with the authentic and ill-defined problems, they should be provided with activity structures and tools that are needed to solve the problems. According to Kommers, Jonassen and Mayers (1992) and Jonassen (1999) such tools are related to intellectual devices, such computers and other technological devices, which are mostly used for facilitating particular types of cognitive processing and organizing, automating or sometimes replacing thinking skills.

Concerning conversation and collaboration tools, they are used to share information among the learners and the teacher to enhance collaboration and construct socially shared knowledge. This is often done by utilizing technology-supported means like emails, chats, social websites, bulletin boards and other synchronous and asynchronous communication tools. The reason for including such component in the model, as Jonassen (1999, p. 228) claimed, is that “learning most naturally occurs not in isolation but by teams of people working together to solve problems”. The last

component of the model is related to contextual or social support for the design and implementation of the constructive learning environments. Jonassen (1999, p. 230) strongly believed that physical, organizational and cultural aspects of the intended context are essential for and positively connected to the successful design and implementation of the learning environment.

Compared to the other models of designing instructional learning environments, Jonassen's (1999) model seems to be more detailed and related to the actual process of learning and teaching. It incorporates and utilizes technological tools to deliver the instructional content and solve the instructional problems in a more effective manner. In addition, it also draws the attention of the instructional designers to consider contextual factors while designing and implementing the instructional learning environment. However, there seems to be two important limitations of the model. First, it does not focus on the investigation process of the target learners' needs relating to the problem or issue before starting the design of the learning environment. Second, the model does not show any information about the evaluation procedure of the learning environment.

Scholars have always continued their quest for more models or frameworks that are used for the better design of on-line learning environments. In this respect, Khan (1997) claimed that any web-based instruction, in order to be effective, should have some basic features. He further categorizes these features into two groups, namely, key features and additional features (see Table 2.2).

Table 2.2: Features of web-based instruction (WBI) (Khan, 1997, p. 8)

Categories of web-based instruction	Examples
Key features	Interactive, multimedial, open system, online search, device-distance-time independent, globally accessible, electronic publishing, uniformity world-wide, online resources, distributed, multiple expertise, industry supported, learner controlled
Additional features	Convenient, self-contained, ease of use, online support, authentic, course security, environmentally friendly, non-discriminatory, cost-effective, ease of coursework development and maintenance, collaborative learning, online evaluation

Khan (1997) further explained that key features, which are inherent to the web, are essential for the web design and can be integrated into the lesson enhanced by web-based instruction. Additional features, on the other hand, depend on the quality and sophistication of the design of the web-based instructional environment; in other words, there is a positive correlation between the additional features and key features in a way that the former can play their effective role if the latter is successfully incorporated into the design of the web-based instructional environment.

There are also other attempts to enhance the quality of web-based instructional design through proposing more frameworks. In their framework, Oliver and Herrington (2001) prioritized three critical elements for the design of on-line learning environments (see Figure 5). Moreover, the framework is designed based on the constructivist theory of learning, in which situated learning is mostly considered as the context of the framework.

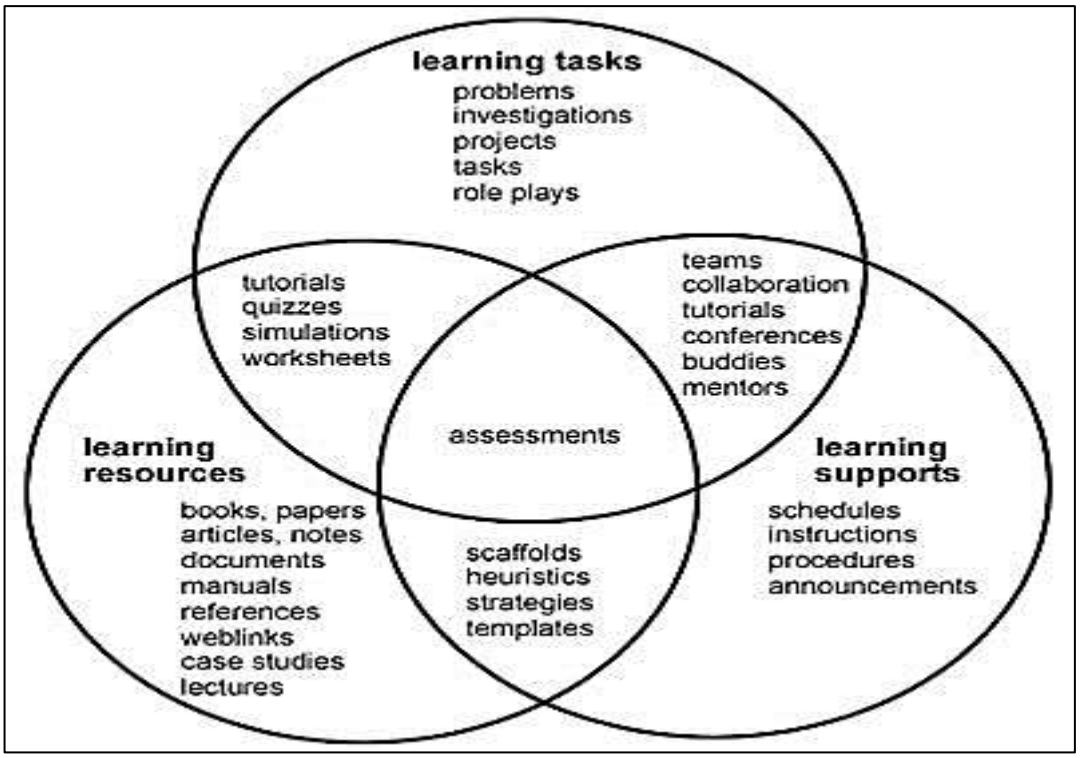


Figure 2.5: Critical elements of on-line learning environments (Oliver & Herrington, 2001, p. 25)

The framework comprises three major important elements, namely, learning tasks, learning resources, and learning supports. Each of these elements has its particular features, in which some of them are common among the elements. According to Oliver and Herrington (2001, p. 25), the design of on-line learning environments should start with the learning tasks, which are chosen "based on the intended learning outcomes". In addition, the learning tasks are explained as problems, investigations, role plays, and inquiries that are used to contextualize and organize student learning, and they should also enhance collaboration and teamwork among the learners. Furthermore, these learning tasks, as explained by Oliver and Herrington (2001), have to be open-ended and ill-structured so that they promote active engagement of the learners into the learning tasks. The second critical element of the framework is learning resources, which are related to the content and information needed to solve the learning tasks. Oliver and Herrington (2001) when clarifying this element stated that these learning

supports, such as written texts, databases, web links, and visuals, “need to be plentiful, of many forms and persuasions and presented in a fashion that supports student browsing and inquiry” (p. 22). Finally, learning supports, as the third element of the framework, are mostly related to some materials like course schedules, instructions for students, and announcements, which are neither resources nor part of the learning activities, but they are provided as learning scaffolds (Oliver & Herrington, 2001).

It is also worth noting that assessment is given a considerable importance in the framework. The assessment tasks, which are a basic constituent of the critical elements, are placed at the center of the diagram. It is claimed that assessment tasks, if planned properly, “can serve as all three elements”, in a way that they are useful learning activities, provide learning supports in the form of feedback, and act as resources for learning (Oliver & Herrington, 2001, p. 22).

Because of the impact of globalization and wide availability and use of technological devices and the Internet, web-based learning environments have become the focus of many higher educational institutions, and instructional designers set their learning environments based on technological tools. Therefore, scholars have attempted to expand the existing models and add more components to produce better models for designing instructional learning environments corresponding to the needs of the current world. In this respect, Deejring (2014) proposed a model using collaborative learning techniques and a scaffolding system to enhance learners’ competency in higher education. The model (see Figure 6) is designed based on four theoretical perspectives, namely, social constructivism, contextual principles, web-based learning technology, and cognitive factor in web-based learning design (Deejring, 2014, p. 441).

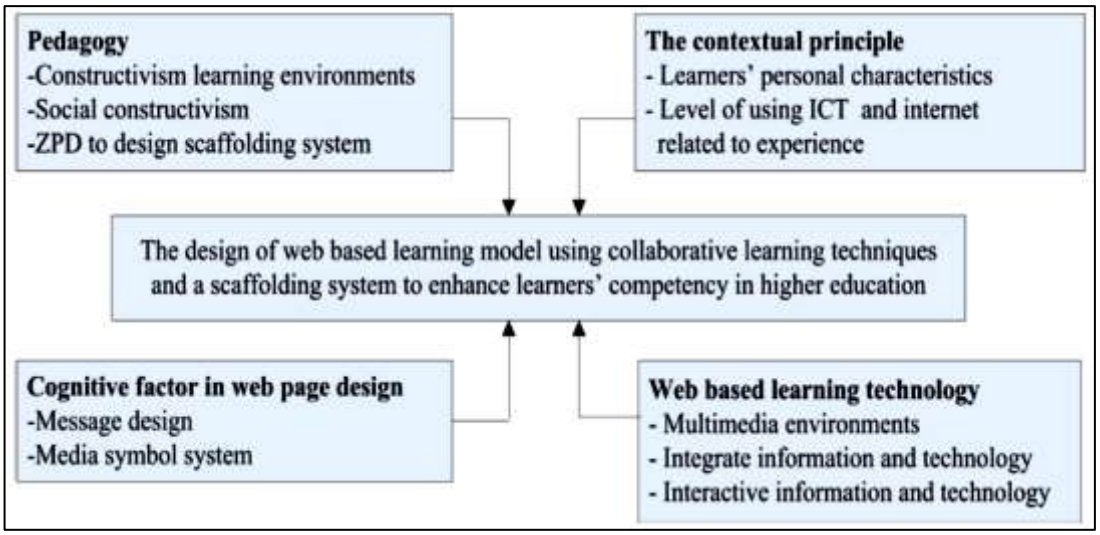


Figure 2.6: The theoretical framework to design web-based learning model (Deejring, 2014, p. 439)

Deejring (2014), while describing the model, showed that the model consists of six main elements, which are problems, resources, collaboration, related cases, scaffolding, and community. Just like Jonassen (1999) and Oliver and Herrington's (2001) models, this one also starts with a problem situation, which is vital to activate and encourage students to solve the problems through collaborative learning and perspective exchanging. Concerning the validity and reliability of the model, Deejring (2014, p. 441) contended that "the experts who evaluate this model found that the content of the model is accurate, right up to date timely". Therefore, instructional designers who wish to design contemporary web-based learning environments based on social constructivism can utilize this model and it is very likely that they will have desirable outcomes.

Having mentioned many models for designing online learning environments, this current study utilizes the model presented by Oliver and Herrington (2001) as a blueprint of the intended online learning environment in this present study. The reasons for benefiting this model are threefold. First, it interconnects the three critical

elements (i.e. learning tasks, learning resources and learning supports) for the design of learning environments. Research has shown that learning tasks, derived from task-based learning approach, in technology-based settings play a main role in determining learning outcomes (Wild & Quinn, 1997) in a manner that they encourage the learners' engagement, promote knowledge construction, create chances for collaborative learning, and improve communication and reflection (Duffy & Cunningham, 1996; Oliver & Herrington, 2001; Oliver, Omari & Herrington, 1998; Slavin, 1996; Wild & Quinn, 1997). Moreover, the model highlights learning resources as "the most important step in creating online learning environments" (Oliver & Herrington, 2001, p. 18) which includes the necessary and sufficient materials and content about the topic. Finally, it also focuses on the provision of learning supports like possible tools for counselling, communication, reflection and academic support to scaffold learners in the learning process. These elements, therefore, clearly identify the teachers, learners and materials' roles in the learning process.

Second, the model was also considered as effective and useful for promoting communication, collaboration and reflection in higher education (Goldsworthy & Rankine, 2010; Oliver & Herrington, 2001; Strampel & Oliver, 2007). Since one of the major components of the investigated issue in this present study is related to communication and reflection practice, this model seemed highly useful to employ. Finally, the model is easy to follow because it provides instructional designers with details about the necessary components of a successful and effective online learning environments. Also, it clearly distinguishes the roles of teachers, learners and the used materials in the learning process during the design, use and evaluate the learning environments.

To conclude, it can be seen from the related literature that there are many models for designing instructional learning environments. These models have been designed based on particular learning theories and perspectives. In addition, any model, in order to be effective, should address the needs of today's world. In this respect, nowadays, those models that reflect the constructivist, specifically social constructivist, perspectives of learning seem to be more favorable than those designed based on behaviorism, because the former can have important implications for the design of web-based instructional learning environments. Therefore, in the presents study, the intended web-based instructional learning environment is designed based on Oliver and Herrington's (2001) model which is derived from the perspectives of constructivist theory.

2.2 User Acceptance of Technology

Since the popularity of technology in the past few decades, user acceptance of technology has been a topic of research in many fields like education and information and communication technology (ICT). This has mostly resulted from the increasing needs of technology and failures of system adoption in various institutions. One of the most common models that have attracted the researchers' attention in dealing with such issue is the Technology Acceptance Model (TAM). Based on the Theory of Reasoned Action, an earlier work by Ajzen and Fishbein (1980), the model, as shown in Figure 7, was proposed and developed by Davis (1985, 1989), suggesting that the use of a system results from the user motivation, which is directly affected by external stimulus such as the features and capabilities of the actual system.

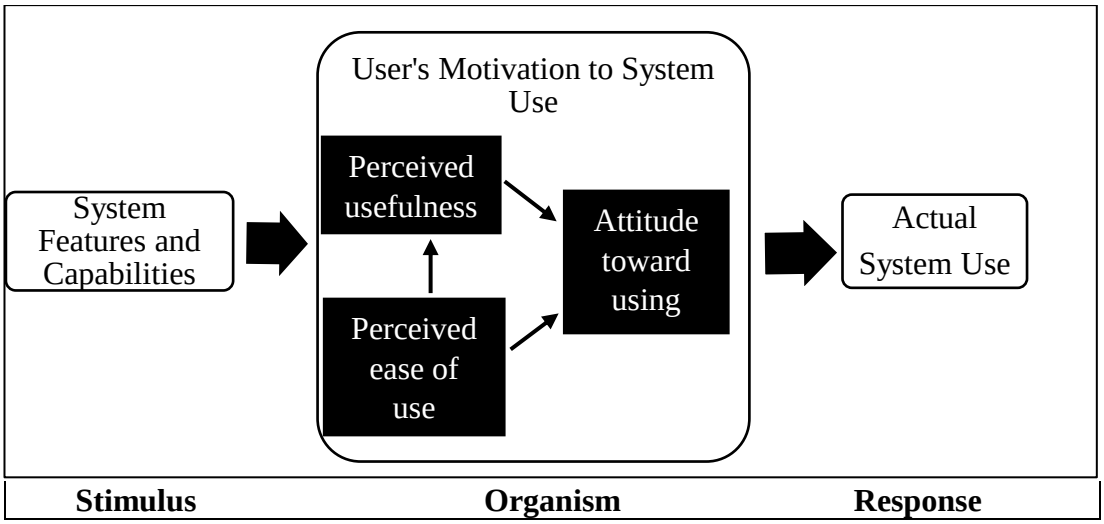


Figure 2.7: Conceptual model for technology acceptance (Davis, 1989)

According to the model, user motivation is explained by three factors, namely, *perceived ease of use* (PEU), *perceived usefulness* (PU), and *attitude toward using the system* (ATUS). Davis et al. (1989) defined both PEU and PE as the degree to which someone believes that using a particular technological tool is free of effort and enhances his or her job performance, respectively. Moreover, it is further illustrated that attitude towards using the system, which is significantly influenced by both perceived ease of usefulness and perceived usefulness, has positive correlation with the user's acceptance and use of the system (Davis et al., 1989).

Due to the popularity and wide use of TAM in various fields, its validity and variables have been continuously under close examination. Adams, Nelson and Todd (1992) replicated TAM variables in system applications like email, voice mail and Harvard graphics to test the reliability and validity of the variables. The results showed that TAM variables are reliable and valid and maintained their consistency in predicting and explaining users' system adoption.

Moreover, Davis (1993) in his study revealed that despite validating the results of previous studies, system characteristics can also have a direct impact on the attitude of a person towards using the system. Furthermore, many subsequent studies like Çetin and Özdemir (2013), Işık, Aksun and Özden (2010), Lee, Kozar and Larsen (2003), Ma and Liu (2004), King and He (2006), Yousafzai, Foxall and Pallister (2007), and Uzun, Yıldırım and Özden (2013) have adopted TAM to different technological fields in various countries to test the reliability and validity of TAM variables. Most of these studies have also confirmed the reliability and validity of TAM variables in a manner that there is a significant statistical correlation between users' motivation to system use (including perceived usefulness, perceived ease of use, and attitude towards using) and their actual use of the system or intention to use the system.

Despite the strong position TAM has gained in previous related literature, there has also been many attempts to add more variables to the model due to its relative failure in foregrounding some other user factors. It has been accepted that both perceived usefulness (PE) and perceived ease of use (PEU) are both core variables of TAM and have the direct influence on user acceptance of a technological system. Despite these variables, however, many external variables have been added to the model. One of the most common variables is *self-efficacy* (SE) (Venkatesh, 2000; Davis & Venkatesh, 1996). The variable has been defined as someone's control beliefs about his or her personal ability to use a technological system (Venkatesh, 2000; Venkatesh & Bala, 2008). Moreover, it has been concluded that SE is a determinant factor of perceived ease of use both before and after hands-on use of a technological system (Davis & Venkatesh, 1996; Park, 2009). Furthermore, Lai (2008) claimed that there is a positive correlation between high SE and the successful use of a technological system, and

others (e.g. Chen et al., 2002) have reported an influence of SE on both TAM and user's acceptance of the technology.

What is more, Kiraz and Özdemir (2006) added educational ideologies like educational fundamentalism, intellectualism, conservatism, and liberalism to TAM and investigated them to explore if any relationship exists between the ideologies and TAM. Such relationship is tested with pre-service teachers and it is found that such ideologies can have different on the teachers' technology acceptance.

Additionally, Teo, Lee, and Chai (2008) and Teo (2010) believe that subjective norm (SN) or social norm (Tarhini, Hone, Liu, 2013), as another external variable, plays a considerable role in user's technology acceptance or adoption. The reason for adding such variable, as claimed by Vankatesh and Davis (2000), is the limitation of TAM in measuring the impact of social environment on user's technology acceptance. According to Teo, Lee, and Chai (2008), SN is defined as "the degree to which a person perceives the demands of the others on that individual to complete a task [which means to use a technological tool or system]" (p. 131). In the case of educational context, the word "others" in the definition is meant as stakeholders, professional bodies, and colleagues (Venkatesh et al., 2003). In addition, Tarhini, Hone, and Liu (2013) claimed SN has a positive influence on user's behavioral intention to use and accept technology, particularly e-learning technology.

Another suggested variable is known as facilitating conditions (FC) (Teo, 2010; Teo, Lee, & Chai; 2008). Conditions like skills training, available materials, and administrative support (Groves & Zemel, 2000) are considered as factors that influence a person to use instructional technologies in teaching. Previous studies have verified

the impact of facilitating conditions available in an educational environment on the teachers' attitudes toward using particular technological tools. For instance, the studies of Lim and Khine (2006) and Ngai et al. (2007) revealed that lack of computer access, inadequate number of computers, insufficient technological support, and lack of peer support are barriers to the use and integration of instructional technologies in teaching process. Also, the study conducted in Kurdistan region of Iraq by Ali (2010) concluded that university teachers rarely integrate instructional technologies into their teaching sessions mostly due to inadequate technological instruments, their insufficient knowledge of using instructional technologies, and lack of technology training courses. Thus, facilitating conditions in an educational environment can be considered as an important factor that influences user's attitude toward technology adoption.

In another study, Teo (2010) claimed that technological complexity, as the extent to which a system is perceived to be relatively difficult to understand and use, is another external variable that affects the users' attitudes toward using a technological system. In the study he conducted with pre-service teachers, it is concluded that there exists a significant and positive correlation between technological complexity and both the teachers' perceived ease of system use and overall technology use.

The latest version of TAM (see Figure 8), which was presented by Vankatesh and Bala (2008), shows many other variables added to the original version of the model. Such new image of the model proves the researchers' intensive interest in the evaluation and development of the model in various educational and technological domains in the past three decades.

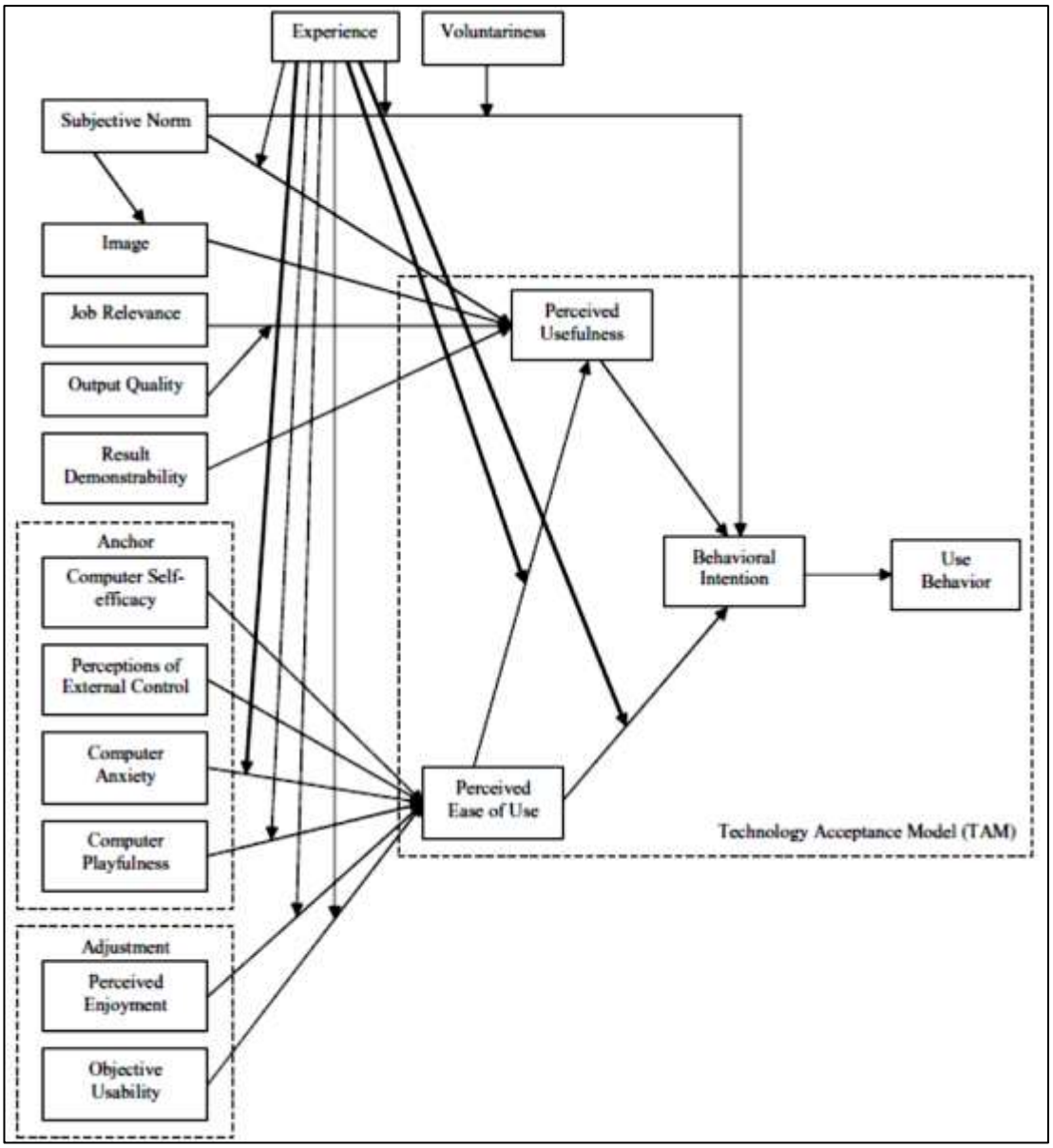


Figure 2.8: Technology Acceptance Model (latest version) (Vankatesh & Bala, 2008)

Finally, Tarhini, Hone and Liu (2013) added 'quality of work life (QWL)' as another variable to TAM. According to their study, QWL refers to the user's perception or belief that using the technology, such as for downloading educational materials or communicating with teachers and friends, will improve their quality of work life (p. 55). Therefore, they believe that QWL is a positive factor that affects the users' behavioral intention to use technology, especially the web-based learning system. A number of studies have tested such variable and found it influential for the users'

behavioral intentions and use of e-learning and learning management systems (e.g. El-Masri & Tarhini, 2017; Tarhini et al., 2016; Tarhini, Hone & Liu, 2013, 2015).

In the fields of teacher education and web-based instruction, TAM has been an important topic of investigation and research, and the model has been reexamined and extended to see how it is perceived in teacher education programs and web-based instructional designs. In the domain of teacher education, for example, the recent version of TAM has been widely tested to explore the effect of TAM variables on pre-service teachers' attitudes towards technology use and the degree of their technology acceptance (Kiraz & Özdemir, 2006; Luan & Teo, 2009; Ma, Andersson & Streith, 2005; Teo, 2010; Teo et al., 2008; Teo et al., 2009; Teo, Lee & Chai, 2008). What is common among the results of such studies is that the new version of TAM can serve as a valid model to predict pre-service teachers' technology acceptance and use. Moreover, the results of the studies have had important implications for teacher education programs for the purpose of better preparation of prospective teachers.

As for web-based instruction, TAM has also been a widely considered issue of investigation in a manner that it has been revised, developed, and evaluated for its convenience in exploring the users' levels of acceptance of the web-based learning and instruction. For instance, Gong, Xu and Yu (2004) combined the older version of TAM with social cognitive theory to propose an enhanced TAM for web-based learning as a new framework for analyzing their research data. It is revealed in their study that the results are congruent with the TAM factors for explaining users' behavioral intention, and teachers' computer self-efficacy proves a considerable influence on their technology acceptance. Moreover, Yuen and Ma (2008) attempted to create a "better framework" through adding more variables to TAM to explore teachers' acceptance

of web-based learning. The results of the study show that subjective norm, computer self-efficacy and perceived ease of use are found as essential constructs of TAM and they explain "68% of the variance observed in users' intention to use the e-learning system" (p. 229).

In addition, Tarhini, Hone and Liu (2013) proposed an extended version of TAM through adding social, organizational and individual factors to find university students' acceptance of Blackboard as a learning management system. The overall results of the study show that, although quality of work life (QWL) is found to be the most important and strongest factor in explaining the users' behavioral intention of web-based learning acceptance, the proposed model, as a whole, achieves high acceptable fit in exploring the students' adoption of the system. Furthermore, Cheung and Vogel (2013) also carried out a study to predict students' acceptance of collaborative technologies through employing the TAM for e-learning. The research results reveal that all TAM variables are effective factors influencing the adoption and use of the technological system. However, among the variables, SN is found to have significant impact on moderating the relationship between attitude and intention toward technology use. Tarhini et al. (2016) conducted a study to develop TAM in a manner that it explains how individual, social, cultural and organizational factors influence the users' acceptance and usage behavior of web-based systems. Their research concluded that including subjective norm, self-efficacy, quality of work life, and facilitating conditions, in addition to the other individual factors, can help better in explaining the variance of the users' behavioral intention and actual use, and "find the reasons for why the model may hold better in contexts than others" (p. 82).

In conclusion, the previous literature on TAM in the past three decades clearly indicates that TAM has witnessed an ever-increasing development and has been a popular model in investigating users' technology acceptance in various educational and technological fields. Since its first appearance, many variables have been added to TAM and it has become a major model in understanding user behaviors toward potential acceptance or rejection of technological systems.

2.3 Issues in Second Language Teacher Education (SLTE)

Second language teacher education (SLTE), English language teacher education in this study (ELTE), is a term which was coined by Richards, Richards and Nunan (1990) to cover the training and education of second language (L2) teachers through "providing opportunities for the novice to acquire skills and competencies of effective teachers and to discover working rules that effective teachers use" (p. 15). In the following sections, there is information about the historical developments of SLTE and the nature of SLTE in Iraq and Kurdistan Region of Iraq (KRI).

2.3.1 Historical Developments of Second Language Teacher Education

Training L2 teachers, as Burns and Richards (2009) stated, goes back to the 1960s when teacher candidates were given short training programs and certificates about practical classroom skills needed to teach new methods in that time (e.g. audiolingual method and direct method). Since then, the epistemology of L2 teacher preparation has undergone significant changes and developments.

To understand the status of L2 teacher preparation prior to 1985, Britten (1985) provided an intensive review of English language teacher preparation. Britten's review article gave a snapshot of EFL teacher preparation at that point in time, and covered various major topics like goals of the preparation programs, selection criteria of the

candidates, and content knowledge of English and the methodology component taught in the programs. It can be seen from the article that English language preparation programs focused mostly on "demonstration and delivery" (p. 112) modes with no strong theoretical training in professional learning theory (Wright, 2010). Moreover, there was a disconnection between theory and practice in the training programs in a way that school-based training was separated from institution-based training. Since then, this separation between "localization" (i.e. theory) and "learning experience" (i.e. practice), according to Wright (2010, p. 264), has been difficult in SLTE programs. Finally, Britten's article also showed that there was a limited number of related publications, both in terms of research papers and books, upon which to draw a better conclusion about the nature of the preparation programs.

Since 1985, significant changes and developments have occurred in the field of L2 teaching, in terms of theory, practice, and research. The emergence of reflective practice (Schön, 1983, 1987), as a strong theoretical basis for L2 teaching, has brought a new paradigm into L2 teacher education programs in a manner that it degraded the role of prescriptiveness and foregrounded the importance of developing pre-service teachers' autonomous judgement and practical theory (Richards & Lockhart, 1994). In addition, Schulman's (1986) pedagogical content knowledge, as another trend, highlighted the role of pedagogy and was deeply concerned in the reexamination of L2 teacher education. According to Schulman (1986), this type of knowledge goes beyond the content knowledge – subject matter (i.e. English language) knowledge – and mostly focuses on "the particular form of content knowledge that embodies the aspects of content most germane to its teachability" (p. 6). Finally, the publication of many books and research papers about L2 teacher education (e.g. Freeman & Richards,

1996; Richards, Richards & Nunan, 1990; Wallace, 1991) proposed new ideas about and also showed new ways of looking at L2 teacher education.

Since English language started to cement its position as the dominant worldwide lingua franca in the past few decades (Wright, 2010), the need for preparing English language teachers meeting the needs of the developments in the world has become a major concern of researchers to reshape the notion of SLTE/ELTE. Therefore, new perspectives to L2 teacher preparation have led to a theoretical shift from behaviorism to constructivism (Crandall, 2000), or from learning teacher as a consumer of received knowledge to a reflective practitioner who creates his/her working theory (Farrell, 2008; Freeman & Johnson, 1998; Richards, 2008), and the focus of the related research has been on "teachers" as a central component of English language teaching.

For example, Freeman and Johnson's (1998) proposal on "reconceptualized knowledge base" was one of the most influential concerns for reshaping L2 teacher education. In their proposal, they focused on three basic elements, namely, teacher as learner of teaching, schools as social contexts of teacher learning, and the pedagogical process of language teaching and learning. All these elements were connected by the process of learning and socialization, creating the communities of practice in classrooms and schools and participation in teaching and learning activity (Lave & Wenger, 1991; Wenger, 1998).

Furthermore, researchers (e.g., Johnston, 2009; Sockett, 1993) have also called for the integration of "collaboration" into language teacher education and development programs in which pre-service teachers and/or teacher educators voluntarily collaborates and shares knowledge with others involved in the teaching process

(Johnston, 2009). This was largely emerged from the criticisms against the traditional ways of teaching and teacher preparation procedures which focused basically on isolating teaching from one's colleagues (Johnston, 2009), or in Freeman's (1998) words "egg-box profession", in which each teacher was kept separate from his/her fellow teachers. Therefore, to overcome this isolation in teaching process, it was suggested that collaborative endeavors both within and beyond the classroom should be an essential consideration in shaping SLTE/ELTE programs (Johnston, 2009; Sockett, 1993). Thus, the goals for L2 teacher preparation at the beginning of new millennium were to produce reflective teachers and enhance practical learning experience through creating better conditions for collaborative and reflective learning and more school-based and classroom-based learning experiences.

Despite the continuity of the previous trends, new ideas have emerged due to the expansion and refinement of the knowledge base of teachers. The influence of sociocultural theory (Burns & Richards, 2009; Lantolf, 2000), teacher cognition (Borg, 2009), and situational understanding of practice in terms of building a cognitively-driven process through reflective teaching (Kumaravadevelu, 2012) have all been reflected in the process of L2 teacher education programs. For example, Singh and Richards (2009) claimed that "course rooms" like lecture theaters, classrooms, seminar rooms should not only provide the teacher-learners with the content about language teacher education, but also create opportunities for situated social practice, induction to community of practice, development of a new identity, and acquiring personal theory to pedagogy as all of these improve pedagogical practice in the course room (p. 201). In addition, investigating teacher cognition (i.e., what a teacher thinks, knows and believes) as unobservable dimension of teaching or teachers' classroom practices

has also had an important contribution the understanding of how to develop professionally as a teacher (Borg, 2009).

What can be seen from these new forms is that they share one common principle of L2 teacher education, namely, "the primacy of experience", which focuses on the importance of pre-service teacher experience or doing, both in the forms of microteaching and practicum, in formal teacher preparation programs (Wright, 2010, p. 274).

Such principle was clearly reflected in Malderez and Wedell's (2007) model of SLTE pedagogy, in which they highlighted three type of teacher knowledge, namely, *knowing about* the subject matter, *knowing how* to develop skills and be able to do something, and *knowing to* draw upon and mobilize the other two knowledge types appropriately while teaching (italics added). Moreover, the reflective procedures and the notion of teacher learning to become reflective practitioner have now been among the established elements of SLTE programs. One of the most noticeable areas of such trend is the practice of reflective writing in the forms of journals and portfolios (Wright, 2010). In the past ten years, as Wright (2010) further claimed, the activity of reflective writing is an emergent issue from practice and has gained more attention specifically in contexts where the activity is "fairly a radical innovation" (p. 278).

Finally, it is also worth noting that due to the advancements of technology and its tools, its impact is also huge in shaping the current practices of SLTE. Therefore, the integration of technology as both a form of knowledge base and a means of content delivery has widely been supported for the better preparation of L2 teachers for the current world (e.g. Mishra & Koehler, 2006; Polly, McGee & Sullivan, 2010;

Reinders, 2009; Saltan, Özden & Kiraz, 2016; Tondeur et al., 2012; Voogt & McKenney, 2017). Moreover, nowadays a growing number of technological platforms (e.g. online, mobile, social media, TV and radio) have been integrated into language teacher education programs around the world. Previous related studies, for example, have acknowledged the effectiveness of social networking sites, blogs, vlogs, and instant messaging, for improving instruction in language teacher education programs. They have concluded that such online platforms enable connectivity, create opportunities for communication and collaboration, can be utilized to give feedback to students, deliver teaching materials and educational information, and increase teacher-student and student-student interaction in language teacher education programs (Balcikanli, 2015; Chugh & Ruhi, 2017; Kessler & Hubbard, 2017; Menzies et al., 2017). In addition, other studies have also examined teacher education programs to explore the degree to which they use and benefit modern technology like the Web and Learning Management Systems (LMS) for the better preparation of pre-service teachers (Albhnsawy & Aliweh, 2016; Dooly & Sadler, 2013; Kim & Hannafin, 2011; Tondeur et al., 2012). Thus, it is evident from the related literature that the integration and application of modern technology into teacher education programs have been a major recent trend for the preparation of prospective teachers for the current world.

In conclusion, since its emergence, SLTE has undergone significant developments for the purpose of better preparation of L2 teachers. All these historical developments, as Burns and Richards (2009) stated, have been resulted in response to two major factors. First, the issues internally initiated from the field itself have had significant impact on shaping the concept of SLTE. This has driven by the effort of applied linguists and specialists of the field in searching for instructional practices and knowledge bases for the better preparation of L2 teachers. Second, external influences like globalization

and the need for English as lingua franca have also had their role in the development of SLTE. These issues have affected national educational authorities and language education policies to establish more standards and forms of accountability in the process of L2 teacher education.

2.3.2 SLTE in Iraq and Kurdistan Region of Iraq (KRI)

Iraq, or officially Federal Republic of Iraq, is a federal country situated in the western part of Asia. Its capital, and largest city, is Baghdad. According to the latest report by the World Bank, the population of Iraq is estimated in 2015 approximately as 36.5 million (World Bank, 2015). Iraq is a multi-ethnic country; the major ethnic groups are Arabs and Kurds, while the other minorities include Assyrians, Turkmens, Shabakis, Yazidis, and Armenians. As shown in the Iraqi Constitution, Article 4-1, both Arabic and Kurdish are the two official languages of the country, while the right of mother tongue education for the minorities is guaranteed by the government in all public educational institutions.

On the other hand, Kurdistan region of Iraq (KRI), where is the context of this study, is the only federal and autonomous region in Iraq (Iraq Constitution, art. 117) and lies in the northern part of Iraq. Although KRI gained its de facto regional independence in 1992, it was not recognized by Iraq until after the fall of Saddam Hussein's regime in 2003. With an area of nearly 400.000 square kilometers and a population of 5.2 million, KRI consists of four major governorates, namely, Erbil, Al Sulaymaniyah, Duhok, and Halabja, in which Erbil is the capital city of the region. Kurds constitute the majority and main ethnic group of the region, living in harmony with the minorities like Turkmens, Arabs, Armenians and Assyrians.

Although the context of the present study is a public university in KRI, Iraq is also considered and mentioned in giving the following information because of two main reasons; first, KRI is still a part of Iraq, despite its independent administrative institutions, and second, most of the educational aspects in Iraq are historically connected, valid and implemented in KRI.

SLTE program is one of the main areas in higher education in Iraq. It falls into two main tracks. First, school teachers are required to hold a teaching certificate, which is equivalent to at least a bachelor's degree or a teaching diploma that are achieved by minimum four or two years of studying, respectively, in the higher education stage. On the other hand, teacher training institutes offer a five-year teacher preparation program to graduates who have completed grade 9 in the Intermediate level. The program covers three years of general education and two years of subject specialization, teaching methods and school experience.

It has been frequently claimed that the quality of teacher education, in general, and SLTE programs, in particular, in Iraq is not satisfactory. It can be seen that the amount of school experience given in the teacher training programs, including SLTE, in Iraq is very low comparing to that approved by current international best practice. For instance, Alwan (2004), a former minister of education of Iraq, reported that one of the problems facing the education system in Iraq is "weak preparation and training of teachers" (p.10). Additionally, the curricula of SLTE colleges do not fulfil the needs of the present world, and do not offer sufficient subjects about teacher education; they rather focus on linguistic and literary competence, with a few subjects about education.

Teacher education policy of KRI, on the other hand, is different from that of Iraq. The only certificate to qualify teachers in KRI is bachelor's degree. As a consequence of a reform implementation of the education policy after 2007, teacher training institutes in both intermediate and higher education stages were closed, and now teachers are required to graduate from either college of basic education or college of education to teach at any level of basic and preparatory education. Students are admitted in different fields of these colleges based on their final average score achieved in the high school national examinations. Such policy and standards are also applied to English language teacher education programs.

It has been claimed that teacher education programs, specifically English language teacher education programs in KRI, do not admit high achievers and do not offer standard training. The admission policy in teacher education programs in general is at low standard and the recruitment policy of pre-service teachers seems not to improve the quality of English language education and enhance motivation in the teaching profession (Sofi-Kareem, 2015). Furthermore, Vernez et al. (2014) claimed that those students who are accepted in teacher education programs in KRI are among the lower scorers of the national high school exit examinations. In addition, research has revealed that teaching programs and materials utilized in such programs do not adequately prepare prospective teachers for their future profession. For example, Hassan (2014) concluded that the materials, as an essential source of teacher knowledge, are of limited help and not effective, and their content does not emphasize the basics of English language teaching as much as it focuses on developing language form, like grammar and abstract rules of language, and English literature. However, only a few subjects (e.g. ELT Methodology, Classroom Observation, and Teaching Practice) are related to developing the practical and pedagogical skills of the pre-service teachers.

To add more, the evaluation procedures in these programs are basically exam-oriented, which means the pre-service teachers had to do three exams (i.e. two in-course exams and one final) to pass any course, and other assessment procedures such as projects, homework assignments, reports, and presentations are mostly neglected in many courses. This, indeed, does not provide a deeper understanding about the students' knowledge and the achievement of the learning outcomes of the courses. Furthermore, the students are basically taught with the traditional teacher-centered method of teaching in which the teacher transmits knowledge in the classroom and very little chance is provided for student participation and collaboration. Finally, utilizing microteaching experience, as an essential element for fostering experiential knowledge and teacher profession, in teacher education programs is of very limited use. This is mostly due to large number of pre-service teachers in classrooms, creating insufficient chance for practicing microteaching. Another reason for such inadequate use of microteaching experience is associated with many teacher educators' heavy reliance on theoretical knowledge transference rather than practical training. Thus, graduates of the current teacher education programs are likely not to be equipped with adequate content and pedagogical knowledge, and more reforms and changes need to be made for developing Kurdish EFL teacher professionalism.

In terms of the use of technology in teacher education programs, research has revealed that although implementing technology in teacher education has reached the advanced stages in many developed countries, it is still in its infancy in Iraq and KRI. The last few decades are an obvious example of the deprivation of Iraqi higher education, in general, and teacher education, in particular, from the use and implementation of modern technologies. Nour (2002) revealed that no information about the use of mobile phones and the Internet was available between 1996 and 2001. According to

Al-Azawei, Parslow, and Lundqvist (2016), a reason for no use of such advanced technologies during this period is the government's prohibition on the use of the Internet for the public practice and the unavailability of mobile phones.

In addition, Chinn and Fairlie (2007) concluded that the developing countries like Iraq are yet unable to fully benefit from new technologies in almost all aspects, particularly in education. Moreover, the results of a study done by Matar et al. (2010) show that Iraq has not been successful in implementing web-based learning in higher education comparing to the other Middle East countries. The major causes behind this underdevelopment are related to the lack of sufficient budget, unstable security, no readiness and encouragement, and the lack of the Internet connection and wireless network in the universities (Al-Azawei, Parslow, & Lundqvist, 2016; Al-Radhi, 2008).

These limitations are also true for KRI. When I was studying in an SLTE program between 2003 and 2007, there was a few number of computers, the Internet access was extremely limited at the university, and only a few students had mobile phones. Such limited access was only available for the students in the computer lab, but not in the classroom. In addition, the only tools utilized in the classroom for the teaching purpose were whiteboards and board markers, and high-tech devices like computers, internet and projectors were unavailable in the classrooms.

These unfortunate situations in both Iraq and KRI have led not only SLTE, but also all teacher education programs to prepare teachers without having sufficient skills of technology use and its implementation in their classrooms in the past few years. This is strongly supported by a study conducted in Iraq by Alalgawi, Sulaiman and Ab Aziz (2014), which revealed that secondary school teachers' skills for using and

implementing technology are inadequate and they lack necessary knowledge and skills to use various software and multimedia devices. Another outcome of their study is that the teachers do not sufficiently integrate technological tools into their teaching and learning processes.

Furthermore, another study conducted in Kurdistan region of Iraq by Ali (2010) concluded that teacher educators at SLTE departments rarely integrate instructional technologies into their teaching sessions mostly due to inadequate technological instruments, their insufficient knowledge of using instructional technologies, and lack of technology training courses. These issues are consistent with the results of the previous studies which showed that in-service teachers' performance is mostly affected and shaped by their prior experience as students and personal practical knowledge (Connelly & Clandinin, 1988; Freeman & Johnson, 1998; Lortie, 1975).

However, it is worth noting that as a result of long-term reform in higher education of Iraq and KRI after 2009, advanced technological tools are used in many public and private universities. Currently, 74 sites including both public and private institutions and departments in both Iraq and KRI are registered in Moodle, as an e-learning management system. Moreover, in almost all universities, computers, smartboards, and projectors are frequently used in the classrooms. Nevertheless, the Internet in many universities is still of limited access, and the advanced use of technology and design of web-based learning environments are still at their initial stages. Many teacher educators do not have enough knowledge about designing virtual instructional environments and most teacher education programs lack such environments.

Hence, a way to see a wide implementation of technology in future education is to provide pre-service teachers with enough technological practices during their teacher education programs. One possible way for doing this is to design and implement virtual instructional environments to help improve the quality of education and teachers' practical and technological knowledge in teacher education programs.

2.4 Issues in Microteaching in SLTE

Microteaching, as one of the teacher training techniques, is used to link theory to practice in SLTE programs. It was developed in 1960s first by Dwight W. Allen and his colleagues at Stanford University in the US, and since then it has been reconsidered and applied in various pre-service and in-service teacher education programs as a means of teacher training and professional development. Generally, the major purpose of microteaching has been to practice particular technical skill(s) of teaching until the trainee teacher reaches a satisfactory level of performance. However, with the developments in fields of SLTE and technology, the notion of microteaching has been continuously reconsidered. The following sections will shed light on some main issues about microteaching.

2.4.1 What is microteaching?

Conventionally, microteaching has been seen as a practice of asking pre-service teachers to teach a short lesson for 10-20 minutes to their classmates in the classroom and followed by the feedback session for the purpose of gaining more practical experience in the teaching process. However, Bell (2007) saw microteaching as more than just the practicing or teaching processes; it more resembles to an educational activity and classroom performance since the trainee teachers consider microteaching as a course requirement and an activity towards "real" teaching. Lakshmi (2009) claimed that microteaching is characterized by some basic features. First,

microteaching is a real teaching, although the teaching context is created in a manner that the pre-service teachers and the students work together in a practice environment. Second, it reduces the complexities of normal classroom teaching, class size and time. Moreover, it focuses on training to develop teaching skills and achieve particular tasks. Finally, it creates better chances for providing more feedback in the teaching process since the pre-service teacher is exposed to various sources of feedback from his/her peers and supervisor.

It has been widely accepted that microteaching is considered as a systematic process in which the prospective teachers need to go through many stages (see Figure 9).

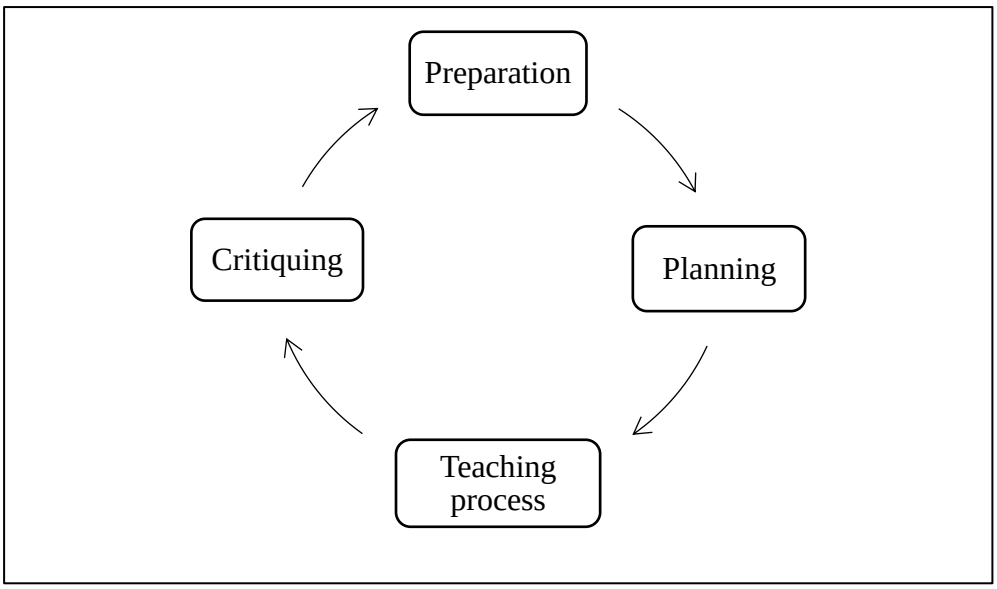


Figure 2.9: Microteaching Process

Preparing inexperienced pre-service teachers for delivering effective microteaching sessions has long been a considerable topic of many studies in the field of teacher education. Therefore, abundant amount of research has focused on introducing these teachers to the basic components of microteaching. The main components of microteaching are explained below.

Preparation stage

In the preparation stage, the trainees, specifically inexperienced ones, are briefed about the concept and purpose of microteaching and particular skills to focus, and they may be provided with a list of topics (Otsupius, 2014). Moreover, the pre-service teachers should choose a topic that is specific and reflects the people's (e.g. classmates) background knowledge to maximize their interaction and involvement in the lesson. Moreover, they should think about what particular skill(s) these people should achieve at the end of the lesson; in this respect, they should set specific goals, which should be achieved, measured and time-bound. Jensen (2001) further added that pre-service teachers before preparing their lesson plans should have sufficient knowledge about the teaching theories and learner characteristics because such background knowledge helps them to create and realize personal philosophy while they are preparing lesson plans, choose the teaching materials, and consider both the time constraint and the lesson's connection to previous and future lessons.

Lesson planning

Another essential component of microteaching is lesson planning. It has been accepted that all teachers, whether novice or experienced, should have a sort of plan before going to the classroom and teaching a group of learners. Such plans can be informal in a way that the teacher does not have a written plan to follow, but has a mental checklist that is created and followed moment by moment as the lesson goes on (Jensen, 2001). According to Scrivener (2005), this informal lesson plan is mostly followed by experienced teachers because it requires "high skill and an ability to react appropriately minute by minute." (p. 132). On the other hand, a formal lesson plan, which is the focus of this project, is considered as a written document including a detailed systematic process followed by the teacher to keep the pace of the lesson. This type of

lesson plan is usually used by novice and pre-service teachers, or is written as an assignment when they are observed or assessed as part of a training program by mentors or teacher educators (Harmer, 2007).

Formal lesson planning has been described from various perspectives. Farrell (2002, p. 30), for instance, believes that lesson planning is "the daily decisions" made by the teachers for the purpose of a successful outcome of a lesson. Moreover, Harmer (2007) defined lesson planning as "the art" (p. 308) of combining various components into a coherent whole to give a particular identity to the lesson so that the students can recognize, work within and react to the identity. In addition, a lesson plan can also be a road map or blueprint by which the teacher is taking the lesson to the final destination, which is achieving the major goal of the lesson.

In the domain of English language teaching (ELT), for instance, scholars have suggested various formats of lesson planning (e.g., Farrell, 2002; Jensen, 2001; Richards, 1998). However, these lesson plan templates have three features in common, namely, initial stage, middle stage, and closing stage. At the top of the lesson plan template there is a description of the goal/objectives, class, and students. This covers the goals and objectives of the lesson, name of the subject, the intended proficiency level of the students, the date of the lesson, and the skills, which are going to be addressed and developed. Furthermore, the middle of the lesson plan template, to which most of teaching time should be spent, includes the content of the lesson and activities selected to be presented during the session. Finally, in the closing section, there should be comments and notes like summary of the lesson and future assignment announcement. Jensen (2001), however, believes that homework or other form of

assignments can also be given at the beginning or middle of the lesson by writing them on one part of the whiteboard.

Scholars in the field of ELT have also proposed various ideas about how an effective lesson plan is written. Farrell (2002), for example, claimed that an effective lesson plan "starts with appropriate and clearly written objectives." (p. 32). Shrum and Glisan (1994 cited in Farrell, 2002), moreover, added that such objectives should describe the students' observable behaviors while performing throughout the classroom. In addition, Farrell (2002) advised pre-service teachers that when setting lesson objectives, they should avoid using vague verbs like *understand*, *learn*, and *enjoy*, because it is hard to quantify them, but use action verbs like *tell*, *define*, and *analyze*, which are similar to those used in Bloom's *Taxonomy of Thinking Process*. To add more ideas for writing a good lesson plan, Jensen (2001) suggested that lesson plans should have a sense of coherence in a way that they connect the lessons and activities to those used previously and will be used in the future. Moreover, she also believes that variety and flexibility should be considered while writing lesson plans because employing similar procedures create predictability and causes boredom among the students.

Teaching process

Another important component of effective microteaching for pre-service teachers to consider is the teaching process. This process, as claimed in this study, consists of two basic elements, namely, lesson presentation and classroom management. Concerning the first element, various labels have been proposed in the related literature about the effective ways of presenting the lesson plan in the classroom. For instance, Shrum and Glisan (1994, cited in Farrell, 2002) proposed that language teachers should present

their lesson plans in five stages, namely, *opening*, *stimulation*, *instruction/participation*, *closure*, and *follow-up*, in which the teachers' and students' roles are clearly identified (see Figure 10).

Lesson Phase	Role of Teacher	Role of Students
I. *Perspective* (opening)	Asks what students have learned in previous lesson	Tell what they've learned previously
	Previews new lesson	Respond to preview
II. *Stimulation*	Prepares students for new activity	Relate activity to their lives
	Presents attention grabber	Respond to attention grabber
III. *Instruction/ Participation*	Presents activity	Do activity
	Checks for understanding	Show understanding
	Encourages involvement	Interact with others
IV. *Closure*	Asks what students have learned	Tell what they have learned
	Previews future lessons	Give input on future lessons
V. *Follow-up*	Presents other activities to reinforce same concepts	Do new activities
	Presents opportunities for interaction	Interact with others

Figure 2.10: phases of presenting the lesson plan in a classroom (Shrum & Glisan, 1994, cited in Farrell, 2002)

In addition, other possible ways of lesson plan presentation have also been suggested by language teaching scholars, among them are *intro*, *through*, and *beyond* (Brinton, Goodwin & Ranks, 1994 cited in Jensen, 2001), *engage*, *study*, and *activate* (Harmer, 1998 cited in Jensen, 2001), *verbalization*, *automatization*, and *autonomy* (Ur, 1996). Moreover, Jensen (2001) concluded that such labels of lesson plan presentation are generally the description of three major stages, *introduction and presentation*, *checking comprehension*, and *practice*. In the first stage, she claimed, the language form and the content are introduced and presented to the students, whereas in the second and third stages, students' comprehension of the content is checked before implementing a guided practice, and a communicative activity is given in a more

natural environment to practice what the students have learned, respectively. It is worth noting that in the second stage of the presentation, the teachers should consider time management, seating arrangements for the activities and content presentation because each requires a different way of doing and different time to finish.

Feedback session

Another essential component of microteaching is the "critique" or feedback session. Hattie and Timperley (2007) defined feedback as "information provided by an agent (e.g. teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding" (p. 81). It can be understood that feedback is related to the consequence, either positive or negative, of any performance given by someone. It is widely accepted that feedback has a powerful influence on learning and teaching. Furthermore, feedback is considered as an important factor for effective teaching and student teacher success (Wiliam, 2011). Despite having many features of effective learning, Hattie (2012) believes that feedback is one of the most ubiquitous characteristics of successful teaching and learning

Studies have shown that good feedback should have two key aspects, namely, feed up and feed forward (Arts *et al.*, 2016; Gibbs & Simpson, 2004; Hattie & Timperley, 2007). Feedback is related to feed up when it provides information about the current performance and the steps that should be taken towards the appropriate standards. Feed forward, on the other hand, is basically the useful information that is provided for improving the future performance.

Feedback session is an essential component of microteaching practices, in which the intended people (i.e. the pre-service teachers in the classroom) and the supervisor give

constructive feedback usually in a non-judgmental manner after the microteaching is presented. Moreover, these people discuss the presented microteaching sessions as a group and give comments for the purpose of improving the instructional skills and abilities of the presenter. They may also complete a feedback form or an evaluation checklist to assess the presenter's teaching skills and the quality of the microteaching components.

Feedback will not have any effect unless there is an appropriate learning environment to which feedback is addressed (Hattie & Timperley, 2007). Therefore, to practice feedback effectively in microteaching, teachers and students should have necessary skills in giving and receiving feedback. In this respect, there should be sufficient time and appropriate learning environment for improving these skills in a manner that teachers should provide their students with rich learning tasks, opportunities, resources, and enough time to be responsive to the feedback (Hattie & Jaeger, 1998; Hattie & Timperley, 2007) and students should have opportunities to actively engage in these activities.

To conclude, microteaching as a reduced teaching and systematic process encompasses some essential components; each plays its essential role in developing the pre-service teachers' teaching skills. Generally, microteaching and its components are employed to achieve three major goals. First, they are utilized to bridge theory to practice. This connection helps the pre-service teachers to make sense of theory and test the theory in real teaching contexts. Second, they are also used to develop the prospective teachers' practical and experiential skills, which are necessary for better practice of their teacher profession in the future. Finally, if microteaching is merged with technology, it will increase the level of collaboration among the student teachers

and enhance reflection by reflecting on their own or their peer's practices. Thus, teacher education programs need to practice microteaching sessions effectively so as to prepare the future teachers better for the contemporary world.

2.4.2 The impact of microteaching on developing its components

Research on the relationship between microteaching practice and the development of its components has mushroomed in the past two decades. Scholars in the field of teacher education have sought to explore what microteaching components are mostly improved as a result of performing microteaching sessions.

In this respect, Al-Methan (2006) conducted a study in Kuwait to investigate Arab pre-service teachers' perceptions on the advantages of microteaching. Necessary data was collected in three phases from observation and evaluation, microteaching trainings, and analysis and evaluation of recorded microteaching videos. The results revealed that most of the participants considered that microteaching training had a considerable impact on improving their planning skills (e.g. designing relevant teaching strategies, designing instruction to successfully achieve the intended goals, and choosing suitable teaching materials meeting the abilities of the students) and classroom management (e.g. maintaining students' attention and using class time effectively).

In addition, Ismail's (2011) study aimed to explore pre-service teachers' views about the effect of microteaching experiences in their teacher education program. According to the analyses of both quantitative and qualitative data collected from two groups of Arab ESL pre-service teachers, the participants perceived that microteaching practices had positive impact on the development of their teaching competencies like preparation and classroom management.

In a Turkish context, moreover, Can (2009) carried out a study to examine the benefits of microteaching practice from the perceptions of six pre-service teachers at a state university through semi-structured interviews after performing 12 microteaching sessions. The results showed that the participants' subsequent microteaching practices helped them to improve their performance in preparing lesson plans (e.g. choosing suitable teaching materials, writing good performance objectives and determining instructional methods) and teaching process in terms of lesson plan implementation, classroom management skills and active student participation. Furthermore, Aydin (2013) conducted a study to find out the effect of microteaching on pre-service teachers' perceptions of efficacy in lesson planning, implementation, and evaluation through pre- and post-test questionnaires. The results produced that microteaching practices had positive influence on enhancing the participants' efficacy in lesson planning, implementation and evaluation. Yalmanci and Aydin's (2014) study was another attempt to examine Turkish pre-service teachers' views about the benefits of microteaching practices. The results of qualitative data obtained through semi-structured interviews showed that microteaching experiences were beneficial in performing various teaching, managing classes and developing various individual skills.

In the same context, Bakir (2014) conducted a research to investigate the effect of microteaching on the teaching skills of pre-service teachers. The analyses of quantitative and qualitative data collected from 97 participants produced that microteaching had a significant impact on their teaching skills in terms of planning for the lesson, starting and ending the lesson effectively, and classroom management.

Additionally, Fernandez (2010) aimed to find out what pre-service teachers learn as a result of performing microteaching sessions. The analyses of both quantitative and qualitative data collected from 18 pre-service teachers revealed that general pedagogical practices and classroom management were among the skills the participants gained after performing microteaching sessions. In a more comprehensive study, Ralph (2014) conducted a 5-year longitudinal research to examine 134 pre-service teachers' perceptions about the effectiveness of microteaching on acquiring certain instructional skills in Canada. Both quantitative and qualitative data was collected from a survey in which the participants had to mention one limitation of and some aspects of microteaching that they considered to be positive. According to the results, the participants listed eight positive aspects of microteaching, in which lesson planning process and feedback, as two basic components of microteaching, were among the aspects. Therefore, it was concluded that, microteaching practices could have positive effect on improving pre-service teachers' lesson planning, giving and receiving feedback process and some other instructional skills.

In terms of the influence of microteaching in enhancing feedback process, as another essential component of microteaching, Sen (2009) conducted a study to explore the views and suggestions of 39 pre-service teachers about the impact of microteaching. Qualitative data was obtained through interviews, and its analysis produced that microteaching performance helped them to create a chance to observe themselves and their peers, which led them to gain a lot of practical teaching experience. Furthermore, Ralph (2014) examined 136 pre-service teachers being taught during five years to explore their perceptions about the effectiveness of microteaching on acquiring instructional skills. The analysis of data collected from the given surveys showed that giving and receiving feedback with respect to their and their peers' microteaching

performance was the second largest emerged theme which was positively affected by the practice of microteaching sessions.

To add more, Chawla and Thukral (2011) concluded that the given feedback in microteaching sessions is effective in developing the pre-service teachers' overall teaching competence. Additionally, a study conducted by Kougiourouki (2013) on exploring the pre-service teachers' views about the impact of feedback on enhancing microteaching experience, found that the student teachers report that feedback is a critical constituent of microteaching and it helps them to reflect upon their teaching and provide ways for teaching improvement. Moreover, other studies have also confirmed that feedback is an essential component of microteaching and plays an important role in enhancing pre-service teachers' teaching skills (Akkuzu, 2014; Koc & Ilya, 2016), and it enhances collaboration and reflection microteaching sessions (Lin, 2014; Saraswati, 2013). Moreover, other studies (e.g. Lenihan, 2016; Ostrosky, Mouzourou & Danner, 2012; Saban & Cokler, 2013) have also confirmed that microteaching is a useful tool for developing the culture of feedback in the classroom and creating perfect opportunities for pre-service teachers to be aware of their strengths and weaknesses and those of their peers.

Despite the availability of abundant amount of research on feedback, there is still much to be learned about the use of feedback in microteaching (Zhang & Lin, 2014), higher education and teacher education programs (Arts et al., 2016; Glover & Brown, 2006; Hernandez, 2012; Koc & Ilya, 2016; Walker, 2009) because there is a lack of providing effective and efficient feedback and students have trouble understanding their teachers' feedback as many students and teachers neglect explanations as to why a

performance is good or why something should be left out and improved (Glover & Brown, 2006; Hernandez, 2012; Walker, 2009).

Other studies have also attempted to investigate what other knowledge and skills, in addition to microteaching components, pre-service teachers develop as a result of microteaching experience. The results of these studies have shown that microteaching practices can also improve pre-service teachers' pedagogical content knowledge (Fernandez, 2010), technological pedagogical content knowledge (Tasar & Timur, 2010), language proficiency (Ismail, 2011; Savas, 2012), self-efficacy (Arsal, 2014; Cinici, 2016; Mergler & Tangen, 2010) and critical thinking skills (Arsal, 2015). This indicates that practicing microteaching does not only develop pre-service teachers' instructional skills and knowledge about its components (i.e., preparation and planning, teaching process, classroom management and critiquing process), but also many other skills that are necessary for becoming an effective language teacher.

2.4.3 Communication, Collaboration and Identity Construction in Microteaching process

Although the content and components of microteaching are essential to understanding microteaching, communication and collaboration occur during and after microteaching sessions also need to be considered as another basic element of effective microteaching practice. In microteaching, the trainees communicate, using oral, written and non-verbal languages and collaborate effectively and responsibly with a particular group of people. Such group of people, known as *community of practice* (Lave & Wenger, 1991), includes members from a single discipline who come together to "share a common concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott & Snyder, 2002, p. 4). Since the degree of communication and

collaboration is basically determined by the members of this “community”, taking a closer look inside this community of practice (CoP) creates better opportunities for improving communication and collaboration in microteaching.

In this respect, Wenger et al. (2002, p. 27) claimed that CoP is a unique combination of three characteristics. First one is *domain* of knowledge, which defines a set of issues that members need to address. Moreover, Agrifoglio (2015) elaborated that within CoP, the domain both guides questions, which stimulate the members to exchange their ideas for introducing or contributing to a discussion, and facilitates their learning process. In addition, Li et al. (2009, p. 6) stated that the domain in CoP creates “the common ground and outlines the boundaries that enable members to decide what is worth sharing and how to present their ideas”.

Finally, Agrifoglio (2015) believed that the domain also “defines a sense of identity” (p. 35) in a manner that the members have a feeling of belonging to a particular community and are accepted by others with whom they share the practice [and knowledge]. This was also supported by Lave (1991), who claimed that “participation as members in a community of practice shapes newcomers’ identities and the process gives structure and meaning to knowledgeable skill” (p. 74). Within CoP, as Wenger (2004) suggested, identity is not defined by a task, but by an area of knowledge that needs to be explored and improved.

This raises another issue in microteaching process, which is pre-service teachers’ identity construction. Although identity has been defined and explained differently, it can be understood from both context-embedded and sociocultural perspectives (Miller, 2009; Olsen, 2015). Specifically, identity is context-embedded because teachers’

identity construction is strongly influenced by many contextual factors like institutional practices, teaching/learning resources, curriculum and many other things which are outside of the teachers themselves (Miller, 2009). On the other hand, identity is also related to sociocultural perspective in a manner that teachers' (pre-service, in-service or experienced) identities are shaped and reshaped during interactions with others in various professional contexts (Chong, Low & Goh, 2011). Therefore, the process of teacher identity development is flexible because it is the collection of many different contexts and relationships (Olsen, 2015). For example, in microteaching process, pre-service teachers, through their community of practice (e.g. their peers and teacher), communicate and collaborate about and reflect on different microteaching performances, which help them to construct and adopt identity positions for themselves (Bucholtz & Hall, 2005).

Bell (2007) claimed that in microteaching, an identity as a "teacher" develops through examination of everyday performances of self and "microteaching can help students consider the type of teacher they want to be and provide them with the freedom to experiment with what it might mean and look like for them to be that kind of teacher" (p. 39). Moreover, Beijaard et al. (2004) believe that pre-service teachers' experiences, [for example through microteaching], during the initial teacher preparation program combine with personal beliefs to shape their identities, which in turn informs their future practices influences and affects their decisions and behavior as teachers. Therefore, through doing microteachings or watching peers' microteachings, pre-service teachers can construct or develop the identity of "preferred" or "effective" teacher in the future. In another study, Mergler and Tangen (2010), after analyzing quantitative and qualitative data of 300 pre-service teachers, concluded that microteaching practices had a positive impact on developing the participants' teacher

identity. Moreover, Zacharias (2016) carried out a study in Indonesia to explore a group of pre-service teachers' identity construction through microteaching practice. The analysis of the qualitative data collected from three post-mini lesson interviews revealed a positive relationship between microteaching practice, pre-service teachers' perceptions of their teacher role and their identity construction.

Finally, since many previous studies have concluded that teacher identity is formed by relationships with others (Can, 2014; Dang, 2013; Rogers & Scott, 2008; Tsui, 2007), the process of learning to teach (Smagorunsky et al., 2004), and prior experiences at university courses (Rogers, 2011), microteaching practice has a great influence in developing pre-service teachers' identity construction because microteaching involves communication and collaboration with peers and teacher, is a means of learning to teach and is a part of university course in teacher education programs.

The second characteristic is a *community* of people who care about this domain. Wenger et al. (2002) claimed that community is an essential component of building effective knowledge and sharing it among the members. Furthermore, Agrifoglio (2015) maintained that since the community consists of people, they also interact and build interpersonal relationships about the issues which are vital to the domain. Therefore, community is mostly related to the social structures that foster learning through interaction and relationships among the members.

The last characteristic is the shared *practice* that the CoP members develop to be effective in their domain. Wenger et al. (2002, p. 38) further added that practice, although defined differently by other scholars, is a "set of common approaches and shared standards that create a basis for action, communication, problem-solving,

performance, and accountability". Additionally, since CoP members are practitioners, they develop a shared repertoire of resources like experiences, stories, tools and ways of addressing recurring problems (Agrifoglio, 2015).

To have a deeper understanding about the nature of CoP, Agrifoglio (2015, p. 32), after an intensive review of the related literature, grouped CoP into four main categories, as shown in Table 2.3 below.

Table 2.3: Categories of community of practice (CoP)

Categories	Features	Forms of CoP
Demographic	Age	Young/old
	Size	Small/big
	Life span	Short-lived/long-lived
Organizational	Creation process	Spontaneous/intentional
	Organizational boundaries	Inside/across boundaries
	Degree of formalization	Unrecognized/institutionalized
Individual	Proximity	Co-located/distributed
	Background	Homogenous/heterogeneous
Technological	Degree of reliance on ICT	Face-to-face/virtual

As presented in Table 2.3, any CoP is characterized as the combination of demographic, organizational, individual and technological categories, which are represented by their particular features and forms. Each of these categories as well as its features and forms can be applied to the members of microteaching community and have influential impact on improving communication and collaboration in microteaching.

Previous studies have shown that web-based instruction provides more chances for communication and collaboration than those created in face-to-face classes. For instance, Sadik (2002) claimed that since traditional face-to-face classes were basically

characterized as inconvenient learning environments for enhancing collaboration and interaction and facilitating interactive learning, teachers were encouraged to utilize web-based instruction as an effective means for building suitable environments for collaborative and interactive learning. Moreover, Şengel (2005) believed that web-based instructional learning environments provide a better chance, compared to traditional classroom learning, for better interactions between the students and teachers and can serve as "an after-hour teaching assistant to traditional classroom learning" (p. 39). Other studies (e.g. Brown & Adler, 2008; Sanchez, Cortijo & Javed, 2014) reported that web-based instruction provided students with a greater amount of time for utilizing learning materials, sharing ideas and collaboration than that in traditional campus-based face-to-face classrooms. Finally, a study conducted by Lee and Tsai (2011) found higher levels of collaboration and communication in Internet-based learning environments than in traditional learning ones.

To conclude, web-based learning environments are effective in promoting communication and collaboration in both the teaching and microteaching processes. Therefore, to enhance communication and collaboration in these processes, the community members of web-based learning environments need to have sufficient knowledge (or be provided with enough knowledge) about the teaching/learning issue (e.g. microteaching) and share the knowledge, practice and experience with each other before, during and after the classes to solve recurring teaching problems or improve the current knowledge about the issue.

2.4.4 Reflective Practice in Microteaching Process

Dewey's (1933, 1938) distinction between routine and reflective action was a turning point in the process of teacher education and professional development programs. Dewey (1933, 1938) highlighted the importance of teachers who reflect systematically

on their working contexts, resources, and actions and apply what they learned from reflection in their everyday and long-term decision-making process. Moreover, according to Dewey's idea, reflective teaching is basically related to being on alert to the circumstances of teaching and the implications of issues which are arising during teaching (Burton, 2009).

Since the emergence of Dewey's idea, the concept of reflection and reflective teaching has been a key topic of investigation in teaching and teacher education research, especially after 1980s (Farrell, 1999). For instance, Schön (1983, 1987) distinguished between theory and practice through coining reflection-in-action and reflection-on-action, and envisaged reflective practice occurring through feedback loops both inside and outside the classroom. In addition, Wallace (1991) proposed a reflective model to provide a framework for thinking about the relationship between theory and practice in training foreign language teachers.

Other scholars have examined reflection and reflective teaching from other perspectives. Both Pawan (2003) and Rogers (2006) focused on the effectiveness of structured conversations on reflective teacher learning. Pawan (2003), for example, pointed out the role of structured conversation in online reflective teacher learning through providing synchronous and asynchronous discussion environments. This helped the researcher to record online reflections as a source for later written reflections by all participants (Burton, 2009). Furthermore, Curtis and Szestay (2005) concluded that building collaborative reflection helps teachers to "step back, look at their teaching with fresh eyes, and be more open to change" (p. 5).

It can be understood from the above mentioned investigations about reflection and reflective teaching that they are bound to social structure and essentially enhanced through practice and experience. In support of this, many studies have shown that on-campus practical experience helps pre-service teachers become reflective teachers (Amobi, 2005; Benton-Kupper, 2001; I'anson, Rodgrigues & Wilson, 2010). Since microteaching has been one of the most widely used methods for providing such practical experience for pre-service teachers (Amobi, 2005), reflection and reflective practice can lead to an effective practice microteaching.

Amobi (2005) claimed that reflective practice contributes to effective practice of microteaching in two ways. First, viewing the recorded videos of their peers' microteaching sessions, working alone, with peers and/or the teacher, enables the pre-service teachers to analyze and reflect on the recorded microteachings. This is often done for the purpose of encouraging the development of self-analysis or the analysis of others and thus reflective practice through writing a critique of the instructional performance. Second, reflective practice also contributes to microteaching through the feedback session taken place at the end of microteaching session. The feedback, oral and/or written, given by the instructor and peers leads them to engage in a discussion about the strengths and weaknesses of the microteaching performance. Thus, these ways of reflective practice in microteaching help pre-service teachers to revisit the sequence of one's teaching to make thoughtful judgment and decisions about improved ways of teaching in the midst of the action or the future (Amobi, 2005).

Drawing on Schön's (1983, 1987) concepts of reflection, Lin (2014) further added that three types of reflective practice could be found in microteaching, namely, reflection-in-action, reflection-on-action, and reflection-for-action. To be more specific,

reflection-in-action, or contemporaneous reflection (Van Manen, 1995), basically occurs during the practice and involves thinking of current experiences, reviewing experienced feelings, and evaluating knowledge being used (Lin, 2014; Schön, 1987). However, reflection-on-action, or retrospective reflection (Van Manen, 1995), happens after the event or practice (e.g. microteaching) in which the participants involve in retrospective thinking about what happened during the practice and how it can be developed (Schön, 1983, 1987).

Concerning reflection-for-action, also known as anticipatory reflection (Van Manen, 1995), refers to the participants' identification of constructive guidelines to follow to succeed in the given task in the future (Killion & Todnem, 1991). In other words, reflection-for-action, as Killion and Todnem (1991, p. 15) claimed, is "not so much to revisit to the past or become aware of the metacognitive process one is experiencing …, but to guide future action (the more practical purpose)". Therefore, this type of reflection prepares participants for the future performance such as doing another task or event in the future.

Consequently, it can be understood from the continuum of reflection-in-action, reflection-on-action and reflection-for-action that the reflection practice is "a process that encompasses all time designations, past, present, and future simultaneously" (Killion & Todnem, 1991, p.15), which make reflection "temporally distributed phenomenon involving the pre-active, interactive and post-active phases of teaching" (Conway, 2001, p. 90).

Studies have shown that reflectivity on teaching is a developmental process and it can be nurtured through microteaching in a supportive on-campus setting (Amobi & Irwin,

2009). Furthermore, reflective practice in microteaching is enhanced when the pre-service teachers engage in the conversation of their microteaching performance and identify their strengths and weaknesses (Lin, 2014). This is often done when they watch their recorded microteaching videos and/or their peers' live microteaching performance in the classroom.

Although watching recorded microteaching videos individually can encourage the development of self-analysis (Amobi, 2005), pre-service teachers' reflective practice is usually assisted by the teacher and peers' written and/or oral feedback. Therefore, their reflective practice in microteaching is difficult to accomplish individually because it is socially constructed by pre-service teachers with the support of the teacher and peers (Lin, 2014). Thus, the core of reflective practice in microteaching remains in the development of communications and discussions among the pre-service teachers and the supervisor.

Moreover, Zhang and Lin (2014) presented more elaborations on the role of reflective practice in microteaching. They claimed that a rich reflective context in microteaching is created through planning and use of observation, peer feedback and video analysis. Drawing on Bandura's (1977) social learning theory, which highlights learning through observing the behaviors of others, peers learn from each other through observations in microteaching. Moreover, peer feedback, either oral or written, increases pre-service teachers' active reflection (Shin, Wilkins & Ainsworth, 2006) and functions as the content and quality for reflection (Amobi, 2005). Finally, video analysis has also been seen as an important reflective practice in microteaching since viewing their own or peers' recorded performance creates a reflection ground for the development of self and other's performance (Zhang & Lin, 2014).

Several other studies have highlighted the contribution of reflective practice to microteaching. For example, Donnelly and Fitzmaurice (2011) concluded that many pre-service teachers learned from their peers and reflection on their own teaching during microteaching sessions, which also provided "an opportunity for the lecturers to gain insights into their role as teachers, to engage in dialogue, [and] to find their own voices" (p. 344). Additionally, Güngör (2016) found that the reflections and comments on self- and peer teaching through videos and diaries helped the pre-service teachers identify their strengths and weaknesses of their performance and evaluate, understand and improve their reflective thinking practices. Finally, Kourieos (2016) suggested that reflective component, as a means to connect theory to practice, "must" be incorporated into the process of learning to teach as she explored in her study that the reflective feedback emerged as a result of viewing microteaching videos involved the participants reflecting on their practices and promoted reflection as part of dialogue (p. 75).

Furthermore, Zhang and Lin (2014) also highlighted that there is a strong relationship between reflective practices in microteaching and *identity development* (italics added). They claimed that pre-service teachers "develop their teacher identity through reflective practices in microteaching", like self-reflection (e.g. journal writing and video analysis) and reflection through others (e.g. peer observation and peer feedback), to know who they are as becoming teachers (p. 100).

Identity is meant to be "the way a person understands and views himself, and is often viewed by others" (Horn et al., 2008). Research has shown that pre-service teachers' identity construction can result from the disagreement between how they perceive themselves and how they are perceived by others (Bullough, 2015; Pearce & Morrison,

2011; Zhang & Lin, 2014). For example, although the perceived self (e.g. through watching their recorded microteaching videos) and the self that is recognized by others (e.g. feedback from others) may not match (Zhang & Lin, 2014); such mismatch may not be considered as a problem because pre-service teachers' identity and growth may arise from discrepancy (Bullough, 2015).

Moreover, Zhang and Lin (2014) added that reflection on the recorded video of one's own teaching (e.g. microteaching) can also help pre-service teachers "recognize the gap/discrepancy between i) what type of teachers they want to be and where they actually are, ii) what they think to be the "best practice" and their actual teaching, and iii) how others (e.g. peers) think about their teaching and their actual teaching. Consequently, reflective practice in microteaching through viewing recorded videos of microteaching helps pre-service teachers to identify these gaps/discrepancies, which ultimately lead to their identity construction.

Tülüce and Cecen (2017) carried out a study to investigate the affordances and constraints of using video in microteaching and explore why video is among the popular technique in the process of learning teaching. They found in their study that video as a resource had more affordances than constraints and helped the pre-service teachers "notice their actions, engage in critical reflection and map their progression" (p. 73).

In conclusion, reflective practice is an essential element of effective microteaching process. Reflective practice emerges from conversations about their microteaching, peer observation, giving and receiving feedback, and analysis of recorded microteaching videos, which help pre-service teachers be aware of the strengths and

weaknesses of their "teaching" performance, identify the gap between their own teaching and the perceived "best practice", develop their identity, and be an effective reflective teacher in the future.

2.4.5 The Use of Technology for Microteaching Purpose

Because of the advancements in technology and attempts to improve the practical experience, there has been a rebirth of microteaching, but in a new form, in ELTE programs (Wright, 2010). Moreover, Diana Jr. (2013), in his study, called for reform-oriented teaching in teacher education programs through the integration of technology into microteaching sessions, because he believes that technology-enhanced microteaching provides pre-service teachers with opportunities to see how this change benefits their learning outcomes and professional development.

One of the most common uses of technology in microteaching is the recording feature of technology. Research has shown that video recording can have effective impact on developing student teachers microteaching experience. For instance, Kpanja (2001) examined two groups of pre-service teachers in a Nigerian context to see how the use of video tape recordings affect their microteaching performance. He concluded that the group which used the video recording tool showed more significant progress in the mastery of teaching skills compared to that group which did not use it. Similarly, Ekpo-Eloma, Arikpo and Catherine (2013) concluded that the use of video technology in microteaching sessions helps the prospective teachers' overall professional growth and improves their appraisal skills.

The recording feature of technology has also been utilized as means of giving and receiving feedback, gaining a more objective perspective on self or others' teaching practices in a non-threatening environment, self-reflection and collaborative learning.

For instance, Yamamoto and Hicks (2007) carried out a study to investigate the influence of using digital video recordings of pre-service teachers' microteaching sessions on their reflection and feedback provision skills. After each microteaching session, the participants were given a CD including their own and others' microteaching performances, and required to post feedback about their peer's performances anonymously on an online discussion forum. The results of the study showed that such technique is highly useful for feedback provision and self-reflection in microteaching experience.

Furthermore, Rich and Hannafin (2009) conducted a study to explore the impact of a web-based video on pre-service teachers' instructional decisions in a teacher education program. The results revealed that the web-based video tool helped the participants to improve their decision-making skills in a manner that analyzing the recorded videos of their teaching helped them to identify the gap between their teaching theory and practice. Furthermore, Tripp and Rich (2012) reviews 63 studies being done on the effect of using video recording on analyzing own teaching performance. Their intensive analyses of the studies showed that videos have been mainly used as a means of teacher self-reflection, reflect-in-practice, or/and collaborative reflection.

In Turkish context, Savas (2012) carried out a study to examine the opinions of EFL pre-service teachers at a state university about the use of videos in microteaching sessions. The results of the study showed that the majority of the participants reported that using microteaching videos is useful, specifically for improving English language proficiency and teaching skills. Similarly, Kavas and Özdener (2012) attempted to find out the effectiveness of video-assisted web-based system on enhancing pre-service teachers' teaching and peer assessment skills. Through employing experimental and

control groups method, the results of the study revealed that the group who was instructed through the video-assisted web-based system was more successful than the control group in teaching performance and peer assessment procedures.

In the same context, Bozyiğit (2015) investigated the perceptions of EFL Turkish pre-service teachers to explore whether video-assisted written constructive feedback session in microteaching has any impact on increasing their participation in feedback provision and changing their perceptions toward feedback sessions. The study concluded that the participants' perceptions about the use of video-assisted tool for feedback were positive and it had a significant impact on enhancing their participation in feedback sessions.

To add more, Tülüce and Çeçen (2017) conducted a qualitative study to examine the pre-service teachers' perspectives about the affordances and constraints of video-mediated microteaching. The results revealed that the affordances of incorporating video into microteaching overweigh its constraints. Specifically, the pre-service teachers reported that using video as a resource helped them remember their micro lessons, notice their actions, engage in critical reflection and map their progression. However, the only reported constraint was feeling anxious at being recorded.

Other studies have also provided similar evidence of the usefulness of video recordings or Web tools for developing prospective teachers' professional development. Ostrosky et al. (2013), for example, revealed in their study that video-recorded microteaching sessions help student teachers improve their teaching practices and feedback provision skills. Moreover, Punia (2013) found that using multimedia tools for feedback sessions in microteaching increases the motivational levels of the pre-service teachers in

learning and teaching, helps them acquire practical considerations of teaching, and improves their teaching performance. Therefore, he strongly recommends the integration of multimedia tools into teacher education programs, specifically in microteaching sessions.

In terms of other web-based tools, Lin (2014) did a study to examine Chinese pre-service teachers' experience of using microblog in their reflective practice in microteaching. The results of the study revealed that the microblog, as a web-based instructional learning environment, had significant impact on changing their typical reflective practice in microteaching and providing the participants with unique sociocultural experience. The researcher, finally, recommends that teacher educators should revolutionize the traditional perspectives of media like e-mails, e-journals and blogs because they may not explain the complexities of reflective practice in microteaching.

More recently, other studies have investigated the integration of online technologies into microteaching process. A study by Kusmawan (2017) aimed to explore the effectiveness of online microteaching among elementary teachers at a university in Indonesia. The analysis of both quantitative and qualitative data showed that online microteachings improved their confidence in their teaching and strengthened their critical thinking and reflective actions. In addition, another study conducted by Dixon, Hall and Shawon (2019) investigated the use of virtual realities and web-conferencing technologies in the microteaching process. They concluded in their study that such technologies enhance students' self-confidence and provide a safe and non-threatening environment for them to reflect on their practice. Finally, Roza (2021) attempted to find the effectiveness of integrating both Zoom and Youtube in microteaching class

by webinars during the Covid-19 pandemic. The results of quantitative data analysis revealed that incorporating both Zoom (as a synchronous technology) and Youtube (as an asynchronous technology) is effective in microteaching sessions.

It can be concluded from these studies that recording feature of technology is most commonly used in microteaching sessions. More specifically, such feature is often utilized for feedback and assessment purposes of microteaching performance. However, it is evident from the previous related literature that studies on utilizing other means of modern technology like web-based instructional learning environments for microteaching purposes are strictly limited. Moreover, even those studies which were conducted on the use of web-based environments for microteaching focused only on particular component(s) of microteaching like feedback session or reflection and collaboration. Finally, it can also be stemmed from the review of the previous related literature that studies on the use of technology, in general, and web-based system, in particular, for microteaching purpose is extremely scarce in Iraq and Kurdistan region of Iraq. Therefore, the aim of this study is to bridge the aforementioned gaps by designing, implementing, and evaluating a web-based instructional learning environment for improving EFL pre-service teachers' microteaching considering all its basic components.

2.5 Summary

The literature reviewed in this chapter shows that researchers' interest in the use and integration of technology in microteaching process in ELTE programs has grown in the past few decades. Starting in the late 1960s with the behaviorist perspective, and later in the 2000s changing to constructivist view, microteaching has now considered more useful if it is merged with new technology. More specifically, in the last decade,

numerous studies have been conducted on the integration of technology into the microteaching process (e.g., Bozyiğit, 2015; Dixon, Hall & Shawon, 2019; Kusmawan, 2017; Lin, 2014; Roza, 2021; Savas, 2012; Tripp & Rich, 2012; Tülüce & Çeçen, 2017). It is worth noting that most of these studies have utilized the recording feature of technology (e.g. video recording) in the microteaching process, while just a few of them (e.g., Dixon, Hall & Shawon, 2019; Roza, 2021) have utilized the Web for delivering the microteaching sessions. The review of the literature has also revealed that researchers in many parts of the world have attempted to investigate the integration of technology into microteaching process (e.g., Turkey, United States of America, Indonesia, China, and Nigeria), whereas no study has been found on this topic in the context of Iraq, specifically in the Kurdistan Region of Iraq. Therefore, this present study seems to be a necessary and timely attempt on the use of modern technology for improving pre-service teachers' microteaching experience in the ELTE programs.

Chapter 3

METHODOLOGY

This chapter provides a comprehensive description of the methodology employed in the study. The chapter is composed of six sections. The first section presents the research approach and the research model as the blueprint for the research design. The following section delineates the context of the study and explains the process of designing the web-based learning environment. The third section outlines the sample selection and introduces the participants. The fourth section discusses my role as a researcher during the data collection process. The fifth section describes the data collection methods and procedures along with the rationale behind their selection. The chapter ends with the steps and procedures followed for data analysis.

3.1 Research Approach and Research Model

3.1.1 Research Approach

To investigate the perceptions of the pre-service teachers about the effectiveness of the web-based instructional learning environment for microteaching, this study adopted a research approach formed from the combination of both design-based research (DBR) and action research (AR). DBR, also conceptualized as ‘design research’ (Collins, Joseph & Bielaczye, 2004; Reeves, 2006) or ‘educational design research’ (McKenney & Reeves, 2012), is a research methodology (Collins, Joseph & Bielaczye, 2004) or research paradigm (Design-Based Research Collective, 2004) which aims to solve educational problems arising in a learning context, refine theory, and enhance practice through providing opportunities for professional development (Andriessen, 2008; Ö Ö

Özverir, 2014). This conceptualization suggests that DBR is "a series of approaches, with the intent of producing new theories, artefacts and practices that account for and potentially impact learning and teaching in naturalistic settings" (Barab & Squire, 2004, p. 2).

Many researchers have proposed a number of essential features of DBR (e.g., Reeves, 2000; Reeves, Herrington and Oliver, 2005; Reimann, 2011; Design-Based Research Collective, 2003; Wang & Hannafin, 2005). For instance, according to Design-Based Research Collective (2003), DBR basically aims at bridging the gap between theoretical research and educational practice in a manner that the designed intervention, which is based on some theoretical claims about learning and teaching and implemented in a particular context, can produce robust explanations about how teaching and learning theories can be transformed into effective learning in particular educational learning environments.

Moreover, Wang and Hannafin (2005, p. 8) and Reimann (2011, p. 37) highlight some specific characteristics of DBR in educational settings, which guided this present study. They claim that DBR is:

1. *pragmatic* in a sense that it refines both theory and practice and values theory in the extent to which principles improve and inform practice,
2. *grounded* in theory and research and is conducted in real-world settings and aimed at solving contextual problems,
3. *interactive, iterative,* and *flexible* in a manner that the designers are involved in the design process of the artefact and work with the participants, is conducted in an iterative cycle of analysis, design, implementation, and

redesign, and necessary changes in the designed intervention are made deliberately,

4. *integrative* in a way that it employs mixed research methods to maximize credibility of the research, and
5. *contextual* since the research results are related to the design process and the research setting.

Similarly, Reeves, Herrington and Oliver (2005) pointed out the following six characteristics of DBR:

1. a focus on broad-based, complex problems critical to higher education,
2. the integration of known and hypothetical design principles with technological affordances to render plausible solutions to these complex problems,
3. rigorous and reflective inquiry to test and refine innovative learning environments as well as to reveal new design principles,
4. long-term engagement involving continual refinement of protocols and questions,
5. intensive collaboration among researchers and practitioners, and
6. a commitment to theory construction and explanation while solving real-world problems. (p. 103)

The present study utilizes the characteristics explained by Wang and Hannafin (2005), Reimann (2011) and Reeves, Herrington and Oliver (2005) because they reflect the theoretical and methodological background of the present study in various ways. First, the investigated issue (i.e., insufficient practice of microteaching) is a critical problem in the preparation of Kurdish EFL pre-service teachers in the research context (i.e., Kurdistan Region of Iraq). Second, current known design principles (e.g. Oliver and

Herrington, 2001) are integrated into an advanced technological affordance (e.g. Schoology) to find possible solutions to such critical problem. This is mostly done through implementing the designed intervention in one cycle with two different groups, continuous reflective inquiry about the use of the intervention, refinement of protocols and intensive collaboration and interaction among the researcher and the users of the intervention. In addition, the present study also employs mixed-method research approach to gather necessary data about the impact of the intervention on solving the investigated problem in the research context. Thus, the above mentioned features of DBR guided this current study because they are strongly connected with the ways of conducting this research both theoretically and practically.

Another research approach employed along with DBR in this study is action research (AR). AR has been defined as "self-reflective enquiry" (Ellis, 2012, p. 27) conducted by teachers "for the purpose of gaining a better understanding of their educational environment and improving the effectiveness of their teaching" (Dörnyei, 2007, p. 191). The related literature on AR has discussed how various features of AR contributed to the educational research (e.g., Burns, 2005; Burns, 2015; Ellis, 2012; Wallace, 1998). To exemplify, Burns (2005) shows that AR is basically carried out by practitioners to enhance their practices in particular teaching context, develop new theoretical understandings of these practices, and introduce change into the social enterprise (p. 241).

Moreover, Burns (2015) adds that one of the basic concepts behind AR is the practitioners' (e.g., teachers, students, or administrators) *problematizing* stance towards their teaching context. The terms *problematizing* is related to focusing on an area of practice that is worth looking into more deeply and subject to questioning with

the aim of improving such practice and finding solutions to the problematic area. Thus, the core value of AR is to intervene purposefully in the problematic situation to bring about changes and improvements in practice. Similarly, Ellis (2012) characterizes AR as:

1. *context-specific* in that the problems are identified by teachers and are located in their own teaching,
2. *practical* in that it is directed at improving teaching,
3. *systematic* in that it is conducted following some clearly delineated steps (e.g., identifying the problem, collecting information relevant to the problem, working a possible solution and devising ways of trying it out, implementing the solution in the instructional context, and collecting data whether the solution is effective),
4. *reflective* in that it requires teachers to examine problems in their own practice, identify possible solutions, an evaluate their effectiveness,
5. *cyclical* in that it is conducted repeatedly and continuously to find solutions and the possibility of new problems emerging during the teaching process or while finding solutions (p. 27).

In this present study, a research approach which combines both DBR and AR is employed due to some reasons. First, one of the major goals of this study is to improve the instructional practices in SLTE programs through designing and implementing a particular web-based learning environment, but not to prove such learning environment is better than the others. This, as Reeves (1999) claims, is also the major aim of DBR in the related studies. Second, throughout this study, the researcher plays the roles of full participant (i.e. course teacher), active controller and problematizer (see section 3.4 below for more information) of the observation process during the data

collection procedures. Since such researcher roles are not a typical feature of DBR, AR seems to be perfectly aligned with these roles. Third, previous studies have also acknowledged the combination of DBR with AR. For example, Andriessen (2008) concludes that such combination helps the researchers of both research approaches cope with the "swampy lowland" (Schön, 1983, p. 42) – where is a situation that creates difficulties for practitioners to test their solution concepts – and "control their reflective and knowledge creating process and stimulating them to contribute theory" (p. 132). Moreover, a study conducted by Majgaard, Misfeldt and Nielsen (2011) to find how linking DBR with AR contributes to the development of a new technology-enhanced instructional design, concludes that such combination is valuable in achieving research outcomes and enriching the design process.

3.1.2 Research Model

Since the research approach used in this study encompasses both design-based research and action research, it is necessary to use a research model that aligns with the research approach. In this respect, this study employs the adapted version of Andriessen's (2008) model as the main research model. Moreover, the designed-based research model suggested by Reeves (2006) is also benefitted to enrich Adriessen's model.

The research model (see Figure 11) consists of two different but complementary streams. The first stream is *knowledge stream*, which aims to improve the generalizable knowledge that "can help create desired situations… preferably in a way that contributes to theory" (Andriessen, 2008, p. 129). The second stream, i.e., *practice stream*, on the other hand, attempts to "contribute to the practical concerns of people in problematic situations, by solving their problems in specific circumstances" (p. 129).

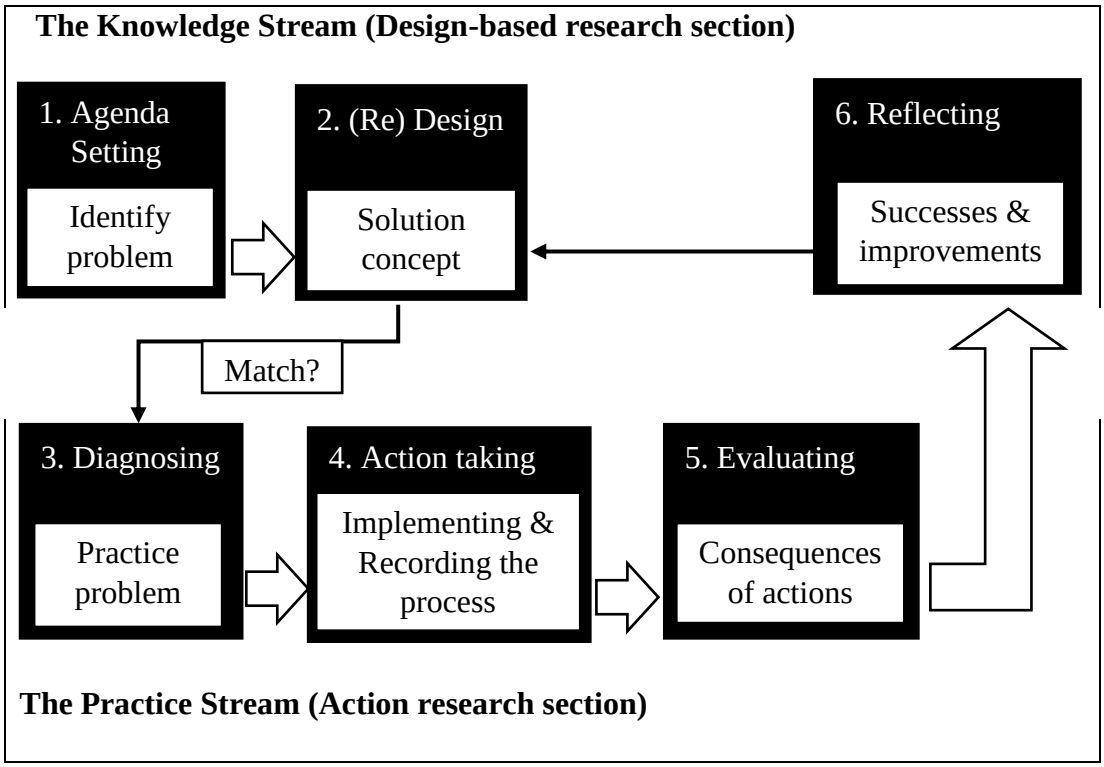


Figure 3.1: The Research Model (Adapted from Andriessen, 2008, p. 129)

As shown in figure 11, the knowledge stream, which is the design-based research section, is conducted in two steps. The first step is *Agenda Setting* that is related to defining a research problem. Such problem, Reeves (2006) explains, should be a real-world problem that is important in educational settings, and solving it will enhance the quality of education in the setting. The second step is *Designing*, which aims at developing an initial solution concept for the problem. In this step, as Andriessen (2008) points out, the designed initial solution concept or intervention is based on a design cycle, which should consist of four steps, namely, i) specifying the intended application domain, ii) listing the requirements for the solution concepts, iii) designing a draft solution concept, and iv) evaluating the draft against the application domain and requirements (p. 130).

Özverir (2014) and Reeves (2006) believe that in this stage (i.e., Designing), there should also be an intensive and purposeful review of the related literature to closely examine how other researchers have solved similar problem and explore existing design principles relating to the problem area. Özverir (2014) further claims that after reviewing the literature, consulting practitioners, and selecting appropriate design principles, the researchers can design the proposed solution or educational "intervention", ready for implementation (p. 59).

On the other hand, the practice stream, which is related to action research paradigm, aims mainly to test the designed solution concept (Andriessen, 2008) and apply progressive refinement to the design (Collins et al., 2004). At this stage, as Andriessen (2008) recommends, 'outsiders' (i.e., people who are not involved in the design) should test the solution concept to check whether "the quality of implementation of the solution concept depends on the knowledge of the designer of the concept" (p. 130). To ensure this, this PhD dissertation supervisor and the members of the Thesis Monitoring Committee (TMC) at Eastern Mediterranean University were involved to test and evaluate the designed intervention before the implementation process.

As shown in the model, the practice stream phase starts with the fourth step, which is *Diagnosing*. In this step, the similarity between the practice problem and the application domain is checked to see that the problem and the application domain are congruent. Another important step in the practice stream is *Action taking*, which is related to the implementation of the designed intervention in the context. In this stage, Andriessen (2008) claims that necessary data can be collected from the participants through employing the intended instruments. The data collected during this stage is

mostly related to the users' progressive reflections and feedback while using the intervention.

In addition, *Evaluating* is another integral step of the model and it deals with evaluating the process of the solution concept and its outcomes. At this stage, researchers can also collect necessary data about the effectiveness of the designed solution. Reeves (2006), in this respect, states that the evaluation process helps the instructional designers to fine tune the research by editing the design principles and changing the designed intervention. The final step is *Reflecting,* in which the researchers reflect on their analysis of data, and share their experiences and the result of their research so that they guide future research in similar educational practices (Özverir, 2014; Reeves, 2006). It is worth noting that this step is basically connected to the design process in the knowledge stream.

3.2 Context of the Study and the Design Procedures of the WeBILE

3.2.1 Context of the Study

The instructional setting of the study is the English department in the College of Education at the University of Raparin. The university (www.uor.edu.krd), established in 2010, is a public university located in the Kurdistan region in the northern Iraq. It consists of five colleges with 27 departments of various fields like social sciences, education, science and engineering. Currently, the university hosts 4859 students and 212 staff members. The university is accredited by both ministries of higher education and scientific research of Iraq and Kurdistan regional government, and it is a full member of many famous international organizations like International Association of Universities (IAU), Eurasian Universities Union (EURAS), Marhaba Program, and International Research and Exchange Board (IREX). It has established academic

collaboration with many Asian, European and American universities since its foundation.

The English department, i.e., the instructional context of this study, aims at preparing students for becoming English language teachers at basic and high schools, and after their graduation, students are awarded Bachelor's degree in English language education. Moreover, students are admitted into to the department based on their average grade of the final examinations in high school. It is worth noting that the average grade is determined by the ministry of higher education and scientific research of Kurdistan regional government and its central admission department. Although the average grade changes every year according to the number of applicants and the need of universities, students need to have at least 70% average of all the subjects of the final examinations in 12^{th} grade (i.e. final year of high school) and at least 65% in the English language test so as to be admitted in the English department.

The education system at University of Raparin starts in October and ends in June. This period is seen as one academic year, which is not divided into fall and spring semesters; rather it is considered as a whole. At this university, the students take three official examinations, one at the end of December, the other one at end of April, and the final examination in June. To pass any course, the students have to collect at least 50 out of 100 from the examinations.

During the four-year study in the department, the pre-service teachers study various subjects about English language skills (i.e., reading, listening, speaking and writing), education, linguistics, English literature, and applied linguistics (see appendix 8 for the four-year curriculum). Among them, English language teaching methodology is a

subject that is studied in the third-year. This course aims to introduce students to fundamental principles of English language teaching methodology for the purpose of developing their theoretical and practical knowledge of language teaching. Moreover, the practical knowledge is usually improved and practiced in the form microteaching sessions during the academic year, basically starting in December and continuing until all students finish doing microteaching.

3.2.2 The Design Process of the WeBILE Knowledge Stream

As shown in the research model, this section is related to the design-based paradigm and it consists of two main steps, namely, problem identification and designing the solution concept or intervention. Concerning the problem identification, the problem was identified through discussions and consultations with the practitioners as well as the researcher's personal and professional experience both as a student in teacher education program and a teacher in the same context (for more details see Chapter 1). Consequently, it became obvious that there is a problem in practicing microteaching in the ELT Methodology course taken by third-year English language students throughout the academic year. More specifically, it was found in the course that there is a mismatch between what the students learn (theory) and what they do (practice), and they do not have enough opportunity to reflect on their practice while doing microteaching due to big class size, insufficient class time, and lack of a particular theoretical learning environment.

After identifying the research problem, an intensive literature review was carried out to explore if any convenient solution(s) has been proposed to address a similar problem both locally and internationally. At the local level, no proposed solution was found in the related literature. At the international level, on the other hand, what has been found is only some attempts made outside the research context to investigate a particular area

about the problem (e.g., Chawla & Thukral, 2011; Koc & Ilya, 2016 for feedback sessions; Aydin, 2013 for lesson planning, implementation and evaluation; Sherin, 2003 for assessing teaching behaviors; Lin, 2014; Saraswati, 2013 for reflection and collaboration), but not to address the issue as a whole. Since the problem under investigation in this study is a multidimensional one, focusing on one of its specific area cannot address the problem. In this sense, no appropriate solution or framework about the problem was found in the related literature in this research context (i.e., Iraq). Therefore, a web-based instructional learning environment was designed as an appropriate solution to the problem.

The learning environment (see Figure 3.2) was designed based on a model suggested by Oliver and Herrington (2001) for designing quality web-based learning environments, which highlights three basic components like learning resources, learning tasks and learning supports (see Chapter 2 for details about the model and principles).

Schoology (https://www.schoology.com), as the best educational application in 2013, 2014, and 2015 (Irawan, Studadji & Widiyanti, 2017), was used as the platform to design the web-based instructional learning environment. Schoology is aimed at enhancing learning and teaching through better communication, collaboration, and improving access to teaching and learning materials at various levels of any learning environment, including higher education. In addition to offering many options for uploading course materials, Schoology also has an aesthetically pleasing interface and is logically organized. Moreover, Schoology provides its users with an application software that can be downloaded to any kinds of smartphones so that the users can access it anytime and anywhere. Finally, Schoology is a free platform, which is an

important feature for reducing the expenses associated with designing the online environment.

Although many common learning management systems like Moodle and Edmodo are available in the field and have many common features, Schoology was chosen among these options because it has many advantages that cannot be found in the other options. For instance, Edmodo's display is very similar to that of Facebook (Amiroh, 2013), and Edmodo only supports quizzes, assignments and polls in the learning process (Irawan, Studadji & Widiyanti, 2017). In contrast, Schoology has an aesthetically unique and pleasing interface, is logically organized, and provides its users with various features to design quizzes, different types of test items, assignments, and most importantly, to make discussion groups. In support of the preference of Schoology over Edmodo, Tretinjak and Tretinjak (2017) concluded in their study that although they currently use both learning management systems, Schoology is more effective than Edmodo in delivering the course and in the future they will use only Schoology in their course because "it is more organized and offers more features" (p. 855).

In addition, Schoology is reported to be more beneficial than Moodle (Irawan, Studadji & Widiyanti, 2017). Schoology supports the integration of social networking interface and learning communities to develop active collaboration and communication among its users. In addition, Schoology possesses some analytic features, such as day-to-day results about the number of comments each user posted, time each user spent on the online course, and assignments or tasks each user accessed and completed, by which the users' progress can be easily monitored. On the contrary, since Moodle does not adopt social media, communication and collaboration among its users cannot be enhanced. Furthermore, Moodle is identical to a blog on a website because it is

naturally an open source so as to help teachers create online courses as needed (Irawan, Studadji & Widiyanti, 2017). Thus, Schoology seems to be more effective and beneficial for delivering any instructional content.

Research has shown that Schoology is an effective educational platform for achieving the learning outcomes and meeting current and future challenges of teaching and learning in the 21st century (Biswas, 2013; Irawan, Studadji & Widiyanti, 2017; Sicat, 2015; Tretinjak & Tretinjak, 2017). Biswas (2013) asserts that Schoology-supported instruction has "the strongest potentiality" for collaboration and connection among the stakeholders at the same platform in a learning environment, and increases "academic achievement and educational innovation of students" (p. 187). Moreover, Irawan, Studadji and Widiyanti (2017) in their study conclude that due to the positive effect Schoology has as a Blended Learning system in delivering the investigated educational course, it should be implemented in all programs of study to create opportunities for students to practice theoretical knowledge in particular areas.

Thus, due to such distinctive features mentioned above and effective outcomes it produces, Schoology is found more convenient to be used in this study as a platform for the instructional learning environment.

As shown in Figure 12, the learning environment consists of five main sections. They are i) introduction, ii) preparation and planning, iii) teaching process, iv) giving and receiving feedback, and v) evaluating classmate's microteaching . Each of them is paid undivided attention so as to address the contextual problem.

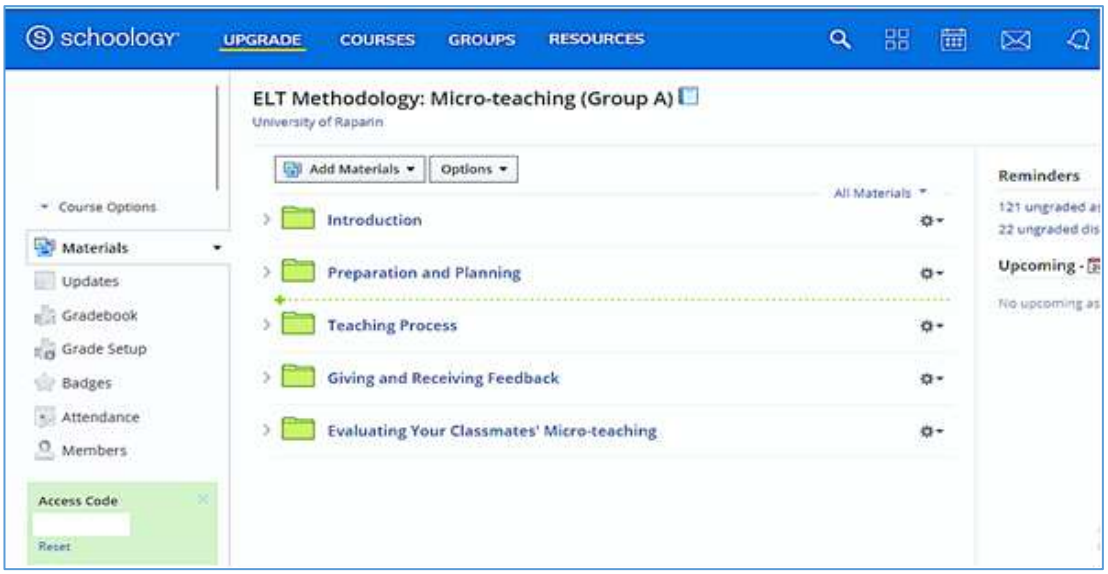


Figure 3.2: A snapshot of the learning environment (home page)

By clicking on each section, the students were exposed to both theoretical knowledge about the topic (i.e. microteaching) and practical opportunities in a form of authentic tasks, learning supports, learning resources, collaborative activities, discussion boards, and assessments, relating to the identified problem, all of which can be accessed online everywhere and anytime by the students. Finally, the students were required to read and access to the provided information and perform the given tasks throughout the implementation period of the learning environment. More detailed explanation on the learning environment sections is provided below.

Introduction section

This section was designed on the platform for the purpose of giving the students a brief introduction to the learning environment and its technical requirements.

Figure 3.3: A snapshot of the "Introduction" section

Additionally, it provided the students with supporting materials and resources about microteaching in the form of documents, videos and hyperlinks.

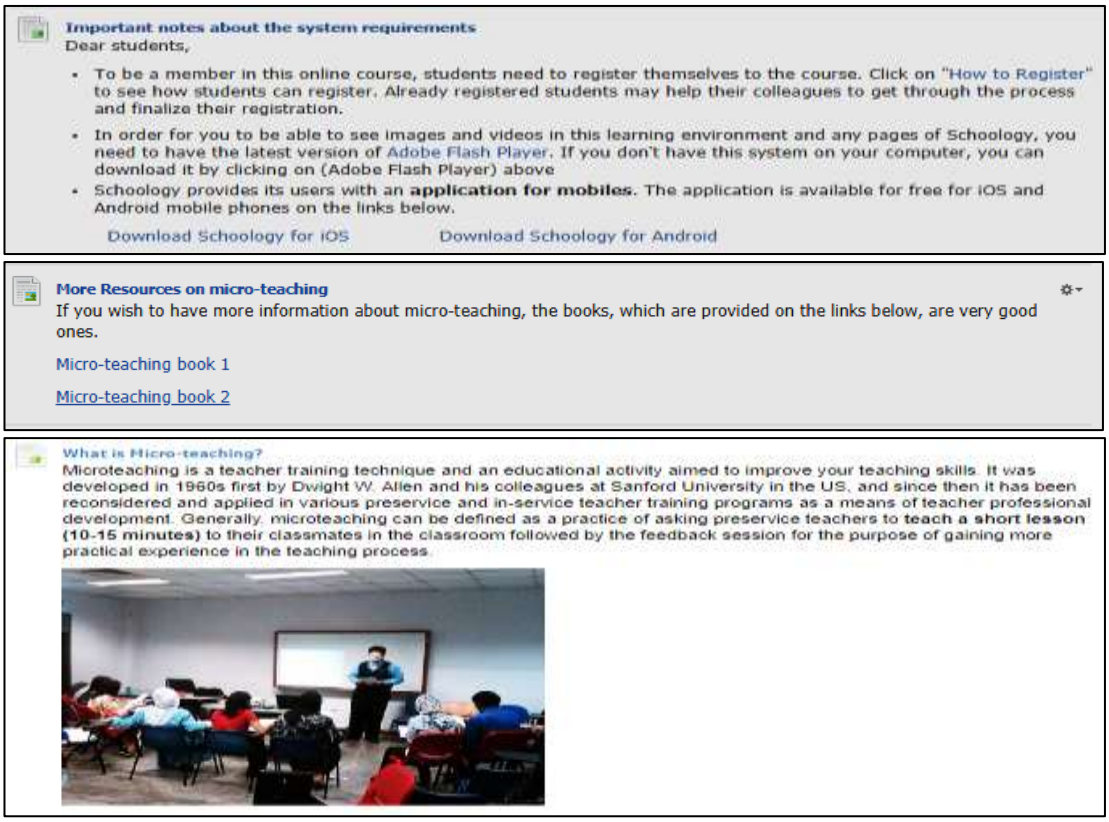


Figure 3.4: Snapshots of some elements in the "Introduction" section

Finally, there was also a discussion board for any questions and comments the students may have about the learning environment or/and the topic.

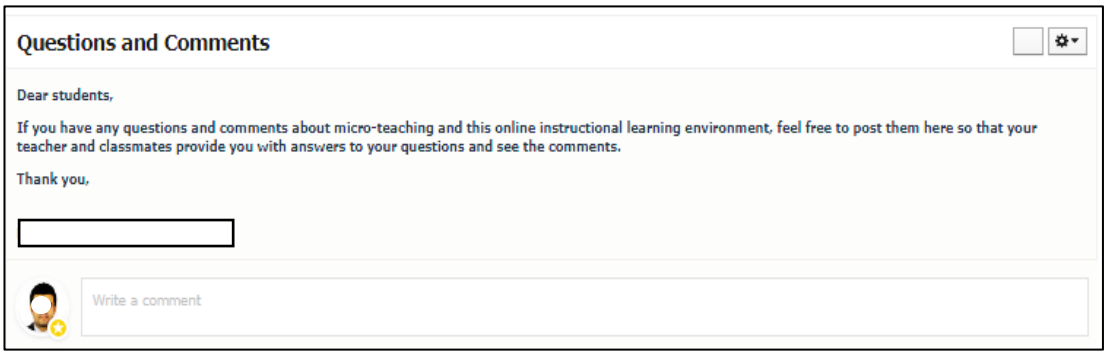


Figure 3.5: A snapshot of "Questions and Comments" section

Preparation and planning

Preparation and planning is the first integral component of microteaching. Since a basic problem of microteaching experience in the learning context is the lack of providing sufficient theoretical knowledge and practical opportunities, in this section, the students are provided with as much information and practice as possible so that the gap is bridged. As shown in the figure below, the pre-service teachers were provided with different types of information to improve their knowledge about how to prepare and plan for microteaching sessions.

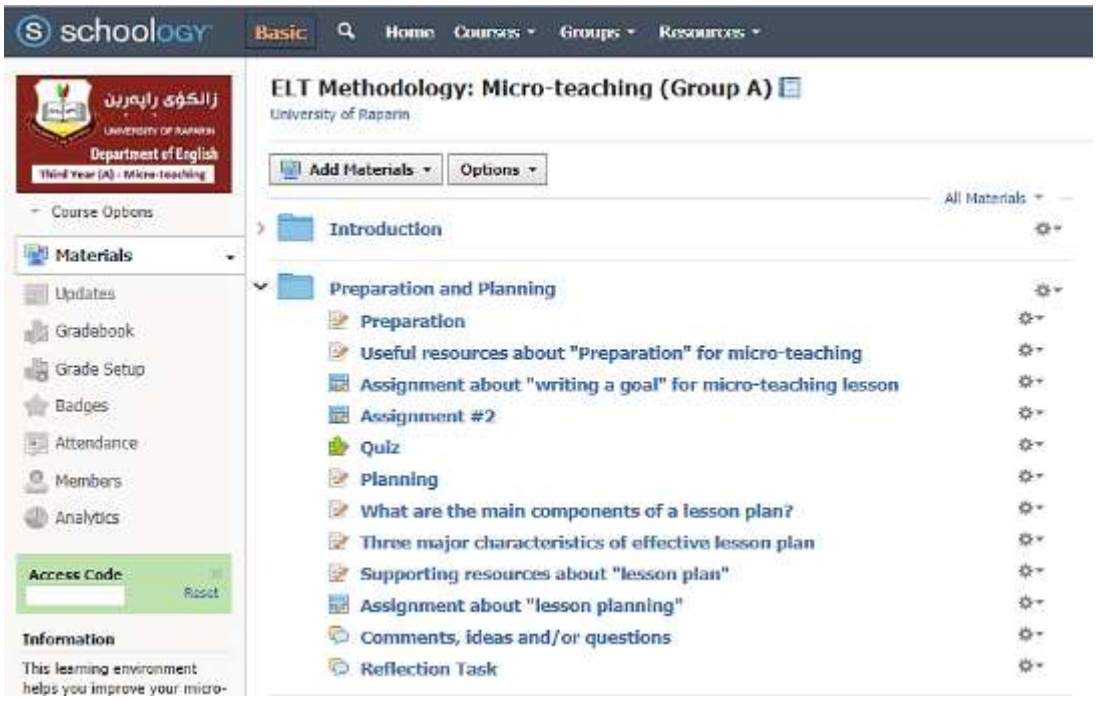
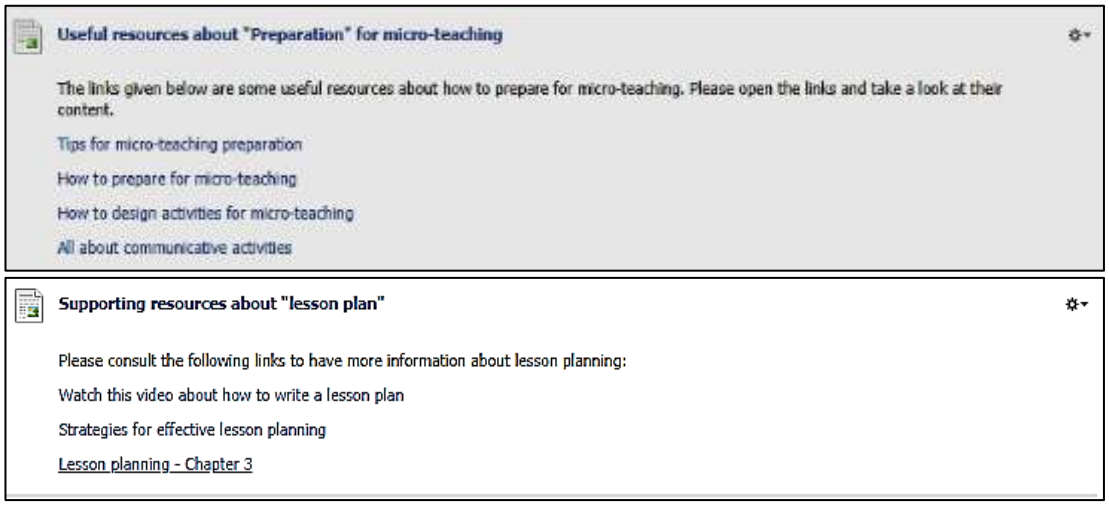


Figure 3.6: A snapshot of the "Preparation and Planning" section

Moreover, in addition to presenting videos, hyperlinks and useful supporting documents, there were assignments, a discussion board for the students and teacher to add and respond to any comments posted on the platform, and also an assessment opportunity,



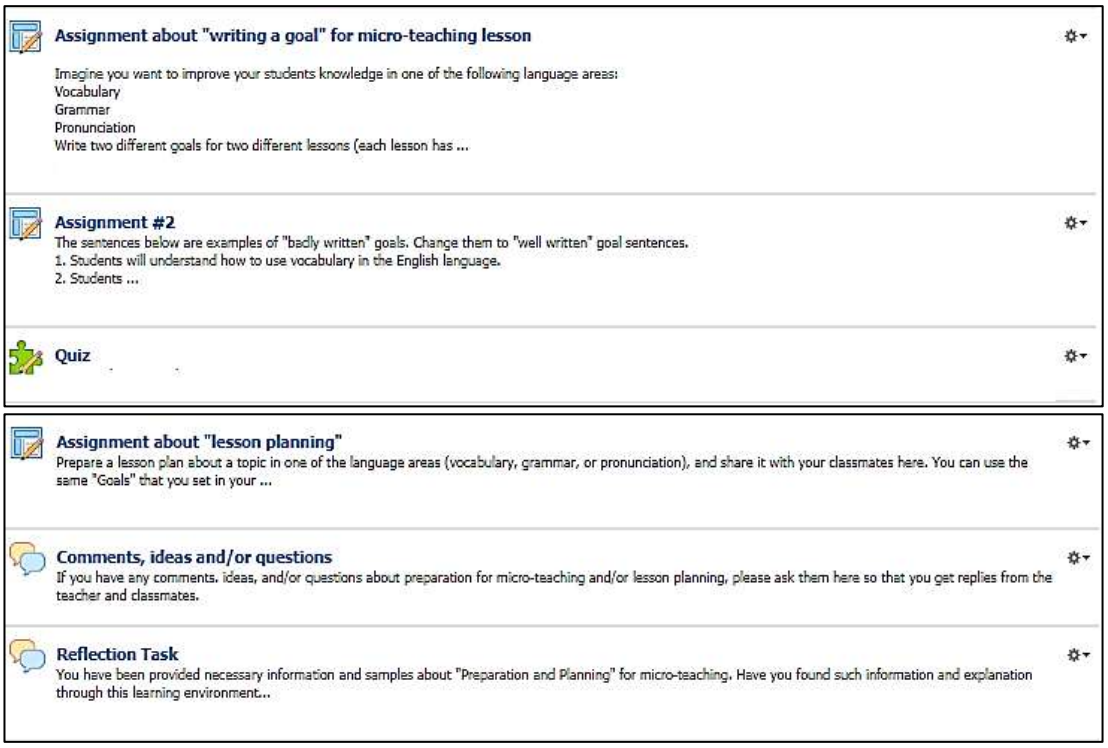


Figure 3.7: Snapshots of some elements in the "Preparation and Planning" section

Teaching process

Another important constituent of microteaching is the teaching process. In this section the students are provided essential information on how to present the lesson plan in the classroom.

Figure 3.8: A snapshot of the "Teaching process" section

In this respect, instructions, documents, web links, and visuals were presented to serve this purpose. For instance, at the beginning of the page, a brief introduction about the teaching process of microteaching was provided by which the pre-service teachers got basic knowledge about the nature of the process and time to spend on this microteaching component. Moreover, more information about the steps of doing the teaching process was given through summaries, tables, and PDF documents, which were taken from the related sources.

Furthermore, to provide opportunities for the pre-service teachers to discuss the content and share ideas, a discussion board was also presented in which the students could discuss and reflect on a video provided as a hyperlink about different teachers who present their lesson plans. Finally, two reflection tasks were assigned to enhance the pre-service teachers' reflection skills on the teaching process of microteaching. In the first task, they were required to reflect on their experience with the use of this online component in a manner that whether it was useful for developing such microteaching skill. In the second one, they were provided a video about some teachers who implement their teaching process in the classroom in different ways, and they have to watch the video and state which way they found more effective and which one not by giving supporting explanations to their choices. Below are some snapshots of the teaching process page.

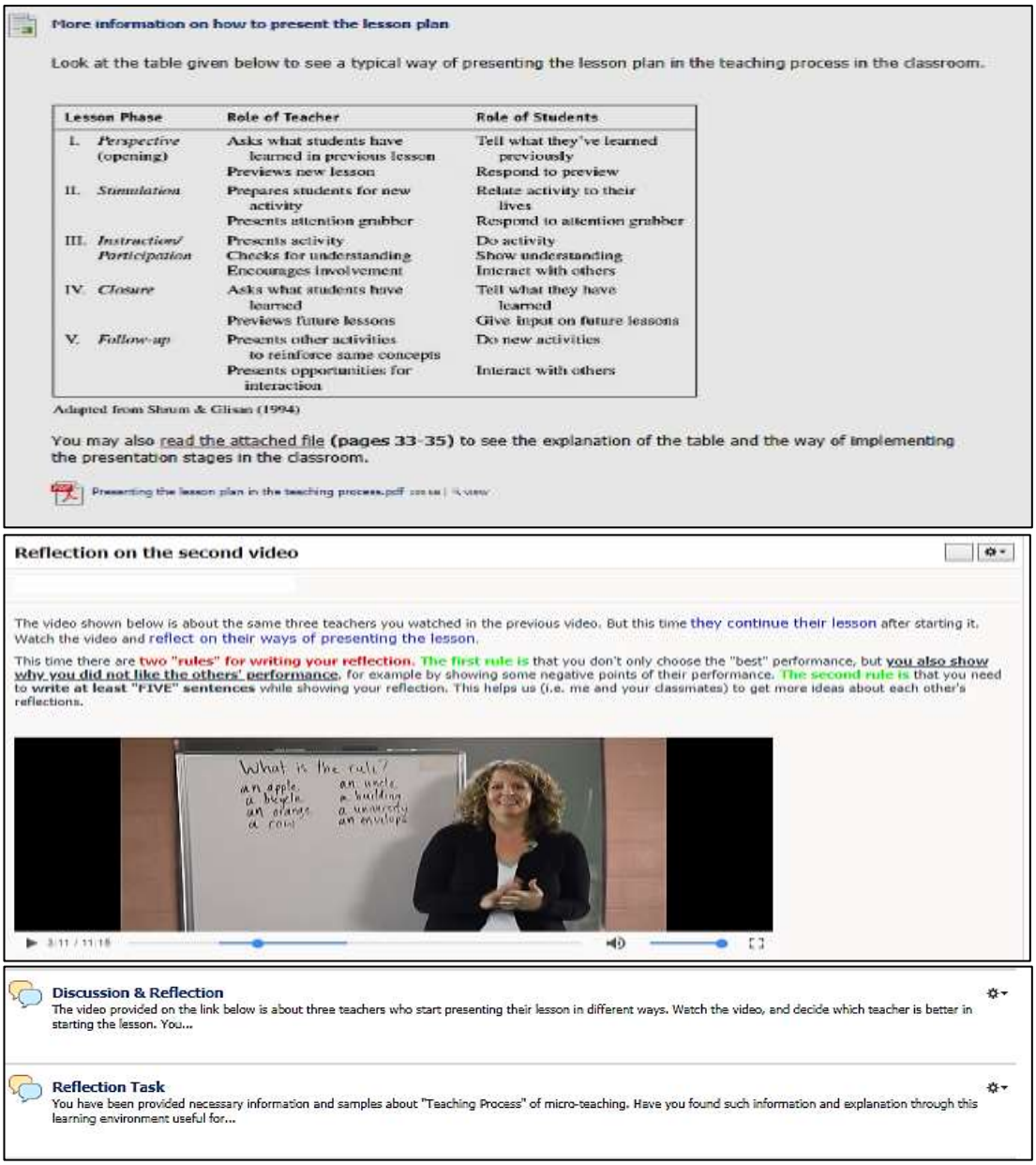


Figure 3.9: Snapshots of some elements in the "Teaching process" section

Giving and receiving feedback

Feedback session has been widely accepted as another major component of microteaching. Previous research has concluded that feedback plays an important role in enhancing pre-service teachers' teaching skills (Akkuzu, 2014; Koc & Ilya, 2016), and their collaboration and reflection (Lin, 2014; Saraswati, 2013). However, in any learning context, like that of the present study, many pre-service teachers do not have enough opportunities for collaboration and reflection on their peer's microteaching

sessions due to the lack of sufficient time and big size of the classroom. Therefore, this section in the web-based learning environment provided the pre-service teachers with essential information about the nature of feedback and the way of giving and receiving feedback during microteaching sessions.

At the beginning of the platform, the pre-service teacher were introduced with a brief description of feedback in general and in microteaching so that they have a background information about the nature of the feedback and its process. In the following sections, detailed explanations about the qualities of effective feedback and they ways of giving and receiving feedback in microteaching were provided through related hyperlinks, PDF documents, and supporting visuals.

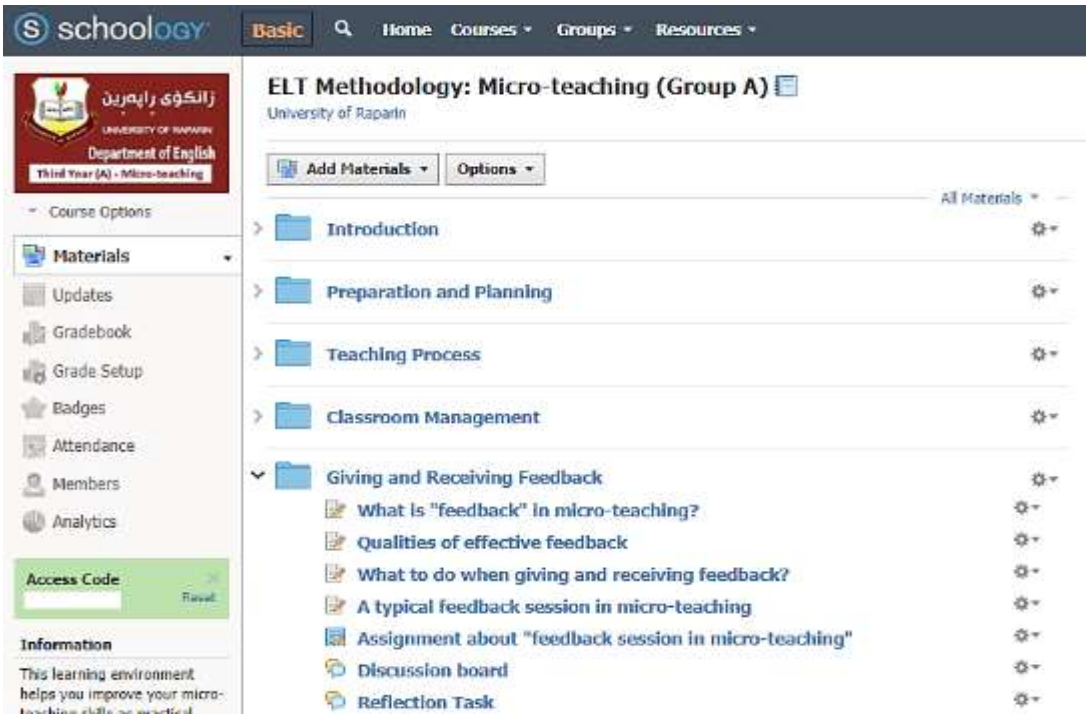


Figure 3.10: A snapshot of the “giving and receiving feedback” section

Moreover, this platform also created chances for the student teachers to evaluate microteaching sessions. For example, recorded typical microteaching videos were

uploaded on the platform and they were required to use the attached checklists to evaluate the teachers' microteaching performance. Furthermore, through the discussion board, they had to collaborate and reflect on the videos through sharing their ideas about the evaluated performances and discuss these ideas. It is worth noting that all these opportunities would help the pre-service teachers to stay connected whenever they wanted and wherever they were.

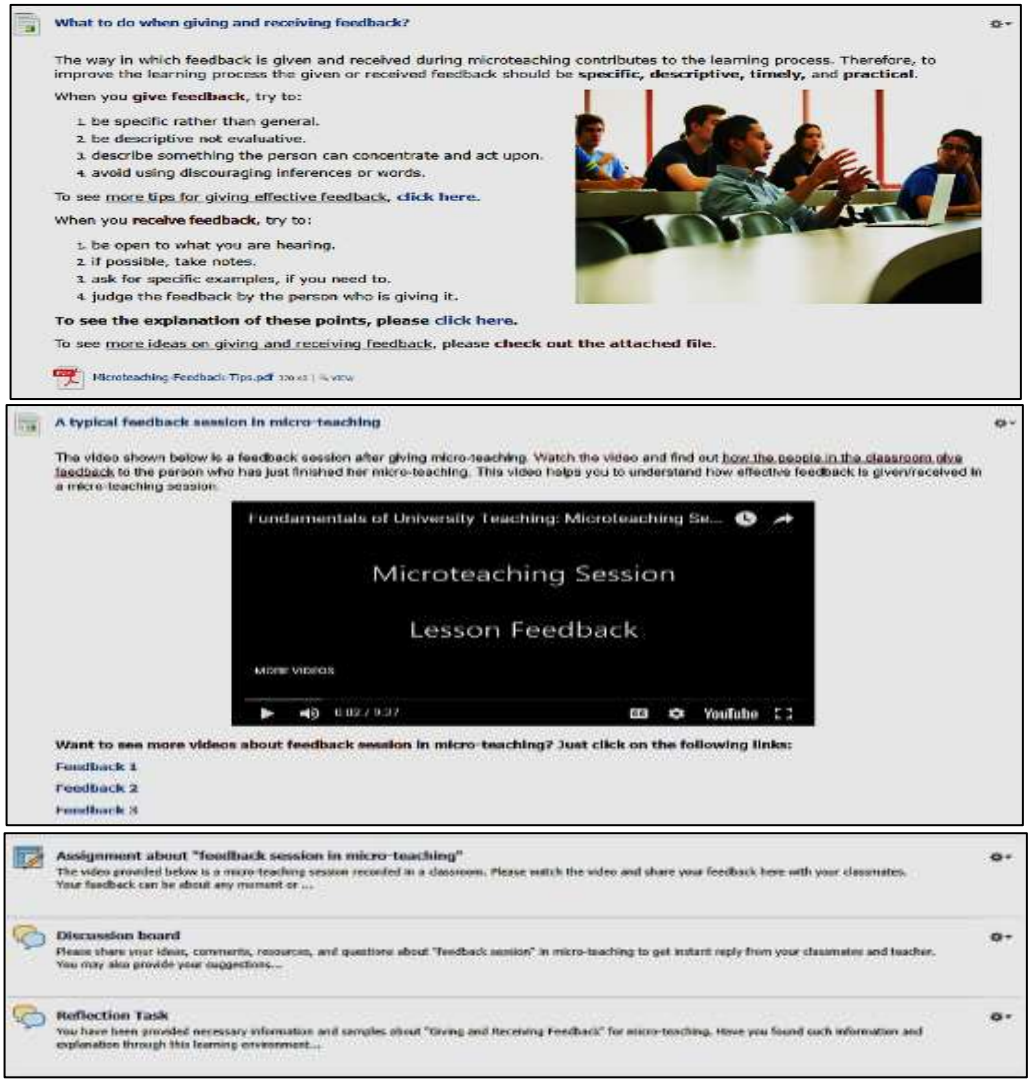


Figure 3.11: Snapshots of some elements in "giving and receiving feedback" section

At the end of this platform, the pre-service teachers were given a reflection task in which they had to reflect on the usefulness of the platform for developing their skills in giving and receiving feedback in microteaching sessions.

Evaluating classmates' microteachings

The final section of the web-based instructional learning environment aimed at evaluating peers' microteaching sessions. After going through the previous elements, the pre-service teachers were then required to prepare microteaching sessions and present them in the classroom. Moreover, after obtaining their consent, some microteaching sessions were recorded and put on this section in the web-based learning environment so that their classmates would/could give feedback.

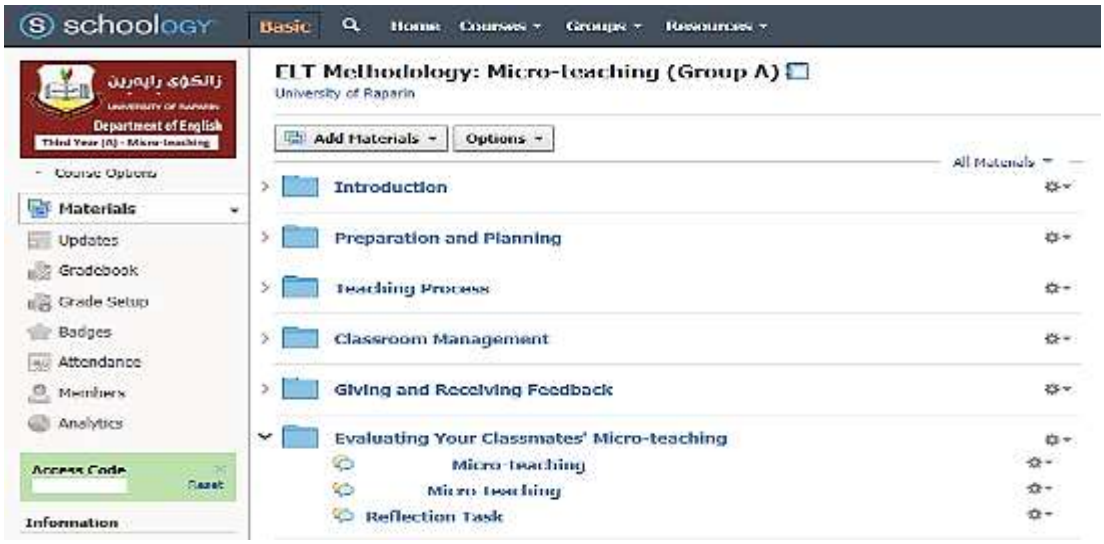


Figure 3.12: A snapshot of the "Evaluating classmates' microteaching" section

As mentioned earlier (see Chapter 1), due to the large class size and limited class time in the educational context, most pre-service teachers do not have opportunity to give feedback to each other while doing microteaching in the classroom. Therefore, this section was added to create chances for the pre-service teachers to provide effective feedback to their classmates outside the classroom after watching their videos.

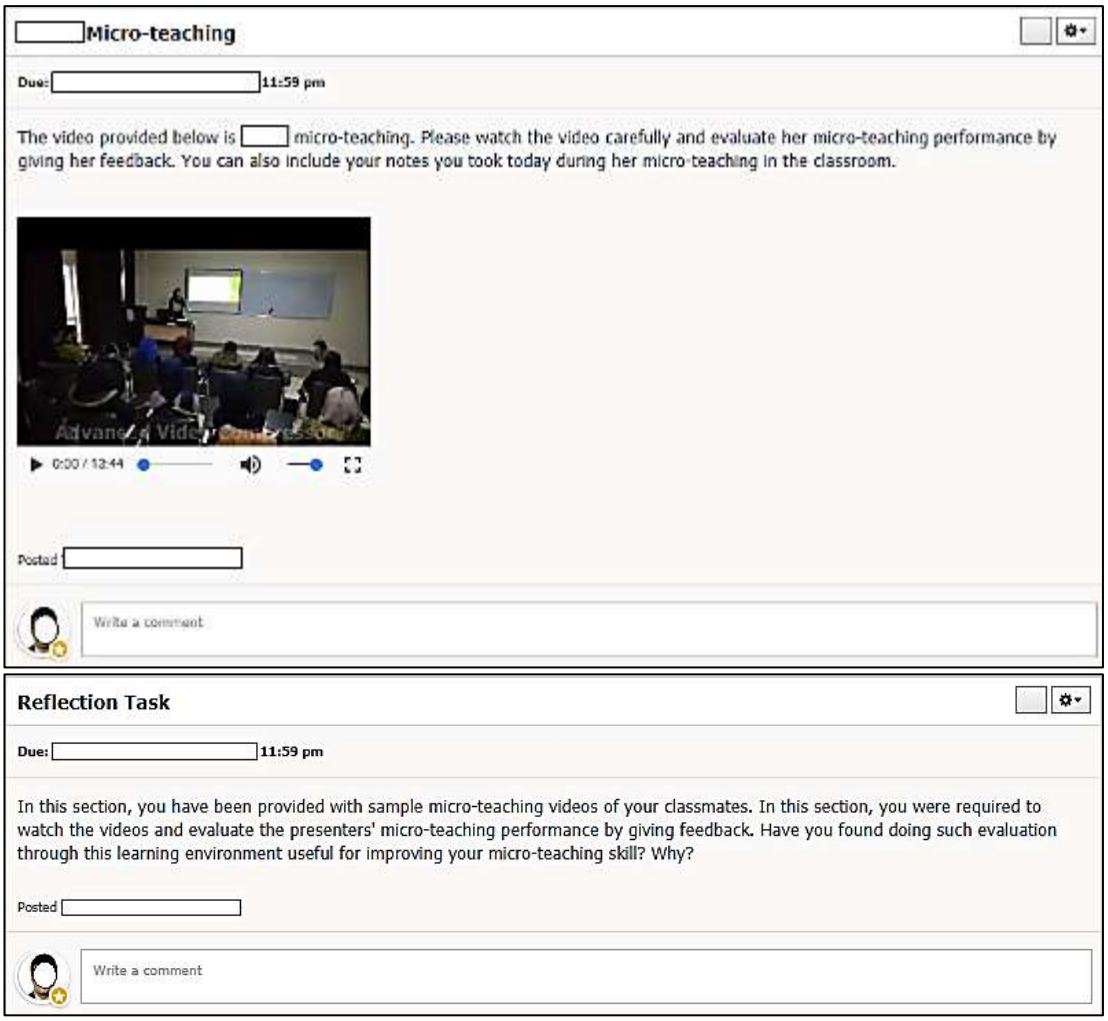


Figure 3.13: Snapshots of a student's recorded microteaching and the reflection task

The presented microteaching sessions were recorded and uploaded on this platform. Moreover, the pre-service teachers were required to watch their classmates' recorded videos and evaluate their microteaching performance through using one of the checklists which were provided earlier on the platform. After watching the videos, they had to share their feedback and comments about the microteaching sessions. It should be noted, furthermore, that the microteaching presenters were asked to check all the feedback and comments given about their microteaching performance so that they know about their weak and strong points and improve their microteaching skills.

It was believed that this process would not only improve the pre-service teachers' pedagogical and practical knowledge, but also reflect on each other's microteaching performance and enhance collaboration among themselves.

The Practice Stream

As explained in the research model section, practice stream was related to the action research (AR) or implementation process of the knowledge stream. As described earlier, the main purpose behind conducting AR as the basic component of practice stream is to gain a better understanding of the educational environment where the artefact is implemented and improve the effectiveness of teaching in such learning environment (Dörnyei, 2007). Moreover, Burns (2005) shows that AR is basically carried out by practitioners to enhance their practices in particular teaching context, develop new theoretical understandings of these practices, and introduce change into the social enterprise.

To implement the practice stream through the utilization of AR, the designed artefact was diagnosed, implemented, and evaluated. Concerning the diagnosis aspect, expert instructional designers at Eastern Mediterranean University specialized in the related field and this PhD dissertation supervisor were consulted to check the congruency between the research problem and the content of the designed artefact. After an intensive investigation, the experts approved the artefact as they found strong connection and full congruency between the research problem and the artefact. Now, the intervention was ready for implementation.

Another aspect of the practice stream was the implementation process. After being diagnosed, the artefact was implemented in the research context. More specifically, it

was implemented in ELT Methodology course, which is a compulsory academic course studied in the third year of the English language teacher education program at the University of Raparin. In addition, the intervention had been in use for six weeks in November and December 2017. During this process, reflection and collaboration tasks were presented through the designed artefact (about which more details are provided in the following sections), data was collected in the form of reflective journals.

Finally, the designed intervention was evaluated to test the impact of the solution concept and its outcomes on developing the participants' microteaching skills. At this stage, the researcher also collected necessary data about the effectiveness of the designed solution through the interviews and questionnaires to gather the users' views about the effectiveness of the designed solution on the development of their microteaching skills. Following this step, the researcher analyzed the collected data using appropriate data analysis methods, reflected on his analysis of the data, and shared his experience and the results of the study so that they guide the future researchers and stakeholders in similar educational practices.

In short, the proposed research model, including both the design-based research and action research, was implemented following many detailed procedures (see figure 23). Through this implementation, necessary steps in both knowledge and practice streams have been taken to collect required data to answer the research questions.

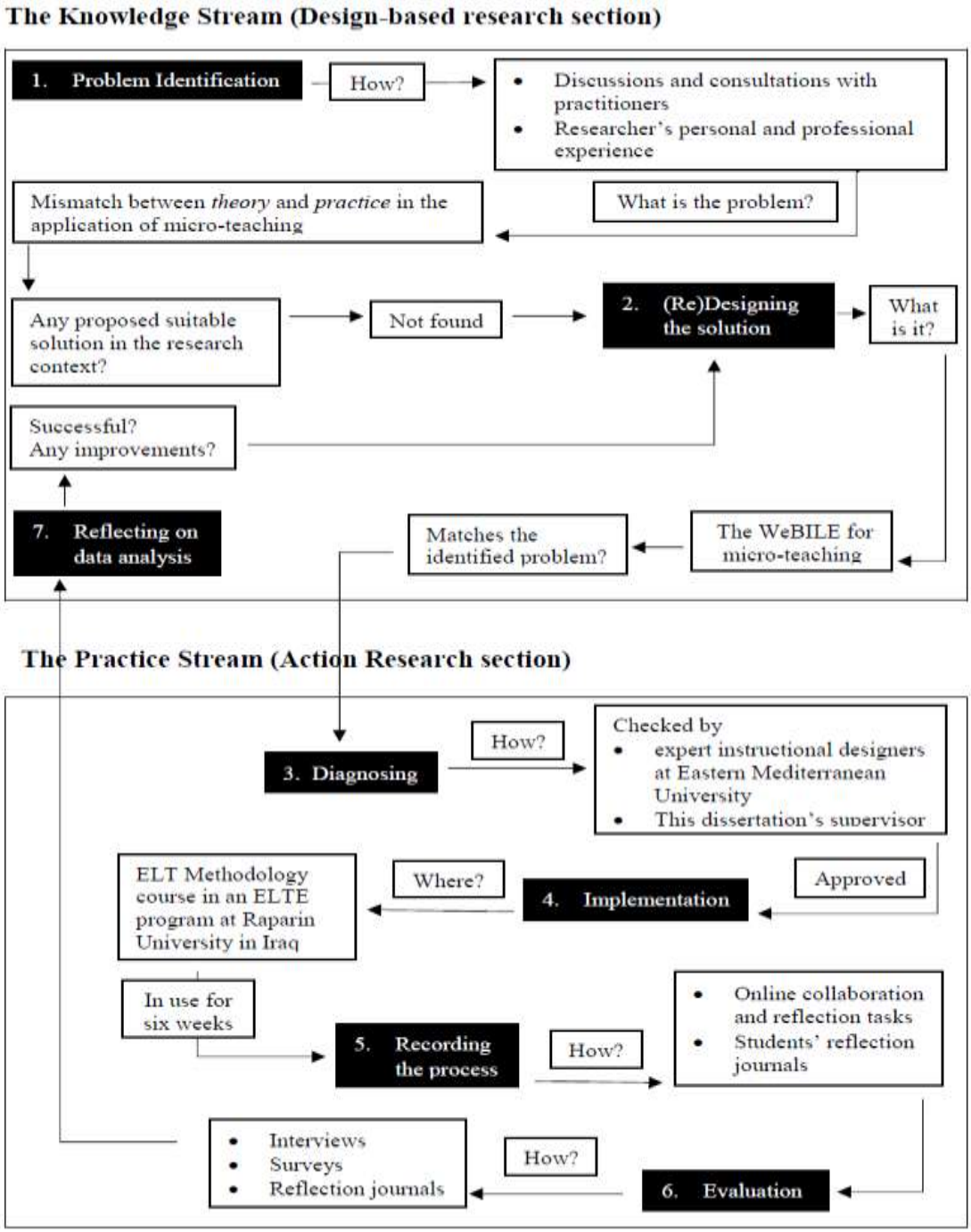


Figure 3.14: Steps of applying the research methodology

3.3 Research Participants

The research participants are the third-year pre-service English language teachers of the English language teacher education (ELTE) program at the University of Raparin. All participants are Kurds, who have the same cultural and first language background, and come from different areas of the region. Moreover, they have been studying

courses about English language skills, components (e.g. vocabulary, grammar, and pronunciation), and literature, psychology and information technology for the last three years in the ELTE program. In addition, they study ELT Methodology, and School Internship and Practicum in the third-year and fourth-year, respectively, as two major courses for developing their practical and pedagogical skills. It is worth noting that the reason for choosing these particular participants is that the system which is designed for microteaching development can only be implemented with these participants, since microteaching as a component of a course starts only in the third-year.

Concerning the number of the participants, a total of 52 pre-service teachers (23 males and 29 females) participated in the study. Their age range was between 21 and 26 years. Participation in the study was both compulsory and voluntary in different aspects. It was compulsory in the case of writing reflection journals (an instrument used in this study) about their experience with the use of the implemented web-based system for microteaching. The reason for this compulsory participation was that reflection journals are considered as an element of their grading procedure in the ELT Methodology course, and each student would get 10 marks in return to the successful completion of the journal. Those who refused to write reflection journals would lose the allotted marks. On the other hand, participation in both questionnaire surveys and interviews were voluntary. All participants were given detailed information about the study and their written consent was collected before starting the data collection procedures.

As an ethical requirement, the participants were informed at the beginning of the course that their reflection journals would be used for a research purpose; therefore,

before using the journals, the students' consent was obtained through providing them with a consent form. Moreover, the consent form informed the participants about the study and its objectives, and also how their participation would be kept confidential. In addition, in the consent form it was also mentioned that they would have the right to withdraw or refuse to participate in the study at any time. Furthermore, it was also explained that their refusal or withdrawal would not affect their treatment in any way or their relationship with the teacher (i.e., the researcher).

Regarding the participants' roles in the study, the class teacher (i.e., the researcher) used the web-based learning environment for microteaching as part of their educational component of the course. Therefore, the participants had to use the system as a partial fulfillment of the course requirements. For example, they had to read the materials and information provided on the system every week before coming into the classroom so that they would have the basic information about the microteaching component that was studied for the week. Moreover, they had to do their assignments and quizzes given on the system as a kind of formative assessment procedures of the course. Additionally, the information provided on the web-based system was also considered for the content design of the official course examinations. They were also required to share their ideas, comments and questions with their classmates and teacher by using the virtual communication options provided on the system. This aimed to help them to improve their collaboration and stay connected even outside the classroom. All these roles were repeated every week until the completion of the microteaching period, which lasted for six weeks.

3.4 Researcher Role

As claimed by Özverir (2014), it is also noteworthy to realize the way by which the designed artefact is best put into practice so that the researchers achieve the intended outcome. In this regard, one of the characteristics of DBR mentioned above highlights the intensive collaboration among researchers and practitioners. This is strongly related to the role of the researcher while using DBR for achieving the goal of the research. In other words, DBR facilitates a strong collaboration between the researcher and practitioner in the research context. In some previous studies that followed DBR (for example, Özverir, 2014), the researchers pointed out having limited interaction with the participants during the research process since the researchers were not the main course tutors.

In this study, however, the researcher plays different roles from those mentioned in the previous studies. First, the researcher plays the role of *full participant* because he is the practitioner and the course teacher. He meets the participants every week for three hours during teaching the ELT Methodology course, in which the designed artefact was integrated. This shows that the researcher had continuous face-to-face interaction with the participants both inside and outside the classroom not only during the implementation of the web-based artefact, but also throughout the whole academic year.

Another researcher role in this study is his *active control* over the management of the web-based learning environment and the observation process while gathering specific information from the participants. In other words, the research was administrator of the web-based learning environment in a manner that he was editing the content of the

learning environment, accepting and removing the web-based users (i.e., members), and creating and managing the discussion groups among the participants to promote communication and collaboration.

Finally, the researcher had the *problematizing* stance towards the research context. Such role stems mostly from the basic concepts behind using action research while conducting educational studies. Burns (2010), in this respect, claims that the term *problematizing* is related to focusing on an area of practice that is worth looking into more deeply and subject to questioning with the aim of improving such practice and finding solutions to the problematic area. Thus, a major purpose behind playing this role is to intervene purposefully in the problematic situation to bring about changes and improvements in practice.

It is believed that such researcher roles in studies in which both DBR and action research approaches are utilized are highly effective in collecting detailed information and helps the researcher to gain "a deeper understanding of what is happening as it is embedded within the context in which it naturally occurs" (Kervin et al., 2006, p. 85).

3.5 Data Collection Methods

3.5.1 Research Method

The present study utilized a mixed-methods research of inquiry by collecting and analyzing both quantitative and qualitative data. Previous research has shown that researchers employing a design-based research approach can use mixed-methods of inquiry (Herrington et al, 2007; Kervin et al., 2006; Reeves, 2000). Moreover, it has also been revealed that various research methods, ranging from quasi-experiments to

action research types, can be utilized while testing the validity of any designed artefact (Cook, 1983; Susman & Evered, 1978; Van Aken & Romme, 2005).

Since this study was mainly based on the users' perceptions about and reflections on the effectiveness of the designed intervention, it is necessary to understand the group actions and interactions like student-student, student-teacher, and student-the designed intervention occurred as a result of implementing the intended content in a blended-learning environment. Such understanding, Özverir (2014) claims, "requires the interpretation of the researcher" (p. 60), which is best done through qualitative research method. However, users' perceptions can also be understood through quantitative research methods especially when there is a large number of participants.

On the other hand, the reasons for using quantitative method are that it is focused, involves precise measurement, and produces reliable and replicable data that is generalizable in other related contexts (Dörnyei, 2007). However, in the present study, it is believed that quantitative data cannot provide sufficient data or direct evidence about what the users do with the designed artefact and how they do it (Borg, 2009). Therefore, to gain a better understanding of their perceptions about the impact of the artefact, mixing both research method types can produce in-depth data about the issue.

Moreover, Dörnyei (2007) claims that using mixed-methods research approach is beneficial in that it helps the researchers to overcome the weaknesses they face while using either quantitative or qualitative method in a manner that the strengths of one can neutralize the weaknesses of the other. For example, although employing quantitative methods have some potential advantages like being scientific in nature due to placing emphasis on numbers and figures (Bryman, 2001) and their

generalizability and replicability features (Daniel, 2016), they hardly provide in-depth study of the investigated phenomenon within their natural settings because they detach researchers from the participants and research contexts in a way that the researchers mostly play the role of "observer" or an "outside looking in" (Daniel, 2016, p. 94).

However, utilizing qualitative research approach neutralizes the disadvantage of quantitative methods since it provides abundant data about research participants and their natural settings (De Vaus, 2014; Leedy & Ormrod, 2014). Moreover, qualitative research approach promotes a wider understanding of human experiences and behaviors such as interaction, thought and reasoning, and "the close relationship that exist between the researcher and the research participants makes it easy for the participants to contribute to shaping the research" (Daniel, 2016, p. 93).

As a result, mixed-methods research, including both qualitative and quantitative research approaches, helps the researchers to gain a better understanding of a complex issue that can be investigated through a multi-level perspective and has a unique potential in producing evidence for the validity and trustworthiness of the research results (Dörnyei, 2007, p. 45). Thus, mixed methods research approach is found useful and effective for data collection in this study.

3.5.2 Research Instruments

Quantitative and qualitative data were collected through various types of instruments. As for the quantitative data, a questionnaire survey was used to gather the participants' perceptions about the effect of the implemented web-based learning environment, whereas the qualitative data was gathered through employing the participants' reflection journals, interviews, and open-ended questions provided in the survey questionnaire. More details about the instruments are given below.

3.5.3 Survey Questionnaire

The questionnaire (see Appendix 5), as a means of collecting quantitative data, consisted of three major parts. The first part included five items which concern the participant's demographic information (2 items) and experience with the use of the internet and social websites (3 items).

The second part aimed to elicit the participants' perceptions about the impact of the web-based learning environment on developing their skills in each of the microteaching components, and the design components of the web-based learning environment. The items in this part were presented in a 5-point Likert Scale, ranging from 1 (strongly agree) to 5 (strongly disagree). Moreover, this part covered five sections; the first three sections aimed at gathering the participants' perceptions about the effect of the web-based learning environment in improving their microteaching components, namely, i) preparation and planning (6 items), ii) teaching process (7 items), iii) feedback session (6 items). In addition, the fourth section, which was represented by 11 items, dealt with their perceptions about the impact of the learning environment on developing their communication and collaboration about microteaching. The last section concerned the perceptions about the design features of the learning environment. This section was represented by 11 items. The third and last part of the questionnaire included 5 open-ended questions about the participants' thoughts and feelings about their experience with the use of the learning environment and their suggestions for the improvement of the learning environment.

Since no particular questionnaire was found meeting the needs of the research questions and the objectives of the study, the questionnaire in this study was constructed through following some subsequent stages. First, intensive review of the

related literature was conducted to gather as much related data as possible from the previously published studies. In so doing, the surveys used by many related studies (e.g., Akman 2010; Ismail, 2011; Koc & Ilya, 2016; Lee & Wu, 2006; Okan & Taraf, 2013; Sadik, 2002; Savas, 2012; Şengel, 2005) were analyzed and checked for relevance to the aim of the present study. This process helped the researcher to create an "item pool" (Dörnyei, 2007, p. 112) in which various potential items for each survey section were collected and recorded for further treatment. Second, to reduce the large list of the collected items in the item pool, initial piloting of the item pool was carried out. This was done with the help of the supervisor of this PhD dissertation, who proofread and edited the items. In addition, the members of the Ethics Committee at Eastern Mediterranean University proofread the questionnaire and approved it. Finally, based on the feedback provided by these people, "final piloting" (Dörnyei, 2007, p. 112) was conducted to select the appropriate and relevant items for the survey sections. This process led to the production of a near-final version of the questionnaire, which seemed satisfactory.

According to Dörnyei (2007), one of the most important elements of questionnaire construction is piloting the questionnaire at many different stages on "a sample of people who are similar to the target sample for which the instrument has been designed" (p. 112). Since the items in the questionnaire were designed to explore the pre-service teachers' opinions about the impact of the web-based system designed for microteaching, it seemed illogical to pilot the questionnaire on a group of people who had not used and experienced this particular system, because the group would not be similar to the target sample unless they used the designed system. Therefore, to explore the internal consistency reliability of the questionnaire, the pre-service teachers in the first group were considered as a pilot group.

Therefore, in the first group, the questionnaire was piloted and "field tested" (Dörnyei, 2007, p. 112) with a group of 28 pre-service teachers who had been using the system for six weeks. After finishing using the system, the questionnaire was administered. It is worth noting that the administration was conducted in one of their regular ELT Methodology classes and the researcher provided detailed explanation about the way of completing the questionnaire. Moreover, all sections and items in the questionnaire were given in English language. Additionally, the respondents were given one hour to complete the questionnaire. After checking the questionnaires for completion, the responses were analyzed through employing reliability analysis of the SPSS program.

The results of the analysis revealed that the Cronbach's Alpha score is 0.87, which shows high reliability of the questionnaire. Therefore, the questionnaire was also used for data collection in the second group.

3.5.4 Reflection Journals

Another means of data collection was the participants' reflection journals (see Appendix 6). In the present study, reflection journals, as means of qualitative data collection, were considered as structured pieces of writing or diaries (Dörnyei, 2007), which allowed the participants to record thoughts, insights and personal reflections about their own learning experience with the web-based learning environment. Furthermore, the framework of the journals was designed based on interval-contingent type (Bolger et al., 2003), which required the participants to report on their experiences on a regular and predetermined intervals (e.g. at the end of every week).

Additionally, participation in writing the journals was compulsory, because it was considered as part of the course evaluation procedure (10 marks were allotted for the journals). This compulsory participation for writing journals helped the researcher to

gather in-depth and as much data as possible about the participants' reflections on their experience with the use of the web-based system. However, it is noteworthy that while writing the journals, the students were told that their positive or negative reflection would not determine getting high or low grade in the journal; but what was important was writing their real reflections they developed while using the web-based learning environment. Finally, the participants were also told that they had to write their reflections journals in English.

The reflection journals consisted of five major sections. The first three sections aimed at gathering the participants' reflections on their experience with the use of the learning environment for developing their knowledge in the major components of microteaching process, namely, preparation and planning, teaching process, and giving and receiving feedback. Moreover, the fourth section of the journals dealt with the participants' reflections on the effectiveness of the web-based learning environment on improving their knowledge in communication and collaboration for microteaching process.

Also, the participants were provided with some guiding questions to which they were required to respond. The following questions are provided in the first four sections:

- How has the use of the web-based learning environment helped you improve your knowledge in **(NAME OF THE SECTION "e.g. teaching process")** for microteaching?
- What **difficulties** have you encountered while using the web-based learning environment?
- What would be the **causes** of these difficulties?
- How should the difficulties be **solved**?

- What have you **liked** and **disliked** most about the use of the learning environment for improving **(NAME OF THE SECTION "e.g. teaching process")** of your microteaching?
- If you have any other reflections and comments, please write them below.

The reason for providing such questions was to elicit specific and relevant information that was salient to the related research question. This helped the participants to keep focused on what they needed to write and not to give irrelevant information.

The fifth section of the journals dealt with the participants' reflections on the usability (i.e., user-friendliness) of the web-based learning environment. Moreover, in this section there were also some questions concerning the participants' reflections on the web-based system as a source of knowledge for microteaching and its impact on developing their microteaching knowledge. Furthermore, this section considered the participants' suggestions and comments for developing the system, for both the second group and future improvements.

It is worth mentioning that the participants in both groups were required to reflect on the given sections in six weeks (i.e. a section per week). The reflections had to be written at the end of every week. This means that after using the web-based system for each section (e.g. preparation and planning and others), the participants were required to write reflections on their experience with the use of the system during that week.

3.5.5 Interviews

Another means of qualitative data collection was the interviews conducted with pre-service teachers. Interviews are among useful data collection techniques because they help the researchers to uncover related data which cannot be observed during the

participant's individual or independent performance (Borg, 2009). For instance, in the case of this study, interviews were highly useful for collecting data about how the participants used the web-based learning environment, what they felt while using it, and how it helped them improve their microteaching, because these feelings and behaviors were covert and related to the participants' personal judgements.

Despite having various types of interview techniques, such as multiple, structured, and unstructured (Dörnyei, 2007), the present study utilized semi-structured interviews in which there were some pre-prepared guiding questions about the interviewees' experience with the use of the web-based learning environment, and they usually responded to the questions in an explanatory manner. As claimed by (Dörnyei, 2007) semi-structured interviews are among the most conducted interview types in the domain of applied linguistics, and they are appropriate for cases when the researcher has a good overview of the research issue [as in the case of the present study] or domain in question (p. 136).

For the interview sessions, a total of 10 participants (5 males and 5 females) in both groups (i.e., 5 students in each group) were randomly selected for the interview sessions. Concerning the gender distribution in the interview groups, 2 males and 3 females were selected from the first group and 3 males and 2 females were selected from the second group. In the interview sessions, seven different questions were asked (see Appendix 7), which were designed to collect the necessary data relating to the research questions. In addition, the interview sessions were conducted in English language in a manner that the interviewees had to answer the questions in English only.

The interview questions covered the participants' experience and behavior, opinion and values, feelings, and demographic information. Fraenkel and Wallen (2006) and Patton (2002) suggest that experience and behavior questions in interviews seek to find information about behaviors, experiences, or activities that the interviewees did but could not be observed by the researcher. For example, in the case of this study, a question like "*what microteaching skills did you improve through the use of the web-based learning environment?*" was asked to find the respondents' experience and behaviors while using the web-based learning environment.

As for opinion and value questions which target the respondents' beliefs, values and attitudes (Fraenkel & Wallen, 2006), a question like "*do you think using such web-based learning environment is effective in developing microteaching experience? How?*" was asked to uncover what the interviewees thought about the topic (i.e. web-based learning environment). In addition, feeling questions such as "*what did you feel while using the web-based learning environment for microteaching?*" aimed to elicit data about what the participants felt about the investigated issue. Finally, demographic questions sought to collect data about the interviewees' background information such as name, age, gender, education and the like. It is worth noting that all interviews were recorded, after obtaining the interviewees' consent, and transcribed by the researcher for further analysis.

3.5.6 Data Collection Procedures

Before starting the process of data collection, permission had to be obtained from the Ethics Committee at Eastern Mediterranean University. In doing so, the researcher requested for the application through writing a letter (see Appendix 1) to the head of the Foreign Language Education Department along with the required and necessary documents for the application. After passing a month, the researcher was granted

permission from the Ethics Committee (see Appendix 2) to pursue the PhD dissertation.

Concerning the permission from English department (i.e., the instructional setting of this dissertation) at University of Raparin, a request letter was written to the head of the department (see Appendix 3). Then, the head of the department granted official permission to the researcher (see Appendix 4) to collect necessary data. It is noteworthy that this permission had been already taken before getting approval letter from the Ethics Committee mentioned above because such permission was one of the required documents for the application to the Ethics Committee.

Both quantitative and qualitative data collected from the participants' survey questionnaires, reflection journals, and interviews provided a rich source of information about the topic. Collecting such data was done through following a step-by-step procedure during the period allotted for the data collection. Concerning collecting quantitative data, survey questionnaires were given to the participants at the end of the treatment period (i.e., after six weeks) of the web-based learning environment. As mentioned earlier, the data were collected from two different groups. The following procedures were followed while collecting the data from the first group. Before administering the questionnaires, the participants were given the consent form and asked to read it in which detailed information about the purpose of the questionnaire and how they should be completed were provided. After obtaining the students' consent, the questionnaires were administered by the researcher.

It is worth noting that the administration was conducted in one of the regular ELT Methodology classes and the researcher provided instant help if the participants had

any question about the questionnaire. The given time for the completion was one hour. Finally, before analyzing the collected data, the questionnaires were checked for completion and incomplete ones were eliminated and not considered for analysis. Similar procedure was repeated while collecting data in the second group from the second group of the students.

Regarding qualitative data collection, both reflection journals and interviews were employed to collect necessary data. Reflection journals were given to the students from the first week of implementing the web-based learning environment. Before starting to write the journals, detailed information was provided to the students about the goal of writing the journals and the way of completing them. Therefore, a consent form and specific guiding documents were attached to the journals in which the purpose, procedure, and a typical sample of a reflection journal were presented so that the students had a clear idea about why and how they wrote their journals.

As mentioned earlier, the reflection journal consisted of five major sections and each section included some guiding questions about the participants' experience with the use of the learning environment. Furthermore, each week the participants were required to respond to the questions and write their reflections in the spaces provided in the journal. The first four sections of journal covered particular questions about the basic elements of microteaching provided through the web-based learning environment, and the students had to reflect on the questions accordingly. As for the last section, which was about collaboration and communication through the learning environment, the students were required to read their classmates' comments posted on the web-based system and compose as many thoughtful replies as possible.

The responses could be built upon their classmates' comments or ideas, posing related questions, making connections to their experiences, sharing advice and resource, and/or raising a critical point for reflection about the topic. To enhance such collaboration and participation, a specific grade was allotted by the researcher (who was also the course instructor). Finally, related or substantive posts and comments were considered as the major source of data for investigating the effect of the web-based system on enhancing the participants' collaboration and reflection about the topic.

It should be added that since the researcher was in direct contact with the participants in both groups for three hours a week, further help and guidance were provided if the participants needed. Finally, after six weeks the reflection journals in both groups were collected.

Finally, interviews were considered as another source of qualitative data collection. Like the other sources of data collection, the interviews were conducted with two different groups. Moreover, as mentioned earlier, seven different questions relating to the participants' experiences, opinions, and feelings about the web-based learning environment were asked. The interviews were conducted at the end of the treatment period, which means after using the web-based learning environment for six weeks. Prior to conducting the interviews, they were informed about the purpose and procedure of the interviews and given a consent form in which more necessary information about the interviews were provided. After obtaining the participants' consent, the interview sessions were held individually in a standard, quiet and comfortable office at the college to help the interviewees feel at ease and provide honest answers to the interview questions (McMillan & Schumacher, 1984).

3.6 Data Analysis Methods

In the present study, both quantitative and qualitative data were collected. The analyses of the collected data were done following specific procedures. Concerning quantitative data analysis, descriptive statistics, which is an analysis method of Statistical Package for the Social Sciences (SPSS) Version 20 software program, was utilized because quantitative research often encompasses numbers, quantification and statistics to deal with a research problem (Phakiti, 2015). Furthermore, Dörnyei (2007) claims that despite the availability of many statistical packages and spreadsheets like Microsoft Excel in research areas, SPSS is still the most common software utilized in applied linguistic and educational research. This wide use of the software programs is mostly due to many distinctive characteristics of the software program. For example, it has some user-friendly interactive features, is widely accessible, and is studied as a subject in many universities. Moreover, it is also suitable for researchers who have little experience in statistics (Dörnyei, 2007), because there are numerous tutorial videos and manuals available online about the use of every single element of the program.

In the SPSS program, quantitative data can be analyzed by descriptive statistics and/or inferential statistics (Dörnyei, 2007; Phakiti, 2015). In the case of this study, descriptive statistics was used because the collected qualitative data aimed to investigate opinions and perceptions of participating learners about the effectiveness of a web-based program on developing a particular aspect of teaching skills. While reporting the results of descriptive statistical analysis, measures like *Mean*, *Median*, *Percentage*, and *Standard Deviation* are the most common ones and need to be interpreted (Dörnyei, 2007; Phakiti, 2015).

Following both Dörnyei (2007) and Phakiti's (2015) procedures of quantitative data analysis, the gathered quantitative data were analyzed. First, the collected data were checked and organized to see whether each participant had fully completed the sections and items in the questionnaire. Second, since the questionnaire included Likert-scale items and was already coded, the data were entered into the computer program. This was done by creating a specific data file, defining the coding frames for the variables, then typing in the data into the program, as suggested in Dörnyei, (2007). Finally, descriptive statistics was used to analyze the data.

On the other hand, qualitative data, collected from reflection journals, interviews and open-ended questions in the questionnaire surveys, were analyzed following Braun and Clarke's (2006) phases of thematic analysis. Although other methods of qualitative data analysis (e.g. Dörnyei, 2007; Holliday, 2015; Miles & Huberman, 1994) are available in the related literature, Braun and Clarke's (2006) method seemed to be more flexible, easier to follow compared to the others in the scope of this present study, and was used in other studies (e.g. Yang, 2018) which had a similar scope to that of this present study.

Braun and Clarke (2006) claim that thematic analysis is a method used to identify, analyze and report themes (i.e. codes or patterns) within qualitative data. It comprises six phases of analytical processing, which are described by Braun and Clarke (2006, pp. 87-93) as the following:

Phase 1: Familiarizing yourself with your data

This phase, as "the bedrock for the rest of the analysis" (p. 87), involves transcribing the data (if necessary), reading and re-reading the data, and noting down initial ideas for coding as they will be utilized in the subsequent phases.

Phase 2: Generating initial codes

This phase involves both the production of initial codes in a systematic fashion across the entire data set and collating any data which is relevant to each code. The codes are interesting features to the analyst and refer to "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998, p. 63 as cited in Braun & Clarke, 2006, p. 88).

Phase 3: Searching for themes

This phase involves categorizing the different codes generated earlier into potential themes, and collating all the relevant coded data extracts within the identified themes. Braun and Clarke (2006) suggest that analysts can use different thematic categorizations like tables, mind-maps and brief descriptions to place the codes better into more relevant and appropriate theme-piles.

Phase 4: Reviewing the themes

This phase deals with the refinement process of the candidate themes generated in Phase 3. More specifically, it involves two levels of reviewing and refining the themes. Level one involves reviewing at the level of the coded data extracts to check whether they are relevant to the theme or form a coherent pattern in the categorized theme. In case of identifying irrelevant codes, analysts need to reconsider the process of generating themes such as removing or rephrasing the theme, or even adding a new

one if necessary. On the other hand, in level two the validity of individual themes in relation to the entire data set is considered and an accurate thematic map of analysis is generated. Braun and Clarke (2006) state that these levels are repeated until the desired and appropriate thematic map is generated.

Phase 5: Defining and naming themes

In this phase, the themes are defined and further refined for the analysis. In other words, this phase involves ongoing analysis to refine the specifics of each theme, the overall story the analysis tells, and generating clear definitions and names for each theme.

Phase 6: Producing the report

This final phase produces a scholarly report of the final analysis of a set of fully devised themes. In the report, it is important the analysis provides a concise, coherent, logical and non-repetitive extracts relating to the research question(s) and literature within and across the themes.

Braun & Clarke (2006) note that the analysis process in these phases is "not a *linear* process of simply moving from one phase to the next", but it is more "*recursive*" in a way that "movement is back and forth as needed, throughout the phases" (p. 86, italics are original).

It is worth mentioning that the collected qualitative data included both relevant and irrelevant data. In this case, to sort and organize the data, irrelevant data were not considered for analysis. As argued in Tesch (1990), such data reduction should not be regarded as quantitative reduction, but it can be considered as "data condensation" (p.

139) and “a form of analysis that sharpens, sorts, focuses, discards, and organizes data in such a way that ‘final’ conclusions can be drawn and verified” (Miles & Huberman, 1994, p. 11).

Concerning the trustworthiness of the process of data analysis, it is claimed that while interpreting data, researchers’ biases and values may influence the process (Kervin et al., 2006; Northcote, 2012). To reduce such personal biases and have more objective interpretation, Guba (1981) proposed four criteria for judging the soundness of qualitative data analysis, and they have been elaborated by other researchers (e.g. Anney, 2014; Korstjens & Moser, 2018; Özverir, 2014). The criteria are *credibility*, *transferability*, *dependability*, and *confirmability*.

Credibility refers to the degree to which the research findings represent the plausible information drawn from the participants’ views and original data (Korstjens & Moser, 2018). To achieve this in the present study, the previous chapters have provided detailed description of the research problem and research context, current related literature and any possible available solutions, methods and approaches in conducting the study, and the web-based learning environment tailored to provide possible solutions to the investigated problem. In addition, the last two chapters of this study reported the outcome of the study, which was genuinely derived from the participants’ reflections on and experiences with the suggested web-based learning environment.

In addition, *transferability*, as Guba (1981) defined, is the extent to which “the findings of a particular inquiry may have applicability in other contexts with other subjects (respondents)” (pp. 79-80). Relating this criterion to the this current study, detailed and sufficient information about the research context was provided including the

instructional setting, the number, age, English level, and technology experience of the participants, and duration of the study. Such information along with *suggestions for further research* and *limitations of the study* in chapter 5 help readers assess the transferability of this research to their instructional context.

Moreover, *dependability* refers to the stability of the research findings "if the inquiry [study] was replicated with the same (or similar) subjects (respondents) in the same (or similar) context" (Guba, 1981, p. 80). This criterion is found in the present study in a manner that it utilized the design-based research and action research, in which the study was conducted in two groups of *similar* participants (i.e., both groups were third stage students at the ELTE program) in the *same* context. It is worth noting that the study achieved *similar* results in both groups (i.e., both had positive perceptions) with the participants in the instructional context.

Finally, *confirmability* refers to the degree to which the research is objective in the interpretation of the research results. Moreover, Guba (1981) and Korstjens and Moser (2018) explain that *confirmability* is the neutrality in the interpretation of the research findings in a way that the findings of the study are completely derived from the participants' original data, not from the biases, motivations, and interests of the researcher. This present study meets this requirement in a manner that it employed triangulation of findings through collecting and analyzing the obtained data through surveys, interviews, and reflection journals. This, as a result, was expected to reduce the research bias and have as much objective view as possible while interpreting the research findings.

This chapter has described the research methods implemented throughout the study. More specifically, it has explained the approach, model, and methodology applied to carry out the study. The following chapter will focus on the analyses of the gathered data.

Chapter 4

RESULTS

This chapter provides a comprehensive description of the results and findings obtained from the analyses of both quantitative and qualitative data. More specifically, the chapter is composed of three main sections. The first section presents the results obtained from the analysis of both quantitative and qualitative data collected from questionnaires, open-ended questions and interviews to answer the first research question. The following section delineates the results and findings achieved from the related quantitative and qualitative data collected to deal with the second research question. Finally, the last section presents the results obtained from the analyses of the collected data about the third research question.

4.1 Results of Research Question #1

What are the pre-service teachers' perceptions about the nature of the web-based instructional learning environment (WeBILE) for microteaching?

The first research question aimed to investigate the pre-service teachers' perceptions on the WeBILE as a learning environment for microteaching. More specifically, this research question had a holistic purpose for exploring how they perceive this designed learning environment as a possible solution to the contextual problem, which is insufficient practice of microteaching process in the third-year of the teacher education program.

To find an answer to this research question, the pre-service teachers' perceptions about the design features of the WeBILE, their overall feelings about their experience with the use of the WeBILE, their perceptions about the advantages and obstacles they faced while using the WeBILE, and their suggestions for the improving the WeBILE were investigated. Moreover, both quantitative and qualitative data was collected from the survey questionnaires and reflection journals. The collected data was analyzed and produced the following results.

4.1.1 Results of the survey questionnaires – quantitative data

Although the questionnaire included three main parts (parts A-C) about the pre-service teachers' perceptions, only the first part (i.e., part A) was related to this research question. This part investigated the participants' perceptions about the design features of the WeBILE for microteaching. As explained in Chapter 3, although there were 52 pre-service teachers in both groups, only 47 of them (27 in the first group and 20 in the second group) showed consent to complete the survey questionnaires. The quantitative data obtained from this part was analyzed using descriptive statistics of the SPSS program (Version 20), and produced the following results.

Table 4.1: The preservice teachers' perceptions about the usability of the WeBILE for improving microteaching process

The design features of the WeBILE …	(*n* = 52)				
	SA/A %	N %	D/SDi %	M	SD
1. had attractive pages	100	0	0	1.4	0.51
2. included relevant tasks	100	0	0	1.4	0.50
3. had suitable font size, color and style	85	5	10	1.6	0.98
4. had culturally appropriate multimedia objects	90	5	5	1.7	0.80
5. provided level appropriate multimedia objects	90	10	0	1.4	0.68
6. included easy navigational aids	85	10	5	1.8	0.83
7. gave chances for sharing and displaying ideas	90	10	0	1.4	0.68
8. encouraged interaction with the users	95	0	5	1.4	0.75

9. motivated participation in activities	100	0	0	1.2	0.41
10. encouraged collaborative learning	95	5	0	1.3	0.58
11. provided formative assessment	90	10	0	1.5	0.68
Total Average Scores	**93**	**5**	**2**	**1.5**	**0.67**

Note: *SA* = Strongly Agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SDi* = Strongly Disagree; *M* = Mean; *SD* = Standard Deviation

The total average scores given in Table 4.1 show that a considerably high percentage of the participants perceived that the WeBILE had favorable design features which made them use the system for practicing microteaching (*Mean=1.5, SD=0.67, %=93*). To be more specific, in items 1, 2, and 9 all of them expressed that the WeBILE had attractive and well-laid out pages (*Mean=1.4, SD=0.51, %=100*), provided relevant tasks and function (*Mean=1.4, SD=0.50, %=100*), and motivated participation in activities (*Mean=1.2, SD=0.41, %=100*), respectively. Furthermore, the following scores show that the WeBILE encouraged both interaction with the users (*Mean=1.4, SD=0.75, %*=95) and collaborative learning (*Mean=1.3, SD=0.58, %*=95), respectively.

As for the lowest scores, the table above presents that both items 3 and 6 representing the WeBILE's suitable font size, color and style (*Mean=1.6, SD=0.98, %=85*) and easy navigational aids (*Mean=1.8, SD=0.83, %=85*), respectively, scored lowest compared to the other items. In general, according to the total average scores, a higher percentage of the participants reported that the design features of the WeBILE produced influential impact on the heavy use of this learning environment for microteaching practice. However, only 2% of the participants did not think that the design features of the WeBILE led its use for microteaching process.

In conclusion, it can be inferred from the results of quantitative data analysis that a highly considerable amount of the participants perceived that the WeBILE possessed favorable design features, which had a significant influence on using this learning environment for their microteaching purposes.

4.1.2 Results of the survey questionnaires – qualitative data

Another source of data to answer the first research question was the following five open-ended questions:

1. How do you feel about the use of this web-based instructional learning environment for microteaching?
2. What are the advantages of using such learning environment for microteaching?
3. What problems/obstacles have you experienced in using such learning environment for microteaching?
4. What changes would you suggest in this learning environment so that it becomes more useful for the users?
5. Should this web-based learning environment be kept (with the recommended changes) for the future third-year students when studying microteaching?

These questions, as a source of qualitative data, were provided in the third section (i.e., section C) of the questionnaires and aimed to elicit the pre-service teachers' thoughts and perceptions about the use of the WeBILE for microteaching purposes. The participants' responses to these questions were analyzed following Braun and Clarke's (2006) phases of thematic analysis (see Chapter 3 for details).

As shown earlier, the first open-ended question aimed to elicit the participants' general feelings about their experience with the use of the WeBILE for microteaching

purposes. The analysis of the related data collected from the participants produced that almost all of them had positive feelings about the use of the WeBILE for microteaching purposes. Such result stems from the fact that the total frequency of occurrence of positive extracts like *I felt good*, *happy*, *comfortable* and/or *wonderful* were the most frequent segments found in the participants' responses. For instance, a participant responded to the open-ended question as:

> I really felt good with using this program [i.e. WeBILE] because it helped me improve my awareness and knowledge about how to do a good microteaching (Questionnaire #24)

Moreover, another student answered the open-ended question as:

> I liked the website and felt happy about using it because there was a lot of useful information about microteaching (Questionnaire #14)

It can be inferred from the participants' responses that such positive feelings are basically related to usability and richness of the WeBILE as it was easy to use, full of information about microteaching, and helped them a lot in increasing their knowledge about how to do microteaching.

Another participant responded to the open-ended question as:

> I had wonderful feeling while using this website because it was something new and never used such thing before because I learned many new things about what microteaching is and how to do it (Questionnaire #43)

Furthermore, the reasons given for such positive feelings were related to the easy use of the WeBILE, its provision of much information about microteaching components, its influential impact on enhancing their microteaching knowledge, and its provision of communication and collaboration opportunities.

However, only three participants had negative feelings about the use of the WeBILE for microteaching since the related extracts like *I felt uncomfortable* occurred in these participants' responses. The major reason for such negative feelings, as shown by these participants, was due to their limited access to the internet, which caused them not to use the WeBILE actively and sufficiently. For example, one of the participants wrote:

> I felt uncomfortable with this system [i.e. WeBILE] because I did not have internet access at hope to use it; if I had the internet, it would be better and would use it (Questionnaire #28)

Additionally, another participant felt negative with the use of the WeBILE. This negative feeling occurred only at the beginning of its use because it was a new experience for him and took some time until he became familiar with it. The response was like:

> This was a new way of learning about our subjects and I did not use it before. That is why at the beginning I did not like it because I thought it is difficult to do; but later I found it useful (Questionnaire #47)

The second open-ended question aimed to elicit the participants' perceptions about the advantages of using the WeBILE for microteaching purposes. The analysis of their data revealed that there were three main themes generated after the analysis of the related data. As for the first theme, *Enhancing microteaching knowledge* was the most frequent theme occurred in the responses of the participants and constituted the highest percentage of their responses. It is worth noting that this theme involved those response extracts relating to developing knowledge in all or particular microteaching components (e.g. preparation and planning, teaching process, and giving and receiving feedback). For example, one of the participants showed:

> This website had many advantages about doing microteaching, but the most important ones are how to plan and prepare the lesson for microteaching and

> what to do when you are giving microteaching in the classroom (Questionnaire #36)

In addition, the second frequent theme was *sharing ideas among their peers and teacher,* which was generated from the participants' response extracts highlighting the advantage of the WeBILE for sharing their ideas and communicating with their classmates and teacher. More specifically, they reported that the WeBILE provided a chance for sharing ideas about microteaching through "asking each other questions", "providing answers to their peer's questions", "recommending more sources of information about microteaching" and "reflecting on their peer's microteaching videos" not only inside, but also outside the classroom. Such related response excerpts were reported by most of the students. For instance, one of the responses was like:

> It had a lot of advantages, but the one I liked most was the communication we had; we shared ideas and comments with each other and our teacher; and when one posted a question on the system, we answered each other's questions (Questionnaire #18)

Finally, another advantage emerged from the participants' responses was *instant accessibility of the WeBILE,* which covered the responses that highlighted the instant accessibility and ready availability of the WeBILE any time and everywhere. Many students in both groups mentioned that the WeBILE was "accessible wherever and whenever you want", gave a chance to "reach the classmates and teacher anytime" and "get information about microteaching whenever we needed". For instance, one participant responded as:

> This system was useful in many ways; it had a mobile app, by which I could share my comments, ideas and any questions about microteaching any time and everywhere. I felt like the classroom is in my pocket (Questionnaire #7)

It is worth mentioning that the answers of four students were not considered for analysis because they did not answer the question.

The third open-ended question aimed to uncover the pre-service teachers' thoughts about the problems or obstacles they faced while using the WeBILE for microteaching. After the analysis of the collected data two main themes (i.e. problems) were generated. The most frequent problem reported by the participants' was *limited internet access*. It is noteworthy that this theme involved those coded extracts related to the participants' problems with using the WeBILE due to their limited access to the internet inside and outside the college. One of the responses in the questionnaire was like:

> The main problem that I and many of my friends had the limited internet access. We did not have internet in the dorm for many hours in a day; so we could not use the website during these times (Questionnaire #21)

The second most cited problem was the participants' *inexperience* in using such web-based learning environment. In other words, many participants in both groups believed that since this was their first time they were exposed to such WeBILE in their academic life, they experienced some problems about "registering themselves to the WeBILE", "completing and sending the assignments" and "posting and replying some comments". For example, it was found in the responses of a participant that:

> In the first week, it was strange and I and many of my friends had a problem with using the website, especially doing the assignment parts, because it was my first time using a website like this in my college life; but later I solved it (Questionnaire #3)

However, these problems, as elaborated by the participants, occurred only in the first week of the system use; they solved most of these problems in the following weeks.

Finally, it is also worth noting that six students reported that they did not have any problem with using the WeBILE because "everything was fine with the WeBILE" Moreover, the responses of four participants were not considered for analysis because they either did not answer this question or did not provide sufficient information for analysis.

The fourth open-ended question asked to uncover the participants' thoughts about their suggestions for improving the WeBILE for microteaching. The analysis of the collected data produced two major themes (i.e., suggestions). The most frequently occurred theme was *using the WeBILE offline*. This theme involved coded extracts like "using the WeBILE without the need of internet access", "making it [i.e., the WeBILE] work without using the internet" and "using it even if there is not internet access". For instance, one participant responded as:

> I suggest the website should be used offline and without the need for having internet access; or making it possible to use it with slow internet (Questionnaire #38)

In addition, they also recommended that the WeBILE should *add more synchronous features* like "live-video chats" and "group video chats". Such coded extracts were repeated in the responses of many students in both groups. For instance, one of students reported:

> I think it will be better if there is a button or an option on the system [i.e. WeBILE] for making video chats or video calls with my friends to talk about the problems we have about microteaching (Questionnaire #41)

It is worth noting that the responses of six students were not considered for analysis because they did not answer the question.

The last open-ended question aimed to elicit the participants' thoughts about whether the WeBILE should be kept for the future third-year students when studying microteaching after considering the recommended changes. The analysis of their responses produced that all students reported that the WeBILE should "definitely" be kept for the future third-year students when studying microteaching. The reason for giving this certain response, as mentioned by the participants, was due to the fact the WeBILE was "extremely helpful" in developing their theoretical and practical knowledge about microteaching and provided "perfect opportunities" for collaboration and communication with their teacher and classmates mostly outside the classroom.

In conclusion, this section described the results obtained from the participants' responses to five open-ended questions given in the third part of the questionnaires. The results revealed their thoughts about the impact and the advantages of using the WeBILE for developing their microteaching skills, the problems they faced while using it, their suggestions for improving it, and whether it should be kept for the future students when studying microteaching.

4.1.3 Results of the Reflection Journals – Qualitative Data

As mentioned in Chapter 3, reflection journals were used to elicit qualitative data about the participants' reflections with the use of the WeBILE during its implementation. The reflection journals consisted of five different sections which were guided by some questions to be addressed by the participants at the end of each week. Since the reflection journals were considered as an essential element of their course evaluation procedure, all participants in both groups wrote the journals. The last section in the journals dealt with the participants' reflections on the *usability* of the WeBILE and some other related issues. More specifically, the guided questions in this section were as follows:

1. What do you think about the usability of the web-based learning environment for improving microteaching?
2. What have you learned from the use of the web-based learning environment? How does this learning relate to your microteaching experience?
3. Do you think that the web-based learning environment helped you improve your microteaching? Please briefly write your overall reflections.
4. If you have any other reflections or comments, please write them below.

The data obtained from the reflections on these questions was analyzed following Braun and Clarke's (2006) phases of thematic analysis. Concerning the first guided question, which investigated the students' reflections on the usability of the WeBILE for improving microteaching experience, the related data was analyzed, coded and grouped into three emerging themes. First, most of the participants' showed in their reflections that the WeBILE was *easy to use* because it was not complicated and crowded, not difficult to find information about microteaching, and had shortcuts [i.e., shortcut icons] to go to any part they wanted. Any of these coded speech extracts was found in the reflections of 30 students.

Another theme compiled from the analysis of their reflections was that the WeBILE was *always accessible and available*. Twenty three participants expressed that the WeBILE was accessible and available anytime and anywhere they wanted to use and they did not have problems anytime they opened their accounts. To exemplify, one of the reflections showed:

> In my opinion, the web-based learning environment was so applicable and very usable because I could easily access it especially by its app on my mobile (Student 21)

Moreover, most of them reported that since the WeBILE had a mobile application, they could access the information provided on the system, see and reply their "friends" [i.e., classmates'] comments and ideas, and do the related assignments at any place and any time. An example from the students' reflections relating to this theme was:

> This website was really useful and easy to use for improving microteaching. We could communicate with each other and share ideas …and we could use it anytime and everywhere and whenever I had a problem I asked my teacher and classmates on this website (Student 36)

In addition, it was also found in the reflections of the participants that the WeBILE was *secure* in a manner that it secured their personal information because each member could access the system through using the email address and password he or she set for his or her individual account. Moreover, an access code was also given by the course teacher to the participants through which they could join the course. The related response excerpts about the *security* issue were found in the responses of twelve students. Finally, it is worth noting that the reflections of seven students were not considered for analysis because they did not either complete this section or did not provide enough data for analysis.

To deal with the second guided question, the participants' reflections about what they have learned from the use of the WeBILE during the six-week period were investigated. The results of the data analysis showed that all participants learned "a lot of things" about *microteaching process* and how to do it in the classroom. More specifically, it was found in their reflections that the WeBILE increased their knowledge in the microteaching components like preparation and planning, teaching process and giving and receiving feedback. For instance, one of the students reflected as:

> I learned a lot from this website; before using it I did not know how to prepare myself for microteaching, write lesson plans, present microteaching, and give feedback to my friends' microteachings. I learned about all of the things of microteaching (Student 27)

Moreover, they developed such knowledge from the information provided on the WeBILE, the activities and assignments, and "mostly", as they expressed, "from their reflections on each other's microteaching videos and comments". Furthermore, they also showed that before using this learning environment, they did not have any information about microteaching and its components; but by using this web-based system, they learned a lot about it. Finally, many participants expressed that although the WeBILE taught them about microteaching components, they learned "mostly from giving feedback and comment" opportunities supplied on the WeBILE.

Another emerging aspect from the reflections was that most participants showed that the knowledge gained from using the WeBILE helped them understand how to *become an effective teacher in the future*. This entails that if they follow these "teaching stages [i.e. microteaching process]", they will become effective teachers in the classroom. The response extracts relating to this theme were found in the reflections of 31 students in both groups. For example, a participant reflected as:

> The materials, information and activities given on the website helped me to become a better teacher in the future. By watching the microteaching videos and the feedback given about them I learned what should teachers do in the classroom and how to give my lessons better in the future (Student 18)

Finally, some participants believed that they learned how to *use technology for teaching* because they thought that using technology in this way helps the learners get a lot of information about any topic. Moreover, a few of them showed that since they

learned much information from using this learning environment, they "will use similar website with their students" when they become teachers.

The third guided question in this section aimed to elicit the participants' reflections on whether the WeBILE helped them improve their overall microteaching experience. The results of the data analysis revealed that all participants showed strong agreement about usefulness of the WeBILE for developing such experience. To support this, one of the reflections showed:

> I believe that this system [i.e. WeBILE] helped me and all my friends to improve microteaching process. Before using it, we did not have information about microteaching and the basic points of it. But after using it we have enough information about microteaching and have ability to do it successfully (Student 6)

Furthermore, many other participants justified this usefulness by stating that the WeBILE provided many appropriate resources and much information about microteaching process. Additionally, it was also extracted from the reflections that the WeBILE created practical opportunities for improving microteaching knowledge and helped them do microteaching effectively.

Finally, the last guided question was about gathering the participants' any other reflections, if they had, about the nature of the WeBILE for microteaching. Since this was an optional question, only 22 students responded to the question. After analyzing the given reflections, two major themes were created. First, most of the reflections included suggestions for the *integration* of the WeBILE into the teaching program of other public universities in the Kurdistan region of Iraq because it was very useful for practicing microteaching and helpful for creating practical opportunities for a teaching practice. One example of such reflections was like:

> I suggest this learning environment should become a part of the Methodology course. Every teacher who is teaching this course should use with the students, not only for this year. Maybe the department can oblige the teacher to use such website whenever teaching this course or doing microteachings (Student 12)

To conclude, this section presented the results of the data analysis process obtained from the survey questionnaires, open-ended questions and a section of the reflection journals to answer the first research question. More specifically, it showed the participants' perceptions and thoughts about the holistic aspect (i.e., nature) of the WeBILE including the usability, advantages and effectiveness of the WeBILE for improving the microteaching process. The following section shows the results of the second research question.

4.2 Results of Research Question #2

What are the pre-service teachers' perceptions about the effectiveness of the web-based instructional learning environment (WeBILE) for improving their microteaching process?

As explained in Chapter 2, microteaching process involves three basic components, which are i) preparation and planning, ii) teaching process including the lesson presentation, and iii) critiquing process entailing giving and receiving feedback. Therefore, both quantitative and qualitative data for the second research question were collected from the participants' perceptions as a result of their experience with the use of the WeBILE for each of these components through survey questionnaires, semi-structured interview sessions, and reflection journals. The sections below report the results obtained after the analyses of the data.

4.2.1 Results of the Survey Questionnaires – Quantitative Data

Quantitative data was gathered from the second part of the survey questionnaires, which elicited the participants' perceptions about the effectiveness of the WeBILE for

developing their microteaching process. It is noteworthy that the related quantitative data was collected at the end of the WeBILE implementation period in which many participants had already performed their microteaching sessions as a requirement of the course. The collected data was analyzed through the use of descriptive statistics of the SPSS program Version 20.

Concerning the participants' views on the first section, which was preparation and planning for microteaching, descriptive statistics reported the following results:

Table 4.2: Perceptions on the impact of the WeBILE on improving preparation and planning

The WeBILE helped in …	(*n* = 52)				
	SA/A %	N %	D/SDi %	M	SD
1. choosing suitable topic	94	4	2	1.7	0.54
2. setting good performance objectives	91	4	5	1.5	0.75
3. choosing suitable teaching materials	85	11	4	1.8	0.78
4. designing lesson plan	82	12	6	1.5	0.84
5. relating materials to real life	67	26	7	2.0	0.97
6. preparing appropriate equipment	90	4	6	1.8	0.83
Total Average Scores	85	10	5	1.7	0.78

Note: *SA* = Strongly Agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SDi* = Strongly Disagree; *M* = Mean; *SD* = Standard Deviation

As shown in Table 4.2, a considerably high percentage of the participants believed that the WeBILE positively affected their improvement of the preparation and planning for microteaching (*Mean = 1.7, SD = 0.78, % = 85*). As for the preparation stage, for example, a considerably high percentage of the participants agreed that the WeBILE helped them to choose a suitable topic for their microteaching sessions (*Mean = 1.7, SD = 0.54, % = 94*) and write good performance objectives for their lessons (*Mean = 1.5, SD = 0.75, % = 91*). As regards the planning stage, most of the participants found the WeBILE highly helpful for increasing their knowledge in designing suitable lesson

plans (*Mean = 1.5, SD = 0.84, %* = 82). Concerning the lowest score, item 5 representing whether the WeBILE helped them relate materials to real life scored lowest compared to the other items (*Mean = 2.0, SD = 0.98, %* = 67). However, only five percent of the participants did not think that the WeBILE helped them develop their knowledge and practice in this component of microteaching.

The second component of the questionnaire was related to the "teaching process", which involved items about stages of the lesson plan presentation and teaching skills like using oral and body language and giving instructions. To explore the participants' views about the impact of the WeBILE on improving their teaching process, descriptive statistics reported the following results:

Table 4.3: Perceptions on the impact of the WeBILE on improving teaching process

The WeBILE helped to …	(*n* = 52)				
	SA/A %	N %	D/SDi %	M	SD
1. improve my teaching skills.	96	0	4	1.3	0.67
2. give teaching instructions.	93	7	0	1.5	0.64
3. start lesson effectively.	89	11	0	1.6	0.68
4. give teaching activities	89	11	0	1.6	0.67
5. implement the lesson plan	85	11	4	1.7	0.80
6. use oral and body language	100	0	0	1.3	0.48
7. end lesson appropriately	92	4	4	1.6	0.73
Total Average Scores	92	6	2	1.5	0.66

Note: *SA* = Strongly Agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SDi* = Strongly Disagree; *M* = Mean; *SD* = Standard Deviation

As presented in the total average scores in Table 4.3, a significantly high percentage of the participants perceived that the WeBILE had a great impact on developing their knowledge and practice in overall teaching process (*Mean = 1.5, SD = 0.66, % = 92*). More specifically, the participants acknowledged the impact of the WeBILE on improving their teaching skills (*Mean = 1.3, SD = 0.67, % = 96*), giving teaching

instructions while doing microteaching (*Mean = 1.5, SD = 0.64, % = 93*) and using oral and body language effectively in their microteaching sessions (*Mean = 1.3, SD = 0.48, % = 100*). In addition, the WeBILE had also great influence on developing the participants' knowledge in the lesson plan implementation in microteaching in the stages like starting the lesson (*Mean = 1.6, SD = 0.68, % = 89*) and ending the lesson appropriately while performing microteaching (*Mean = 16, SD = 0.72, % = 92*). On the other hand, only 2% of the participants viewed that the WeBILE did not have any effect on developing their teaching process for microteaching.

Finally, the last component of microteaching process was "giving and receiving feedback". The collected quantitative data aimed to find out the extent to which the WeBILE helped the pre-service teachers improve their knowledge of giving and receiving feedback in microteaching practice. In so doing, the data was analyzed using descriptive statistics and the following results were produced:

Table 4.4: Pre-service teachers' views on the use of WeBILE for improving "giving and receiving feedback" skill in microteaching

The WeBILE provided more chances …	(*n* = 52)				
	SA/A %	N %	D/SDi %	M	SD
1. to give feedback.	96	4	0	1.3	0.56
2. to receive feedback.	92	4	4	1.6	0.74
3. to see my peers' feedback	89	11	0	1.7	0.66
4. to see the usefulness of feedback.	85	15	0	1.6	0.74
5. to give feedback more than given in the classroom.	93	7	0	1.4	0.63
6. to receive feedback more than received in the classroom.	93	7	0	1.6	0.63
Total Average Scores	91	8	1	1.5	0.66

Note: *SA* = Strongly Agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SDi* = Strongly Disagree; *M* = Mean; *SD* = Standard Deviation

The results in Table 4.4 show that a great percentage of the participants strongly agree that the WeBILE had a significant impact on improving their knowledge in each of the given items of the giving and receiving feedback component of microteaching process. For example, the WeBILE increased their knowledge in how to give (*Mean=1.3, SD=0.56, %=96*) and receive (*Mean=1.6, SD=0.74, %=92*) feedback in the microteaching process. Moreover, it also helped them to see each other's feedback (*Mean=1.7, SD=0.66, %=89*) owing to the provision of many collaboration and communication opportunities. Furthermore, it was also shown in both items 5 and 6 that the WeBILE provided more opportunities for giving (*Mean=1.4, SD=0.63, %=93*) and receiving (*Mean=1.6, SD=0.63, %=93*) feedback more than that done in the classroom. Moreover, the total average scores of all items represented that high percentage of the participants viewed that the WeBILE helped them increase their knowledge in giving and receiving feedback in microteaching (*Mean=1.5, SD=0.66, %=91*). It is also worth mentioning that only 1% of the participants believed that the WeBILE did not have influence on improving the knowledge in such component of the microteaching process.

In conclusion, it can be inferred from the results obtained from the quantitative data analysis that the WeBILE had a powerful effect on enhancing the pre-service teachers' knowledge and practice in the components of microteaching process (see Table 4.5 below).

Table 4.5: The overall average scores of pre-service teachers' views on the use of WeBILE for improving the microteaching components

Microteaching components	(*n* = 52)				
	SA/A %	N %	D/SDi %	M	SD
1. preparation and planning	85	10	5	1.7	0.78
2. teaching process	92	6	2	1.5	0.66
3. giving and receiving feedback	91	8	1	1.5	0.66
Total Average Scores	89.4	8	2.6	1.6	0.70

Note: *SA* = Strongly Agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SDi* = Strongly Disagree; *M* = Mean; *SD* = Standard Deviation

More specifically, as shown in Table 4.5, a high percentage of the participants perceived that the WeBILE produced a considerable influence on developing their knowledge and practice in preparation and planning for microteaching (*Mean=1.7, SD=0.78, %=85*), teaching process (*Mean=1.5, SD=0.66, %=92*), and giving and receiving feedback (*Mean=1.5, SD=0.66, %=91*). What is more noticeable about these results is that participants found the WeBILE more effective in developing their knowledge in teaching process and giving and receiving feedback compared to the other component of the microteaching process.

4.2.2 Results of the Interview Sessions - Qualitative Data

The second source of data for the second research question was the semi-structured interviews conducted to elicit the participants' experience and behavior, opinion and values, as well as their feelings as regards the use of the WeBILE. In the following sections, the participants' responses to each interview question were provided and described.

The first interview question read "*What did you feel while using the web-based learning environment for microteaching?"* to elicit data about what the participants felt about using the WeBILE for improving their microteaching experience. Before

going into the details of their responses, it can be said that all respondents felt positive and highly satisfied with the use of the WeBILE.

Concerning the interviewees, Student 1, a female participant, expressed:

> Really I was feeling great, whenever I got back home, I just went online and opened our website [i.e. the WeBILE for microteaching] to do the assignments and read the information there; it was great for me.

Similarly, Student 2, a male interviewee, expressed his positive feelings:

> I frankly say I felt really great and safe, because you know, this was the thing that we have not done before; it was really a new experience for us … so I think it should be appreciated; I mean it is really a good environment… there is no doubt it was really useful.

The feeling of satisfaction and acceptance was also reflected in the response of other interviewees. For example, Student 3, a female participant, showed her feeling as:

> This is the first time I use such website in the class; it was unique for us … it was really good because that is something I have not done it before; it was interesting.

Finally, Students 4 and 5 (male and female interviewees, respectively) had similar feelings to those of other interviewees in a way that both felt positive about their experience with the use of the WeBILE. For instance, Student 4 expressed his feeling as "the web-based environment was really nice; it was really helpful and I felt safe", and Student 5 had similar feeling as she responded that "when I was using this website I had a nice feeling because it provided a lot of information about the topic, and it helped me a lot".

Another positive feeling of satisfaction with the WeBILE was shown by Student 6, a male participant, who expressed his feelings as:

> The feeling of using this website was really wonderful, because I had a lot of time to do the assignments and all these things that you provided for me; instead of just staying in the class and doing all these things in such small amount of time we could do that outside of class, at home, on bus, everywhere; you know, I felt really great of using this website.

Such positive feeling was also expressed by Student 7, a female interviewee, who responded as "when I used this website, I felt relaxed … because I could share my opinion freely". Since exposing to such learning environment was a new experience for the pre-service teachers, some of them were worried or felt hesitant about its use for the first time. However, after passing some time, they felt comfortable and liked using it. For example, Student 8, who is a female interviewee described her feelings as follows:

> Because it is our first time to use website like this, I and some of my friends feel nervous at the beginning; but with passing the time we acquired knowledge about microteaching, and learned how to use it; and that was really great.

Other interviewees had similar feelings about the use of the WeBILE. For example, Student 9, a male participant, expressed his feelings as "when I used this website I felt relaxed because I could share my opinion and ideas freely, and it privately secured my ideas and comments". Additionally, Student 10, a male participant, responded to this interview question as:

> I definitely felt free and comfortable during using this website; there was barriers and obstacles since I was allowed to how and what I say about the subjects and how I expressed my thoughts and shared ideas and comments… students could simply share their experiences and thoughts in this environment without feeling hesitate.

In conclusion, it can be stemmed from the interviewees' responses to this interview question that all of them had strong positive feelings toward using the WeBILE. In addition, such positive feeling was mostly resulted from the fact that using the

WeBILE was a new experience for them and provided unique educational opportunity for sharing their ideas, acquiring good knowledge about microteaching, and improving their microteaching skills.

The second interview question was *"What microteaching skills did you improve through the use of the web-based learning environment?"* This experience and behavior question aimed to seek information about the interviewees' behaviors, experiences, or activities about their experience with the use of the WeBILE. Generally, the interviewees reported that using the WeBILE helped them to improve all microteaching skills, in general, and some skills, in particular. For instance, Student 1 expressed:

> All the skills; especially the preparation and planning and the teaching process; I improved these two skills more than the others; especially writing plans for teaching.

It can be seen from this response that the WeBILE helped her to improve all microteaching skills, particularly preparation and planning and teaching process skills. Furthermore, Student 2 had similar view when he said:

> It improved all my microteaching skills, but especially the preparation and planning, the teaching process, and giving and receiving feedback skills; I improved these skills more than the others.

This shows that in addition to taking benefit from the WeBILE for improving all microteaching skills, he benefitted the web-based system more for developing particular microteaching skills.

Others also highlighted almost similar skills, which were improved more as a result of using the WeBILE. For example, Student 3 responded the question as:

> All of them are improved, really. But most of them are preparation and planning, and classroom management; I mean I got the most benefit for these, better than the others.

Student 4 further added that although the WeBILE helped him to develop "almost all microteaching skills", he improved skills like "preparation and planning and giving and receiving feedback" more than the other skills. Finally, Student 5 provided more details about the usefulness of the WeBILE for improving particular microteaching skills. She responded as:

> Simply I have learned how to prepare myself and design the lesson plan, how to choose a narrow and suitable topic for microteaching; how to set goals and activities, how to present the lesson, classroom management, solving unexpected issues, and how to give feedback and manage time.

It can be understood from her response that the web-based system was an effective environment for improving most of her microteaching skills including preparation and planning, teaching process, classroom management, and giving feedback.

The other interviewees similar feelings with the use of the WeBILE reporting that it helped them improve almost all microteaching skills. However, among all the skills, some of them were reported to be more improved than the others. For instance, Student 8, in response to this interview question, said:

> Honestly, all microteaching skills are improved; but more specifically it improved preparation and planning skill. Before this website, I don't have any idea about how to plan and prepare myself for microteaching. For example, I have an aunt, who is an English teacher, I always asked her how you prepare yourself for the class. But with using this website and the information, I really got these answers; so I learned how to prepare and plan; that was the biggest point for me; so I am really happy for getting this information.

According to this quotation, the WeBILE was an influential tool for improving her preparation and planning skill better than the other skills. Additionally, Student 9

added that despite improving all microteaching skills, he benefitted the WeBILE for developing preparation and planning, teaching process, classroom management, and giving and receiving feedback as he reported:

> Frankly, all my microteaching skills improved according to this website… but more specifically it improved how I can plan to my class, how to manage my classroom and my time, how to teach in the class like to be a great lecturer to my students, and also how to give feedback to your friends.

Moreover, Student 6 confirmed that using the web-based system helped him improve preparation and planning, teaching process, and giving and receiving feedback skills more than the others as she stated:

> Right before using this website, I did not know about the stages of presenting a lesson; but after participating on the website, I could do that and I gave microteaching according to what I have learned from the website, and I prepared myself and I had a goal, and then presented [i.e. teaching process] according to what I have learned; and also I learned a lot from the feedback I got from my friends on the website.

However, Student 7 believed that the WeBILE was effective mostly in developing her giving and receiving feedback skill as she responded:

> It helped me in giving and receiving feedback; before using it I did not know how do this; but after using this website I learned how to give and received feedback. Also the website helped me for improving other skills, but it helped most for giving and receiving feedback.

Finally, Student 10 expressed himself in response to this interview question that the web-based system helped him improve "all the skills; especially the preparation and planning and the teaching process… especially writing plans for teaching" more than the others.

To conclude, the responses of the interviewees showed that although using the WeBILE generally helped them to enhance all microteaching skills, the skills like

preparation and planning, teaching process, and giving and receiving feedback were more developed than the others.

The third question in the interview inquired *in what way the web-based learning environment contributed to the development of the respondents' microteaching skills.* As described in Chapter 3, the content of the WeBILE for microteaching was presented through different ways such as videos, PDF files, and the interaction and communication among the people (i.e. the teacher and classmates). The goal of asking this question in the interview sessions was to explore which one of these ways was effective in improving microteaching skills through the use of the WeBILE.

The interviewees highlighted three major ways by which they developed the microteaching skills. Student 3, for instance, reported:

> Through the videos and the comments that we shared I got most and lots of benefits and information. Also, the books and pdf files you uploaded improved my microteaching skills.

It can be inferred from this speech extract that videos and the communication means provided on the WeBILE helped her a lot to develop the microteaching skills. Additionally, PDF files and books were also found helpful for the improvement of the microteaching skills. In addition, Student 2 responded to this interview question as:

> In fact all of them were useful, but especially the videos; they were really interesting… and the interaction, I did love the interaction among the students; whenever you have a question or everything, it was really easy to reach them, the students I mean; we collaborated between each other.

It is obvious from this response that videos and communication and collaboration opportunities provided through the WeBILE had effective impact on enhancing his

microteaching skills. Student 1, similarly, found the videos and the PDF files more effective means for getting information about microteaching. She said:

> The videos and the PDF files; especially the videos that talk about the different teachers in the teaching process; they give me a lot of information… also the PDF files; I read them all and other information that you write down there.

Similarly, other interviewees (Students 4 and 5) highlighted both "PDF files and videos" as two effective ways provided by the WeBILE for improving microteaching skills. For example, Student 4 emphasized that "the PDF files, word documents, and videos" helped him a lot in gaining the knowledge about microteaching skills.

Concerning the other interviewees responses, they all confirmed the same ways that mentioned by the participants above. For instance, Student 9, said:

> Watching movies or videos; any type of videos, I liked a lot, because it's very interesting to me; and in that website there were a lot of kind of videos, and I could gain a lot of information about microteaching; so videos were great things for me.

Similarly, Student 8 responded that videos were better ways for conveying information than the others, because the videos helped her remember the information more than the other means. He claimed:

> For me, visuals is much more important, because I will not forget it… with watching the video, I will get the information more than reading or conversation between the friends or the teacher; so videos were very great for me.

Moreover, Student 6 added that, in addition to videos, PDF files and the communicative means were also other effective ways by which he developed his microteaching skills. She reported:

> The website contained, as I told you, a lot of PDF files and a lot of writings about the microteaching topics… and also the videos were useful; and through

> the website we could be in touch with other students, my classmates, ask them questions whenever I wanted.

Similar ways were also reported by the other interviewees. They mentioned that ways like “PDF files, videos, and hyperlinks” contributed more than the other content delivery means in gaining more knowledge about the microteaching skills.

All in all, it can be seen from the interviewees’ responses that through utilizing the videos, the communication and interaction opportunities, PDF files and hyperlinks, the WeBILE contributed to the development of their microteaching skills. However, among these ways, videos, PDF files and communication and collaboration opportunities were the most influential ways provided by the WeBILE for developing their microteaching skills because they were highlighted by most of the interviewees.

The fourth question in the interview was about the *microteaching skills that the respondents **did not** improve by the use of the web-based learning environment and the reasons for it.* As shown earlier, the second interview question dealt with the interviewees’ views about the microteaching skills that they developed through the use of the WeBILE. Although they pointed out that the WeBILE helped them to improve all the skills, they highlighted some skills which were developed more than the others. This question, however, investigates their views about what specific skills they did not develop well through the use of the WeBILE, and what could be the reason for the issue.

In response to this question, Student 2 showed that the WeBILE did not help him to enhance lesson planning skill, as he reports:

> I could not develop lesson planning, actually I still don't know how to write down a good lesson plan; but I did not blame the website and the things that was there; it was all my fault because I have not read the information there. Although there were information and some samples of lesson plan, but as I said it was my mistake.

It can be understood from this speech extract that the reason for not developing such component of preparation and planning skill was that he did not read the information provided on the WeBILE. This entails that the WeBILE may not have had any problem in providing enough information for enhancing the participants' microteaching skills, but sometimes the students do not carry out their personal and academic responsibilities in academic environments, and their failure in some issues may not be related to the weakness of the learning environments provided by their instructional designers.

Moreover, Student 3 responded that she could not develop giving and receiving feedback skill through the use of the WeBILE. She reported:

> Giving and receiving feedback was not really clear for me… the information was clear, but it was not clear for me, I did not understand it well; feedback, is a kind of like, eh, it is hard to give feedback… it was my problem giving feedback from the information that I got.

The reason for not developing such skill, as she explained, was not relevant to the inconvenience of the WeBILE in terms of providing adequate information, but most probably to her individual problem like insufficient ability in understanding the content or giving feedback to her peers.

To add more, Student 1 expressed that although the WeBILE generally helped her to develop all microteaching skills, it was not highly effective in improving her classroom management skills. For example, a relevant extract of her speech showed:

> I can say classroom management; I improved, but not like the others [i.e. other microteaching skills], because I read the information, but I really did not read all the information there, that is one reason; not practicing what we read about classroom management is another reason for not improvement.

Similarly, Student 4 reported that the WeBILE did not help him enhance his "classroom management skill" because he was "careless about it" and he "did not read all the information provided in this section".

As mentioned in the responses of Students 1 and 4, there were two reasons for not improving such microteaching skill, namely, not reading all the information provided on the WeBILE and not practicing the information in the classroom. Although the first reason is related to the student's negligence in carrying out individual responsibilities, the second one is mostly attributable to the contextual factors like insufficient class time and big class size.

Different from the views mentioned above, Student 5 stated "I could improve all microteaching skills as I wanted; there was not any problem that made my microteaching skills not to improve". It can be inferred from her response that the WeBILE helped her improve all microteaching skills, and there was no skill which was not improved as a result of her use of the learning environment.

To add more, the other three interviewees (i.e., Students 6, 8, and 9) revealed that the WeBILE did not help them to improve their "speaking" skill. Although while designing the WeBILE speaking skill was not considered a skill of microteaching, the interviewees, surprisingly, believed that speaking can also be considered as a microteaching skill. In support of this claim, Student 9 responded:

> Actually, there was not speaking skill; you know, we could not speak with each other; we could not share our ideas by speaking; most of the times we share ideas by writing comments; there was not any video chat; nothing for contacting for face-to-face; because I think speaking is also a microteaching skill.

This student believed that "speaking" is also a microteaching skill, but he could not develop such skill because no face-to-face communication opportunities like video chats were provided on the WeBILE; therefore, he shared his ideas mostly through posting comments. Moreover, Student 6 supported this claim and mentioned "I could not develop speaking skill, because it [i.e. the WeBILE] did not have live stream video or face-to-face communication with the people there".

Another supporting view came from Student 8 who reported:

> I think there was not a speaking skill… if we have one hour a week to make conversation between the students on the website in order to develop speaking skill; as we know, there are some students that are shy to speak, if there is no speaking, they can just copy and paste the information or they can rewrite the comments of their friends; so if we have a speaking skill, it will be much more better.

It can be understood from this student's response that providing synchronous communication opportunities like live stream videos or face-to-face online interaction encourage shy or introvert students to improve their speaking skill. On the other hand, Students 7 and 10 had a different opinion; they believed that the WeBILE did not help them develop "classroom management skills". The reason for this, according to Student 7, was due to the fact that "the website provided a lot of information like documents, videos and links, which were really difficult to read all the information". Therefore, she was "confused" and "lost", and "neglected" some information about this section. However, according to Student 10, the reason for this issue was mostly

attributable to “the insufficient practice of the information about classroom management in the classroom”.

In conclusion, the analysis of the responses collected from the interviewees showed that although the WeBILE helped them to develop all microteaching skills, it was less effective in improving most students’ lesson planning and classroom management skills. The reason for this was reported as being mostly the participants’ negligence in not carrying out their individual and academic responsibilities while using the WeBILE. However, it was emerged from the most of the interviewees’ responses that both ‘speaking’ and ‘classroom management’ were not much improved through the use of the WeBILE. For some interviewees, ‘speaking skill’ could also be considered as a microteaching skill (although it was not considered as such by the researcher while designing the WeBILE), and they reported that they could not improve it because synchronous communication means like live stream video chats were not provided on the WeBILE.

The fifth question addressed to the interviewees was whether they thought *using such web-based learning environment was effective in developing their microteaching experience, and if their response was positive, in what ways it helped them develop this experience.* The aim was to uncover the participants’ views and beliefs about their experience with the WeBILE for improving their microteaching skills. The responses of the interviewees revealed their thought that using the WeBILE was effective in developing their microteaching skills. For example, Student 2, in response to whether using the WeBILE was effective in developing his microteaching skills, reported:

> It was really effective; you know, before using the microteaching website we did not have any experience about microteaching, but throughout the environment and the information there, I got a lot of knowledge and experience

> about microteaching… you know we have done microteaching, you know, before this website I could not notice mistakes of my friends, and I was able to do a really good microteaching.

It can be understood from this expression that the WeBILE, as a new experience for him, had an effective impact on enhancing his microteaching skills in a manner that the WeBILE helped him to notice his classmates' mistakes while doing microteaching, and led him to do a good microteaching.

Furthermore, the positive effect of the WeBILE on improving microteaching skills was also confirmed by Student 3, who reported that using the WeBILE built her "self-confidence" while performing microteaching and prepared her for the future. Moreover, in another extract of her response to the interview question, she expressed:

> First it was hard to do microteaching, but by using this website, watching videos and reading PDF files and comments, I improved a lot about microteaching; now it is easy for me to do microteaching after using this website.

It can also be inferred from her explanation that her microteaching skills were improved mostly through videos, PDF files, books, and reading her classmates and teacher's comments provided as various means of information provided on the WeBILE.

Additionally, Student 1 also confirmed the impact of using the WeBILE on improving her microteaching skills as she responded:

> … whenever you need information is there; you can just go online and go to the website; you can read the information before presenting microteaching, and the information is clear; and whenever you have a question, you just write a comment and send a message to the teacher or my friends; now I have better information about microteaching; before this website, I just heard the name of microteaching, I do not have such information that now I have after this website.

This response shows that the WeBILE provided her with instant access to the information, classmates and the teacher; helped her gain good knowledge about the microteaching skills; and, ultimately improved these skills.

Moreover, Student 4 also believed that such learning environment was helpful in "getting a lot of benefit" in a manner that before using the WeBILE he "did not know about all these stages of microteaching", but after using it he is "much better than the beginning". Finally, Student 5 further acknowledged the impact of the learning environment on improving her microteaching skills when she responded as:

> Absolutely it worked effectively; I enjoyed this website… we could exchange our thoughts and share ideas and comments with each other; additionally, there a lot of URL resources and PDF attachments that related to our topic as extra information. That helped us to save time.

It can be inferred from this response that the WeBILE was effective in improving her microteaching skills specifically through some design features like communication and collaboration opportunities, hyperlinks and some documents provided on the WeBILE.

The other interviewees believed that using the WeBILE was a great practical experience in their academic achievement and had a considerable impact on enhancing their microteaching skills. In response to the question about whether and how using the WeBILE helped him improve microteaching skills, Student 9 responded:

> Yes, of course. This website taught me a lot of things about how to teach in the future; you know many many teachers cannot teach very well nowadays because they did not have such kind of website… as you know I gave microteaching for 20 minutes; it was a great experience for me and I will never forget about this experience in the future.

Such positive impact of the WeBILE on developing microteaching experience was also confirmed by Student 8, who acknowledged that using this web-based system gave her a new opportunity for improving microteaching skills through experiencing a different way of practice and more freedom in doing related tasks outside the classroom. He responded to this interview question as follows:

> Actually yes, it is a different way, not like reading on the paper or in the book. With the website I had a lot of time, I could do anything at home or anywhere I want, and with anyone. I think the students don't like just getting the information in the class, so using the website is the best idea.

Similarly, other interviewees confirmed the usefulness of the WeBILE for enhancing their microteaching skills. For example, Student 6 expressed that she benefitted from the WeBILE for developing microteaching skills in a way that it saved a lot of her class time on writing the teacher's notes in the class while she was explaining the topic because everything about the topic was provided on the web-based system through videos and documents. She said:

> Of course, one hundred percent it helped me. In a short time I can search for many things about the topic, and instead of writing down the comments that teacher tells you in the class, I can find a lot of information from videos and all these related attachments that the website provided; so it's really helpful.

Moreover, the other interviewees had similar perceptions as they believed that using the WeBILE had a considerable influence on developing their microteaching skills. For instance, in response to the interview question, Student 7 responded as follows:

> Yes, very much; because before using this website I and my friends did not know how do microteaching; but after reading the information on the website and using it, I did a good microteaching. In fact, we had some presentations about a topic in previous years, but they were not like microteaching; and also the teacher did not tell us and give us information about how to present something in the class.

The results obtained from the responses of the interviewees in the second group are in line with those obtained in the first group since both groups believed that the WeBILE had an influential impact on improving their microteaching skills. These consistent results confirm the validity and reliability of the WeBILE for improving microteaching skills and its positive influence on developing the users' practical skills during their experience with the use of the learning environment.

The sixth question in the interview was about *the kinds of new knowledge and skills, other than microteaching knowledge and skills, that the interviewees thought they have gained as a result of this experience.* This was another experience and behavior question asked to find information about behaviors, experiences, or activities that the interviewees did but could not be observed by the researcher. More specifically, this question aimed to explore what new knowledge and skills, in addition to microteaching skills, have been gained during the participants' use with the WeBILE. It can be seen from the interviewees' responses that they developed many new skills and gained new knowledge as a result of using the WeBILE.

Concerning the responses, Student 2 reported that since this was his first time in using such web-based learning environment, he improved some "technological skills like how to create an account in such new website and use it for academic purposes". In addition, Student 1, confirming the usefulness of the WeBILE for improving technological skills, highlighted other important skills that she improved as a result of using the web-based environment. She said:

> I improved my skill in writing formal comments, because when you write comments here, you have to write it in a formal way. Also, my friendship skill improved, because we communicate with each other, we write comments to each other, we reply to comments. Another thing is rapport, I mean we also developed relationship with you [i.e., the teacher], because whenever we need

> something we asked you and sent you messages, and you were there. Also, the technological skills, because before using this website, I did not know many things about websites like this.

The interviewee reports that the WeBILE helped her develop her writing, especially formal writing, and friendship skills, because she was continuously in contact with them through writing and replying comments and communicating with each other about the issue. These new skills were also confirmed by Student 3, who added that:

> I improved my skill in using the internet and communication skills. Also, I improved my friendship skill, because when you have any question you can get the answer, like you can post questions and you get reply; sometimes you don't have this chance to ask these questions in the classroom … but this website does all these for you.

This response shows that the WeBILE helped the student to improve her communication skills in a manner that it provided a platform for her to share ideas, solve each other's problems, and stay connected not only in the classroom, but also outside the classroom.

Furthermore, both Students 4 and 5 highlighted two more skills, apart from the microteaching ones, as a result of their use of the WeBILE. Student 5, for example, believed that using the learning environment helped her to "enhance experiential skills", since the information provided on the environment was "very helpful in understanding how to teach in a right and good way; as before using this website, I did not know teaching should be like this, like following these stages and focusing on these elements".

As for Student 5, she revealed another interesting skill, which he developed as a result of using the WeBILE; she reported:

> …typing is one of the skills I improved by using this website; it really helped me to write down many comments and posts. And also, the web-based environment helped to read a lot; it helped to make it a habit, I mean reading…

It can be seen from this response that the WeBILE was a helpful tool for enhancing the student's 'typing' skill; this was resulted from the particular features the web-based system provided in which the users were required to write comments to each other while having and answering questions and adding more ideas to each other's posts. Moreover, it can also be inferred from the response that the web-based environment helped the student to develop his reading skill in a manner that the documents and information provided on the environment encouraged him to read a lot.

The views and opinions of the remaining interviewees were mostly similar to those mentioned above. They reported that the WeBILE was an effective tool for developing their technological skills. In addition, they believed that the WeBILE provided an opportunity to become familiar with such new and advanced technological tool in their preparation program. For example, Student 9 responded that "this website gave a chance to join this new technology, which was great for me; I could use this kind of application that I have never done anything like that before".

Furthermore, such usefulness of the WeBILE for developing technological skills was also confirmed by another interviewee, Student 6, who reported:

> … I also improved my technology skills; before the teacher told us about this website and using this website, I did not know about all these technological equipments. But when we became familiar with this website, we could fully understand and it helped me to go to other websites for learning and collaborating.

Despite the effectiveness of the WeBILE on improving technological skills, other interviewees showed other benefits of the learning environment. For instance, Student 8 said:

> I developed my reading and understanding and listening skills, because I watched a lot of videos. I also improved my writing skills because I write a lot of comments while giving comments to my friend.

It can be seen from this response that the WeBILE helped the student to improve her language skills like reading, listening and writing because the learning environment had many features that provided many opportunities through videos and reading and writing comments to practice these skills.

To add more, collaborative skills were also among those skills which were improved through the use of the WeBILE. For example, a speech extract of Student 10 showed that the web-based system helped him to enhance collaborative skills with his classmates due to the related design features of the system which provided many ways for sharing ideas and communicating with each other. He responded as follows:

> … within the class you just or mostly collaborate with the teacher specifically; but in the website you have a lot of time and a lot of students you can collaborate with them, ask them questions, and go to further details of the topics you don't know.

To conclude, the analysis of the speech extracts of the interviewees from both groups showed that the WeBILE helped them to improve many skills other than those of microteaching. More specifically, the web-based system was an effective tool for improving their technological, communicative, listening, reading, writing and typing skills. This is a clear indication that the learning environment was not only helpful for enhancing the pre-service teachers' microteaching skills, but also developed other

necessary skills. Thus, the WeBILE can be seen as a solution to both microteaching and other educational problems.

The last interview question was asked to elicit the participants' *suggestions for the improvement of such learning environment for microteaching in particular, and language teaching in general*. While responding to this interview question, the participants in both groups provided many suggestions for improving the WeBILE.

Some interviewees believed that more time should be given to doing the assignments and quizzes. To exemplify, Student 2 said, "there should be more time for the assignments and quizzes, because it was a kind of short". Another suggestion was related to the question types used in quizzes. Some interviewees pointed out that question types should be changed from multiple-choice or short-answer item types to more open-ended questions so that they have more freedom in providing detailed answers. For example, Student 1 said:

> …I hate quizzes, the multiple-choice ones; you know, for about 15 minutes I was just sitting looking at the options and I did not know which option is the right answer. We should have quizzes, but writing quizzes not in multiple-choice and too short answers, a quiz about writing for example a paragraph about the quiz because you may have more information you can write freely.

Other participants gave more suggestions for improving the content and design features of the WeBILE. For example, Student 4 suggested the following:

> I would add a specific part, you know, about the whole microteaching; I mean about the whole skills at the end of the website; I would just add a part where the students write their whole understanding in general about microteaching; what they have learned about microteaching; their total reflection about microteaching…

Such suggestion is mostly related to improving the design components of the WeBILE.

The student suggests that a particular section about their reflections for all microteaching components should be given on the web-based system so that the users have the chance to reflect on their experience with the use of all microteaching components. Concerning improving the layout of the WeBILE, another interviewee proposes that the layout can be improved by "putting more colorful things".

Finally, another suggestion came from another female interviewee, Student 3:

> The website should be extended for more than six weeks; it should be used for ten weeks because it gives a lot of information and shares ideas; it should also be studied in the IT [i.e., information technology] course in the first year; I hope it started from the first year of this program.

It can be inferred from this response that the implementation period of the WeBILE should be extended for more than six weeks since the pre-service teachers benefitted from it a lot. Moreover, she also suggests that since becoming familiar with such web-based learning environments is highly useful for teacher education programs, these environments should be introduced to the students much earlier, for example in the IT course in the first year so that students would become more familiar and skillful in making use of technology for academic purposes.

Modifying quizzes, as an assessment tool, was a suggestion made by Student 6 and Student 7. For instance, Student 7 responded that the quizzes "needed a lot of time" to answer; while the other said:

> … I don't like quizzes at all; you know, I want to have some activities instead of quizzes, because quizzes are for what? This environment is for improving our skills in microteaching and being a good teacher; so I don't agree with quizzes.

Another suggestion about the modification of the assessment tool, Student 10 added

that the WeBILE can be improved by incorporating "entertainment games and competition activities, because these will make the students stay on the website for a longer time without getting bored".

More suggestions for the improvement of the WeBILE came from other interviewees. Both Students 8 and 10 suggest that "live stream video" should be added to the learning environment. For example, Student 8 responded that "live stream video can be helpful for this website because the students can be more in touch with each other and speak face-to-face". He further added:

> … having or involving other people, not just our teacher to the website, those who have experience, and also be in touch with them so that we can learn more from them and they give more details and knowledge about microteaching.

What he means is that enrolling other experienced teachers into the WeBILE as members can benefit the students to gain more knowledge and experience about microteaching, and provide them a wider community of professionals who can be like a resource and assistants for solving their microteaching problems.

In addition, Student 9 provided another suggestion for improving the delivery means (i.e., Schoology) of the WeBILE; he said:

> … many time I have problems in searching for my friends' comments, because I did not find them easily. When you write down any comment, it stayed at the bottom of the other comments; so I suggest that if someone wants to write down any comment, it should appear at the top, not at the bottom.

It can be seen from this response that the student had a problem in finding his classmates' comments since they were ordered after each other in a manner that new and recent post appeared at the bottom. In other words, anyone who wanted to see or reply the new posts had to scroll down to the bottom of the page, which, according to

the response of Student 9, was a problem. Therefore, he suggested that any recently posted comments should appear at the top of the page so that everyone can see what is posted and who posted it.

Finally, Students 6 and 7 also suggested that instructional designers or technology experts should find a way to make the WeBILE work without using the Internet. For instance, Student 7 said "it would be better if we can use the website without the Internet"; and Student 2 added:

> … I stay in the dormitory, I cannot use the website anytime I want because there is a problem in the internet of the dorm; it comes and goes. If the website is free or if our internet is good and fast, it would be great and we could use it more.

It can be understood from their responses that although insufficient access to the Internet is related to the contextual factors but not to the inconvenience of the WeBILE, using the learning environment without the need for the Internet access will be of great potential benefit for its future users.

In conclusion, this section described the qualitative data obtained from the semi-structured individual interviews held after the implementation of the WeBILE. In the interviews, the participants were asked to express their perceptions about the pre-structured questions which covered their experience and behavior, opinion and values, and feelings about their experience with the use of the WeBILE. The following table summarizes what has been achieved from the responses to the interview questions.

Table 4.6: The summary of pre-service teachers' responses to the interview questions

Interview questions	*n* = (10)
	Frequently occurred key words

1. What felt while using the WeBILE?	great, safe, good, wonderful, relaxed, comfortable
2. What microteaching components improved?	preparation and planning for microteaching, teaching skills, and giving and receiving feedback
3. What ways contributed to this improvement?	the videos, the communication and interaction opportunities, PDF files and hyperlinks
4. What microteaching components not / less improved?	Speaking skill and classroom management
5. Was the WeBILE effective?	Yes
6. What new knowledge and skills gained?	technological, communicative, listening, reading, writing, and typing skills.
7. Any suggestions for improving the WeBILE?	giving more time for using the WeBILE, modifying some design features, adding more visual, and modifying some assessment tools

Note: *n* = Number of the students

The following section describes the data collected from the participants' reflection journals and the results obtained to answer the second research question.

4.2.3 Results of the reflection journals – qualitative data

The last source of data (i.e. qualitative) for the second research question was the participants' reflection journals. Such data was collected from 52 reflection journals in which the participants had to reflect on their experience with the use of the WeBILE on a weekly basis. Because the participation in writing the journals was compulsory, all students had to write their journals. The journals comprised five different sections and were completed in six subsequent weeks (see Chapter 3). Each section was guided by four basic questions which elicited the participants' reflections on each of the components of the WeBILE as the following:

1. How has the use of the WeBILE improved your knowledge in … (the component, e.g. preparation and planning for microteaching)?
2. What difficulties have you encountered while using the WeBILE for … (the component, e.g. preparation and planning for microteaching)? What would be the

causes of them? How should they be solved?

3. What have you liked and disliked most about the use of the WeBILE for … (the component, e.g. preparation and planning for microteaching)?
4. If you have more reflections about your experience with the WeBILE for … (e.g. preparation and planning and other components), please write them below.

To answer the first research question, only the first three sections of the reflection journals (week 1 – week 3) were considered for analysis because they were related to the participants' reflections on the components of the microteaching process. The obtained qualitative data was analyzed by following Braun and Clarke's (2006) phases of thematic analysis, as done in the analysis of the data collected from the interviews. The following sections show the results of data analysis of the reflective notes produced by the participants in response to the guiding questions.

How has the use of the WeBILE improved your knowledge in … (e.g. preparation and planning for microteaching, or other components)?

This was the first question given in all components of the microteaching process, and it focused on the participants' reflections on how the use of the WeBILE has aided them in increasing their knowledge in each microteaching component. At the end of each week, the participants had to answer this question given in each component and write their reflections in their reflection journals.

Concerning the participants' reflections on the first microteaching component (i.e., preparation and planning), the analysis of the collected data produced two major themes. More specifically, the participants' reflections showed that their experience with the use of the WeBILE helped them improve their knowledge in preparation and

planning for microteaching through benefitting the *given materials* including documents, visuals, hyperlinks, and some assessment tools. One student showed in the reflection journal as:

> I have to say that this web-based learning environment has helped me to improve my knowledge about preparation and planning for microteaching because on the website everything was explained by documents and videos, and we practiced by some assignments and writing comments to each other (Student 44)

Not only this participant, but almost all participants (the frequency of occurrence of this related coded extracts was found in the reflections of 48 participants) expressed that their knowledge about preparation and planning for microteaching was highly developed basically through using the *given materials*. In support of this, another participant reflected as:

> The materials like videos, website links, assignments and writing comments on the website helped me a lot to improve my knowledge in preparation and planning for microteaching. I learned how to prepare myself and write effective lesson plan before microteaching (Student 16).

Moreover, it was also found in the reflections of some other participants that the *communication and collaboration opportunities* like sharing ideas, posting and replying comments provided on the WeBILE were another important means by which they developed such knowledge of microteaching process. One of the reflections showed:

> In addition to watching the useful videos and reading documents and other sources given on the website, we could also share our ideas, comments, and extra information with each other on the website. This was another advantage of the this website for improving preparation and planning for microteaching (Student 34)

Regarding the participants' reflections on the second component (i.e., teaching

process), the analysis of the obtained data produced two main themes. The most frequently occurred theme was *stages of lesson delivery*. This entails that using the WeBILE helped the participants develop their knowledge mostly in the stages of lesson plan presentation, like what they should do at the beginning, in the middle and at the end of the microteaching lesson. For example, it was extracted in one of the related reflections as:

> The website helped me to learn about the steps of giving microteaching in the classroom. I learned to divide my microteaching lesson into three stages, which are beginning of the lesson, mid of the lesson and closing the lesson, and also what to do in each of these stages (Student 21)

Secondly, the *given materials*, as the other generated theme, like PDF files, videos and hyperlinks provided on the WeBILE about the teaching process were also helpful for developing the participants' knowledge in the teaching process of microteaching. For instance, one student reflected as:

> The information about the teaching process of microteaching was very helpful. Especially, there were some videos of other people who were giving microteaching; I watched them and commented on their performance; my friends also did that. I learned a lot from the information, the videos, and my friends comments (Student 17)

Finally, the last component of microteaching process was giving and receiving feedback. The related data collected from the reflection journals was analyzed to explore how using the WeBILE helped the participants increase their knowledge in giving and receiving feedback in the microteaching process. After reading and coding the related speech extracts in the reflection, the mostly occurred key words were related to the effectiveness of the *given materials*. In other words, most of the participants reported in their reflections that materials like reading PDF documents, watching videos and opening the related hyperlinks provided on the WeBILE helped

them increase their knowledge in giving and receiving feedback. For example, one student reflected as:

> Before reading the documents on the website, I did not know how to give and receive feedback about microteaching (Student 4)

Another participant provided more details of his reflection, who reported as:

> The web-based learning environment helped to improve my knowledge in giving and receiving feedback. Through all the information and resources like readings, videos, and assignements on the website I have learning any feedback should be specific, descriptive, timely, and practical. Also I have learned that when we receive feedback, we should be open to what they say and work on the practical comments (Student 51)

Following this, it was found in the reflections of some participants that using the *communication and collaboration features* like discussion groups, reflection tasks, and chat boxes provided on the WeBILE, was another assistant in developing their knowledge in giving and receiving feedback. To be more specific, many participants reflected that opportunities like sharing ideas about feedback, giving and reading feedback about some classmates and others' recorded microteaching videos, and sharing comments and ideas after evaluating the videos critically were helpful means for increasing their knowledge in giving and receiving feedback in microteaching. For instance, it was extracted in one of the reflection journals that:

> Besides the videos and documents, I also improved my skills in giving and receiving feedback through the comments my friends made about the uploaded microteachings. By reading the comments and writing replies, I learned which feedback is good and useful. When I wanted to share my idea, I just wrote my comment there. this was like that for all of us (Student 12)

The second guiding question was investigated the participants' difficulties with the use of the WeBILE, causes of the difficulties, and their solutions. This question was given in all microteaching sections and the participants were required to reflect on these

issues every week they use the WeBILE. The questions was "*What difficulties have you encountered while using the WeBILE for … (e.g. preparation and planning for microteaching or other components)? What would be the causes of them? How should they be solved?"*

Concerning the difficulties they experienced while using the WeBILE for all microteaching components, the reflections of the participants showed that most of the them did not have any difficulty in using the WeBILE. However, the reflections of some students that *limited access of the internet* was a difficulty they faced. More specifically, it was found in the reflections of 22 students that their limited internet access was a serious difficulty they experienced while using the WeBILE for enhancing their knowledge in each component of the microteaching process. For instance, one student reflected as:

> To me, the only problem was having limited internet access at home and college. Most of the times the internet was not available at college to do the assignments. Also at home, the internet was not working properly to use the website more often (Student 19)

As for the causes of this difficulty, the students showed that their *financial problem* and the *college's insufficient related facilities* were the main reasons for the limited internet access because they were unable to afford the internet access at home and the college was unable to provide continuous internet access and other related facilities to the students in the campus and dormitories. To solve this problem, the students suggested that if they could use the WeBILE offline, they would solve the internet access problems and ultimately would gain more knowledge about the microteaching components. Additionally, some other students suggested in their reflection journals that the university or college administration needs to work to provide full and

continuous internet access in the campus and dormitory so that they benefit the WeBILE more effectively.

The third guided question given in the refection journals aimed at gathering the participants' reflections on what they *liked* and *disliked* most about using the WeBILE for improving their knowledge about the microteaching components. Regarding the 'likes' group, although the majority liked the WeBILE in general, *sharing ideas* was the most frequent liked feature found in the reflections of most of the students. They believed that the opportunity of sharing ideas with their classmates, which was a design feature provided on the WeBILE, was one of the most common preferences reported in their reflections. One example of such reflection was:

> I liked most of the things in the WeBILE, but the best thing to me was the chances we had for sharing ideas and comments about the assignments, videos, and the other materials. By these ideas and comments we learned from each other and we solved each other's problems (Student 45)

Another preferred aspect was the *materials* given on the learning environment about the components of microteaching. It was found in the reflections of 18 students that the materials like documents, videos, hyperlinks and other information means were another preferred aspect about the learning environment because they helped these participants develop their knowledge in all microteaching components. For example, one reflection showed:

> I really liked the information presented on the website; the videos, reading texts, and the activities we had on the website were all useful and very good for teaching me about microteaching (Student 13)

Concerning the participants' "dislikes", high majority of the students did not show any dislike about their experience of the WeBILE because they either wrote "everything

was fine and clear" or just wrote "I did not have any dislike". However, a few students did not like the WeBILE in the first two weeks because they did not have a prior experience about using such learning environment in the previous academic years. Specifically, they reported that sometimes they "felt lost" in the first week of using the system because they had "not seen something like this before" and did "not have enough information about how to use it effectively" (Student 26).

The last guiding question concerned with the participants' further reflections (if they had) about the use of the WeBILE in each week of their experience. This was not a compulsory question to complete; rather, it was given to elicit any other reflections the participants had in addition to the previous guiding questions. Although a total of 30 students did not write in this section, the others provided their reflections including some ideas. After the analysis of these reflections, three major common ideas, which seem like suggestions, were found. First, most of these students *acknowledged* the usefulness of the WeBILE for improving their knowledge in the components of microteaching. In other words, these students kept reporting in each week for each microteaching component that using the WeBILE had a great contribution in enhancing their knowledge about each component of microteaching and gaining a lot of information which cannot be achieved in regular traditional classes. For example, one of these students reported as:

> I only want to appreciate you for creating this website, which I can describe it as "the cute web-based learning environment". This was a very good experience for me and learned a lot from it. Thank you (Student 14)

Moreover, some others reported that there should have been some *synchronous opportunities* in the form of live videos and sessions for group chats. They justified in their reflections that having had such synchronous features could improve their

speaking skill and share more ideas. For example, one student wrote:

> I can say that everything was perfect about the website; but if we had a chance or a button for making video calls or voice recording messages like the one in Viber and Messenger, it would be much better, because we did not have to write comments, we would send our voice instead of the comment (Student 39)

It can be understood from this reflection that having some features like video calls and voice recording messages could have improved the design features and usability of the WeBILE and some student might have used them instead of typing comments.

4.2.4 Results of the Reflection Tasks Given on the WeBILE – Qualitative Data

Another source of data to investigate the second research question was the reflection tasks provided on the WeBILE for the microteaching components. In other words, at the end of each microteaching component, a reflection task was given on the WeBILE in which the students had to reflect on the usefulness of the "content" (e.g. the information and explanation) of each component provided on the WeBILE for improving their microteaching skills. Moreover, in each reflection task, the following reflection question was asked and the students had to respond to it at the end of the related week: *You have been provided necessary information and samples about …… (e.g. preparation and planning) for microteaching. Have you found such information and explanation through this learning environment useful for improving your microteaching skills? Why?*

In each microteaching component, the data was collected from the related reflection task and the analysis of the data produced the following results. Concerning the reflection task for "preparation and planning for microteaching" component, 33 students posted their reflections and all of them showed that the information and explanation provided on the WeBILE were very useful and increased their knowledge

about preparation and planning for microteaching. Moreover, they also mentioned that such information and explanation helped them to prepare themselves and write good lesson plans before doing microteaching. In addition, some students admitted that although this information was useful for improving their microteaching skills, it guided them "how to prepare [themselves] when they become a teacher". Finally, one student, who was deeply affected by such learning environment, showed his reflection as:

> Because this program [i.e. the WeBILE] provides so many crucial information in detail, and allows us to think deeply… that is why, from this time I decide to use such kind of programs, like this one, with my students if I am going to be a teacher. (Student 2)

Moreover, some other students expressed that the information and explanation helped them to gain knowledge about choosing a suitable topic for their microteaching, set lesson objectives, and select suitable activities for their lesson. Justifiably, another student expressed his deep thought and opinion about the usefulness of the information as:

> I appreciate this work, I got a lot of benefit from it. By following this website I can be ready for microteaching or teaching for one hour or 40 minutes. Without this website, we could not get this kind of crucial information. This is really new and good opportunity for us to gain great knowledge. (Student 8)

Thus, the information and explanation provided on the WeBILE about preparation and planning was found to be preparing the participants not only for microteaching but also for their future profession.

Regarding the reflection task about "teaching process", as the second microteaching component, the total of 49 reflection posts were made responding to the task about the teaching process component. It was found in all reflections that the students approved the usefulness of the information and explanation supplied by the WeBILE about the

teaching process for improving their microteaching skills. In addition, most of them showed that the information helped them to gain knowledge about the stages of lesson presentation such as starting, continuing and ending the lesson in their microteaching sessions or in the 'real' classroom when they become teachers. For example, a student in the first group gave his reflection as:

> These are really good information. After reading them, I learnt what I should do in the class from the beginning till the end of the class. Also, I learned that what are those things should good teachers do while teaching. (Student 16)

It can be inferred from this reflection and those of many other students that the information provided about the teaching process on the WeBILE was useful for not only developing their microteaching skills but also guiding them to become effective teachers in the future. To support this claim, a reflection extract like "the information helped to be a good/better teacher" was among the common reflections reported by the students. Finally, it was also extracted in the reflections of few students that the WeBILE was a "better" way of delivering the content than the other means like books and traditional classes. Reflection extracts such as "it is the best way to teach students" (Student 23), "maybe we could not find this information by any other way like books or lectures" (Student 37) and "we found the best way to teach students" (Student 48) were examples showing that the WeBILE was perceived to be better for content delivery compared to other traditional means.

Finally, the last reflection task aimed to investigate the students' reflections on the usefulness of the information and explanation provided through the WeBILE about "giving and receiving feedback" for enhancing microteaching skills. In response to the reflection question, the analysis of the given reflections revealed that all students acknowledged the usefulness of the information given through the WeBILE about

giving and receiving feedback and they reported that it helped them to improve their microteaching skills. For example, the reflection extracts like “I got a lot of benefit from the information” (Student 14), “the information was very useful for microteaching” (Student 27) and “I found a lot of information about feedback, it’s so useful for all of us” (Student 1) frequently occurred in almost all reflections. Moreover, one student reflected to the usefulness of the information for giving and receiving feedback as:

> Really, I found a lot of information about feedback, because the web-based [learning environment] contained a lot of things like interesting videos, more explanation and more resources …etc. about giving feedback. Before using this web-based, I could not give effective feedback to his/her microteaching. (Student 1).

The main reason for such acknowledgement, as mentioned in the reflections, was that the provided information improved their skills in giving and receiving feedback in microteaching. For instance, one student reflected as:

> Through reading the information… I have realized that feedback is a significant part of every lesson that should be done in order to know about our faults or mistakes that we are not capable to observe them while teaching. (Student 7)

In addition, it was also found in the reflections of some students in that the given information and explanation about the process of giving and receiving feedback were not only useful for increasing their knowledge in this process and developing their microteaching experience, but also helped them to promote their awareness about the importance of the process in both microteaching sessions and future teaching profession. For instance, a student posted as:

> Feedback is a method must be considered as important in education, especially when it comes to teaching. The teacher has to start with good thing or positive actions to make teaching system better. (Student 10)

Thus, it can be concluded from the given reflections that the information and explanation provided through the WeBILE about giving and received feedback were highly useful and helped the students to improve their microteaching skills. Moreover, they also helped the students to improve their awareness about the effectiveness of the feedback process in teaching and education.

4.3 Research Question #3

What are the pre-service teachers' perceptions about the effect of the WeBILE on enhancing their communication and collaboration for microteaching?

The third research question aimed to investigate the pre-service teachers' perceptions about the influence of the WeBILE on developing their communication and collaboration opportunities for microteaching purposes. Since insufficient communication and collaboration for microteaching purposes was a major research problem and they were two of the basic elements of effective microteaching practice, it was important to explore to what degree the suggested WeBILE was a solution to the contextual problem and helpful in developing their microteaching practice. Therefore, both quantitative and qualitative data about these issues was collected from the participants' perceptions through survey questionnaires and reflection journals after their experience with the use of the WeBILE for six subsequent weeks. The collected data was analyzed and produced the following results.

4.3.1 Results of the Survey Questionnaires – Quantitative Data

As mentioned earlier, quantitative data for this research question was collected from survey questionnaires. Although the questionnaires comprised three basic parts, the third part was related to this research question. This part, moreover, included ten items specifically designed to elicit necessary data about the participants' perceptions on the impact of the WeBILE on improving communication and collaboration for

microteaching purposes. After collecting and analyzing the data from the participants in both groups, the following results were obtained.

Table 4.7: Perceptions on the impact of the WeBILE on improving communication and collaboration for microteaching

The iBILE for microteaching …	SA/A %	N %	D/SDi %	M	SD
1. improved our communication about microteaching issues in anytime and anywhere.	80	15	5	1.6	1.08
2. created a chance to share my ideas about microteaching components with no fear of time limitation.	95	5	0	1.3	0.58
3. enhanced my reflection skills about microteaching-related issues.	95	0	5	1.5	0.75
4. improved communication between me and the teacher.	100	0	0	1.5	0.51
5. helped to foster discussions about microteaching.	90	10	0	1.7	0.65
6. helped the delivery of resources of microteaching.	95	5	0	1.4	0.60
7. created an academic group with the same interests and needs.	90	10	0	1.7	0.63
8. created an environment for exchanging ideas about microteaching.	100	0	0	1.3	0.48
9. helped me to share microteaching resources and materials with my classmates.	85	10	5	1.7	1.03
10. was a rich multimedia platform for microteaching purposes.	100	0	0	1.4	0.50
Total Average Scores	93	5.5	1.5	1.5	0.68

Note: *SA* = Strongly Agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SDi* = Strongly Disagree; *M* = Mean; *SD* = Standard Deviation

As presented in table (4.7) that a considerably high percentage of the participants perceived that the WeBILE was highly effective in improving their collaboration and communication for microteaching purposes. More specifically, in items 4, 8, and 10, all participants asserted that the WeBILE enhanced their communication and collaboration for microteaching between themselves and the teacher (*Mean=1.5, SD=0.51, %=100*), created an environment for exchanging their ideas about microteaching (*Mean=1.3, SD=0.48, %=100*), and was a rich multimedia platform for

their microteaching purposes (*Mean=1.4, SD=0.50, %=100*), respectively. Moreover, in both items 2 and 7, a high percentage of the participants held the belief that the WeBILE created a chance to share their ideas about microteaching components with no fear of time limitation (*Mean=1.3, SD=0.58, %=95*) and an academic group having the same needs and interests about microteaching (*Mean=1.7, SD=0.63, %=90*). However, only 1.5% of the participants perceived that the WeBILE did not have influence on enhancing their communication and collaboration about microteaching.

4.3.2 Analysis of Reflection Journals – Qualitative Data

The last section of the reflection journals aimed to elicit the students' reflections on the influence of the WeBILE on improving their communication and collaboration for microteaching purposes. Similar to the other sections of the reflection journals in this study, this section was also guided by four main questions, which were:

- How has the use of the web-based learning environment helped you improve your communication and collaboration for microteaching purposes?
- What difficulties have you encountered while using the web-based learning environment? What would be the causes of these difficulties? How should the difficulties be solved?
- What have you liked and disliked most about the use of the learning environment for improving "communication and collaboration" for your microteaching?
- Do you have any other reflections or comments? If yes, please write them below.

The reflections to these questions were collected at the end of the implementation period (i.e., week 6) because the students have had as many chances as possible for

reflection, communication and collaboration in all sections of the WeBILE. The given reflections on each guiding question were analyzed following Braun and Clarke's (2006) phases of thematic analysis, which produced the following results.

Regarding the first guided question, which dealt with how the WeBILE helped them improve their communication and collaboration for microteaching, the students' reflections were read, coded and categorized into some emerging themes. First, most students in both groups showed that using the WeBILE helped them *share ideas*, as an element of communication and collaboration, among their classmates and teacher for microteaching purposes. For example, in one of the related reflections, it was extracted as:

> This system [i.e., WeBILE] was really helpful for sharing my ideas with my classmates and teacher. Whenever I had a question about microteaching, I could post it and my friends [classmates] and teacher answered it. Also, this system helped me to have more time to talk to my friends and share my ideas with them about microteaching issues. (Student 26)

It can be inferred from the reflection that using the WeBILE helped them solve their microteaching-related problems in a manner that whenever they had any question and/or a problem about microteaching, they could ask the question and post the problem on the WeBILE and would get the answer and the solution from their classmates. Thus, this indicates that the WeBILE showed a significant impact on developing communication and collaboration among the students and the teacher.

Another theme emerged from the analysis of the students' reflections was *communicating with the classmates and teacher*. It was extracted in the reflections of many students that using the WeBILE helped to stay connected and be in touch with their classmates mostly outside the classroom and had continuous communication

among them during using the WeBILE specifically for doing the assignments, discussion questions and reflection tasks provided on the learning environment. For instance, one student reflected as:

> This website [i.e., WeBILE] helped me a lot because I could communicate with my friends [i.e., classmates] and my friends communicated me when we had an idea and a problem about microteaching we could share with each other to get answers and suggestions. Sometimes our teacher answered our questions. That was very good because we did not need to wait until next class to get the answers and ideas from my teacher or friends. (Student 13)

It can be understood from this reflection that the WeBILE benefitted the students and helped them stay connected mostly outside the classroom. Furthermore, another student acknowledged the positive impact of the WeBILE for developing communication and collaboration among the peers as:

> This way of doing microteaching [i.e., using the WeBILE] was very effective in a way that I felt the microteaching classroom is in my mobile. When I was on the system after the lesson, I saw my friends online and we could share ideas and problems about microteaching issues and help each other by answering questions and in doing assignments. (Student 44)

Another theme emerged from the analysis of the reflection journals was *developing reflection skills*. Most of the participants reported that their reflection skills were developed through the information about the reflection process in microteaching (as a component of the WeBILE) and, more specifically, critiquing the uploaded microteaching videos (as either assignments or reflection tasks) given on the WeBILE. For instance, in one of the journals, it was reported:

> By using this internet-based system, I learned how to evaluate somebody's microteaching and how to give feedback to it. There were many resources about how to evaluate microteaching, and also it included microteaching videos of my friends. I could watch them at home many times to evaluate them, and share my comments with everyone. Maybe I did not have this chance in the classroom. (Student 38)

The microteaching videos included other people's and their classmates' microteaching sessions uploaded on the WeBILE (as either assignments or reflection tasks) to increase the ability and knowledge in giving and receiving feedback. The participants wrote in their reflections that through these reflections on the videos, they could share more information and talk to each other more than done in the classroom. Thus, this type of reflections led the students to have more communication and collaboration on the WeBILE for microteaching purposes. It is worth mentioning that the reflections of six students were not considered for analysis because they either did not complete this section or did not provide sufficient data for analysis.

As for the results of the second guided question, the participants' reflections on the difficulties they faced while using the WeBILE for communication and collaboration, the causes of these difficulties and their solutions were investigated. Although most of the participant reported that they did not face any difficulty while using the WeBILE for communication and collaboration, some others showed that they had two major difficulties while using the WeBILE for communication and collaboration. The most common difficulty reported in their reflections was *insufficient access to the internet*. In this respect, one of these students reflected as:

> In fact, the biggest problem I had and many of my friends had was the internet problem. We did not internet every time at home, and many of my friends said that they did not have continuous internet access in the dormitory. That is why we could not communicate with each other all of the time. (Student 30)

It was also found in the reflections of other students that they could not communicate with their classmates effectively and anytime they wanted because sometimes they did not have continuous internet access at home and dormitory. The causes of this problem, as explained in their reflections, were twofold. First, they could not afford

continuous internet access due to the financial problems of their families, and second, some of them were staying in the dormitory where limited internet access was provided. As for the solutions to the problem, those students who have financial problems suggested that this learning environment should be used offline and the internet in the dormitory needs to be improved so that they use the WeBILE for communication and collaboration more effectively. For example, one student wrote:

> It will be better if teacher can make this website work without using the internet, I mean like some offline apps on the mobile. Another way to solve the problem, the university should provide more internet access in the dormitory or providing wireless internet in the college. In this case we can use the website more and more. (Student 29)

Moreover, despite mentioning the insufficient internet access problem by almost all students who completed this section, it was found in the reflections of 9 students that their *inexperience* with such learning environment for communication and collaboration was another difficulty, especially at the beginning of its use. For instance, one of these students reported as:

> At the beginning, I did not use it very much because I have never used something like this before; so I did not know how to reply and post comments about the assignments or other things. But later, I learned it and used the website better. (Student 14)

Moreover, they reported that since this was the first time they were exposed to this WeBILE in their academic years, they experienced a difficulty in posting comments, replying to their classmates' comments and reflecting on the given tasks. Such difficulty, as they explained, occurred only in the first two weeks; however, after being familiar with the learning environment, they could solve this problem. To solve such problem, they suggested that the students should be introduced to such learning

environments in the previous academic years through integrating it into some other courses.

The third guiding question aimed at gathering the students' reflections on what they liked and disliked most about using the WeBILE for communication and collaboration purposes of microteaching. The given reflections were read several times and coded, and then they were analyzed and categorized into emerging themes. It seems from the reflections that high majority of the students liked the WeBILE for communication and collaboration since the frequency of occurrence of speech extracts relating to "likes" was more than that of "dislikes". More specifically, *sharing and discussing ideas* was the most frequent theme occurred in the reflections of students. For example, one of the related reflections showed:

> I like the website because by which we had a lot of communication with my friends about microteaching issues. I also liked the comments and answers which my friends posted because I took benefit from them; they were very useful and it was very fun for me. (Student 32)

They believed that they mostly had communication and collaboration through sharing and discussing their ideas occurred on the WeBILE and they took benefit from these comments for improving their knowledge about the microteaching process.

Moreover, some students showed that they like the *microteaching videos* uploaded for reflections. These students explained that through reflecting on the microteaching videos, given as reflection tasks on the WeBILE, they created more communication and collaboration with their classmates. For instance, one of such reflections showed:

> The videos were great and very helpful, I liked them because I could see what are the good sides and negative sides of the student who is giving microteaching; and then I posted our comments about the videos, and also was

> reading the comments of my friends and sometimes replied them. It was a good experience, I really liked. (Student 18)

It was also found in these reflections that the students communicated with each other whenever they had a problem or a question about microteaching, and while watching the microteaching videos, they could notice their peers' problems, discussed them online, and then provided possible solutions. Justifiably, one reflection showed:

> I have most liked the discussion boards because all students could share and write his or her opinions about microteaching issues, especially the microteaching videos. Sometimes, when one student had a problem or did not understand something about microteaching, he or she would post it on the discussion board, and then everyone tried to help the student and solve his or her problem. (Student 8)

Therefore, it can concluded from the reflections that these problem-solving discussions occurred on the discussion boards were another factor for improving the students' communication and collaboration about the microteaching issues.

Concerning the students' "dislikes" about using the WeBILE for communication and collaboration, although most of the students reported that they did not have any dislikes about the learning environment for communication and collaboration purposes, some students reported two dislikes in their reflections. First, *not having synchronous features* like live video calls and group video chats on the WeBILE was a "dislike" frequently occurred in the reflections of some students. For example, one of these reflections reported as:

> One thing that I did not find on the website was not having live video chats or group video chats. Sometimes I had an idea or a problem which was taking a lot of time to write in the comment. So sometimes I just did not share the idea. But if we had these options I mentioned above, I could have more communication with my friends. (Student 52)

Such students showed that they did not like using the WeBILE for communication and collaboration purposes because it did not provide face-to-face (i.e., synchronous) communication opportunities. This, according to their reflections, disabled them to have effective communication, especially in case of having an idea or problem that was difficult or taking a lot of time to explain through writing comments.

The final guiding question in this section aimed to elicit the students' further reflections, if they had, about the use of the WeBILE for communication and collaboration purposes of microteaching. After analyzing their reflections, it was found that most of the students (i.e., 31 students) either did not have any more comments or did not complete this section. However, the others showed in their reflections that the WeBILE should have included more "communicative or entertaining activities like playing games" (Student 21) so as to enhance more communication and collaboration on the WeBILE. Furthermore, despite acknowledging the WeBILE as a new experience, some of them suggested that "not only the students and teacher but also other people, especially experienced teachers, should be [involved into] this learning environment" (Student 8) so that they could get more ideas and information about microteaching.

To conclude, this section described the students' reflections provided in the reflection journals on their experience with the use of the WeBILE for communication and collaboration purposes of microteaching. The reflections involved their responses to the guiding questions about how using the WeBILE helped them improve communication and collaboration for microteaching, what difficulties they faced, causes of and solutions to the difficulties, what they liked and disliked most about using the learning environment for communication and collaboration, and eliciting

more comments they had about this experience. The following section provides statistical data about communication and collaboration activities that took place on the WeBILE during the six-week period of use.

4.3.3 The WeBILE Analytics on Communication and Collaboration – Quantitative Data

This section provides the analytics summary of using the WeBILE for communication and collaboration for microteaching purposes. More specifically, this section shows how much communication and collaboration occurred on the WeBILE. In so doing, the total comments including discussion posts, questions, reflections and ideas posted in the various sections of the WeBILE were analyzed and calculated to explore the degree of communication and collaboration taken place through using the WeBILE.

This process was carried out through using the "analytics" option provided by Schoology – the learning management system used for delivering the WeBILE – which gives the user analytics for various elements of the web-based course like time spent on the course and number of posted comments. The following table presents the summary of such analytics provided by Schoology.

Table 4. 8: Summary of user analytics of the WeBILE

User analytics (for six weeks)	(n = 52)
Total time spent on the WeBILE	299 hours
Total comments posted (including all types)	847
Total discussion comments only	734

n = Number of students

As given in Table 4.8, the total time spent on the WeBILE by all students was 299 hours. Although these hours represented the total time spent on utilizing all elements

and sections provided on the WeBILE like reading information, posting and replying comments, and doing some activities like quizzes and assignments, a considerable amount of this time was spent on communication and collaboration activities due to the big number of comments and discussion posts made by the students in both groups.

Another important result of the analytics presented in Table 4.8 is that the students posted 847 comments, in which 734 of them were discussion posts like reflections, discussion questions and ideas shared about microteaching issues. Since this total number of discussion comments could hardly be made in regular classroom period, it can be claimed that the WeBILE was successful in creating the communication, collaboration, and reflection opportunities and thus had a considerable influence on creating such opportunities for the microteaching purposes.

To provide more details about the discussion comments, which were an integral component for communication and collaboration activities occurred on the WeBILE, the following table presents the analytical distribution of the discussion comments.

Table 4.9: Analytical distribution of the discussion comments

Discussion categories	(*n* = 52)
Reflections	426
Ideas, comments and/or questions	308

Note: *n* = Number of students

As presented in Table 4.9, more than half of the discussion comments were related to the students' reflections in the reflection tasks and on the recorded microteaching videos of their peers and others provided on different components of the WeBILE. Specifically, the students had more communication and collaboration when reflecting

on the recorded microteaching videos because peer discussions occurred in this section more than the others. Furthermore, the remaining number of the discussion comments were related to the ideas, other comments and/or questions the students posted on various areas of the WeBILE. It is worth noting that the students through these discussion comments also communicated and collaborated with each other because they discussed some of the posted ideas, replied to the comments and provided answers to their peers' questions.

It is worth noting that the students normally would have 18 hours classroom contact during the six-week implementation period of the WeBILE because, according to the teaching program of the ELTE program, ELT Methodology course is studied three hours per week. In other words, without using the WeBILE, the students would normally have only 18 hours during this six week period for all microteaching purposes like reading the provided information, doing the related activities and assignments, and feedback and reflection sessions. However, the WeBILE provided the students and the teacher with much more time than this in a manner that that the total hours spent by the students on using the WeBILE for microteaching purposes were 16 times more than the time spent in their regular classes. Thus, the WeBILE provided a lot of time for the students to gain more knowledge, do more activities, and most importantly have more communication and collaboration about microteaching process not only inside, but also outside the classroom.

All in all, the WeBILE analytics showed that the students had a high degree of communication and collaboration for microteaching purposes and the WeBILE provided the students with hundreds of hours for sharing numerous comments, reflections and questions, which cannot be found in the regular classroom time. The

results obtained in this section also support the students' responses to the survey questionnaires and guiding questions in the reflections journals described in the previous sections about the impact of the WeBILE on developing communication and collaboration for microteaching purposes.

This chapter presented the results and findings obtained from the analysis of both quantitative and qualitative data, which was collected from the survey questionnaires, interview sessions, reflection journals and analytical data of the WeBILE. The analysis of these data sets sought to find the answers to the three research questions, which investigated the pre-service teachers' perceptions about the usability of the WeBILE for microteaching, its effectiveness on improving their microteaching experience, and communication and collaboration opportunities it created for microteaching purposes. The following chapter discusses these results and findings, and draws possible conclusions from them.

Chapter 5

DISCUSSION AND CONCLUSION

This chapter provides a comprehensive discussion of the research findings in some sections. The first three sections provide a detailed description of research findings and their comprehensive discussions. The following section presents the research conclusions and implications. Finally, the last two sections deal with the limitations of this present study and suggestions for future studies.

5.1 Discussion of the Results of Research Question #1

As mentioned in chapter four, the aim of the first research question was to explore pre-service teachers' perceptions on the usability of the web-based instructional learning environment (WeBILE) for developing their microteaching experience. In so doing, both quantitative and qualitative data were collected from the survey questionnaires and reflection journals.

According to the overall related results of both quantitative and qualitative data analyses, a substantially high percentage of the participants showed positive perceptions about the usability of the WeBILE for microteaching purposes. The major reason for showing such perceptions was due to the favorable design features of the WeBILE in terms of layout (e.g. color, font size, style and attractiveness), richness of content (e.g. appropriateness and relevance of information, multimedia objects, tasks, and assessment tools about microteaching components), interactivity (e.g.

communication, sharing ideas, collaboration, and reflection opportunities), instant accessibility, and security.

It can be inferred from these results that the flexibility of the WeBILE and its provision of these design features had influential effects on using it. In other words, users' perceived use of technology, in general, and the WeBILE, in particular, is mostly gained when the web-based learning environment is well laid out, rich in content, interactive, always accessible and available, and secure.

In support of this conclusion, previous research has confirmed that the usability of web-based instruction in education, specifically in teacher education, is due to its asynchronous feature, interactivity and richness of resources (O' Donoghue et al., 2001; Oliver and Herrington; 2001; Perez-Prado & Thirunarayanan, 2002; Sadik, 2002; Seng & Mohamad, 2002). It has been believed that web-based education eliminates time and place constraints, in which learners can receive instruction and participate in many types of course-related activities like group discussions and collaborative tasks at any time and in any place. In addition, the asynchronous feature has made web-based education to provide instructors with a better practical choice to enhance learners' interaction, tailor various courses to the needs of learners and provide support for different ways of program delivery and achieving instructional goals.

In addition, these results achieved in this current study are in-line with those which concluded that learners' interaction with peers and participation in group discussions on the web-based learning environment are enhanced due to the availability of various means of communication like e-mail, chat, and discussion groups (Berge & Collins,

1995; Driver, 2002; Jaggar & Xu, 2016; Lapadat, 2003; Moore, 2013; Salmon, 2000; U.S. Department of Education, 2009). Concerning the richness of resources, the web-based learning environment, if designed appropriately, provides numerous databases of documents, libraries, journals, galleries and assessment tools, which can encourage the learners to use the learning environment (Green, 1997; Moore, 2013; Vai & Sosulsky, 2011).

Furthermore, these findings are also related to the attractive design features of Schoology, as a learning management system by which the WeBILE was delivered. Schoology has an aesthetically pleasing interface and is logically organized, and it provides easy access to the communication and collaboration tools, and the diverse media to increase students' engagement. Moreover, it was designed like the technologies the students use outside the classroom; therefore, it can be used without any prior training ("Schoology Website", 2018). In addition, since Schoology provides its users with an application software that can be downloaded to any kinds of smartphones, students could access the learning environment anytime and anywhere.

As for security of the WeBILE, the students, to be members of the learning environment, had to create a private account by using their personal email and password. Later, they had to use the enrollment code, which had been given by the course instructor. After that a notification was sent to the instructor for the approval of completing the student's membership process. This process provides high security to the learning environment and prevents anyone outside the target group to become a member of this community.

The discussions above confirm the results of previous research (e.g. Biswas, 2013; Irawan, Studadji & Widiyanti, 2017; Joshua et al., 2016; Sicat, 2015; Tretinjak & Tretinjak, 2017), which concluded that Schoology is an effective and usable educational platform for achieving the learning outcomes and meeting current and future challenges of teaching and learning in the 21st century because it has aesthetically unique and pleasing interface, is logically organized, and provides its users with various design features that cannot be found in other educational platforms.

On the other hand, these results obtained in this study can also be discussed in relation to the variables presented in the latest model of Technology Acceptance Model (TAM) (see chapter 2 for details). For instance, Tarhini, Hone, and Liu's (2013) "quality of work life (QWL)" as a variable of TAM, which refers to the user's perception or belief that using the technology, such as for downloading educational materials or communicating with teachers and friends, is a positive factor that affects the users' behavioral intention to use technology, especially the web-based learning system. A number of studies (e.g. El-Masri & Tarhini, 2017; Tarhini et al., 2016; Tarhini, Hone, & Liu, 2013; Tarhini, Hone & Liu, 2015) tested such variable and found it influential for the users' behavioral intentions and use of e-learning and learning management systems. The results obtained in this present study can relate to the QWL variable in a manner that the interactivity features like communication and collaboration provided on the WeBILE were among the most favored design features that encouraged the users to use the WeBILE for microteaching purposes.

Although the latest version of TAM presented by Vankatesh and Bala (2008) (see chapter 2 for details) was approved as a valid model to predict pre-service teachers' technology acceptance and use, and have important implications for teacher education

programs for the purpose of better preparation of prospective teachers (Huang & Teo, 2016; Luan & Teo, 2009; Teo, 2009; Teo, 2010; Teo et al., 2009; Teo, Lee & Chai, 2008), it does not include communication and collaboration, and the richness of content as important factors and variables of user acceptance of technology. Since this present study found that communication and collaboration, and the richness of content were among the most favored factors of WeBILE use, they should be added to the current version of TAM so as to gain a deeper understanding of users' attitudes toward the use of a technological system. Therefore, the results obtained in this section of this current study can have a significant contribution to the redesign of the latest version of TAM, specifically in the field of web-based instruction in second/foreign language teacher education programs.

As mentioned earlier, one source of qualitative data was open-ended questions given in a section of the survey questionnaires. One of the questions aimed to elicit the participants' perceptions about the obstacles they faced while using the WeBILE for microteaching purposes. After analyzing the collected data, two main obstacles were found, which were limited internet access and participants' new experience with the WeBILE.

According to the results, limited internet access was the most common obstacle faced by many students while using the WeBILE for microteaching purposes. Such obstacle is basically related to the contextual factors of the instructional setting of this study. For example, at the campus, including both the college and dormitory, relatively limited internet access is provided mostly due to the insufficient budget the ministry of higher education of the region provides to the public universities, and partly due to the low quality of the internet service in the region. This supports the results of related

studies conducted in Iraq that the major causes behind inadequate use of web-based instruction were related to some contextual factors like lack of sufficient budget and the internet connection and wireless network in the universities (Al-Azawei, Parslow, & Lundqvist, 2016; Al-Radhi, 2008).

Moreover, this obstacle (i.e., limited internet access) can also be discussed in relation to one of the variables of TAM, namely, facilitating conditions. Previous research (e.g., Groves & Zemel, 2000; Lim & Khine, 2006; Ngai et al., 2007; Teo, 2010; Teo, Lee, & Chai, 2008) has shown that facilitating conditions like available materials and sufficient technological and administrative support are considered as factors that influence a person to use instructional technologies in teaching. Thus, if these facilitating conditions are inadequate, they will become barriers to the use and integration of instructional technologies in teaching process.

Another common obstacles was the participants' new experience with using the WeBILE. This can also be attributed to the fact that they did not use such web-based learning environment in previous academic years because their classes were mostly delivered through traditional way of teaching (i.e., face-to-face instruction) which placed heavy reliance on teacher-centered method of teaching. Therefore, this limited exposure to web-based instruction created a problem for many students to use the WeBILE for microteaching purposes.

This issue can be discussed in relation to the teacher educators' insufficient knowledge and training courses about and skills for using and implementing technology and web-based instruction in the teaching process in the region. This claim supports the previous related studies (e.g. Alalgawi, Sulaiman & Ab Aziz, 2014; Al-Azawei, Parslow, &

Lundqvist, 2016; Ali, 2010) that teacher educators at second language teacher education (SLTE) departments in Iraq and Kurdistan region of Iraq rarely integrate instructional technologies into their teaching sessions mostly due to inadequate technological instruments, their insufficient knowledge of using instructional technologies, and lack of technology training courses.

On the other hand, this problem can also be explained in accordance with another variable of TAM, which is user experience. Previous studies concluded that user experience with a technological tool like web-based instruction was also considered as another effective factor of perceived usefulness and perceived ease of use of the technological tool (Gong, Xu & Yu, 2004; Vankatesh & Bala, 2008). In other words, the more experience users have in using a technology, the more they perceive its usefulness and ease of use. In the light of this claim, it can be inferred that students' limited experience with using a web-based learning environment can leave a negative impression on their perceived usefulness and perceived ease of use of the learning environment. Therefore, pre-service teachers, specifically those in Kurdistan region and Iraq, as also suggested in the reflection journals by some participants of this study, should be introduced to such learning environment as early as possible in teacher education programs and given enough time to use it and become familiar with it.

Some suggestions given by the participants in another open-ended question to improve the WeBILE seem to be based on the obstacles they reported. For example, they offered that using the WeBILE offline and giving more time for its use can have good contribution to its improvement. These suggestions likely resulted from some problems they faced while using it such as limited access of the internet, their new

experience with it and having insufficient time for using it (i.e., they needed more than six weeks for using the WeBILE).

Furthermore, they also suggested that more synchronous features like video chats and webcams should be added to the WeBILE. This is related to the learning management system (LMS) (i.e., Schoology) by which the WeBILE was delivered in a manner that the LMS does not support the integration of such synchronous features. Therefore, this can be considered as a weakness of this platform, and to solve it, the administrators of this LMS should improve its design features by adding more synchronous features so that it becomes a better platform for delivering more effective instructional practice.

Despite these suggestions, all participants strongly recommended that the WeBILE should be kept for future pre-service teachers in the instructional context because it enhanced their microteaching practice through providing sufficient knowledge about microteaching, creating opportunities for communication, collaboration and reflection about microteaching, and having instant accessibility features. This confirms the effectiveness, success, and usability of the WeBILE for developing microteaching practice in the teacher education program at the instructional context.

Another guiding question in the reflection journal aimed to investigate what the participants' learned as a result of using the WeBILE. The results showed that using the WeBILE helped them to learn about the microteaching process including all its components, become an effective teacher, and use technology for teaching purposes. Learning about these issues can strongly be linked to the favorable design features of the WeBILE mentioned above (e.g. layout, richness of content, interactivity and accessibility). Moreover, these results can also be discussed in connection with teacher

identity construction. For example, the participants reported that their experience with using the WeBILE helped them to learn about becoming an effective teacher in the future. Since the term "becoming an effective teacher" can be related to a particular identity that the participants wanted to construct in the future, their experience with using the WeBILE had a significant impact on shaping this identity.

This claim can be supported by many related studies previously conducted in SLTE domain. For example, Singh and Richards (2009) claimed that what pre-service teachers experience in the "course rooms" creates opportunities for development of a new identity and acquiring personal theory to pedagogy. In addition, Lave (1991) also believed that "participation as members in a community of practice [e.g. becoming a member of the WeBILE community] shapes newcomers' identities and the process gives structure and meaning to knowledgeable skill" (p. 74). Furthermore, it was believed that teachers' (pre-service, in-service or experienced) identity construction is affected by both contextual factors like institutional practices and teaching/learning resources (Miller, 2009), and interactions occur among a particular community of practice in various professional contexts (Chong, Low & Goh, 2011).

Thus, in the light of these claims it can be concluded that the WeBILE, as an institutional and instructional practice and a platform for interactions among the pre-service teachers and teacher in the context, had a positive and effective impact on the construction and adoption of a "preferred" identity position of the participants.

Another outcome of the reflection journals was that the participants' knowledge about using technology in teaching process was enhanced due to their experience with the use of the WeBILE. In other words, using the WeBILE was not only useful for gaining

knowledge about microteaching process and communicating and collaborating with peers and the teacher, but also effective in improving the participants' technological skill. Although most of the participants in the first section of the survey questionnaires showed that they had already used technology for personal purposes like sending emails, chatting with others (e.g. through social websites), searching for sources, and downloading documents, using the WeBILE exerted an influence on improving their skills in using technology for teaching and communicative purposes in educational environments.

This is supported by the fact that the participants had continuous and active involvement in the use of the WeBILE for microteaching process in terms of getting information, sharing and discussing ideas, doing assignments, and collaborating with their peers and teacher, which were done online by utilizing the provided technological affordances. Therefore, their practical experience with using these technological affordances had a significant contribution to increasing their knowledge about using technology in the teaching process.

In the light of the finding mentioned above, the participants are likely to implement this gained technological knowledge in their teaching process when they become teachers. This claim is supported by previous studies which showed that in-service teachers' performance is mostly affected and shaped by their prior experience as students and personal practical knowledge (Connelly & Clandinin, 1988; Freeman & Johnson, 1998; Lortie, 1975). In this case, familiarizing pre-service teachers with web-based learning environments (e.g. the WeBILE) in teacher education programs in Iraq and KRI helps them to become better and more effective teachers in implementing technology in their teaching process. This can also be considered as a solution to a

contextual problem found by Alalgawi, Sulaiman and Ab Aziz's (2014) study, which revealed that the skills of secondary school teachers in Iraq for using and implementing technology were inadequate and they lacked necessary knowledge and skills to use various software and multimedia devices in their teaching process.

5.2 Discussion of the Results of Research Question #2

Both quantitative and qualitative data for this research question were collected through survey questionnaires, semi-structured interview sessions, reflection journals, and reflection tasks provided on the WeBILE to explore the participants' perceptions about the effectiveness of the WeBILE on enhancing their knowledge and practice in each of the four basic components (i.e., preparation and planning, teaching process, and giving and receiving feedback) of microteaching process.

The analyses of both quantitative data, collected from the survey questionnaires, and qualitative data, obtained from the semi-structures interviews, reflection journals and reflection tasks, revealed that the participants had positive feelings towards using the WeBILE for microteaching experience. Furthermore, they also showed that although the WeBILE was highly effective in improving their knowledge and practice in all components of microteaching process. Moreover, the analysis of the participants' reflective notes given in the reflection tasks showed that information and explanation provided through the WeBILE about giving and received feedback were highly useful and helped the participants to improve their microteaching skills and awareness about the effectiveness of the feedback process in teaching and education.

It can be seen from the results that although the quantitative and qualitative data were obtained through various instruments and in different time periods, there is a consistent

pattern in the results of data analyses. In other words, the participants gave similar data, although the data collections tools and time in which the data were collected were different. Such consistency shows the validity and reliability of the data and results in a manner that the data collection and analysis tools were highly precise in investigating the participants' perceptions about their experience with the use of the WeBILE for microteaching purposes. Moreover, this also indicates the participants' active involvement in the use of the WeBILE since they had similar experience and perceptions to share through the data collection tools. In addition, the effectiveness of the WeBILE on enhancing the participants' knowledge about the microteaching components can also be attributed to the design features of the WeBILE since it provided rich content about the components, created various communication, collaboration and reflection opportunities, and helped the participants to stay connected outside the classroom.

The results obtained as regards this research question are in-line with those reported by previous related studies in a way that practicing microteaching is highly effective in developing pre-service teachers' preparation and planning skills, teaching competencies, classroom management (Al-Methan, 2006; Aydin, 2013; Bakir, 2014; Can, 2009; Fernandez, 2010; Ismail, 2011; Yalmanci & Aydin, 2014) and giving and receiving feedback (Chawla & Thukral, 2011; Sen, 2009; Kougiourouki, 2013; Lenihan, 2016; Ostrosky, Mouzourou & Danner, 2012; Ralph, 2010; Saban & Cokler, 2013).

However, these studies did not utilize web-based instruction for practicing microteaching; rather, they investigated such practice within the classroom environment. Moreover, in most of these studies, the participants, prior to

microteaching experience, were not provided with sufficient information about the components of microteaching regarding how to prepare and plan for microteaching, implement the plan effectively during microteaching presentation, and give and receive feedback. Since the participants' inadequate knowledge might have had a negative influence in performing effective microteaching, the results of these studies may not have provided real understandings of the impact of microteaching practice on developing the participants' knowledge in its components. In addition, practicing microteaching through the way presented in these studies is likely not effective in big classrooms like those in the state universities in Iraq including more than 30 students because the pre-service teachers do not have enough opportunities and time to give and receive feedback from their peers and teacher and reflect on each other's microteaching performance.

On the contrary, this study contributes to the related literature on microteaching and language teacher education in many ways. First, it utilized web-based instructional learning environment (WeBILE), as an advanced technology, to practice microteaching in English language teacher education programs. This supports the previous studies which repetitively emphasized the integration of technology, in general, (Bozyigit, 2016; Diana Jr., 2013; Huang et al., 2016; Kpanja, 2001; Lin, 2014; Mishra & Koehler, 2006; Polly, McGee & Sullivan, 2010; Reinders, 2009; Tondeur et al., 2012; Voogt & McKenney, 2017) and web-based instruction, in particular, (Albhnsawy & Aliweh, 2016; Dooly & Sadler, 2013; Kim & Hannafin, 2011; Tondeur et al., 2012) in teacher preparation programs.

Second, the WeBILE implemented in this study provided pre-service teachers' with adequate information and practice about the components of microteaching through

various resources, activities, reflection tasks and assessment tools. Therefore, it improved pre-service teachers' theoretical and practical knowledge in microteaching components and experience prior to doing their microteachings. This makes the WeBILE as model which can be used with third-year pre-service teachers in teacher education programs (e.g. in Iraq) to practice microteaching because they are usually introduced with microteaching at this level.

Finally, the WeBILE for microteaching in this study can be considered as a solution to the contextual problem of this study, and any other educational contexts having this problem. As mentioned earlier in Chapter 1, pre-service EFL teachers at University of Raparin (i.e., a state university in Kurdistan region of Iraq) do not practice microteaching efficiently as they are not provided with enough knowledge about microteaching and its components and enough chance for giving and receiving feedback, reflection on peers' microteaching and communication and collaboration due to big class size and limited class time. Since the WeBILE eliminates both place and time limitations and can be used as a "classroom-in-the-pocket" which is accessible and available everywhere and any time, the pre-service teachers can have ample opportunities to gain both theoretical and practical knowledge about microteaching outside the classroom in terms of the above mentioned contextual limitations.

Another section of the interview sessions and reflection journals aimed to explore the participants' perceptions about how the use of the WeBILE contributed to the development of their theoretical and practical knowledge of microteaching components. According to the results of data analyses, the materials (e.g. PDF documents, hyperlinks, and videos) and communication opportunities (e.g. sharing

ideas, posting and replying comments) provided on the WeBILE were the most common ways contributed to the improvement of the participants' microteaching knowledge. Such improvement is basically linked to the model on which the WeBILE was designed.

The above outcomes achieved in the analyses of the data can be discussed in relation to the research approach (i.e., the combination of Design-based Research and action research) and research framework by Oliver and Herrington (2001). They are connected to the research approach because both DBR and AR aim to solve educational problems arising in a learning context, enhance practice through providing opportunities for professional development (Andriessen, 2008; Collins, Joseph & Bielaczye, 2004; Özverir, 2014; Design-Based Research Collective, 2004) introduce change into the learning context and social enterprise and improve the effectiveness of teaching process (Burns, 2010; Dörnyei, 2007; Ellis, 2012). Since the results of this study can provide a solution to the contextual problem, enhance practice, and introduce a change in the teaching context, the use of this research approach was effective and successful in achieving these outcomes. Therefore, the combination of both DBR and AR in research to explore the effectiveness of a web-based learning environment in such educational environment is valid and salient.

Furthermore, there is also a positive connection between the outcomes mentioned above and the research framework guided the design of the WeBILE in this study. As mentioned earlier in Chapter 3, the WeBILE was designed based on Oliver and Herrington's (2001) model, which highlights learning tasks, learning resources and learning supports as critical elements of the successful outcome of a web-based instructional learning environment. The materials like documents, articles, books,

hyperlinks, and videos, as integral parts of learning resources, were highly effective in achieving the outcome of this study since by utilizing these materials the pre-service teachers could improve their microteaching experience. In addition, creating communication opportunities such as sharing ideas, collaboration, reflection, and posting and replying comments, as formative constituents of learning tasks and learning supports, played a prominent role in enhancing the participants' microteaching experience in this study. As a result, it can be concluded that Oliver and Herrington's (2001) model was successful and valid in achieving the outcome of this present study and can be used for designing effective web-based instructional learning environments.

In addition to microteaching components, other new knowledge and skills were gained as a result of the WeBILE experience. For example, the participants in the interview sessions reported that their experience with the WeBILE helped them to improve their technological, communicative, language (i.e., reading, listening and writing) and typing skills. The influence of the WeBILE on developing the participants' technological and communicative skills was also reported when answering the first research question and discussed in the related section (see section 5.2). Having such consistent results again validates the effective impact of the WeBILE on enhancing these skills (i.e., technological and communicative) of the participants.

More importantly, using the WeBILE can also have exerted an influence on developing the participants' language (i.e., reading, listening and writing) and typing skills. Such development resulted from two main aspects. First, since the WeBILe provided the participants with various reading and listening resources through PDF files, explanations and videos, the participants had to read and listen to these resources

to gain enough knowledge about microteaching and its components. This continuous reading and listening might have helped them to improve these language skills. Second, on the WeBILE, the participants were also required to communicate and collaborate about, and reflect on each other's ideas, comments and microteaching videos. This was done asynchronously through "writing" or "typing" hundreds of notes using their cellphones or/and computers during the implementation period of the WeBILE. Consequently, it is highly likely that the improvement of their writing/typing skills was the result of these hundreds notes posted during the communication, collaboration and reflection processes. Thus, using the WeBILE was not only effective for developing the participants' knowledge and skills in microteaching components, but also helpful for enhancing their technological and language skills like reading, listening and writing.

Another purpose of using reflection journals to deal with the second research question was to explore the difficulties the participants encountered and likes and dislikes they had as a result of using the WeBILE. According to the results of the data analysis, limited internet access were the most common difficulties the participants experienced while using the WeBILE.

As reported in Chapter 4, the causes of this difficulty (i.e., insufficient use of the WeBILE) were caused by the participants' inability in affording continuous internet access outside the college and the college's failure in providing unlimited internet access to the participants. This is mostly attributable to the contextual factors of this present study in a way that during the implementation period of the WeBILE, Kurdistan region of Iraq was going through sever economic crisis due to many reasons. First, the region was experiencing many political problems with the central

government of Iraq, which caused the budget cut that was regularly provided by Iraq. Moreover, the region was in war against Islamic State of Iraq and Syria (ISIS), a terrorist group in the area, which caused the displacement of many people living in the combat zones. Due to these reasons, many people in Kurdistan region lost their jobs, government salaries were decreased and even not paid for months, and the money once spent on educational services and facilities was cut and used for military purposes. As a result, many families of the students, including those participated in this study, could not afford providing internet access to their children, and state universities were facing financial problems in a way that they could not effectively supply some basic facilities (e.g. internet access) to their students. It is worth mentioning, however, that despite these contextual problems, the WeBILE should still be kept in the teacher education program because these problems seem to be temporary and they can be solved in the future.

As found in Chapter 4, sharing ideas, rich resources, new experience and accessibility were the most common features the participants liked about using the WeBILE. Such preference is also attributable to the favorable design features the WeBILE provided to the participants and verifies the validity and reliability of the results obtained in the first research question (see section 5.2) in which the usability of and their preference for the WeBILE resulted from these design features (e.g. richness of content, opportunity for communication and collaboration, and availability and accessibility).

Concerning the dislikes, on the other hand, although most of the participants did not have any dislikes, the others expressed that no prior experience with using the WeBILE was the most common dislike point. Most of the participants were not introduced to such learning environment during their academic experience in the teacher education

program. This might have resulted from either the teacher educators' insufficient knowledge about implementing modern technology such as this WeBILE (Alalgawi, Sulaiman & Ab Aziz, 2014; Al-Azawei, Parslow, & Lundqvist, 2016; Ali, 2010) or the institution's negligence in taking necessary steps in developing the teacher education program. It is worth noting, however, that the researcher allotted one class period (i.e. three hours) to provide a brief introduction about the use of the WeBILE before its implementation, and since he was the course instructor, he was continuously helping the participants to give more information about using the WeBILE whenever they asked. Despite this assistance, if the participants had been familiarized with such learning environments before, they would have used the WeBILE more efficiently.

Thus, to improve the WeBILE for the future use, such difficulties and dislikes need to be considered. This is also supported by the participants' suggestions given in the interview sessions and reflection journals for the improvement of the WeBILE, who expressed that giving more time for using the WeBILE and modifying some design features and assessment tools should be considered for the development of the WeBILE for the future use.

5.3 Discussion of Research Question #3

This research question aimed to explore the effectiveness of the WeBILE on developing the participants' communication and collaboration for microteaching purposes. As reported in Chapter 4, the analyses of both quantitative and qualitative data revealed that the WeBILE was highly effective in improving the participants' communication and collaboration for microteaching. More specifically, according to the results of quantitative data, obtained from survey questionnaires and Schoology's WeBILE analytics, and qualitative data collected from reflection journals, the

WeBILE provided a suitable and far better environment for sharing and discussing ideas, solving microteaching problems, and collaborating among their peers and teacher without the fear of time limitation, and helped them to create an academic group who had the same needs and interests about microteaching.

These results can be discussed in relation to three important issues. First, the design features of the WeBILE, in particular, and web-based instruction, in general, like flexibility, interactivity and accessibility played a key role in shaping the participants' positive perceptions about the effectiveness of the WeBILE on enhancing their communication and collaboration for microteaching. In addition, these design features of web-based education, which can be clearly noticed in its asynchronous feature, eliminated the participants' time and place constraints, which prevented them not to do effective group discussions and collaborative tasks about microteaching at any time and in any place. In support of this, previous research has shown that this asynchronous feature has made web-based education to be a more practical option for those who have busier lifestyles and a wiser choice for those instructors who wish to enhance learners' interaction because virtual interaction is mostly unlimited (O' Donoghue et al., 2001; Oliver & Herrington, 2001; Perez-Prado & Thirunarayanan, 2002; Seng & Mohamad, 2002).

Furthermore, more related studies have concluded that due to the availability of various means of communication like chat and discussion groups, learners' interaction is enhanced, which will have a highly positive effect on improving student learning (Berge & Collins, 1995; Driver, 2002; Gedik, Kiraz & Özden, 2013; Salmon, 2000). Other studies, in addition, have confirmed that the integration of specific design features of online instructional learning environments like discussion boards and the

degree of interaction among students or with teachers are determining factors of the success of failure of the online instruction (Jaggar & Xu, 2016; Moore, 2013; U.S. Department of Education, 2009; Vai & Sosulsky, 2011).

Second, the obtained results can also be discussed in connection to the concept of "community of practice" (Lave & Wenger, 1991) in teacher education. Through the WeBILE, the participants communicated, using mostly written language, and collaborated effectively and responsibly with a particular group of people who had the same needs and interests about microteaching. Such group of people is known as *community of practice* in which the members from a single discipline who come together to "share a common concern, a set of problems, or a passion about a topic, and deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott & Snyder, 2002, p. 4).

In this respect, the WeBILE can be considered as a "domain" which stimulated the participants to exchange their ideas for introducing and contributing to a discussion about microteaching and gave a feeling of "belonging" to a particular community. To support this, previous studies have shown that "domain" in community of practice arises useful and related questions to stimulate learners' communication and facilitate their learning process, and creates the common ground and outlines the boundaries that enable members to decide what is worth sharing and how to present their ideas (Agrifoglio, 2015; Li et al., 2009; Wenger et al., 2002).

Another point is that the WeBILE was also helpful in defining a sense of "identity" in a manner that the participants had a feeling of belonging to a particular community formed on the WeBILE and were accepted by their peers and teacher with whom they

share the practice and knowledge. In support of this, previous studies have concluded that members' participation in a community of practice shapes their identities and gives structure and meaning to knowledgeable skill (Agrifoglio, 2015; Lave, 1991). Moreover, it was also maintained that teacher identity is formed by relationships with others in a particular educational environment (Can, 2014; Dang, 2013; Rogers & Scott, 2008; Tsui, 2007). Thus, the WeBILE for microteaching has a great influence not only in developing pre-service teachers' communication and collaboration with peers and teacher about microteaching, but also their identity construction.

Finally, the results achieved for this research question can also be discussed in terms of the WeBILE analytics on communication and collaboration provided by Schoology. According to the results reported in Chapter 4, the participants spent 299 hours on using the WeBILE during its implementation period in which they posted hundreds of comments as means of communication and collaboration. Without using the WeBILE, however, the participants would normally have only 18 hours during this six-week period since the ELT Methodology course, in which microteaching practice is an essential element, is studied three hours per week. Therefore, it would not be wrong to claim that the WeBILE was highly successful in solving an important contextual problem (i.e., lack of sufficient time for communication and collaboration about microteaching) investigated in this present study because it provided the participants with far reaching amount of time for communication and collaboration about microteaching process that cannot be achieved in regular traditional classes. This supports the results of previous related research which revealed that web-based instruction provides students with a greater amount of time for utilizing learning materials, sharing ideas and collaboration than that in traditional campus-based face-

to-face classrooms (Brown & Adler, 2008; Lee & Tsai, 2011; Sadik, 2002; Sanchez, Cortijo & Javed, 2014; Şengel, 2005).

Another important way that was found through the analyses of both qualitative and quantitative data and promoted the degree of communication and collaboration on the WeBILE was the participants' reflective notes on microteaching videos. According to the participants' reflections expressed in the reflection journals (i.e., qualitative data), they perceived that their reflections on their peers' microteaching videos and the provided reflection tasks were one of the most helpful ways for maintaining communication and collaboration on the WeBILE. Moreover, the results of WeBILE analytics (i.e., quantitative data) produced that the participants' reflective notes constituted most of the total comments posted on the WeBILE during their experience with it.

It can be inferred from these results that practicing microteaching through the WeBILE does not only promote the participants' communication and collaboration, but also enhances their reflective practice in microteaching. This is achieved mostly through the communicative and collaborative activities occurred among the participants and teacher on the WeBILE because reflective practice in microteaching is enhanced when the pre-service teachers engage in the conversation of their microteaching performance (Lin, 2014). Thus, the WeBILE and its communicative and collaborative design features played a significant part in promoting the participants' reflective practice in microteaching. In support of this, previous studies (e.g. Lin, 2014; Williams, 2008; Wright, 2010; Yamamoto & Hicks, 2007) have concluded that web-based instruction is effective in developing pre-service teachers' reflective practice in microteaching.

Moreover, the uploaded microteaching videos had also a significant role in creating opportunities for the participants' reflective practice because their reflections were given mostly through their feedback to these videos. Studies have confirmed that the recording feature of technology (e.g. videos) is one of the most common uses of technology in microteaching process, and it is utilized as means of giving and receiving feedback, self-reflection and collaborative learning (Bozyiğit, 2015; Kavas & Özdener, 2012; Rich & Hannafin, 2009; Savaş, 2012; Tülüce & Çeçen, 2017; Yamamoto & Hicks, 2007).

The reflective practice occurred through the WeBILE can contribute to the development of the participants' skills in two important ways. Firstly, it can help them to become "reflective practitioners" in the future. Being reflective has been considered as an essential requirement for effective language teachers in the 21st century because it "assists [their] lifelong professional development, [enables] them to critique teaching and make better-informed teaching decisions" (Burton, 2009, p. 298). Furthermore, it also helps them to create their own theory of teaching (Farrell, 2008; Freeman & Johnson, 1998; Johnston, 2003; Richards, 2008), link theory to practice (Wallace, 1991), and "step back, look at their teaching with fresh eyes, and be more open to change" (Curtis & Szestay, 2005, p. 5). Therefore, it was concluded by these studies that the goals for second language teacher preparation in the new millennium should focus on producing reflective teachers and enhancing practical learning experience through creating better conditions for collaborative and reflective learning and more school-based and classroom-based learning experiences. Hence, since the WeBILE was the place for the reflective practice of the participants, it would not be wrong to claim that it was successful in preparing them as reflective practitioners, and thus meeting the requirements of teacher preparation programs in the 21st century.

Second, the reflective practice taken place on the WeBILE also contributes to the improvement of the participants' microteaching experience. Through viewing the recorded videos of their peers' and others' microteaching sessions and the feedback session taken place after viewing the videos, the participants could identify their strengths and weaknesses, revisit the sequence of their "teaching" (i.e. microteaching) and make thoughtful judgment and decisions about improved ways of their teaching before, while and after the performances.

Moreover, the three types of reflection occurred during the participants' microteaching sessions exerted an influence in developing their microteaching experience. First, in reflection-in-action, which happened during their practice, the participants reflected on the current experiences, reviewed experienced feelings, and evaluated knowledge being used (Lin, 2014; Schön, 1987). Second, in reflection-on-action, occurred after their microteaching sessions, they involved in retrospective thinking about what happened during the microteaching and how it can be developed (Schön, 1983, 1987). Finally, they also engaged in a structured discussion and reflection (reflection-for-action) about their future microteaching performance to make it better on the basis of the feedback they received on their previous microteaching performance. Consequently, these various, but complementary, types of reflections involving the pre-active, interactive and post-active phases of teaching had an effective impact on developing the participants' microteaching process and preparing them for all time designations (i.e., past, present, and future) simultaneously (Conway, 2001; Killion & Todnem, 1991).

Previous research has also concluded that reflectivity on teaching can be nurtured through microteaching in a supportive on-campus setting, and reflective practice in

microteaching is enhanced when the pre-service teachers engage in structured conversation on their microteaching performance and identify their strengths and weaknesses through watching their recorded microteaching videos and/or their peers' live microteaching performance in the classroom (Amobi & Irwin, 2009; Donnelly & Fitzmaurice, 2011; Güngör, 2016; Kourieos, 2016; Lin, 2014; Shin, Wilkins & Ainsworth, 2006; Tülüce & Çeçen, 2017; Zhang & Lin, 2014).

Another inference which can be drawn from the participants' reflective practice is the process of identity development. The reflective activities like writing reflection journals, analysis of the microteaching videos, and the feedback given by and received from peers helped the participants to identify their strengths and weaknesses and know who they are as becoming teachers. Additionally, these reflective activities also raised the participants' awareness about how they perceived themselves as "becoming teachers" and how they were perceived by their peers and teacher. For example, before performing their microteaching sessions, the participants might have had a particular identity about themselves as "becoming teachers"; however, this identity may not be perceived by their peers and teacher after the microteaching sessions.

In support of this claim, Zhang and Lin (2014) reported that pre-service teachers "develop their teacher identity through reflective practices in microteaching", like self-reflection (e.g. journal writing and video analysis) and reflection through others (e.g. peer observation and peer feedback), to know who they are as becoming teachers (p. 100). They further added that reflection on the recorded video of one's own teaching (e.g. microteaching) can also help pre-service teachers recognize the gap between what type of teachers they want to be and where they actually are, what they think to be the

"best practice" and their actual teaching, and how others (e.g. peers) think about their teaching and their actual teaching.

Furthermore, research has also revealed that pre-service teachers' identity construction can result from the disagreement between how they perceive themselves and how they are perceived by others and the discrepancy between the perceived self (e.g. through watching their recorded microteaching videos) and the self that is recognized by others (e.g. feedback from others) (Pearce & Morrison, 2011; Bullough, 2015; Zhang & Lin, 2014).

5.4 Conclusion and Implications

Based on the research findings and their discussions of this present study, the following conclusions and implications are reached. It is concluded that the WeBILE for microteaching is highly effective in developing the pre-service teachers' microteaching experience. Additionally, it also exerts an important influence over the improvement of their communication and collaboration for microteaching, technology and language skills, reflective practice and identity construction. It can be implied from these positive results that the WeBILE provided a possible solution to the problems of the educational context being investigated in this current study. As mentioned in Chapter 2, the pre-service teachers do not have adequate practice of microteaching in terms of information, communication and collaboration, and reflective practice about microteaching due to limited class time and big class size. However, the results of this study reveal that the WeBILE had positive impact on solving these educational problems. Therefore, it is highly suggested that the WeBILE for microteaching should be integrated into not only the second language teacher education program of this

research context, but also into any educational institution experiencing similar contextual problems.

Second, the results of this study showed that such positive effectiveness of the WeBILE was due to three aspects of the design features. First, the affordances of the web like interactivity, availability, accessibility and other asynchronous features played a major role in achieving these positive results in a manner that it created a domain for developing communication and collaboration, reflective practice and knowledge about microteaching components. Furthermore, the design features of Schoology, despite the limitation (i.e., no synchronous feature), like its aesthetically pleasing interface, logical organization, and easy use had also a great role in making the WeBILE effective for microteaching process. Thus, it is implied that although Schoology is a suitable learning management system for any WeBILE, it will be more effective if synchronous features are integrated into its design features. Finally, since the WeBILE was effective in achieving this research outcomes, both Oliver and Herrington's (2001) design principles (e.g. learning resources, supports and tasks) for web-based learning environment and constructivist approach to learning, on which the WeBILE was designed, were found to be valid and useful for designing any web-based instructional learning environment for microteaching. Therefore, Oliver and Herrington's (2001) design principles and constructivist approach to learning can be merged to form the following model for microteaching that can be used as a basis of designing web-based instructional learning environments for microteaching purposes.

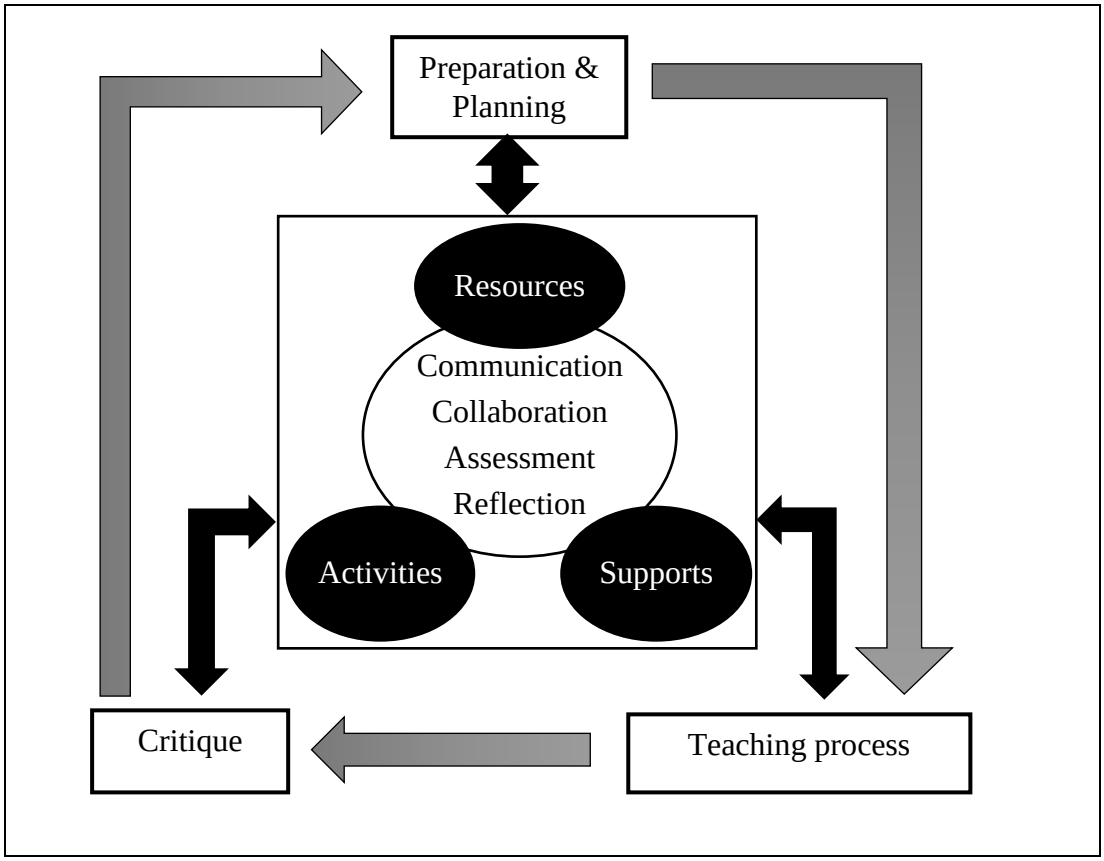


Figure 5.1: Suggested model of microteaching for web-based instruction

As shown in the model, microteaching comprises three basic components, namely, preparation and planning, lesson presentation, and critique. Each component should be designed based on the related resources, supports and activities which can have their effects on the users through considering communication, collaboration, assessment and reflection opportunities and practiced separately in a specific period of time using a particular web-based learning environment. In this model, resources can be books, documents, hyperlinks, videos, etc. which are used to enhance the users' knowledge about each of the components. Since microteaching is basically practiced from the third-year of teacher education programs, most pre-service teachers do not have enough information or theoretical background about microteaching and its components. Therefore, including resources into the designed intervention is necessary

to familiarize the pre-service teachers with enough knowledge about microteaching components.

Learning supports in the model refer to tutorials, instruction, announcements, and any other types of assistance the instructional designer and pre-service teachers provide to throughout the use of the designed artefact. Such supports can be given online so that they reach to the people in need everywhere and any time.

Finally, activities like quizzes, role plays, collaborative problem-solving tasks, and projects should also be considered when design a web-based instructional learning environment because they have an essential role in engaging the pre-service teachers into the learning environment and increasing the degree of their communication, collaboration and reflection about the activities.

This microteaching model contributes to the related literature in a way that the current existing microteaching models (e.g. Kilic, 2010; Lin, 2014) seem to be inadequate for practicing microteaching on web-based learning environments because they either designed for microteaching in traditional face-to-face classrooms or focused on one particular element of microteaching (e.g. critique). In addition, they also see microteaching as a means of enhancing on-campus experience without providing pre-service teachers with adequate theoretical background about microteaching components. However, the suggested model in this study implicates that microteaching should involve both theoretical and practical elements and pre-service teachers should be trained on both elements so that their microteaching experience is effectively developed. In this case, this model enhances both theoretical and practical

knowledge through the inclusion of related resources, supports and tasks and communication, collaboration, and reflection activities.

This current study also implicates that the relationship between technology and microteaching should not be minimized in the recording feature (e.g. video) of technology as it was the case in many previous studies (see chapter 2). As found in this study, although recorded microteaching videos were effective in improving communication, collaboration and reflection, other affordances of technology like interactivity, accessibility and availability played another main role in enhancing the pre-service teachers' microteaching experience. As a result, traditional perspectives of media in in terms of recording feature in learning may oversimplify the complexity of how pre-service teachers use technologies for microteaching purposes (Lin, 2014). Therefore, it is highly suggested that the use of technology in pedagogy, particularly, in microteaching need to be reconsidered.

As an example of such reconsideration, the current technology acceptance model (TAM) in teacher education should be revisited in a manner that the richness of content and communication and collaboration variables should be added to the current version of TAM model. It was found in this present study that these variables played a key role in shaping the pre-service teachers' positive perceptions about the impact of the WeBILE on their microteaching experience. However, the last version of TAM (Vankatesh & Bala, 2008) does not include these variables as indicating factors of users' acceptance of a technological tool. Consequently, another implication of this present study is that the current model of TAM needs to be updated in a way that both richness of content and communication and collaboration variables should be added to

its existing variables because they also have a role in determining users' acceptance of and behavior toward technology.

Another implication is that the combination of design-based research and action research, as the research model of this study, was useful and influential for achieving the research outcomes. Therefore, it is implied that such combination is advised when investigating the effectiveness of a web-based instructional learning environment on solving particular educational problems in second language teacher education.

To conclude, it would not be wrong to claim that the WeBILE designed and implemented in this study was successful in solving the educational problems at a particular English language teacher education program in a specific context (i.e. Kurdistan region of Iraq). In other words, it could enhance the pre-service teachers' microteaching in terms of both adequate theoretical knowledge and practical experience through providing a rich content, communication, collaboration and reflection opportunities, and creating chances for developing teacher identity, and language and technological skills. Therefore, this study calls for the reconsideration of the relationship between technology and microteaching and technology and pedagogy, and it highly recommends that such WeBILE should be integrated into English language teacher education programs both locally and globally.

5.5 Limitations

As the initial empirical study in the instructional context about the effectiveness of a web-based instruction on microteaching experience, some limitations are inevitable. First of all, the WeBILE in this study was implemented in one cycle due to some uncontrollable factors of the educational context. If it was repeated for another cycle,

the suggestions and recommendations provided by the pre-service teachers for the improvement of the WeBILE would apply to it and thus it most likely would produce more effects on improving their microteaching experience.

Second, the researcher of this study was the course instructor during the academic year in which the WeBILE was implemented. For this reason, the participants' perceptions about the impact of the WeBILE might have been affected by their bias judgments for producing the positive outcomes of the study. Although their perceptions were investigated through different data collection instruments to enhance the validity and reliability of the results, such judgments might still be considered as an issue influencing the obtained results.

Third, this present study was done in a specific instructional context in Iraq in which 52 Kurdish pre-service English language teachers participated at a state university in Kurdistan region of Iraq. In Chapter 2, it was indicated from the related literature have that research participants' social-cultural background has a significant influence on research findings, it can be predicted that pre-service teachers in other contexts of the country or other countries may have different experiences with using the WeBILE for microteaching, which could not be revealed by this study.

Fourth, as presented in Chapter 4, most of the participants did not have prior experience in using such WeBILE in their previous academic years, and also experienced limited internet access while using the WeBILE. Therefore, it would not be wrong to claim that these problems could have an impact on the participants' perceptions about the effect of the WeBILE on their microteaching experience.

Finally, this study provides the data collected from a short period of time (i.e., six weeks), because the microteaching component in the ELT Methodology course was given only seven weeks according to the teacher education program in the instructional context. Therefore, because of the restriction of the course length, this study unfortunately was unable to provide more data on the participants' perceptions about the impact of the WeBILE on the development of their microteaching experience and whether their perceptions change over time.

5.6 Recommendations for Future Studies

Based on the above mentioned limitations, this study makes the following recommendations. First, this study can be replicated in another context in two iterative cycles so as to obtain a deeper understanding of how and whether the WeBILE produces different results. Comparing the findings of this study and those will be revealed in the future study can give more useful guidance to develop the current WeBILE or design another one for microteaching that meet the pre-service teachers' needs and preferences in different educational contexts.

Second, it would be interesting to carry out studies with different research participants from other parts or universities of the country who have diverse social-cultural backgrounds (e.g. Arabs and Turkmens). These studies can promote the understanding of how pre-service teachers from different areas and backgrounds use and react to the WeBILE for microteaching purposes. This will also be helpful in exploring how background diversity plays its role in shaping pre-service teachers' perceptions about the effectiveness of such technological tool on improving their microteaching experiences.

Furthermore, future studies can also investigate the integration of mobile technologies and social media in the microteaching process. For example, future studies can explore the effectiveness of merging mobile technologies and social media websites like Facebook and Instagram with microteaching process as they are widely used in the students' daily lives.

Finally, as shown in Chapter 4, the participants in this study did not have strong preference to the WeBILE at the beginning of the implementation period due to their unfamiliarity with it; but after two weeks, their perceptions changed and their level of preference to the WeBILE increased. Therefore, it is also recommended that further studies should investigate changes in pre-service teachers' perceptions about a WeBILE in a longer period of time in a way that how and whether their experience with the WeBILE affect their perceptions.

To end, we can conclude that web-based instruction has become a necessary and time-suited alternative to real instruction due to the worldwide lockdown caused by the COVID-19 pandemic. Almost all institutions of higher education all over the world have had to quickly move to online instructional course delivery due to the pandemic, using such online platforms, like the one described in this study, provides more learning experience and teaching practices to the pre-service teachers. This alone is a very important reason why web-based instruction should be re-considered by instructional designers and teacher educators, not as an option but as a necessity, from now on.

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APPENDICES

Appendix 1: Request for Research Application

17.07.2017

Dear Assoc. Prof. Dr. Javanshir Shibliyev
Chair, Department of Foreign Language Education

I am a Ph.D. candidate at your department and conducting my dissertation study on "***A Web-based Instructional Learning Environment for Improving Kurdish Pre-service English Language Teachers' Micro-teaching***". As part of following the Ph.D. dissertation procedures, I would like to apply to the Research and Publication Ethics Board at your University. Please be informed that the necessary documents for the application are attached to this petition.

I would kindly request that you forward this petition to the Research and Publication Ethics Board. Thank you in advance.

Sincerely yours,

Hawraz Qader Hama
Ph.D. candidate
Student No: 146204
hawraz@bilkent.edu.tr

Attachments:

- Permission request petition to the research context for data collection
- Approval letter from the research context
- BAYEK application form
- Participant consent from for survey questionnaire
- Survey questionnaire
- Participant consent form for student interviews
- Student interview questions
- Participant consent form for reflective journal
- Guidance for writing reflective journal
- Framework for writing reflective journal
- Participant consent form for video-recording micro-teaching sessions

Appendix 2: Approval of Ethics Committee

Doğu Akdeniz Üniversitesi
"Uluslararası Kariyer İçin"
Eastern Mediterranean University
"For Your International Career"
Etik Kurulu / Ethics Committee

Reference No: ETK00-2017-0235 17.08.2017
Subject: Application for Ethics.

RE: Hawraz Qader Hama (146204)
Department of Foreign Language Education

To Whom It May Concern,

As part of the 2016-2017 Spring Semester, pertaining to PhD Thesis questionnaires EMU's Scientific Research and Publication Ethics Committee has granted Mr. Hawraz Qader Hama (146204), from the Department of Foreign Language Education Program, to pursue with his survey entitled ***A Web-Based Instructional Learning Environment for Improving Kurdish Pre-Service English Language Teachers' Micro-Teaching.*** This decision has been taken by the majority of votes. (Meeting number 2017/48-14)

Regards,

Assist. Prof. Dr. Mümtaz Güran
Acting Director of Ethics Commitee

MG/sky.

Appendix 3: Request for data collection at the instructional setting

To: The Head of English Department

College of Education, University of Raparin, Kurdistan Region, IRAQ

Date: June 26, 2017

Permission Request

I am a PhD candidate in the faculty of Education, Department of Foreign Language Education at the Eastern Mediterranean University (EMU) in North Cyprus. I am conducting my dissertation research on "A Web-based Instructional Learning Environment for Improving Kurdish Pre-service English Language Teachers' Micro-teaching".

I kindly request to collect the required data from the third-year English language students at your department. If permitted, I am planning to administer surveys, conduct interviews, and ask the participants (i.e. third-year students) to keep journals about their perceptions of and experience with the above-mentioned instructional learning environment in micro-teaching sessions.

The identity and information gathered from the students will be strictly kept confidential and used only for the purpose of this research study.

Your permission to this request will be highly appreciated. Please do not hesitate to contact me and the PhD thesis supervisor for any further information.

Respectfully yours,

Hawraz Qader Hama
PhD Candidate
Student No: 146204
hawraz@bilkent.edu.tr

Prof. Dr. Ülker Vancı Osam
PhD thesis supervisor
Education Faculty, EMU
ulker.osam@emu.edu.tr

Appendix 4: Approval of the instructional setting

حكومة اقليم كردستان-العراق
رئاسة مجلس الوزراء
وزارة التعليم العالي والبحث العلمي
رئاسة جامعة رابرين
كلية التربية- قلعدزة
قسم اللغة الانكليزية

حکومەتی هەرێمی کوردستان- عێراق
سەرۆکایەتی ئە نجومەنی وەزیران
وەزارەتی خوێندنی باڵا و توێژینەوەی زانستی
سەرۆکایەتی زانکۆی ڕا پەرین
کۆلێژی پەروەردە - قەڵادزێ
بەشی ئینگلیزی

University of Raparin / College of Education
Department of English

To: Eastern Mediterranean University (EMU)

Education Faculty, Department of Foreign Language Education

July 6, 2017

To Whom It May Concern,

After reviewing the request for data collection for the purpose of the dissertation research on "A We-based Instructional Learning Environment for Improving Kurdish Pre-service English Language Teachers' Micro-teaching", presented **Hawraz Qader Hama**, a PhD candidate at your department, we are consented to grant permission for the PhD candidate to collect the required data at Department of English, College of Education, University of Raparin.

Respectfully yours,

Raparin University
College of Education
English Department

Asst. Lect. Saman Othman
Head of English Department
College of Education, University of Raparin
Email: saman.en@uor.edu.krd

Appendix 5: Survey Questionnaire

Participant Consent Form for Questionnaire

Dear Participants,

I am a PhD student and currently working on my dissertation titled "*A Web-based Instructional Learning Environment for Improving Kurdish Pre-service English Language Teachers' Microteaching".* This study aims to find out your perceptions about whether and how the web-based instructional learning environment designed for scaffolding your microteaching experience has helped you.

Your participation in this research is completely VOLUNTARY. If you choose to participate you may subsequently withdraw from the study at any time without penalty or consequences of any kind. If you choose not to participate, that will not affect your relationship with the course instructor.

Please answer all the questions sincerely and be informed that your personal information and individual responses will be kept confidential and used only for research purposes. Collected data can be used for data analysis and publication of findings in journals and conference proceedings on condition that your name will not be revealed in any documents or publications arising from the research.

If you have any queries about this research, please feel free to contact the researcher, Hawraz Qader Hama, or the dissertation supervisor Prof. Dr. Ülker Vancı Osam. Thank you for your participation and cooperation.

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Consent Form

I have been properly informed about the objectives of the study and the questionnaire, and I am willing to take part in it.

Name, Surname : ---------- Date : ----------

Signature: ----------

SURVEY QUESTIONNAIRE

PART I. Personal Information

1. Gender (please tick): □ Male □ Female
2. Age (please tick): □ 17-20 years old □ 21-24 years old □ 25 +years old
3. Have you ever used the Internet before? □ Yes □ No
4. If yes, for what purposes? You can tick more than one option.

   □ sending emails □ watching videos

   □ chatting with others □ finding information

   □ searching for sources □ downloading documents, videos, etc.

   □ Others (Please specify). …….
5. Do you use any social websites below? You can tick more than one option.

   □ Facebook □ Twitter □ Pinterest

   □ Instagram □ YouTube □ WhatsApp

   □ Viber □ LinkedIn □ Others (Please specify). ……

6. Picked pseudo name (Please pick a pseudo name as you will use this pseudo name in other places as well): …….

PART II. Your Perceptions

For each of the following statements, please choose the best option that best describes your perception.

A) Preparation and Planning for Microteaching

The Web-based instructional design for microteaching helped me to …	SA	A	N	D	SD
1. choose a suitable topic for my microteaching.	1	2	3	4	5
2. write good performance objectives for my microteaching.	1	2	3	4	5
3. select and prepare suitable teaching activities and materials for my microteaching.	1	2	3	4	5
4. design a good lesson plan for my microteaching.	1	2	3	4	5

5. relate the activities and materials to the real-life.	1	2	3	4	5
6. select and prepare appropriate equipment for my microteaching.	1	2	3	4	5

B) Teaching Process of Microteaching

The Web-based instructional design for microteaching helped me to …	SA	A	N	D	SD
1. improve my teaching skills.	1	2	3	4	5
2. improve my ability to give instructions in my microteaching.	1	2	3	4	5
3. start the lesson effectively in my microteaching.	1	2	3	4	5
4. provide various activities and examples about the topic of my microteaching.	1	2	3	4	5
5. implement the lesson plan effectively in my microteaching.	1	2	3	4	5
6. use oral and body language effectively in my microteaching.	1	2	3	4	5
7. gain knowledge about ending the lesson appropriately in my microteaching.	1	2	3	4	5

C) Feedback Session of Microteaching

The web-based instructional design for microteaching …	SA	A	N	D	SD
1. provided more chance for giving feedback to my peers about their microteaching.	1	2	3	4	5
2. created more chance to receive feedback from peers about my microteaching.	1	2	3	4	5
3. created more opportunities to see my peers' feedback about our microteaching.	1	2	3	4	5
4. helped me to gain knowledge about providing constructive feedback about my microteaching.	1	2	3	4	5
5. increase my awareness about the usefulness of feedback in microteaching.	1	2	3	4	5
6. provided more chances for giving feedback than that given in the classroom.	1	2	3	4	5

D) Online Communication and Collaboration about Microteaching

The web-based instructional design for microteaching …	SA	A	N	D	SD
1. helped me to communicate with more people in anytime and anywhere.	1	2	3	4	5
2. provided a better chance to share my ideas about microteaching without fear of time limitation.	1	2	3	4	5
3. improved communication about microteaching between the classmates.	1	2	3	4	5
4. improved communication about microteaching between the classmates and the teacher.	1	2	3	4	5
5. improved classroom discussions about microteaching.	1	2	3	4	5
6. helped me to improve the delivery of content and resources of microteaching.	1	2	3	4	5
7. encouraged the creation of an academic group among us (i.e. the students) with the same interest and needs.	1	2	3	4	5
8. provided an appropriate environment to exchange microteaching-related information among us (i.e. the students).	1	2	3	4	5
9. helped to share a variety of resources and materials about microteaching.	1	2	3	4	5
10. provided a rich multimedia platform to improve my microteaching experience.	1	2	3	4	5
11. Others (Please specify) ……..... ……	1	2	3	4	5

E) The Design Components of the Web-based Instructional Learning Environment

The web-based instructional design for microteaching …	SA	A	N	D	SD
1. had attractive and well laid out pages.	1	2	3	4	5

2. provided the relevant tasks and functions.	1	2	3	4	5
3. had appropriate font sizes, styles, and colors that helped me to focus on the content.	1	2	3	4	5
4. provided me with culturally and level appropriate multimedia objects.	1	2	3	4	5
5. provided effective multimedia objects to support my microteaching learning experience.	1	2	3	4	5
6. provided easy navigational aids.	1	2	3	4	5
7. gave me a chance to share and display my ideas and work about microteaching.	1	2	3	4	5
8. encouraged my interaction with the teacher and peers.	1	2	3	4	5
9. motivated me to participate in microteaching activities.	1	2	3	4	5
10. encouraged collaborative learning between us (i.e. students).	1	2	3	4	5
11. provided formative assessment to monitor my performance.	1	2	3	4	5

PART III. Your Thoughts

Please answer the following questions in as much detail as possible:

1. How do you feel about the use of this web-based instructional learning environment for microteaching purposes?

……
……
……

2. What are the advantages of using such learning environment for microteaching purposes?

……
……

3. What problems/obstacles have you experienced in using such learning environment for microteaching purposes?

……
……
……

4. What changes would you suggest in this learning environment so that it becomes more useful for the users?

……
……
……

5. Should this web-based learning environment be kept (with the recommended changes) for the future third-year students when studying microteaching?
……
……
……

Thank you for your valuable time and cooperation! ☺

Appendix 6: Reflection Journals

Participant Consent Form for Reflective Journal

Dear Participants,

I am a PhD student and currently working on my dissertation titled "*A Web-based Instructional Learning Environment for Improving Kurdish Pre-service English Language Teachers' Microteaching".* This study aims to find out your perceptions about whether and how the web-based instructional learning environment designed for scaffolding your microteaching experience has helped you.

You are asked to write a journal entry after every time you use the web-based instructional learning environment bearing the following guidelines in mind. Please provide as much detail and as many examples as possible in your entries. If you like, you can write your entries in your mother tongue. What matters for me as a researcher is obtaining your true reflections on your feelings, such as likes, frustrations, appreciations, as well as the strategies you employ in using this web environment.

Since this reflective journal is partial requirement of completing your ELT Methodology course, you are required to do it properly to obtain the allocated grade. Therefore, if you withdraw your participation and any data you have contributed, you will lose the grade given for this purpose.

Collected data can be used for data analysis and publication of findings in journals and conference proceedings on condition that your name will not be revealed in any documents or publications arising from the research.

If you have any queries about this research, please feel free to contact the researcher, Hawraz Qader Hama, or the dissertation supervisor Prof. Dr. Ülker Vancı Osam. Thank you for your participation and cooperation.

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Consent Form

I have been properly informed about the objectives of the study and I am willing to take part in it.

Name, Surname : ---------- Date : ----------

Signature: ----------

Guidance for Writing "Reflective Journal"

- ***What is Reflective Learning Journal?***

It is a piece of writing which allows students to record thoughts and insights about their own learning experience. It encourages students to review and consolidate learning, to evaluate performance, to plan future learning based on past learning experience.

- ***What are the benefits of keeping Reflective Journal?***

Reflective journal is designed to help you think deeply about your learning, especially on issues such as: your progress in learning, the difficulties you encountered in the process of learning, the strategies you have taken to get around those difficulties, and your evaluation of your own performance. In such a way, students become capable to take charge of their own learning, and eventually to develop into independent life-long learners.

- ***What learning experience to reflect on?***

Reflect on your process of learning. Record any observations, experience, thoughts and insights that are significant to you as a learner, or even as a person.

- ***How many times do I need to write my reflection?***

You are required to make **entries** whenever you visit the web-based learning environment. You should provide as much detailed reflection as possible. You are advised to make the entries regularly.

- ***What should you write in your Reflective Journal?***

Write whatever comes to your mind about your learning experience with using the web-based learning environment for microteaching. More specifically, talk about your reaction, feeling, opinions on, and learning experience with the web-based learning environment for microteaching.

- ***How to write your Reflective Journal?***

✓ Write in first person, as if you are writing a letter to a friend.
✓ There is **no** right or wrong answer for a journal entry. Therefore, feel free to express your ideas, opinion, and thoughts
✓ Don't hesitate to share your personal experience if that helps to illustrate your point
✓ Don't be too intimidated by English rules. It's okay to make minor grammatical mistakes if that does not interfere the transmission of ideas.

A sample entry of a Reflective Journal

Entry #4; May 2, 2017

For this class, I learned what makes good paragraph. At the beginning, we discussed about paragraph and we moved on to the components of paragraph. There were three important aspects: unity, coherence and logical development. It was useful lesson because I could learn what good paragraph is. Normally, I concentrated on grammar and sentences as important factors which should be considered in writing, however, there is things should be considered before those. During the class, I could practice ordering the sentences into paragraph. Through this practice, I could understand ideal organization of paragraph. Also, as the style of writing of the East is different from the West, it was good opportunity to understand writing style here because I should use this style to write essay in the university in the UK. To develop my writing skills, I will practice the writing with consideration what makes good paragraph. Before I write a paragraph, I can make outline about what will be on the paragraph so I can make the paragraph clear to contain essential components.

Retrieved June 16, 2017 from
https://www.sheffield.ac.uk/polopoly_fs/1.284221!/file/ELSHEARreflectivejournalsample.docx

Framework for the Reflective Journal

Please follow the following framework to complete your reflective journal.

Please write your reflections on each of the questions given below.	
• How has the use of the web-based learning environment helped you improve your knowledge in **preparation and planning** component of microteaching?	
• What **difficulties** have you encountered while using the web-based learning environment? • What would be the **causes** of these difficulties? • How should the difficulties be **solved**?	
• What have you **liked** and **disliked** most about the use of the learning environment for improving the **"planning and preparation"** of your microteaching?	**Likes:** **Dislikes:**
If you have any other reflections or comments, please write them here: …… ……	

Please write your reflections on each of the questions given below.	
• How has the use of the web-based learning environment helped you improve your knowledge in **teaching process** component of microteaching?	
• What **difficulties** have you encountered while using the web-based learning environment? • What would be the **causes** of these difficulties? • How should the difficulties be **solved**?	
• What have you **liked** and **disliked** most about the use of the learning environment for	**Likes:**

improving the "**teaching process"** of your microteaching?	**Dislikes:**
If you have any other reflections or comments, please write them here: …… ……	

Please write your reflections on each of the questions given below.	
• How has the use of the web-based learning environment helped you improve your knowledge in **giving and receiving feedback** component of microteaching?	
• What **difficulties** have you encountered while using the web-based learning environment? • What would be the **causes** of these difficulties? • How should the difficulties be **solved**?	
If you have any other reflections or comments, please write them here: …… ……	

Please write your reflections on each of the questions given below.	
• How has the use of the web-based learning environment helped you improve your **communication and collaboration** for microteaching purposes?	
• What **difficulties** have you encountered while using the web-based learning environment? • What would be the **causes** of these difficulties?	

• How should the difficulties be **solved**?	
• What have you **liked** and **disliked** most about the use of the learning environment for improving **"communication and collaboration"** of your microteaching?	**Likes:** **Dislikes:**
If you have any other reflections or comments, please write them here: ……	

Please write your reflections on each of the questions given below.	
▪ What do you think about the **usability** of the web-based learning environment for improving microteaching?	
• What have you learned from the use of the web-based learning environment? How does this learning relate to your microteaching experience?	
• Do you think that the web-based learning environment helped you improve your microteaching? Please briefly write your overall reflections.	
If you have any other reflections or comments, please write them here: ……	

Appendix 7: Interview Questions

Participant Consent Form for Interviews

Dear Participants,

I am a PhD student and currently working on my dissertation titled "*A Web-based Instructional Learning Environment for Improving Kurdish Pre-service English Language Teachers' Microteaching".* I need your ideas and thoughts to investigate this topic in depth.

Your participation in this research is completely VOLUNTARY. If you choose to participate you may subsequently withdraw from the study at any time without penalty or consequences of any kind. If you choose not to participate, that will not affect your relationship with the course instructor.

The interview will take about 20-30 minutes. I don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

The interview will be recorded and a transcript will be produced. You will be sent the transcript and given the opportunity to correct any factual errors. Any summary interview content or direct quotations from the interview that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed.

If you have any queries about this research, please feel free to contact the researcher, Hawraz Qader Hama, or the dissertation supervisor Prof. Dr. Ülker Vancı Osam. Thank you for your participation and cooperation.

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Office tel.: +90 392 630 4044

Consent Form

I have been properly informed about the objectives and procedures of the interview and I am willing to take part in it.

Name, Surname : ---------- Your pseudo name: ----------

Signature: ---------- Date : ----------

Interview Questions

1. What did you feel while using the web-based learning environment for microteaching?
2. What microteaching skills/components did you improve through the use of the web-based learning environment?
3. In what way did the web-based learning environment contribute to the development of your microteaching skills/ components? Can you give some specific examples, please?
4. What microteaching skills/ components **did** you **not** improve by the use of the web-based learning environment? What could be the reason for it??
5. In general, do you think using such web-based learning environment is effective in developing microteaching experience? How?
6. Other than microteaching knowledge and skills/ components g, what kinds of new knowledge and skills do you think you have gained as a result of this experience?
7. What are your suggestions for the improvement of such learning environment for microteaching in particular, and language teaching in general?

Appendix 8: The Teaching Program of the Instructional Setting

Teaching Program (2017-2018)

First Year		Second Year	
Subjects	**Hrs/week**	**Subjects**	**Hrs/week**
Basic English Grammar	3	Contextual English Grammar	3
Listening & Pronuncia.	3	Listening & Speaking	3
Reading & Writing	3	Reading & Writing	3
Introduction to Literature	2	English Morphology	2
Academic Debate	3	English Fiction	3
Kurdology	2	English Phonology	2
General Psychology	2	Approaches to ELT	2
Information Technology	3	Developmental Psychology	2

Third Year		Fourth Year	
Subjects	**Hrs/week**	**Subjects**	**Hrs/week**
ELT Methodology	3	Testing & Evaluation in ELT	3
English Syntax	3	Linguistics	3
Translation (English ⇆ Kurdish)	3	School Experience & Teaching Practice	4
Listening & Speaking	3	Semantics & Pragmatics	2
English Poetry	3	Elective subject *	2
English Drama	3	Classroom Management	2
Research Methods in English	2	Materials Development & Adaptation in ELT	2
Educational Psychology	2	Graduation Project	2