DEVELOPMENT OF A VIDEO-ENHANCED ONLINE PRE-SERVICE TEACHER TRAINING SYSTEM: A CASE STUDY

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

DEVELOPMENT OF A VIDEO-ENHANCED ONLINE PRE-SERVICE TEACHER TRAINING SYSTEM: A CASE STUDY

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Video has been used in educational settings for several years by means of videotapes. However, the use of digital video is not very common in schools and training institutions. Moreover, the literature reports not much about using online video in teacher training purposes. This current study presents an online video-based pre-service teacher training environment, offering online video cases for teacher training purposes.

The first purpose is to develop an online video-based training system for teacher training. The online teacher training system includes online video

cases on various topics in teacher training. The second aim of this study is to understand what student teachers think about the video cases in the online training environment.

The first phase of the study was implemented as a pilot study, and the main study included two cycles of action research. The subjects of the study were students of the Faculty of Education at Middle East Technical University who were enrolled to the CEIT321 – Foundations of Distance Education course. The evaluation of video based training questionnaire was administered to the participants and individual interviews were conducted with a selected group of students according to questionnaire scores.

The results of the questionnaire proposed that the students had positive attitudes for the online video cases included in the study. In the interviews, the participants indicated their comments and proposed some improvements regarding the technical aspects and the content of video cases. Participants' reflections about the video cases and course web server logs also provided parallel findings supporting the interviews and the questionnaire.

Keywords: Online video cases, case based learning, Blended learning, Perception.

ÖZ

HİZMET ÖNCESİ ÖĞRETMEN EĞİTİMİ İÇİN VİDEO DESTEKLİ ÇEVRİMİÇİ BİR EĞİTİM ORTAMI GELİŞTİRİLMESİ: BİR DURUM ÇALIŞMASI

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Video, eğitim alanında videokasetleri ile birlikte kullanılmaya başlanmıştır. Ancak okullar ve eğitim kurumlarında dijital videonun kullanımı yaygın değildir. Bununla birlikte, önceki araştırmalarda öğretmen eğitimi alanında çevrimiçi video uygulaması hakkında çok fazla bir bilgi bulunmamaktadır. Bu çalışmada öğretmen eğitimine yönelik çevrimiçi videolar bulunduran bir çevrimiçi video temelli hizmet öncesi öğretmen eğitim ortamı önerilmektedir.

Çalışmanın ilk amacı öğretmen eğitiminde kullanılacak bir çevrimiçi video temelli eğitim ortamının oluşturulmasıdır. Çevrimiçi eğitim ortamında öğretmenlerin eğitimine yönelik çeşitli konularda çevrimiçi videolar bulunmaktadır. Çalışmanın ikinci amacı ise öğretmen adaylarının çevrimiçi eğitim ortamı ve bu ortamda sunulan içeriğe yönelik düşüncelerinin öğrenilmesidir.

Çalışmanın ilk aşaması pilot çalışma olarak gerçekleştirilmiş, ana çalışma ise iki döneme yayılan bir eylem araştırması yöntemi ile yapılmıştır. Çalışmanın katılımcı grubunu CEIT321 – Uzaktan Eğitimin Temelleri dersini almakta olan Orta Doğu Teknik Üniversitesi Eğitim Fakültesi öğrencileri oluşturmaktadır. Çevrimiçi eğitim sistemini kullanan öğrencilere anket uygulanmış ve anket sonuçlarına göre seçilen bir grup öğrenci ile bireysel görüşmeler yapılmıştır.

Araştırmanın sonucunda katılımcıların kullandıkları çevrimiçi video temelli içerikten genel anlamda memnun kaldıkları görülmüştür. Katılımcılar ayrıca hazırlanan video örnek olayları ile ilgili olarak teknik ve içerik yönünden iyileştirmeler yapılması gerektiğini önermişlerdir. Katılımcıların video örnek olayları hakkında belirttiği yorumlar ve ders web sunucu kayıtları da görüşmeler ve anket bulgularını destekleyen sonuçlar ortaya koymuştur.

Anahtar Kelimeler: Çevrimiçi video örnek olayları, video olayları, Harmanlanmış öğrenim, Algı.

To my family

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CHAPTER 1

INTRODUCTION

1.1 Background to the Study

Audio and video have been widely used as educational tools since 1920s with radio and since 1950s with television. (Tinio, 2003) Over years, the developments in computer technologies have enabled digital video to be reasonably priced, easily reached and user-friendly. Nowadays digital video is used in both primary and secondary schools, and in some institutes of teacher education, it is also used in the training of teachers. However, the use of this technology in teacher education institutions is not common and not organized at all.

The use of video is basically the only way for a large number of people to visit a location without disturbing the other people over there. There have been some attempts on using techniques like analogue video but there were difficulties such as editing, modifying, sharing and managing. With the use of video, these disadvantages can be overcome but this time we may face other different and important issues to explore.

When digital video is utilized in an online environment using Internet technologies, it may serve as an essential tool for teacher training

institutions. Brophy (2004) suggests some of the potential uses of the digital video in teacher training are as follows:

a) Student teachers can record videos of their lessons for their teachers and friends to examine and evaluate.
b) Groups of video cases may be published online, as examples of best practice.
c) Video may serve as part of a distance education class when utilized with video conferencing.

In addition, online and blended learning provide opportunities to change the way that learners achieve new knowledge and expertise. When online and blended learning make use of digital video, this helps real world situations to be replicated and reproduced in a way that no other methods could provide solutions. On the other hand, while digital video presents new chances for teaching and learning, it also generates many different technical and instructional challenges.

Although video has been used in educational settings for several years by means of videotapes, the use of digital video is not very common in schools and training institutions. Furthermore, the literature lacks information about the implementation of online video especially in schools. In one of the studies, Perry and Talley (2001) reported that video cases can capture the complexity of the classroom context and present a very efficient way to expose the viewer to the authenticity of the classroom. According to their findings, students also have the opportunity to replay videos to gather ideas, to learn teaching methods, to observe classroom interactions that they might have missed and to see important features that may require more than one review.

In a recent study, Tohill (2008) surveyed participants from various subject areas and the results presented that video had been most frequently used in the engineering and science with 33.3% and computing and information technology with 33.3%, the rest of the usage constituted by business and law (13.3%), language (10%), others (6.7%), and education (3.3%).

Several other research studies have been reported by Kay (2012) demonstrating that video podcasting can be effective in learning. For distance education studies, students favored the use of video in a course since they would fit courses into their loaded schedules this way or students who had to go a significant distance to attend classes were glad about use of video (Foertsch et al., 2002, McKinney & Page, 2009).

Hew (2009) also stated that "the most common use of podcasting is limited to either instructors distributing podcast recordings of lectures or supplementary materials for students to review subject material at their own time and place." (p. 333) He also indicated that most of the previous works were studies in higher education and traditional course settings.

Case-based learning has been used for many years in many professional fields such as business, medicine and law. Mersety (1994) defined a case as a descriptive narrative based on a real-world situation. The case attempts to represent the different perspectives and context of a given situation. The essential elements of a case include realism, grounding in a rigorous examination of research and practice, and possibility for student development of multiple perspectives (Merseth, 1994). By providing pre-service teachers cases in streaming video format, they will have opportunities to examine teaching methodologies and other course content from many different

perspectives. The video-based case provides a rich medium for providing a descriptive narrative of the situation under consideration.

Students in business and dentistry reported that using video podcasts helped them revise their notes more effectively than using the textbook. (Evans, 2008; Brittain, et al., 2006) However, there is a need of such research studies in the discipline of education. There also exists a lack of information about online video use in a blended format distance education course. Therefore, the researcher tried to address this gap with the current research study.

1.2 Purpose of the Study

This study was designed to examine current practice and to identify the issues concerned with the deployment of online digital video technology in educational settings. The benefits it brought and the educational approaches that might be used have been evaluated along with the technical and pedagogical difficulties that need to be overcome.

This study has strong emphasis on authentic learning, as well. Various learning theories, such as social constructivism, show that authentic learning is very important when it comes to practical competencies as these are a necessity in training of teachers (Bransford et al, 2000; Resnick, 1987). Video and audio can support authentic learning, by analyzing and reflecting on recorded teaching sessions of one's self.

To be able to achieve these purposes, the researcher conducted a case study in line with action research. The case to be studied involves the online training system including the online video cases designed and developed by the researcher. The research approach is a single case study, investigating the

pre-service teachers' perceptions about the online video case based training environment for "CEIT321 – Foundations of Distance Education" course. In the main study, there were a total of 39 participants who were the students of the department of Computer Education and Instructional Technology at the Middle East Technical University enrolled to CEIT321 course.

The online teacher training system proposed in this study includes online video cases in line with the content of Foundations of Distance Education course and other materials related to the course, such as lecture notes, presentations and communication tools. For the prototype training system utilized in the study, two video cases were developed initially. The cases in the online teacher training system were *instructional design in distance education* and *teaching at a distance*. After the pilot study, a third video case, *ADDIE instructional model*, was added. The first case presents general information on instructional design in distance education. The second case presents an online course instructor and shares his thoughts and expectations of distant students. The third case demonstrates utilizing ADDIE instruction model step by step.

After the training system was put into use, the perceptions of the student teachers who used this online environment were investigated. The perceptions of the pre-service teachers would be helpful about designing new online video case based training environments.

1.3 Research Questions

The main research question in this study is "What are the perceptions of the pre-service teachers about the online video based teacher training system in a

blended format distance education course?" To be able to answer this question, the following sub questions were used:

- What do the pre-service teachers think about the content of an online video-based teacher training system?
- How do the pre-service teachers think about the online video cases used in this training environment?
- How do the pre-service teachers use the online video cases in this training environment?
- How does the video case-based approach help the pre-service teachers to comprehend the content?
- What are the difficulties and the suggested solutions in using online video?

1.4 Significance of the Study

A great number of academic and commercial institutions try to implement online learning into their training programs and prefer utilizing online video. Therefore it is very important to understand how pre-service teachers perceive online video based teacher training. This study is significant as the results can help to identify the perceptions and the needs of the student teachers who are inexperienced with online video based training environments and to design teacher training environments utilizing online video cases.

Heilensen (2010) reported that most of the studies in the literature dealt with the experiences of one semester or less, before and after the introduction of video podcasts as a teaching tool and also pointed out the need to assess the

effects of video podcasting in an improved study environment. This current study, with its nature coming from action research, tries to implement a research for two semesters.

It is hoped that this research will contribute to understand the thoughts and the perceptions of pre-service teachers about online video based training, and the problems they face and possible suggestions to resolve these problems. Also, the results of the study may lead researchers and instructional designers to add online video components and online video cases to online training environments.

1.5 Definition of Terms

Case Based Training: Case Based Training is an instructional design model that is a variant of project-oriented learning. It is popular in business, medicine and law schools. It has features like being learner-centered, collaboration and cooperation between the participants, discussion of specific situations, typically real-world examples and questions with no single right answer. (Merseth, 1994)

Online Video Cases: In this study, the term "online video case" refers to a combined form of video files and PowerPoint slides. The video case provides a rich medium for providing a descriptive narrative of the situation under consideration. Video cases offer immediateness which is not possible in audio based cases. Videos offer a far more graphic and compelling form of the shared situation. The web also provides a new vehicle for delivering video cases to learners with the ability to transmit text, graphics, and sound, short video clips, and hypertext; online video case (Cannings & Talley, 2002).

Perception: In this study, perception is defined as a pre-service teacher's awareness of an online video based learning environment and its contents. Perception involves both how a pre-service teacher regards the online video based learning environment and the online video cases; and his/her beliefs about what they are like.

Pre-service Teacher: According to the Merriam-Webster dictionary, a pre-service teacher is a student who is engaged in practice teaching and is presently studying within a teacher education program with the intent of completing teacher certification requirements but has not yet completed student teaching assignments.

Attitude: Pre-service teachers' self-reported satisfaction, interest and level of anxiety about the online video cases presented in the study.

CHAPTER 2

REVIEW OF LITERATURE

In this chapter, the existing literature related to the research purpose and questions are presented. Two main focus points of this study are case based teaching and action research. First of all, literature related with cases and case based teaching is provided. Following that, findings from online video case based teaching literature are summarized. The development of action research and existing studies about action research are reviewed at the end of this chapter.

2.1 Cases

"A case is a descriptive research document based on a real-life situation or event" (Merseth, 1996, p. 726). The most important point of a case is its potential to present data and information for discussion. Thus, cases can provide realistic information for pre-service and in-service teachers and arouse discussions about various paradigms, and a variety of methods in teaching and learning (Özkan, 2002).

Cases and case-based instruction present methods to improve teacher education. Although they may be new in teacher education, written cases and case-based instruction have been popular in other professional development enterprises, such as law, management and marketing (Lacey and Merseth,

1993). In general, cases aim to bring the sophistication of professional practice into the educational programs, and therefore bridge the gap between theory and practice.

Merseth (1996) reported four major advantages of using cases in teacher education:

- the ability of cases to help develop problem-solving and decision-making skills;
- the ability of cases to increase awareness of multiple perspectives and other educational settings;
- the ability of cases to enhance beliefs about personal authority and efficacy; and
- the ability of cases to habits of reflection (Merseth, 1996, p. 731).

For many years, written cases have been used in education. For the past decade, *video cases* also became common to use, and, recently, *online cases* have also become known as a way of distributing cases via the Internet. If the connection speed is sufficient, these online video cases can be played from the Internet directly, or can be downloaded and played from one's own computer.

Perry and Talley (2001) reported that "the Internet and hypermedia, which includes the nonlinear integration of video, audio, graphics, and text, can provide a rich environment for case studies that promotes the construction of knowledge about integrating technology into the curriculum in a learning community of peers and faculty facilitators." (p. 30) The features the Internet serves, such as simulating real world and making the case more realistic through the use of multiple media are the advantages.

While written cases may get teachers talking about theories of practice, video cases provide a more open-ended stimulus that is more likely to launch a discussion of the teachers' actual practice. With video cases, there comes an advantage, immediacy, which is not possible in written forms. Videos present a far more graphic form of the shared situation. They capture more of the social framework of the situation, greater context and more aspects of classroom practice. Utilizing these, the participants can understand the classroom described and attend to the aspects they consider important more (Clarke & Hollingsworth, 2000).

2.2 Video Case Studies

Diaz and Smith (2002) summarized the limitations of text-based case studies for teacher education by reporting that they fail to capture and communicate the reality of the nuances and immediacy of actual classroom settings. The tone of voice, facial expressions, and gestures of the teacher and the students provide details whereas written case studies cannot accomplish. Video provides all of this and more to pre-service and in-service teachers. With increased Internet bandwidth, learners can view videos just by accessing a website. That is, they can watch the action rather than just read about it. They can see and hear the teacher and the other students as they interact in the classroom.

Like any technological innovation the critical limiting factor for these systems is not the technology design but the social and organizational design through which technology systems are integrated into work practices. As systems like these enter the commercial marketplace, the questions driving future research are not how to build and scale the underlying technologies, but how and under what circumstances such systems can effectively be

integrated into the organizational lives of teachers and schools. (Shrader et al., 2002)

2.3 Online Video Case Studies

With emerging technologies, such as digital video and editing, more powerful CPUs and increased network bandwidths with ADSL, now we have new instructional possibilities and multiple ways to present video cases. Video, with graphic and text-based support, can capture the sophistication of classroom interactions and enable pre-service teachers to view the real teaching and learning strategies used by the teacher. This video might let a group of students to share experience and review important or critical teaching strategies missed in other situations. As Barron and Goldman (1994) suggest, "from our own experience in using integrated media with pre-service teachers, and from similar research and development efforts at other institutions, we are encouraged about the use and potential of such materials in preparing teachers for the challenges of the classroom" (pp. 104–105).

According to Cannings & Talley (2002), the Internet and multimedia, including the nonlinear integration of video, audio, text, and graphics can provide a rich environment for case studies which promote the construction of knowledge about integrating technology into the curriculum in a learning community of peers and faculty facilitators.

With developments in web delivery, this setting can be accessed anytime and anywhere in a cost-effective way. The web is a new medium for delivering video cases to learners with the ability to transmit text, graphics, and sound, short video clips, and hypertext. (Lindeman et al., 1995) In addition,

Kovalchick et al. (1999) suggest that the web provides "three significant capabilities for the delivery of case studies: (a) the ability to simulate real-world complexities, (b) the ability to use multiple media in case presentations, and (c) the ability to use hyperlink/hypertext navigation features" (p. 145).

Richardson and Kile (1999) provide a good general definition of video cases for teacher learning:

> Video cases are multimedia presentations of classroom actions and analyses that include moving pictures … of classroom action. In addition to the videos, video cases may include written or videotaped analyses; interpretations and/or explanations of the classroom action by the teachers, students, principals, parents, and/or others such as experts in the field; and other materials such as the teachers' instructional plans (p. 122)

Various research based experiential models of learning support components of motivation, observation, instruction, and presentation as learners acquire new technical skills (Bandura & Schunk, 1981).

According to Perry and Talley (2001), "the Internet and multimedia, which includes the nonlinear integration of video, audio, graphics, and text, can provide a rich environment for case studies that promote the construction of knowledge about integrating technology into the curriculum in a learning community of peers and faculty facilitators" (p. 4). With advancements in web delivery, this environment can be accessed anytime and anywhere in an appropriate way.

In her chapter, Seago (2003) introduced the emergence of video as a popular practice-based medium:

> There are several possible reasons for the appeal of video. Teaching is isolated and private, resulting in few opportunities for teachers to view and discuss others' practice. Technological advances allow for video to be more accessible and affordable than ever before. … Videos, however, are subject to many avenues of investigation and there is the temptation to discuss whatever people notice and want to explore. … It is important to realize that video is a tool … they do not in and of themselves produce learning – it is how they are used to promote specific learning goals that can allow for the opportunity to learn. (p. 263)

Case-based learning has been used for many years in other professional fields such as business and law. A case is a descriptive narrative based on a real-world situation. The case attempts to represent the different perspectives and context of a given situation. The essential elements of a case include realism, grounding in a rigorous examination of research and practice, and possibility for student development of multiple perspectives (Merseth, 1994). By providing pre-service teachers cases in streaming video format, they will have opportunities to examine teaching methodologies from many different perspectives. The video-based case provides a rich medium for providing a descriptive narrative of the situation under consideration.

Fisher (2000) reported that "…As teacher educators, we know that tools, no matter how powerful their educational potential, don't directly help students to learn. What is important is how we use tools to assist teaching and learning." (p. 117) and emphasized how to use these tools in teaching environments.

Cannings & Talley (2002) reported the following titles as effective elements in video case development:

1. An engaging tool interface: The tools available to encourage ongoing observation, dialogue and reflection should include, but not be limited to, teacher reflection on lesson planning and delivery, audio or video contextual clues, asynchronous and synchronous discussion, a user journal reflection tool, and access to additional resources such as web sites and content experts discussing the case study.

2. An ongoing communication system: Pre-service teachers, through their community of practice, require asynchronous tools such as a threaded discussion to engage in reflective dialog. Preferably, a synchronous chat room should be present which will enable facilitators to further engage the pre-service teachers in real-time dialog on the case study. These tools may require partnerships with other organizations which have developed exemplary models in this area.

3. Contextual clues for viewing: The inclusion of the teacher's voice reflecting on planning the actual lesson and the lesson itself with background data on the school, students, and classroom activities provide the user with contextual clues within which the video case study is viewed. These

contextual clues can be presented in text-based, graphic, audio or video formats.

4. Access to additional resources: Web-based programs enable the frequent update of relevant resource material aligned to video case studies. Pre-service students can access articles, references, and commentaries related to the teaching and learning process as well as the content areas.

Perry & Talley (2001) also reported the brief history of cases in education:

> Cases have generally been produced in print form as descriptive documents, often presented in a narrative form that is based on a real-life situation or event. As new technologies have been developed, they have made new instructional possibilities available and have provided multiple ways of presenting cases. Video can provide a natural medium for enhancing the sense of context and realism in case studies. (Perry & Talley, 2001, p. 27)

2.4 Theoretical Background of Case Based Teaching

Case based learning (CBL) is a widely known pedagogical approach for presenting the details of ill-structured domains to the students. Cases are narrative structures, which put students in the context of real-world situations filled with "complexity, uncertainty, instability, uniqueness, and value conflict" (Spiro & Jehng, 1990). Cognitive flexibility theory prescribes that learners should thematically criss-cross the domain landscape studying the case material from different theoretical perspectives, in rearranged contexts, and for different purposes.

In the teaching practice and teaching methods classes, the student teachers usually perform micro teaching lessons and these activities are then cooperatively critiqued. Each phase can only highlight a different teaching skill and edited video tapes are sometimes used to supplement for any classroom practice. Recently, there are trends of reducing the contact hours and increasing of class size in IT teaching practice and teaching methods classes. Within these classroom constraints, teaching skills taught, variety of classroom situations observed as well as number of participating student teachers are limited. The proposed interactive web-based video platform for critical analysis of significant classroom activities will provide repertoires of specific teaching skills as well as diverse classroom situations. Because of the 24-hour availability and accessibility of these videos, student teachers can achieve extensive field experiences prior to teaching practices.

Multimedia video cases of teaching and classroom practice are becoming an essential tool for teacher professional development. Traditionally, text case studies were developed as a way for teachers to examine and reflect upon descriptive scenarios of teaching and learning that were grounded within a particular context. (Goldman et al., 2007) According to Merseth (1994), case studies can be utilized in at least three different ways, (a) cases as exemplars of practice; (b) cases as opportunities to observe, analyze, and interpret from differing perspectives, and (c) cases as stimulants for personal reflection.

2.5 Use of Video Cases in Education

In a recent literature review study, Hew (2009) reported findings suggesting that "most common use of podcasting is limited to either instructors distributing podcast recordings of lectures or supplementary materials for students to review subject material at their own time and place." (p. 333)

Griffin et al. (2009) conducted experiments to test whether synchronized audio and video media are more effective than separate media items containing the same information. They presented statistical analyses verifying that there was a significant difference in overall test scores of the groups, with synchronized presentations being higher than separate presentations. This finding was also supported with further evidence from the attitudinal survey that the students favor the synchronized one and that students appreciate the benefits of e-learning, particularly when revising material.

Bolliger et al. (2010) stated in their study that the majority of students in traditional courses rated use of video as very useful and reported very positive experiences. Students use video in the preparation of assessments, note-taking, and review of missed lectures.

Fernandez et al. (2009) proposed findings revealing that video casting was fully consistent with three principles (time on task, high expectations, and respecting diverse ways of learning) and partially consistent with two other principles (contact between students and teachers, and feedback). Their findings suggested that the use of video casting allows for the promotion of good practice in distance courses in higher education.

Lazzari (2009) suggested that engaging students in creating their own short lessons can be an effective way to integrate traditional teaching for courses about multimedia, communication and production. Students were reported to find this experience challenging, interesting and fruitful.

Copley (2007) and Dupagne et al. (2009) provided general comments suggesting that use of video were enjoyable to watch and satisfying.

Fernandez et al. (2009) also indicated that students described videos as appealing when the content was academically inspiring. In a similar study, Wang et al. (2010) reported that students wanted to see an exceptional class presentation one more time.

Dupagne et al. (2009) and Lonn & Teasley (2009) reported that nearly 70% of the students agreed that videos were useful for making up the classes they were unable to attend. Another study suggested that students merited use of video in a course because video allowed them to fit courses into their loaded course schedules. (Foertsch et al., 2002) McKinney & Page (2009) indicated in another study that students who had to travel a significant distance to attend classes, appreciated use of video in their courses.

Rose (2009) reported that findings suggest the use of instructor-made videos in both online and face-to-face classes may be beneficial, but especially in 100% online classes. In her study, a majority of students surveyed disagreed with the survey item that they prefer learning through video over traditional, face-to-face classes; however, for the students enrolled in fully online courses, the face-to-face element of an instructor-made video looks like enhancing the student experience and leading them to feel more connected to the instructor. She also stated in her study that students showed feelings as if they learned better with instructor-made videos.

There are also some video viewing patterns reported in the literature. The first pattern is that students prefer viewing videos outside of work hours and weekends (Copley, 2007). Brittain et al. (2006) suggested that students viewed videos immediately before exams. Kay (2012) also reported an advantage showing that study patterns alter as a consequence of having

podcasts available and that students use videos frequently, especially prior to a test or examination.

Another pattern is that students watched videos at home with their PCs rather than with mobile devices (McGarr, 2009). Walls et al. (2010) elaborated McGarr's finding that selection of the device in part depends on the content of the video. Students preferred listening to complementary video on mobile devices and lecture videos on computers at home while they were studying.

Jarvis & Dickie (2010) reported an interesting reason using video to improve the quality of face-to-face classes. Before a traditional lecture, students watched a video targeting procedural tasks or direct instruction of concepts. As students had completed the direct instruction part before the class, during face-to-face meetings, the instructors had more time for hands-on practice and developing a deeper understanding of concepts. (O'Bannon et al., 2011)

Within some studies, comparisons about the score differences between students who used video supplementary materials vs. students taught in more traditional teaching methods were conducted. Boster et al. (2007) reported that students who used video broadcasts scored significantly higher than students who did not use them. Griffin et al. (2009) expressed that as a result of using video broadcast, students scored higher on multiple choice exams. Crippen and Earl (2004) stated that there was a significant positive correlation between the use of worked example video casts and test scores.

Kay and Kletskin (2012) reported that most of the students who used problem-based video rated use of video as useful or very useful. The researchers also indicated that this finding is in agreement with students'

comments that video casts supported their learning, presented control over the pace of learning, and helpful visual aids.

Fishman (2003) stated the difficulty of capturing audio in sometimes noisy classroom situations. This challenge may occur in any use of video, but becomes more of a challenge in online uses of video for teacher learning. Another challenge in the delivery of video over the Internet uses a considerable amount of bandwidth, and the required amount rises rapidly with the quality of the video. There are two main ways to decrease the amount of bandwidth required for video, either increasing the amount of compression used or decreasing the screen size of the video.

Chester et al. (2011) identified that most students only favored lectures and claimed that video casts were not adequate to support their requirements. In two other studies, students avoided from watching video casts because they considered them as unrelated to the learning goals of the course (Dupagne et al., 2009; O'Bannon et al., 2011). Foertsch et al. (2002) reported that students noted that videos were not as engaging as real world lectures and they were distracted more when viewing video casts at home.

Bolliger et al. (2010) also investigated the impact of videos on student motivation according to the ARCS model developed by Keller (1987). The model provides a four factor theory measuring individuals' levels of motivation. Attention is the first factor, and is a strategy for arousing and sustaining a learner's interest. The second factor, Relevance, is related to how well the instruction meets a learner's needs and goals. Confidence, the third factor, refers to the learner's attitude toward success or failure. The last factor of the ARCS model is learner satisfaction. Satisfaction can be defined as positive feelings about students' learning experiences.

Hew (2009) stated that there were two major approaches to understand whether video podcasts can help improve students' learning. The first way is to analyze the effects through participants' self-reports by usually including students' perception data via questionnaires or interviews. The second approach investigates the effects through the use of experimental or quasi-experimental designs, which implements examination scores, test scores, or quiz results as the data sources.

2.6 Action Research

Action research is an interactive inquiry process that balances problem solving actions implemented in a collaborative context with data-driven collaborative analysis or research to understand underlying causes enabling future predictions about personal and organizational change (Reason & Bradbury, 2001). During the development of action research, many methodologies have evolved that adjust the balance to focus more on the actions taken or more on the research that results from the reflective understanding of the actions. "Knowledge is always gained through action and for action. From this starting point, to question the validity of social knowledge is to question, not how to develop a reflective science about action, but how to develop genuinely well-informed action — how to conduct an action science" (Torbert, 2004, cited in Reason & Bradbury, 2001, p.1).

Koshy (2005) reported that "Research is about generating new knowledge. Action research creates new knowledge based on enquiries conducted within specific and often practical contexts." (p. 3) According to her, the purpose of conducting action research studies is "to learn through action leading to personal or professional development." (p. 3) In line with Koshy, in the

Handbook of Action Research, Reason and Bradbury (2001) also outlined the purpose of action research as follows:

> Since action research starts with everyday experience and is concerned with the development of living knowledge, in many ways the process of inquiry is as important as specific outcomes. Good action research emerges over time in an evolutionary and developmental process, as individuals develop skills of enquiry and as communities of enquiry develop within communities of practice. (p. 2)

Action research is used in real situations, rather than in contrived, experimental studies, since its primary focus is on solving real problems. It can, however, be used by social scientists for preliminary or pilot research, especially when the situation is too ambiguous to frame a precise research question. Mostly, though, in accordance with its principles, it is chosen when circumstances require flexibility, the involvement of the people in the research, or change must take place quickly or holistically.

It is often the case that those who apply this approach are practitioners who wish to improve understanding of their practice, social change activists trying to mount an action campaign, or, more likely, academics who have been invited into an organization (or other domain) by decision-makers aware of a problem requiring action research, but lacking the requisite methodological knowledge to deal with it.

Participatory action research (PAR) has emerged in recent years as a significant methodology for intervention, development and change within communities and groups. It is now promoted and implemented by many international development agencies and university programs, as well as

countless local community organizations around the world. PAR builds on the critical pedagogy put forward by Paulo Freire as a response to the traditional formal models of education where the "teacher" stands at the front and "imparts" information to the "students" that are passive recipients. This was further developed in "adult education" models throughout Latin America.

PAR has many of its roots in social psychology. It builds on the Action research and Group Dynamics models developed by psychologist Kurt Lewin in the early-to-mid 1900s, as well as on the study of oral culture by such scholars as Milman Parry and Walter J. Ong. At its core, PAR revolves around three sets of relationships: relations between individuals within communities and groups, relations between those groups and communities, and relations between people and their physical environment. Management of group dynamics in its many aspects thus plays a central role in PAR processes, and PAR practitioners/ facilitators must have a strong foundation in this field.

Mills (2007, p. 5) defines action research as "…any systematic inquiry conducted by teacher researchers, principals, school counselors or other stakeholders in the teaching learning environment to gather information about how their particular schools operate, how they teach and how well their students learn." Furthermore, he states that the goal of action research is "gaining insight, developing reflective practice, effective position changes in the school environment and improving student outcomes and the lives of those involved".

Participatory action research is also defined as “a research approach that involves active participation of stakeholders, those whose lives are affected by the issue being studied, in all phases of research for the purpose of producing useful results to make positive changes” (Nelson et al., 1998, p. 12).

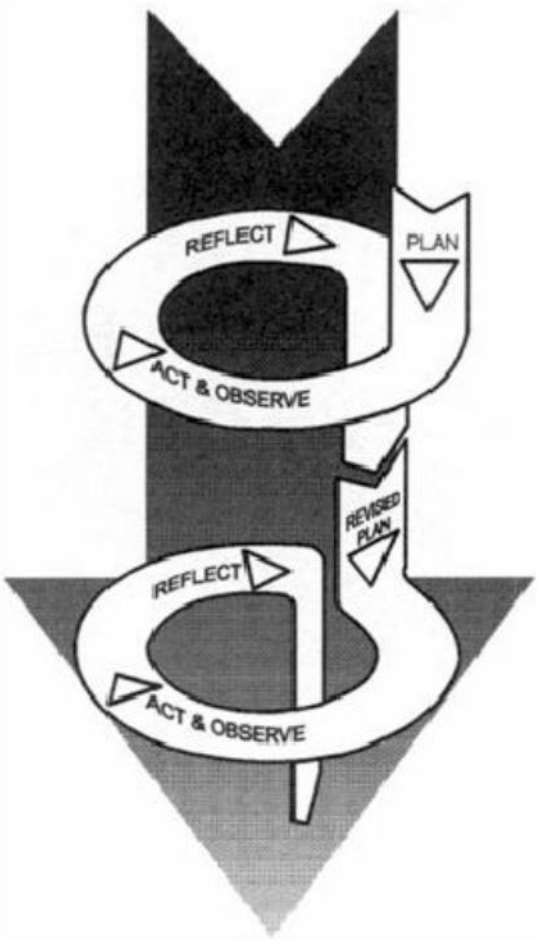

Figure 1 - The self-reflective spiral in action research

(Kemmis & Wilkinson, 1998, p.22)

As we can see in Figure 1, Kemmis and Wilkinson (1998) declared the self reflective spiral in action research as follows:

…Though the process of action research is inadequately described in terms of a mechanical sequence of steps, it is generally thought to involve a spiral of self reflective cycles of planning a change, acting and observing the process and consequences of the change, reflecting on these processes and consequences, and then re-planning, and so forth (p. 21)

2.7 Summary

In summary, multimedia and online video case studies have enabled teachers to reflect on their classroom practice. Pre-service students can view complex, interactive situations that are in a constant state of flux and can begin to acquire pedagogical tools for situations in which there are no simple answers. Ongoing development and analysis of multimedia and online video case study projects will enhance efforts to provide pre-service teacher educators with additional tools and strategies for integrating technology into pre-K-12 classrooms.

Numerous scholars in teacher education have suggested video technology as an effective medium that teachers can use to share images of teaching and learning practices in classrooms (Fishman & Davis, 2006). The use of videos for teacher learning has been discussed since the 1960s (Brophy, 2004). As flexible delivery formats, like the VHS videotapes, compact disc (CD), and digital video disc (DVD), are delivered, the interest in the use of video technology to prepare student teachers and to provide opportunities for teacher professional development increased. Recently, the advance of digitalized information technology has provided new possibilities to segment

and present educational materials in flexible and accessible ways that were not possible previously (Jonassen, et al., 2003). Today, the further development of streaming media technology together with the increase in the number of people having access to high bandwidth have made the Internet a suitable and popular channel for the distribution of video based materials for learning purposes.

According to the findings in the literature, there is a widespread use of video. However, the majority of this widespread use comes from disciplines other than education, like business, law, medicine, engineering and language. There is a need addressing the use of video in education discipline. There were yet a limited number of research studies about the use of video in education. But, most of those studies were conducted in traditional course settings (80%) than distance courses (20%). Therefore, this study addresses use of video in a blended format distance education course to fill this gap in the literature.

CHAPTER 3

METHODOLOGY

This chapter presents the methodology, which contains the research design, the research questions, the participants of the study; the online video case based training system and its implementation, and data collection and analysis procedures. The validity and reliability issues about the research are also explained.

3.1 Purpose of the Study

The purpose of this study is to develop an online video case based training system for teacher training as a prototype and to explore the student teachers' perceptions about this training system. The perceptions of student teacher may help to understand the components needed for an online video case based training system. To be able to achieve these purposes, the researcher conducted a case study in line with action research. The case to be studied involves the online training system including the online video cases designed and developed by the researcher. The research approach is a single case study, investigating the student teachers' perceptions about the online video case based training environment for "CEIT321 – Foundations of Distance Education" course.

The online teacher training system proposed in this study includes online video cases in line with the content of Foundations of Distance Education course and other materials related to the course, such as lecture notes, presentations and communication tools. For the prototype training system utilized in the study, two video cases were developed initially. The cases in the online teacher training system were *instructional design in distance education* and *teaching at a distance*. After the pilot study, a third video case, *ADDIE instructional model*, was added. The first case presents general information on instructional design in distance education. The second case presents an online course instructor and shares his thoughts and expectations of distant students. The third case demonstrates utilizing ADDIE instruction model step by step.

After the training system was put into use, the perceptions of the student teachers who used this online environment were investigated. The perceptions of the pre-service teachers would be helpful about designing new online video case based training environments.

3.2 Research Questions

The main research question in this study is "What are the perceptions of the pre-service teachers about the online video based teacher training system?" To be able to answer this question, the following sub questions are used:

- What do the pre-service teachers think about the content of an online video-based teacher training system?

- How do the pre-service teachers think about the online video cases used in this training environment?

- How do the pre-service teachers use the online video cases in this training environment?

- How does the video case-based approach help the pre-service teachers to comprehend the content?

- What are the difficulties and the suggested solutions in using online video?

3.3 Research Design

In order to investigate these research questions, a case study in line with the action research paradigm was conducted, with the online video based training environment as the case to be studied. The researcher designed the study in two phases. The first phase was a pilot study conducted to be able to test the data collection instruments and to gather information about the students' usage of the online video cases prepared. The researcher conducted the pilot study with these aims and the findings of the pilot study was proven useful to increase the number of online video cases and to help the researcher practice the questionnaire and the interview protocol with a group of students resembling the intended group of the study. The second phase of the study was conducted aiming to answer the research questions. There were two cycles in the main study and with the pilot study cycle, the research was conducted in three cycles according to the action research spiral Kemmiss & McTaggart (1988) proposed. Figure 2 represents the action research spiral of the study.

The pilot study was conducted with the students enrolled to the CEIT321 *Foundations of Distance Education* course offered during the 2008-2009

Summer School at the Department of Computer Education and Instructional Technology of the Middle East Technical University. Immediately after the pilot study, in the 2009-2010 Fall Semester (cycle I of the main study) and 2011-2012 Fall Semester (cycle II of the main study), the main study was conducted with the pre-service teachers who enrolled to the same course.

In the pilot study, the course was offered as an elective course and was available for all of the students of all of the departments. Therefore, the most of the participants in the pilot study were from the Faculty of Engineering and as well as from the Faculty of Education and from the Faculty of Economic and Administrative Sciences. It was not possible to exclude the students from the disciplines other than education; thus, the pilot study provided results to be able to review the data collection instruments and the online video cases. The researcher did not interpret the findings in the pilot study for the discussion part of the research; however, he utilized the results to revise the data collection instruments and the online video cases.

In both of the cycles of the main study, the course was offered as a must course for the students in the department of Computer Education and Instructional Technology. The students enrolled to the CEIT321 course participated in the study and provided responses to the data collection instruments. The researcher analyzed these responses and reported the results as possible answers for the research questions.

Yin (2003) presents case study as an approach to research that "investigates a contemporary phenomenon within its real-life context ..." (p. 13). It is also reported that case study is "... a strategy to be preferred when circumstances and research problems are appropriate rather than an ideological commitment to be followed whatever the circumstances" (Platt, 1992, p. 46, cited in Yin,

2003, p. 13). What makes case study unique as a form of research is that "… there will be many more variables of interest than data points, and as one result in a case a study" (Yin, 2003, p. 13).

Stringer (2007) stated action research as "a collaborative approach inquiry or investigation that provides people with the means to take systematic action to resolve specific problems" (p. 8). However, Stringer (2007) also emphasized that "action research is *not a panacea for all ills*… but it formulates effective solutions to problems…" Moreover, it is also stated that while designing an action research study, labeling discussed issues as problems may confuse the people involved and affect their beliefs about success and also restrict their vision to see other solutions (Coghlan and Brannick, 2001, pp. 76-77). For these reasons, the researcher implemented an approach that regards issues as opportunities rather than problems.

Reason and Bradbury (2006) describe action research as an approach which is used in designing studies which seek both to inform and influence practice. The authors state that action research is a particular orientation and purpose of enquiry rather than a research methodology. They also propose that action research consists of a 'family of approaches' that have different orientations, yet reflect the characteristics which seek to 'involve, empower and improve' aspects of participants' social world.

3.4 Research Context

The context for this study was the CEIT 321 Foundations of Distance Education course offered during the 2008-2009 Summer School, 2009-2010 Fall Semester and 2011-2012 Fall Semester at the Department of Computer Education and Instructional Technology. The online video cases presented

via course web site and the students enrolled to this course also constitute the context of the study. The research context is also presented in Table 1.

Table 1 – Research Context

Pilot Study	Plan	Planning video cases, literature review Development of video cases
	Action	Students use video cases as course materials during 2008-2009 Summer School
	Observation	Data collection for Pilot Study Evaluation of video case based training questionnaire Students' reflections about video cases Analyzing video case usage by web server logs Interviews with students
	Reflection	Analysis of data collected in Pilot Study
Main Study Cycle I	Plan	Improvement and redevelopment of video cases
	Action	Students use video cases as course materials during 2009-2010 Fall Semester
	Observation	Data collection for Cycle I Evaluation of video case based training questionnaire Students' reflections about video cases Analyzing video case usage by web server logs Interviews with students
	Reflection	Analysis of data collected in Cycle I
Main Study Cycle II	Plan	Improvement of data collection instruments
	Action	Students use video cases as course materials during 2011-2012 Fall Semester
	Observation	Data collection for Cycle II Evaluation of video case based training questionnaire Students' reflections about video cases Analyzing video case usage by web server logs Interviews with students
	Reflection	Analysis of data collected in Cycle II Reporting the results

The first part of the study was conducted as the pilot study. According to the steps of action research Kemmis & McTaggart (2005) proposed, the first step in action research is *Plan*. This step of the pilot study included analyzing the

syllabus of the CEIT 321 course, planning the video cases according to the course syllabus, reviewing related literature for the current research and developing the video cases. In the second step, *Action*, the online video based training was implemented during the 2008-2009 Summer School and the data collection instruments of the study were administered to the participants, in the third step, *Observation*. The final step, *Reflection*, the collected data was analyzed to revise the data collection instruments and the online video cases.

In the main study, there were two cycles as action research involves a continual improvement until the problem is resolved. In this part of the study, *planning* phase of cycle I included analyzing the data gathered in the pilot study and redeveloping the video cases according to the findings of the pilot study. The participants provided some feedback about the online video based training experience and these feedbacks offered improvements about the video cases. The details of feedback provided to the video cases are reported in the Results section. The second step, *Action*, involved implementation of online video based training during the 2009-2010 Fall Semester with a new student group enrolled to the same course. Immediately after this, the third step, *Observation*, took place. In this step, the data collection instruments of the study were administered to the participants. The final step is *Reflection*, which integrated analysis of the collected data.

To be able to gather more precise answers to the research questions, the researcher started the second cycle of the main study. In the first step of cycle II, *RePlan*, the interview questions were revised aiming to collect more information from the participants. The original and revised interview questions are provided in Appendix B. The second step of cycle II, *Action*, presented the implementation of online video based training during the

2011-2012 Fall Semester for the same course with another group of participants. In the third step, *Observation*, data were collected with the revised instruments. The final step, *Reflection*, interpreted the analysis of the collected data and provided the results.

Table 2 shows a brief summary of the revisions from the Pilot Study to Main Study Cycle I and from the Main Study Cycle I to Cycle II. Figure 2 also presents the action research spiral implemented in the study visually.

Table 2 – Action Research Revisions through Pilot and Main Study Cycles I – II

Action Research Cycles	Revisions
Pilot Study to Main Study Cycle I	Increasing the number of online video cases
	Redeveloping online video cases
Main Study Cycle I to Cycle II	Revising the interview questions
	Adding probes and alternative questions

Pilot Study – 2008-2009 Summer School

For the pilot study, in line with the content of the course, the researcher created two video cases demonstrating *instructional design in distance education* and *teaching at a distance*. During the semester, the cases were provided to the students along with other course materials. The researcher also analyzed the server access logs while the students were accessing the online video cases. In the last week of the summer school, the researcher provided the students with the Evaluation of Online Video Case Based Training Questionnaire and then conducted interviews with six students. Besides, the students also reflected on the video cases used immediately after they had worked with the online video cases.

Main Study Cycle I – 2009-2010 Fall Semester

After the pilot study, the cycle I of the main study started. First of all, the collected data were analyzed and the most recommended findings proposed increasing the number of video cases and solving some audio related problems in the available video cases. In the *Plan* step of cycle I, the video cases used in the pilot study were revised to be able to resolve audio problems; and one more video case, *instructional design with ADDIE model*, was added and all of the online video cases were provided to the students along with other course materials. The students were also required to write their reflections on the video cases to the course forum. The researcher also analyzed the server access logs during the semester to be able to understand the usage of the video cases. During the final exam week of the semester, the students were administered the Evaluation of Online Video Case Based Training Questionnaire and interviews were conducted with five students.

Main Study Cycle II – 2011-2012 Fall Semester

After the data collection and data analysis steps of cycle I, the study continued on cycle II. The video cases used in the previous cycles of the study were again implemented and provided to the students along with other course materials. There were also some minor revisions in the interview protocol. The revised form of the interview protocol for cycle II is available in Appendix B. The students provided their reflections on the online video cases to the course forum, as well. During the implementation of this cycle, the researcher analyzed the server access logs to understand the usage of the video cases. In the last week of the semester, the students were administered the Evaluation of Online Video Case Based Training Questionnaire and interviews were conducted with six of the students.

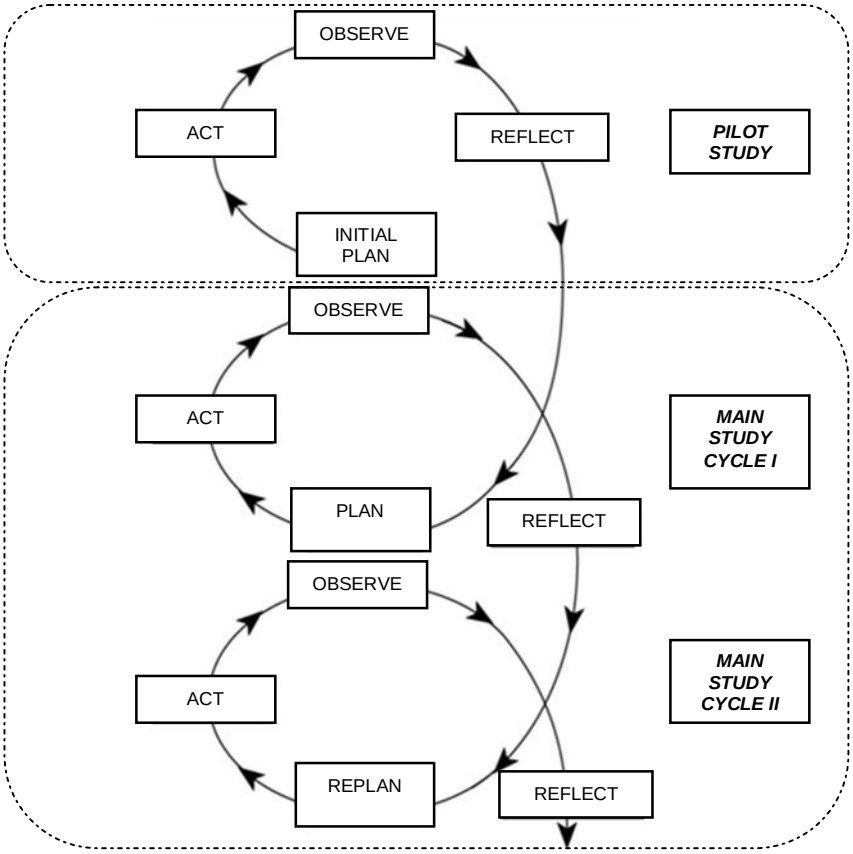

Figure 2 – Action Research Spiral of the Study
[adapted from Kemmis & McTaggart (1988)]

CEIT 321 – Foundations of Distance Education Course

The description of the course taken from the METU Academic Catalog is as follows:

> Historical development of distance education, definition and function of distance education, technologies used within distance education: TV,

> VCR, radio, printed materials, computers, and the Internet. Typology of distance education teaching systems. Techniques and methods used in planning, development, and implementation of distance education teaching systems.
>
> This course is designed to develop an understanding of effective synchronous and asynchronous distance education strategies. Topics and exercises will provide the student with practice in the design, development and delivery of an instructional sequence for delivery at a distance. This is a hands-on course for gaining experience and expertise with the development and delivery of education at a distance utilizing various forms of telecommunication.
>
> In order to successfully plan, develop, and implement curricula to meet the needs of diverse learners in today's world and to prepare students for the future, the identified four critical components of The Effective Educator are: standards based instruction (SBI), knowledge of the learner (KL), best pedagogical practices (PP), and content knowledge (CK). (METU Course Catalog, 2012)

And the objectives of the course are stated as follows:

- Demonstrate a working knowledge of distance education practices.
- Design, develop and deliver a lesson using synchronous and asynchronous distance education strategies.
- Design an advanced website to provide student support for distance education.

- Demonstrate a working knowledge of how a web server is configured and maintained to support distance education.
- Demonstrate knowledge of emerging telecommunication and distance learning technologies. (METU Course Catalog, 2012)

The Online Learning Environment

The course instructor uses Moodle Learning Management System (LMS) to deliver the contents of the CEIT321 – Foundations of Distance Education course to the students enrolled to the course. According to the Moodle web site, the LMS provides activity modules (such as forums, databases and wikis) to build richly collaborative communities of learning in the social constructionist tradition and offers a way to deliver content to students (such as standard SCORM packages) and assess learning using assignments or quizzes. The course instructor uses Moodle LMS to deliver course materials to the students, to communicate with the students via the forum and, to assess students' learning via course assignments and weekly quizzes. Figure 3 presents a sample screenshot of the online learning environment main page and the remaining sample screenshots of the online learning environment are provided in Appendix E.

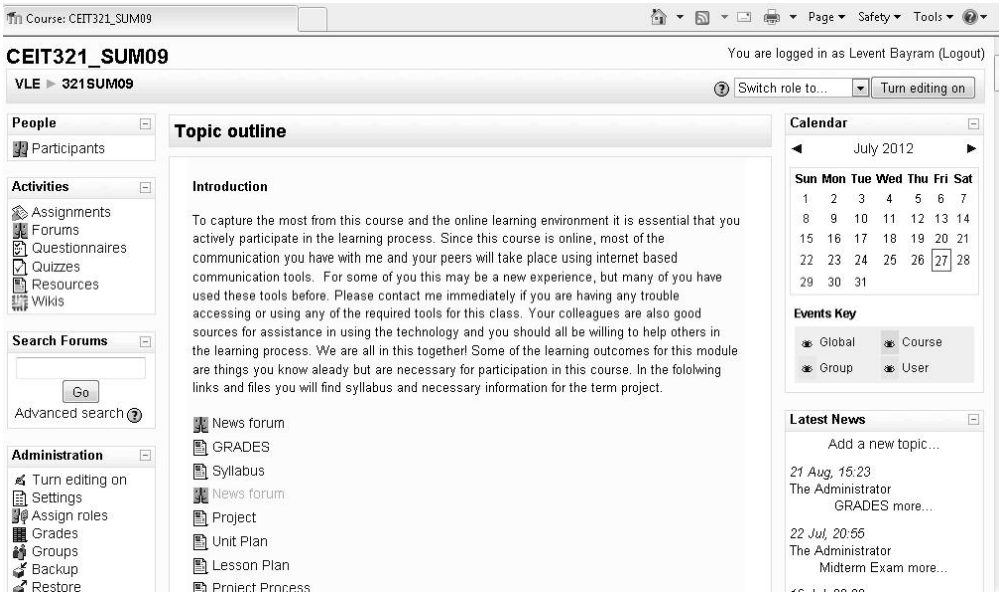

Figure 3 – LMS Main Page

Online Video Cases

The researcher developed online video cases for pre-service teacher training purposes for the CEIT321 course. The video cases were descriptive and demonstrative videos related with the content of the course. The video case material was recorded digitally with a notebook computer according to the related story boards proposed by lecture content. The online video based training environment included three online video cases, *instructional design in distance education*, *teaching at a distance* and *ADDIE instructional model*. The first case aimed to present general information on instructional design in distance education. The second case presented an online course instructor and shared his thoughts and expectations of distant students. The aim of the third case was providing the pre-service teachers necessary information with utilizing ADDIE instruction model step by step. These online video cases were published from the course LMS and the students

were required to watch these online video cases and to post their reflections about the video cases to the course forum. Figure 4 presents a sample screenshot of the teaching at a distance online video case and the remaining sample screenshots of the online video cases are provided in Appendix F.

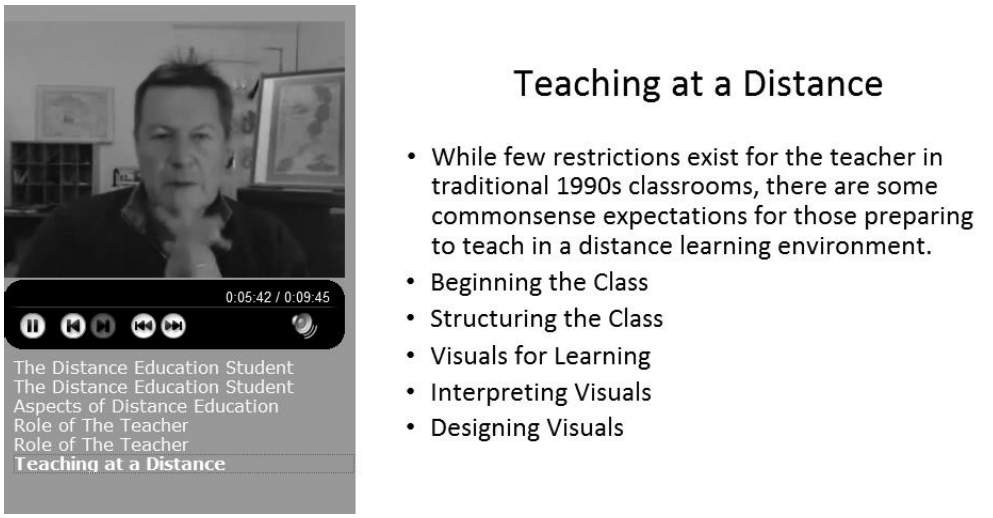

Figure 4 – Teaching at a Distance Video Case

Griffin et al. (2009) tested the hypothesis that synchrony of PowerPoint and voice in podcasts has pedagogical benefits over presentation of the two media as separate files and provided empirical evidence that the synchronization of voice and PowerPoint slide can have pedagogical benefit over presentation and podcast provided separately. The researcher also used Microsoft PowerPoint and Microsoft Producer to create the online video cases. First of all, related course information was added to a PowerPoint slideshow. The next step was to record the movie and narration. Short video clips were then added to this recorded movie. In the final step, video and slides were combined in Microsoft Producer environment and the final product, the video case, is published via the course web site.

The Microsoft Company presented Producer 2003 for Microsoft Office PowerPoint as an add-on for PowerPoint. Producer is designed for institutions to use streaming media to create and deliver informational content with Microsoft Windows Media technologies. Microsoft Producer enables anyone to create reasonably stylish presentations and just-in-time (JIT) e-learning by rapidly developing e-learning content, in general by combining PowerPoint slides, images, HTML, audio and video content. (Microsoft, 2006)

Cannings & Talley (2002) also reported some elements effective in video case study development. During the development of the online video cases, the researcher tried to implement these findings as well. First of all, there should be an engaging tool interface, to support ongoing observation, dialogue and reflection. The Microsoft Producer output presents an engaging tool interface supporting participants' observation and dialogue. The second suggestion is an ongoing communication system. As the course is offered via an LMS, there are opportunities present for asynchronous tools such as threaded discussions. The third finding proposes contextual clues for viewing. In the online video cases, there were text materials presenting the data on the activities that provide the user with contextual clues. The final suggestion involves access to additional resources. As in the second suggestion, the LMS already offers accessing related links about the topics. The pre-service teachers can access articles and references, related to the teaching and learning process as well as the content areas.

3.5 Participants

The main subjects of this study were students of the Faculty of Education at METU who were enrolled to the *Foundations of Distance Education* course.

In the pilot study, as the course was offered as an elective course, there were students from different disciplines of the Faculty of Education, Faculty of Engineering and Faculty of Economic and Administrative Sciences, as well. All of the students enrolled to the course were asked to participate in the questionnaire.

For the pilot study, 100 students were enrolled to the course and 79 of them participated in the study. The majority of the students in the pilot study were from the department of Computer Engineering (CENG) with 44 students. There were 28 students from the department of Computer Education and Instructional Technology (CEIT), 3 students from the department of Elementary Mathematics Education (EME), 2 students from the department of Business Administration (BA) and 2 students from the department of Economics (ECON). Out of the 79 students participated in the pilot study, 3 of them were 1st year, 16 were 2nd year, 36 were 3rd year and 24 were 4th year students. It was not possible to exclude the students from the disciplines other than education; therefore, the pilot study provided results to be able to review the data collection instruments and the online video cases. The researcher did not interpret the findings in the pilot study for the discussion part of the research.

In the main study, there were 23 students in cycle I and 21 students in cycle II enrolled to the course. In cycle I, all of the participated 20 students were from CEIT. 18 of those students were 3rd year students, whereas only one student from 2nd and one student from 4th year. In cycle II, 19 students participated and all of them were also from CEIT. The majority (n=11) of the students were 3rd year students. There were six 4th year students and two 2nd year students.

For interviews, purposive sampling was implemented for selecting the participants; the students from the Faculty of Education were selected purposefully for interviews. There were six students from the Faculty of Education in the pilot study. In cycle I of the main study, five students from the Faculty of Education were selected and were interviewed. Six other students from the Faculty of Education were interviewed in cycle II of the main study.

In order to obtain maximum variation in interviews, three groups of students (two in each group) were selected from top, middle and bottom of the ordered list of the results of the questionnaire for the pilot study (Denzin & Lincoln, 2000). The researcher used the same pattern and selected the students that offer the maximum variation for the interviews in cycle I, (two students from top and bottom of the ordered list of the results of the questionnaire and one students from the middle of the list) as well. The six students interviewed in cycle II consisted of two students from top, middle and bottom groups of the ordered list of the results of the questionnaire.

3.6 Data Collection Instruments

To answer the research questions, the evaluation of video based training questionnaire and an open ended interview were used. The students' reflections in the web forum about the video cases and course web server logs were also used to be able to increase the trustworthiness of the study. The questionnaire and web server logs provided quantitative data whereas the interviews and the reflections presented qualitative data. Table 3 presents the data collection instruments implemented in this study and the related research questions.

Table 3 – Data Collection Instruments

Research Questions	Data Collection Instruments	Data Type
What do the pre-service teachers think about the content of an online video-based teacher training system?	Interview Student reflections	QUALITATIVE
How do the pre-service teachers think about the online video cases used in this training environment?	Questionnaire Interview Student reflections	QUANTITATIVE QUALITATIVE
How do the pre-service teachers use the online video cases in this training environment?	Interview Web server logs	QUANTITATIVE QUALITATIVE
How does the video case-based approach help the pre-service teachers to comprehend the content?	Interview Student reflections	QUALITATIVE
What are the difficulties and the suggested solutions in using online video?	Interview Student reflections	QUALITATIVE

3.6.1 Evaluation of Online Video Case Based Training Questionnaire

The evaluation of online video case based training questionnaire was used as the first way of collecting data from the participants via a standardized set of items. The main purpose of the questionnaire was to be able to understand the students' attitudes and feelings about the online video cases.

Stirling et al. (2004) investigated the effectiveness of video use in teacher education. The researchers asked the participants to rate their attitude toward an online digital video library, using video cases as a learning tool, and toward computers. In another study, Reisslein et al. (2005) examined the

attitudes of distance education students with a video content delivered via cable TV system and via web-streaming. They utilized a survey asking for the students' evaluation of the technical aspects of the video delivery, the navigation and control, and the overall perceived effectiveness.

With the findings of these studies, and with the guidance of his dissertation supervisor and the thesis monitoring committee, the researcher prepared a questionnaire with 30 items in line with the items in the questionnaires of these studies. All of the items were also checked by two experienced researchers and one native English speaker for expert opinions to ensure validity and minor modifications were made in the wording of the items according to the responses.

The items in the questionnaire were rated on a Likert-type scale with 5 showing strongly agree and 1 showing strongly disagree. The scores were expressed by calculating the mean for every participant. The mean of all of the items shows the overall score. Items 4, 8, and 11 in the questionnaire are negatively worded. Therefore, these items are coded inversely for calculating the mean scores. However, in the results tables, the item scales are expressed as is.

Apart from the items about the students' perceptions, there were also items on students' demographic information, and one open-ended item to let students describe their understanding of online video cases and add comments in their own words.

Before collecting data via the questionnaire for each cycle in the study, the researcher informed the participants that participating to the questionnaire was voluntary. The questionnaire form included a part indicating the consent

of the participants for the study. The questionnaire is provided in Appendix A.

For the data analysis of the questionnaire, SPSS data reduction analysis was conducted on the collected data set to decide the subscales of the questionnaire. However, the analysis produced no meaningful data reduction components; thus, the results of the questionnaire were reported based on individual items.

The Cronbach's α reliability coefficient for the questionnaire was found to be *0.805* for the main study with a total of 39 participants, 20 participants in cycle I and 19 in cycle II, and this is an acceptable value for educational research studies. In each cycle of the main study, the coefficient was *0.849* and *0.746*, in cycle I and cycle II, respectively. For the pilot study with 79 participants, the Cronbach's α reliability coefficient value was *0.929*.

3.6.2 Interviews

Data were collected through semi-structured, open-ended interviews. The goal of the interviews was to understand the students' perceptions toward the online video cases and video case based training. To meet this goal, the interview protocol aimed at collecting data about participants' perceptions, experiences and feelings towards online video cases. The interview protocol was designed as a semi-structured interview to be able to bring additional questions and answers that could arise during the interview.

The researcher prepared an interview protocol with 9 questions according to the research questions and findings from the literature. Two other researchers reviewed the questions in the interview protocol and provided feedback.

According to their feedback, the researcher revised the wording of the questions and added probes to be able to get in-depth information from the participants about the various aspects of online video cases and finalized the protocol before administering the interviews.

Guiding questions and probes were designed and examined to be able to check in terms of clarity. Since the participants were Turkish native speakers, the interviews were conducted in Turkish. While reporting quotations from interviewees, English translations were provided by the researcher. The original Turkish quotations were also available in Appendix D. Before performing the interviews in the pilot study, the researcher conducted a pilot interview with a student enrolled to the same course and then finalized the interview protocol. The interview protocol is provided in Appendix B.

Interview Data Collection Process

During the interviews in each cycle, the interviewees' responses to the guiding questions were probed until a clear understanding was achieved between the interviewer and the interviewee. The researcher recorded the interviews with the permission of the interviewees and the audio recordings were transcribed immediately after the interviews. The transcriptions of the interviews were also provided to the interviewees to make clear what they had said was what they intended to.

The researcher conducted interviews with six of the students from CEIT department to be able to understand their perceptions about the online video case based training for the pilot study. Those students were selected regarding their scores from the questionnaire. After collecting data from the questionnaire in the pilot study, the mean scores for all students were ranked

on a list including only the students from the Faculty of Education as there were students majoring in other disciplines. Then two students from the top of the list, other two students from bottom of the list and another two students from the middle of the list were invited for interviews. Two of those invited participants were unavailable for the interviews; therefore, the next participants in the list were interviewed as substitutes. One of the interviewees was female and the other five of them were male students. Two of them were 2nd year students and four of them were 3rd year students.

In cycle I, five students from CEIT were interviewed with the same interview protocol. The same criteria were also used for selecting the participants to interview in the pilot study. The students were ranked on a list according to their mean scores for the questionnaire and two students from the top of the list, two students from the bottom of the list and one student from the middle of the list were interviewed. All of the interviewees were male students. One of them was a 2nd year student and the other four of them were 3rd year students.

After the analyses of interviews in cycle I, there were some revisions in the probes in the interview protocol and six other students from CEIT were interviewed for cycle II. The original and revised interview protocols are available in Appendix B. As in cycle I, after collecting data from the questionnaire in cycle II, the mean scores for all students were ranked on a list. Then two students from the top of the list, other two students from bottom of the list and another two students from the middle of the list were interviewed. There were six interviews in cycle II of the study. All of the interviewees were male students. Apart from a 4th year student, they were all 3rd year students.

Before conducting the interviews for each cycle in the study, the researcher informed the participants that participating to the interview sessions was voluntary. A signed consent form was acquired from each interviewee. The consent form is available in Appendix C.

There were a total of 11 interview sessions conducted in the cycles of the main study. Each interview session took 17 to 24 minutes. The researcher did not include the results of the interviews in the pilot study for the discussion part of the study. The findings of the interviews in the pilot study only served for reviewing the interview protocol.

3.6.3 Participants' reflections about the video cases

For all of the cycles of the study, the course instructor requested the students to reflect about the online video cases serving as one of the weekly assignments. The aim of these reflections was to gather data from all of the participants in their own words, since there were a limited number of participants in the interviews. The instructor's assignment phrase for the reflections was "Express what you understand from the video case and provide your critique about it." The participants wrote down their comments on technical and educational aspects of the video cases and summaries of the video cases. The researcher also reported these reflections. As the medium of instruction is English, the reflections were provided in English.

For the pilot study, students from CEIT provided a total of 17 reflections for the video cases, 10 of those were related with the first video case and 7 of those were about the second video case. The rest of the reflections was summaries of the video cases. In cycle I of the main study, 21 students provided reflections about the online video cases and 12 of them reported

issues other than summaries. Out of these 12 reflections, 6 was about the first online video case, 3 about the second online video case and 3 about the third online video case. In cycle II, a total of only 17 reflections were provided, 10 of those were included in the analyses. There were 3 reflections for the first online video case, 3 reflections for the second online video case and 4 other reflections for the third online video case. The rest of the reflections were summaries of the video cases and were not included in the analyses. The researcher coded the reflections under two major categories for the study. As the medium of instruction is English, the reflections were provided in English and the quotations provided are participant's own words.

3.6.4 Course web server logs

Hanna (2004) suggested that another source of automatically-collected data is web server logs; which are "vast collections of data relating the accessing of specific web pages". The online video cases were published via Microsoft Internet Information Server (IIS) and Windows Media Services. The server software was able to log the file requests and file transactions, as well as the time of these requests. The IIS can monitor information such as who has visited the site, what they viewed, and when the information was viewed last. According to these server log results, the researcher assessed the number of visits and the durations of the connections to the video cases.

3.7 Data Collection Procedures

Pilot Study

For the pilot study, two online video cases, *instructional design in distance education* and *teaching at a distance*, were published on the course web site.

The course instructor asked the students to write down their reflections about the video cases on the course web forum. Before the end of 2008-2009 Summer School, the questionnaire was announced on the course website and the students were asked to submit their responses within a week. The students were also informed that their participation in the questionnaire was voluntary.

There were 100 students enrolled to the course in the pilot study and 79 of them responded to the Evaluation of Online Video Case Based Training Questionnaire. The participants' responses to the Likert-scale items were calculated and the mean scores of the questionnaire for all students were ranked on a list. The students other than the ones from the Faculty of Education were excluded from the list on purpose to meet the requirements of the study. Then, two students from the top of the list, two students from bottom of the list and another two students from the middle of the list were invited for interviews. Two of those invited participants were unavailable for the interviews; therefore, the next participants in the list were interviewed as substitutes. During the interviews, the interview protocol provided in the appendices was used.

Main Study – Cycle I

The online video cases were revised according to the findings about audio issues of the video cases; one more online video case, *ADDIE instructional model*, was added to the study and the online video cases were published on the course web site. The course instructor asked the students to write down their reflections about the video cases on the course web forum, as in the pilot study. Before the final exam week of 2009-2010 Fall Semester, the questionnaire was again announced on the course website and the students

were asked to submit their responses within a week. The students were also informed that their participation in the questionnaire was voluntary. After collecting data from the questionnaire, the students were ranked on a list according to the questionnaire mean scores and interviews conducted with two students from top of the list, two students from bottom of the list and one student from the middle of the list. 23 students were enrolled to the course and 20 of them participated in the study. As all of the students in this cycle were from the Faculty of Education, none of the participants excluded from the questionnaire mean scores list.

Main Study – Cycle II

There were 21 students enrolled to the course and 19 of them participated in this cycle. As in the previous cycle of the study, the online video cases were published on the course web site and the students were requested to reflect on the online video cases on the course web forum. Before the final exams of 2011-2012 Fall Semester, the questionnaire was published on the course website and the students were asked to participate voluntarily and submit their responses within a week. The students were ranked on a list according to the questionnaire mean scores as in the previous cycle. All of the participants were included in the ranked list in this cycle since whole students were from the Faculty of Education and interviews conducted with two students from top of the list, two students from bottom of the list and two students from the middle of the list.

In Table 4, the timeline of the data collection procedures is represented.

Table 4 – Timeline of Data Collection Procedures

Data Collection Timeline	
Pilot Study 2008-2009 Summer School	July – August 2009
Two online video cases were published	July 2009
Students reflected about online video cases	July 2009
Students responded to the questionnaire	August 2009
Interviews were conducted with selected students	September 2009
Analysis of data	October 2009
Cycle I 2009-2010 Fall Semester	September 2009 – January 2010
Three online video cases were published	October – November 2009
Students reflected about online video cases	November 2009
Students responded to the questionnaire	December 2009
Interviews were conducted with selected students	January – February 2010
Analysis of data	February 2010
Cycle II 2011-2012 Fall Semester	September 2011 – January 2012
Three online video cases were published	October – November 2011
Students reflected about online video cases	November 2011
Students responded to the questionnaire	December 2011
Interviews were conducted with selected students	January – February 2012
Analysis of data	February 2012

3.8 Data Analysis Procedures

The study was driven by qualitative approach and the collected data were mainly qualitative, therefore the analysis of the data was employed qualitative data analysis methods. Yıldırım and Şimşek (2005) explained the classification/ways of qualitative data analysis process based on Wolcott's definitions. According to them three approaches/concepts need to be described; (1) description, (2) analysis, (3) interpretation. 'Description' can

answer the question of ‘what’, ‘Analysis’ focuses on conceptual coding and developing themes through classification and making meaningful relationships. Therefore, it can answer the questions in the form of ‘why’ and ‘how’. Finally, ‘Interpretation’ focuses on meaning, and therefore it gives much emphasis on the interpretations of a researcher.

Miles and Huberman (1994) described data analysis processes in three categories; (1) data reduction, (2) data display, (3) conclusion and verification. Johnson and Christensen (2004) elaborated these three categories and described the basic practical procedures like a roadmap used in qualitative data analysis; (1) transcribing data, (2) reading the transcripts, (3) segmenting and coding data, (4) enumeration of words and formed categories, (5) searching relationships and themes, (6) generate diagrams to help interpretation. The most widely used classification in qualitative data analysis was provided by Strauss and Corbin (1990) who classified qualitative analysis into two; namely descriptive analysis and content analysis. This study employs content analysis which aims to reach concepts and relationships that can explain the collected data (Yıldırım and Şimşek, 2005). As suggested by these authors, this study have four steps in the data analysis procedures; “(1) coding, (2) developing themes, (3) organizing codes and themes, (4) defining and describing the findings and interpretation” (Yıldırım and Şimşek, 2005, p. 228).

The procedures implemented in the data analysis of this study are as follows; the data were read, meaningful words or phrases were underlined, and a concept was tried to be related to the meaningful data piece. The researcher re-read the data, and paired the codes together, and renamed some codes if necessary. The coding was formed according to some predetermined

concepts and the concepts emerged from the data. Afterwards, the researcher made an effort to categorize the codes in order to create and develop themes. In other words, the codes and classification of codes were tried be placed under a superior theme. The researcher again re-examined the codes so that the data can be re-arranged according to the themes emerged so that the codes can be fully placed under themes, and the relationship of themes can be revealed. Finally, the themes, concepts and the relationships, if ever exists, between themes were interpreted by the researcher.

Johnson and Christensen (2004) suggested that a qualitative research report should provide narrative report and rich description (detailed writing). Based on these suggestions, the results were provided in a narrative way, opinions of the students are underlined, process is explained as much as possible, and not only process is focused but also special incidents are provided.

3.9 Researcher Role

The main role of the researcher was being a facilitator in the course. He was acting as a facilitator between the course instructor and the students and offering them online video cases to supplement the course content. The researcher had access to weekly course topics and prepared related video cases. The web links to access these online video cases were published on the course web site along with other course materials, such as lecture notes, presentations, and assignments.

Apart from being the facilitator in the course, the researcher had another role, being a qualitative researcher who was conducting action research. Within this role, the researcher reflected continuously on how to produce more effective video cases to better help the students. The researcher had also

opportunities of the course communication tools to get students' ideas. These ideas were helpful to improve the video cases from the beginning to the end of the study.

As a qualitative researcher conducting action research, the researcher also aimed to collect data from multiple sources utilizing numerous data collection methods, such as student reflections about video cases, web server logs, evaluation of online video case based training questionnaire and interviews with the participants. Being a researcher involved in action research, the researcher had an opportunity to experience the environment with the course participants which helped him to get an insider's view on the phenomenon (Patton, 1987).

3.10 Validity and Reliability

In a qualitative study, establishing validity and reliability is important. In qualitative research, the communicability of the perceptions identified needs to be established (Cope, 2002). Judgment of reliability is not appropriate because no two researchers are expected to find identical perceptions underlying interview and observation transcripts. As the researcher is also a source of data, different researchers bring different prior knowledge to the process. If a research's findings can be replicated, that is the results are consistent, then the study is qualified as reliable (Merriam, 1998). By reliability, the researcher approves that his or her findings are obtained not by chance but in a systematic way and someone else would get the same results.

In order to increase the trustworthiness of the research, data collection and data analysis procedures, the researcher implemented the following

procedures. Both qualitative and quantitative data collection instruments were administered to the participants. Interview Guide was piloted a week before the interviews with the students in cycle I. After piloting, the researcher extended the number of items to be able to get in-depth information from the participants about the various aspects of online video cases and got expert opinion from the members of the thesis monitoring committee and finalized it before administering the interviews.

The communicability of the results for the current study was tested through both the researcher and another researcher separately analyzing each interview transcript. Classifications were compared and disagreements were discussed. There was 88% agreement on the researcher and the inter-coder analyses.

Some other strategies were also put into practice in this study that served to strengthen reliability (consistency), inner validity (credibility), and external validity (applicability) of the study. These strategies were recording the interviews, cross-referencing the data sources, data triangulation, investigator triangulation, peer review, inter-coding, and low inference descriptors. The researcher tried to put different methods into practice, such as, in order to ensure trustworthiness (Bogdan and Biklen, 1998; Yıldırım and Şimşek, 2005).

This study based mainly on qualitative data analysis. The value of a qualitative study lies in its internal validity, not in its generalization. Therefore, there will not be any generalizations on the basis of the findings of this case. However, the findings and the implications will serve as a basis for future studies. The criticism of external validity in case studies is based on poor generalizability of a case. But since, in these studies, the aim is not

to generalize samples to populations but the results to a theory, this kind of external criticism is not acceptable with “analytic generalizations” (Yin 2003).

3.11 Limitations

The methodology of this research study was a case study in line with action research. The researcher of this study has many roles: researcher, facilitator, developer and interviewer. His abilities and skills on those roles are the primary limitation of the study. As he is the main data collection instrument and he has done the analyses according to his background, experience and world view, this is the primary limitation. In order to minimize this limitation, different strategies were used to minimize the researcher bias, but it is impossible to exclude researcher effect from the study.

Like the researcher effect, the participants has also an effect on the study. Therefore, the validity of this study is limited to the accuracy and honesty of the participants. The study is limited to the students of the Faculty of Education and for the pilot study, to the students of the Faculty of Engineering, the Faculty of Education and the Faculty of Economic and Administrative Sciences at Middle East Technical University.

Validity of this study is limited to the validity and the reliability of the instruments used in this study. Validity is also limited to the honesty of the subjects’ responses to the instruments used in the study.

CHAPTER 4

RESULTS

This chapter presents the findings of the pilot study and each cycle in the main study. In the questionnaire, apart from the perception items, there are items to be able to understand descriptive information for the participants; such as gender, department, grade level, and number of online courses taken. Following the descriptive statistics about the participants, the results in each phase of the study are reported in individual sections. Results of each phase are presented according to the research questions of the study. Related tables are also provided to enhance the results.

4.1 Background of Participants

There were 79 participants in the pilot study. Ten of the participants were female and 69 were male. In cycle I of the main study, five female students and 15 male students participated in the study. Five female and 14 male students participated in cycle II of the main study.

For the pilot study, the majority of the students were from the department of Computer Engineering (CENG) with 44 students. There were 28 students from the department of Computer Education and Instructional Technology (CEIT), 3 students from the department of Elementary Mathematics Education (EME), 2 students from the department of Business

Administration (BA) and 2 students from the department of Economics (ECON). In cycle I of the main study, all of the 20 students were from CEIT. In cycle II, all of the 19 students were also from CEIT.

Table 5 – Descriptive Statistics – Gender

Gender			
	PILOT n	CYCLE I n	CYCLE II n
Female	10 (12.66)*	5 (21.05)	5 (26.30)
Male	69 (87.34)	15 (78.95)	14 (73.70)
Total	79 (100.00)	20 (100.00)	19 (100.00)

(* Numbers in parentheses are percentages)

Table 6 – Descriptive Statistics – Department

Department			
	PILOT n	CYCLE I n	CYCLE II n
CEIT	28 (35.44)*	20 (100.00)	19 (100.00)
CENG	44 (55.70)		
EME	3 (3.80)		
BA	2 (2.53)		
ECON	2 (2.53)		
Total	79 (100.00)	20 (100.00)	19 (100.00)

(* Numbers in parentheses are percentages)

Out of the 79 students participated in the pilot study, 3 of them were 1st year, 16 were 2nd year, 36 were 3rd year and 24 were 4th year students. In cycle I of the main study, 18 of the students were 3rd year students, whereas only one

student from 2nd and one student from 4th year. In cycle II of the main study, the majority (n=11) of the students were 3rd year students. There were six 4th year students and two 2nd year students.

Table 7 – Descriptive Statistics – Academic Year

Year	PILOT n	CYCLE I n	CYCLE II n
First year	3 (3.80)*		
Second year	16 (20.25)	1 (5.00)	2 (10.50)
Third year	36 (45.57)	18 (90.00)	11 (57.90)
Fourth year	24 (30.38)	1 (5.00)	6 (31.60)
Total	79 (100.00)	20 (100.00)	19 (100.00)

(* Numbers in parentheses are percentages)

The majority of the students participated in the pilot study were from departments other than CEIT. For this reason, the majority (n=48) had not registered to any online course beforehand. 13 of them reported that they were enrolled to only one online course whereas 9 of them indicated that they took two online courses. 4 of the students were registered to three online courses and 5 of them took four or more online courses.

For cycle I, all of the students were somehow familiar with online courses as all of them were from CEIT. The majority (n = 12) reported that they were registered to 2 online courses. Four of the students took 1 online course and 1 of them attended three online courses. Two of the students reported that they were registered to any online courses and only one of those students took four or more online courses.

For cycle II, ten of the students reported that they were registered to 2 online courses. Four of the students never took any online courses and 2 of them attended two online courses. Two of the students reported that they were registered to four or more online courses and only one of those students took three online courses.

Table 8 – Descriptive Statistics – Number of Online Courses Taken

Number of online courses taken			
	PILOT n	CYCLE I n	CYCLE II n
0	48 (60.76)*	2 (10.00)	4 (21.05)
1	13 (16.46)	4 (20.00)	2 (10.53)
2	9 (11.39)	12 (60.00)	10 (52.63)
3	4 (5.06)	1 (5.00)	1 (5.26)
4 or more	5 (6.33)	1 (5.00)	2 (10.53)
Total	79 (100.00)	20 (100.00)	19 (100.00)

(* Numbers in parentheses are percentages)

Table 8 presents the data collection instruments, the research questions of the study and the related themes emerged from the interviews and students' reflections.

Table 9 – Data Collection Instruments

Research Questions	Data Collection Instruments	Themes from Interviews and Student Reflections
What do the pre-service teachers think about the content of an online video-based teacher training system?	Interview	Students' understanding of video based training Components of online training environment
How do the pre-service teachers think about the online video cases used in this training environment?	Questionnaire Interview	Attitudes toward online training environment Students' perceptions about their video based training experience Utilizing online training in professional life
How do the pre-service teachers use the online video cases in this training environment?	Interview web server logs	Usage of online video cases
How does the video case-based approach help the pre-service teachers to comprehend the content?	Interview Student reflections	Factors affecting learning Instructional aspects of online video cases
What are the difficulties and the suggested solutions in using online video?	Interview Student reflections	Problems with video based training Technical aspects of online video cases

4.2 Results of Pilot Study

The third step of the action research cycle, *Observation*, in the pilot study included data collection with both quantitative and qualitative instruments. These instruments are the evaluation of video case based training questionnaire, students' reflections about online video cases, web server logs and interviews.

4.2.1 What do the pre-service teachers think about the content of an online video-based teacher training system?

The first research question has possible answers from the interviews about the online video cases. There are two themes emerging from the interviews: *Students' understanding of video based training*, and *Components of online training environment*.

Students' understanding of video based training

The first part of the interviews focused on students' understanding of video based training. The researcher grouped the interviewees' responses under three sub categories. The first category was using videos to deliver course content. The second category was using video conferencing and short movie clips to supplement course materials. The third category was giving assignments to the students to shoot videos related with course content.

Table 10 – Students' understanding of video based training – Pilot Study

Themes	n
Delivery medium	6
Instructional supplements	1
Assignments	1

All of the participants agreed that before they started training, they thought video based training would offer video demonstrations of course content. Two participants elaborated that they expected in-class sessions to be recorded and to be published via course web site. One of the participants pointed out that chat sessions with video conferencing would take place in video based training. Another participant expected short films or movies related with course content to be presented and one participant had guessed the instructor would give tasks to the students and ask them to take videos about those tasks.

Quotes from the interviewees:

> In fact, I had no idea about video based training. Before links of video cases were announced, we were told that we would have video based training sessions. As the course has online part, I thought that weekly two-hour in class sessions were to be recorded and broadcasted from web site. [I-1]

> As this course is offered in a blended format, interaction with other people is important and for this purpose, we are using some communication tools. I anticipated we would have chat sessions, sometimes text based, sometimes video based, to be able to work together with the instructor and other students. [I-2]

> Video based training is enhancing course content via videos. Videos are used to deliver course content. There would be short video clips about both the classroom environment and the course content. [I-3]

> I thought the instructor would give us tasks and we would prepare videos related with those tasks. [I-4]

Components of online training environment

The online course environment was running on Moodle LMS. All of the participants interviewed in pilot study reported that apart from the video cases, there were the following features in the learning environment: lecture notes and presentations, readings, messaging tools, grading, assignments, and wiki. The students used these features for reaching the course materials and communicating with the instructor and other students. As the course was offered in blended format, most of the communications with the instructor and other students happened in the forum and via emails. Course wiki pages were used to submit reflection papers and other course assignments.

Table 11 – Components of online training environment – Pilot Study

Themes	n
Lecture notes /presentations / readings	6
Messaging	6
Assignments	5
Wiki	4

Quotes from the interviewees:

> I used the forum feature apart from the videos. We had weekly discussions with our instructor and other friends. There was also a built-in messaging tool. When I had questions to ask the instructor, I mailed him over the site. [I-5]

> There were wiki pages where we submit our assignments. I submitted the homework and reflection papers from the wiki pages. [I-6]

> We had the opportunity to download course readings from the site. I also followed lecture presentations and the grading results of my course assignments from the site. [I-7]

4.2.2 How do the pre-service teachers think about the online video cases used in this training environment?

The second research question involves responses both from the questionnaire and the interviews. There are three themes from the interviews for this question: *Students' perceptions about their video based training experience*, *Attitudes toward online training environment*, and *Utilizing online training in professional life*.

Evaluation of Video Case Based Training Questionnaire

The individual scores of the participants ranged between 78 and 150, where the possible minimum score is 30 and maximum score is 150. The mean score of the questionnaire is 110.23. Items 4, 8, and 11 in the questionnaire are negatively worded. Therefore, these items are coded inversely for calculating the mean scores. However, in the results table, the item scales are expressed as is.

Table 12 – Results of Evaluation of Video Case Based Training Questionnaire – Pilot

Items	SA	A	N	D	SD	$\bar{x}$	σ
1. I learned more using the online video case based method than the traditional way of instruction.	21 (26.58)*	31 (39.24)	22 (27.85)	5 (6.33)	0 (0.00)	3.86	0.89
2. I needed more guidance from the instructor while using the online video case based training environment than I need normally.	19 (24.05)	27 (34.18)	26 (32.91)	6 (7.59)	1 (1.27)	3.72	0.96
3. The online video cases helped me understand better.	23 (29.11)	38 (48.10)	14 (17.72)	4 (5.06)	0 (0.00)	4.01	0.82
4. The online video case based training was confusing than traditional one.	12 (15.19)	11 (13.92)	21 (26.58)	31 (39.24)	4 (5.06)	2.95	1.16
5. I thought myself more engaged in the online video case based training.	13 (16.46)	37 (46.84)	24 (30.38)	5 (6.33)	0 (0.00)	3.73	0.81
6. The online video case based training was challenging.	17 (21.52)	16 (20.25)	23 (29.11)	21 (26.58)	2 (2.53)	3.32	1.16
7. The online video case based training was motivating for me.	20 (25.32)	34 (43.04)	20 (25.32)	5 (6.33)	0 (0.00)	3.87	0.87
8. I was frustrated with the online video case based training.	13 (16.46)	18 (22.78)	23 (29.11)	23 (29.11)	2 (2.53)	3.22	1.12
9. The online video cases took more time than worth.	14 (17.72)	26 (32.91)	15 (18.99)	23 (29.11)	1 (1.27)	3.37	1.12
10. The online video cases added realism to this course	26 (32.91)	41 (51.90)	10 (12.66)	2 (2.53)	0 (0.00)	4.15	0.74
11. Use of the online video cases was inefficient.	13 (16.67)	12 (15.38)	11 (14.10)	36 (46.15)	6 (7.69)	2.87	1.26
12. The online video case based training allowed me to retain more from this course.	12 (15.38)	50 (64.10)	15 (19.23)	1 (1.28)	0 (0.00)	3.94	0.63
13. The online video case based training allowed deeper understanding of course content.	19 (24.36)	39 (50.00)	16 (20.51)	4 (5.13)	0 (0.00)	3.94	0.81
14. I was more engaged in the course with video cases.	21 (26.92)	35 (44.87)	18 (23.08)	4 (5.13)	0 (0.00)	3.94	0.84

Table 12 – Results of Evaluation of Video Case Based Training Questionnaire – Pilot (continued)

Items	SA	A	N	D	SD	$\bar{x}$	Σ
15. The online video cases were more entertaining than educational.	18 (23.08)	34 (43.59)	18 (23.08)	8 (10.26)	0 (0.00)	3.79	0.92
16. I learned more effectively by using online video cases.	16 (20.51)	43 (55.13)	14 (17.95)	5 (6.41)	0 (0.00)	3.9	0.8
17. I will use online video cases to be able to teach more effectively.	19 (24.36)	42 (53.85)	12 (15.38)	4 (5.13)	1 (1.28)	3.95	0.85
18. Using online video cases will better prepare me for the teaching profession.	19 (24.36)	40 (51.28)	16 (20.51)	3 (3.85)	0 (0.00)	3.96	0.78
19. The video quality of the video cases was good	20 (25.64)	36 (46.15)	13 (16.67)	6 (7.69)	3 (3.85)	3.82	1.03
20. The audio quality of the audio cases was good.	20 (25.64)	35 (44.87)	13 (16.67)	8 (10.26)	2 (2.56)	3.81	1.02
21. It was easy to access the video cases.	22 (27.85)	41 (51.90)	10 (12.66)	5 (6.33)	1 (1.27)	3.99	0.88
22. I encountered technical problems when watching the video cases.	20 (25.32)	18 (22.78)	9 (11.39)	28 (35.44)	4 (5.06)	3.28	1.32
23. I prefer to ask the instructor questions after watching the video case, e.g. email or forum messaging.	16 (20.25)	32 (40.51)	16 (20.25)	14 (17.72)	1 (1.27)	3.61	1.04
24. I learned a lot from the video cases.	18 (22.78)	38 (48.10)	18 (22.78)	5 (6.33)	0 (0.00)	3.87	0.84
25. The information was presented effectively in the video case.	24 (30.38)	38 (48.10)	12 (15.19)	4 (5.06)	1 (1.27)	4.01	0.88
26. The video case based training helped me to stay focused during the instruction.	19 (24.05)	39 (49.37)	14 (17.72)	6 (7.59)	1 (1.27)	3.87	0.91
27. Viewing the video case more than once helped me to learn.	17 (21.52)	38 (48.10)	20 (25.32)	3 (3.80)	1 (1.27)	3.85	0.85
28. I liked having control over the instructional flow (e.g., go back, forward the video).	28 (35.44)	31 (39.24)	14 (17.72)	6 (7.59)	0 (0.00)	4.03	0.92
29. It was convenient to fast forward/rewind the video to a specific part of video case.	25 (31.65)	40 (50.63)	13 (16.46)	1 (1.27)	0 (0.00)	4.13	0.72

Table 12 – Results of Evaluation of Video Case Based Training Questionnaire – Pilot (continued)

Items	SA	A	N	D	SD	$\bar{x}$	Σ
30. I would recommend courses utilizing online video case based training to others.	30 (37.97)	39 (49.37)	9 (11.39)	1 (1.27)	0 (0.00)	4.24	0.7

(* Numbers in parentheses are percentages)

Although the participants were asked whether they had any comments to add, there were only a few "Thanks" responses for the open-ended item of the questionnaire.

The questionnaire results indicated students' partially positive attitudes toward online video based training. The top three highest mean scores in the questionnaire are provided to the items, "I would recommend courses utilizing online video case based training to others", "The online video cases added realism to this course" and "It was convenient to fast forward/rewind the video to a specific part of video case." The least favored items are "Use of the online video cases was inefficient", "The online video case based training was confusing than traditional one" and ". I was frustrated with the online video case based training."

Students' perceptions of video based training experience

All of the participants indicated that video based training experience met their expectations before the course to a certain extent. Four of the participants reported that they had expected more or less same things they experienced before they started the video based training activity. One student declared that the video case based experience was more than what he/she had

thought, which was video broadcasts of previously recorded classroom sessions.

Three of the participants stated that video based training experience helped them retain the course content presented in the video cases. Two students indicated that the number of video cases was not enough and there should be more cases for the entire course content. Another student reported that "There was no interaction in video based training I experienced. That was only suitable for demonstration purposes."

Table 13 – Students' liked and disliked features of video based training experience – Pilot Study

Themes	n
Helps retention	3
No interactivity	1
Limited number of video cases	2

Quotes from the interviewees:

> I had thought that weekly in-class session to be recorded and broadcasted from web site. What I experienced is, in my opinion, more than this. Presenting such instructional materials is awesome. [I-8]

> In the course web site, there were lecture notes, presentations, forum, quizzes, questionnaire, news, etc... All of these are the necessary items of an online course web site. Apart from those, there were video cases. With these videos, we had the opportunity to get more information about the course content. [I-9]

> The video cases were fine, but there was a need for interaction. The used method is suitable if you are demonstrating something. Maybe you can put a video about a distant student and what he does in a distant course and ask us to critique about it. [I-10]

> It is better to watch a movie or short video clip about a topic rather than to read it from the book. This way, one can comprehend better. I think I learnt the distant student concept better with the distance teaching video case. [I-11]

Attitude toward video case based training

Another theme that emerged from the interview analysis of the pilot study was students' attitudes toward video case based training. Three of the participants interviewed agreed that the video cases caused not much more motivation for the course. One of them stated that "The video cases were helpful to some extent, I agree, however, if there were no such videos, I would also be excited about the course." As the course was offered in the summer school, the students stated that they were registered to the course willingly and for this reason, they had extra motivation for the course.

One of the students reported that using video cases or using animations would help students to learn the course content better. Another student commented that providing more instructional ways for the students would increase their learning of the content. He/she elaborated that every individual had different learning styles; therefore there should be different instructions to meet the needs of every individual. Use of video cases could be utilized for this purpose.

Table 14 – Attitudes toward video case based training – Pilot Study

Themes	n
Motivation for the course	3
Enhancement to learning	2

Quotes from the interviewees:

> The video cases did not change my motivation for the course. I enrolled to the course willingly and I was motivated for the classes. Video based training did not affect my motivation. [I-12]

> The videos or other materials used in the course had no effect on motivation; they only provided ways to enhance learning. More materials or ways offered in the course only help the students have more chances for better learning. [I-13]

> If there had been no videos… There were not any videos in my previous courses. Therefore, I don't think it would have been different if there had been no videos. I would use books and lecture notes as I would normally do. [I-14]

Utilizing video based online training in professional life

Another theme that emerged during data analysis of interviews was utilizing online training in professional life. All of the participants reported that they would prefer video based learning over traditional learning. Four of them added that they would prefer videos in teaching and learning; however, the quality of the video content was extremely important. Five of the participants stated that they would use video based learning in their teaching activities.

One of them detailed this statement as recording his/her lectures in the classroom and publishing that video from web.

Table 15 – Utilizing video based training in professional life – Pilot Study

Themes	n
Strong preference	6
Would use video in teaching	5
Recording own lectures	1

Quotes from the interviewees:

> I would prefer video based teaching when I start teaching. For example, I could record my classroom activities and put them on the web. That might help the students watch the classroom activities again and again. [I-15]

> Videos would be my first option. However, apart from being video based, the content of the videos is more important. There should be well designed videos that helped students comprehend the content easily. [I-16]

4.2.3 How do the pre-service teachers use the online video cases in this training environment?

The possible answers to the third research question are provided both from the interviews and the server logs. The emergent theme from the interviews is *Usage of online video cases*.

Usage of online video cases

All of the students who were interviewed reported that they had watched the video cases for at least once. Two of the participants indicated that they had reviewed the video cases three or four times. The other four participants stated that they watched the video cases only once. Four participants viewed the cases from the start to the end. However, one participant expressed that his/her total time spent with video cases was only three to four minutes.

Five of the participants had personal notebooks and had the opportunity to access course site and video cases anywhere. Three of the participants accessed the video cases from any public area within wireless coverage. The other two notebook owners connected to the site from their homes via ADSL network. The only participant who did not have a personal computer used public computer laboratories in dormitories to access the video cases.

Table 16 – Usage of online video cases – Pilot Study

Themes	n
Video cases were reviewed 3-4 times	2
Video cases were reviewed once	4
Anywhere access	5
Computer laboratory access	1

Quotes from the interviewees:

> When I watched the cases for the first time, I watched both of them till the end. I guess they were ten minutes each. When I wanted to watch another time, I skipped the narrator part and focused on distance teaching section. [I-17]

> I did not want to watch all of the videos, from the beginning till the end. I just followed the link and took a quick look at the video case; I think I finished in 3-4 minutes. [I-18]

> I was studying in the computer room at the dormitory. When the links were announced at the web site, I visited the video cases and watch all of them. [I-19]

Server Log Results

The researcher also had access to the web server logs of the course. This helped the researcher understand who had accessed to the video case files and how long the visit to the video cases lasted. The results of the server logs were expressed as duration and number of times video cases were accessed. Also the types of browsers were revealed.

The number of visits to online video cases is shown in Figure 5. The first video case was published on 2nd week of the semester and the second case was published on 4th week. According to the server logs, the number of visits to the online video cases was 137, 277, 98, 177 and 142, for 2nd through 6th weeks of the semester, respectively.

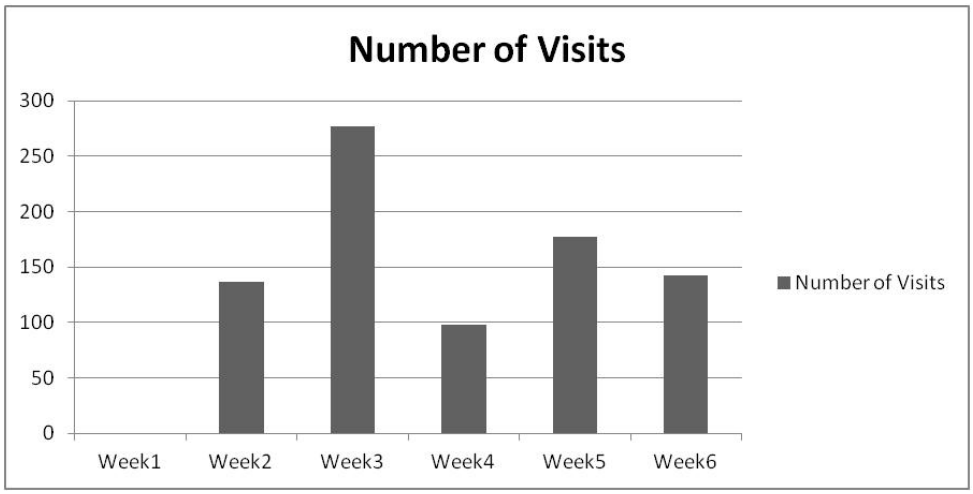

Figure 5 – Number of visits to video cases in pilot study

From the data provided by the web server logs, we could presume that the number of visits to the video cases at the following week the video cases were announced was more than the number of visits to the video cases at the week of announcement.

Figure 6 presents the average watching durations of video cases. Overall, the average visit to the video case web server lasted 11 minutes 39 seconds. The first video case is 8'59" (539 seconds) and the second video case is 7'53" (473 seconds). Looking at the average visit lengths provided, we could see that the video cases were watched at a certain extent; however we could not infer anything meaningful only by these data. These findings should be interpreted with the interview analysis.

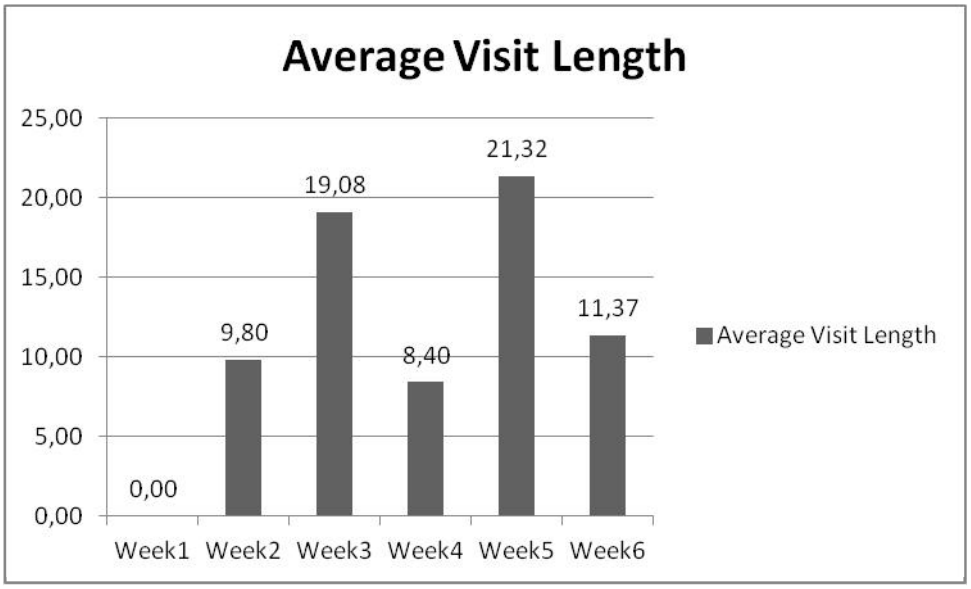

Figure 6 – Average visit length in pilot study (in minutes)

The final graph, Figure 7 shows the types of browsers used to access video case web server. 54% of the visits were with Internet Explorer and 31% of the visits were with Mozilla Firefox. As in the reflections and in the interviews the participants reported the issue of browser dependency, this data makes sense with that finding. Though nearly half of the visits were with Internet Explorer, the other half of the visits were with browsers incompatible with the online video cases.

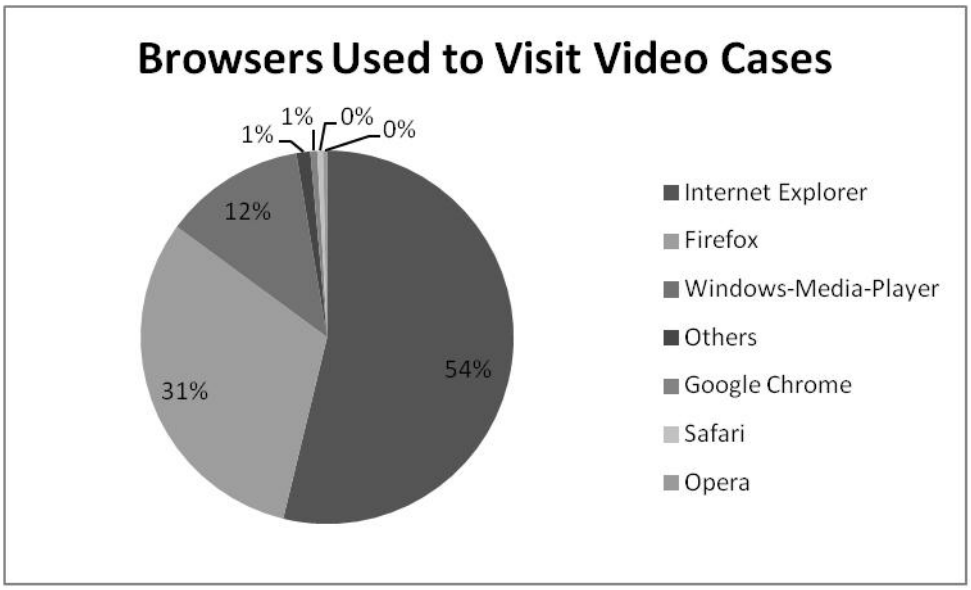

Figure 7 – Browsers used to visit video cases in pilot study

4.2.4 How does the video case-based approach help the pre-service teachers to comprehend the content?

The fourth research question is answered with both the interviews and the students' reflections about online video cases. The theme from the interviews is *Factors affecting learning* and the theme from the reflections is *Instructional aspects of online video cases.*

Factors affecting learning

During the interviews in the pilot study, the students listed the factors affecting their comprehension of course content as the advantages and the disadvantages of video based training on their learning experience. All of the participants agreed that they had benefited from the video cases to help them comprehend the course content. Three of the participants reported that video

cases would assist learners with providing audio visual enhancements over static textbooks. Another positive issue was that one can easily search the case for the required position by rewinding and fast forwarding the video.

Besides these positive sides, there were a few disadvantages reported. One of the participants expressed that for some technical problems like unsynchronized audio-video, even if he/she started the video case with high motivation, such problems spoiled his/her desire and he/she preferred closing the video case window. The final disadvantage reported was that the number of cases should be increased.

Table 17 – Factors affecting learning with video based training – Pilot Study

Themes	n
Advantages	4
Disadvantages	2

Quotes from the interviewees:

> When you watch something, it increases the retention. Since the videos are real life examples, we can connect the course content with realities. This provides better retention. [I-20]

> A professor was talking about his distant education class. I learnt his experiences and faced the views of both the student and instructor in distance education. [I-21]

> Use of videos ensures that you can retain more of the content. And opportunities to repeatedly watch

> anytime you want helped me when I had to review the topics for the assignments. [I-22]

Instructional aspects of online video cases

For the instructional aspect category of the reflections, two of the participants stated that when video was added to enhance instruction, there would be an increase in student retention. Three participants stated that online video cases enabled them watch the video cases anywhere and anytime. Student D proposed that adding videos of weekly class sessions would help students' learning. Student E emphasized the importance of the scenarios of the video cases. He/she criticized that adding video for the sake of adding video would not help; however, a good video prepared with good planning would help. For the final reflection, Student F indicated that controlling the flow of instruction and adding visual things to instruction is very beneficial for students:

> Video-case-based training is visual and visual things are more stable than the other types of learning. Moreover anyone can control the instructional flow, it is very helpful.

Table 18 – Students' reflections – Instructional Aspects – Pilot Study

Themes	n
Increase in student retention	1
Anywhere anytime learning	3
Broadcasting weekly class sessions	1
Controlling instructional flow	1
Well-prepared video	1

4.2.5 What are the difficulties and the suggested solutions in using online video?

The possible answers for the fifth research question are from both the interviews and the students' reflections about online video cases. The theme from the interviews is *Problems related with online video cases* and the theme from the reflections is *Technical aspects of online video cases*.

Problems related with online video cases

The main problem that the participants interviewed in the pilot study reported that the video cases only worked in Microsoft Internet Explorer Browser. The students declared that they preferred to use other browsers like Mozilla Firefox and Opera; however, the video cases did not work in these browsers. One of the participants pointed out that in some parts of the videos; audio and video were not synchronized, which makes the video difficult to follow.

Table 19 – Problems related with video based training – Pilot Study

Themes	n
Browser dependency	6
Audio-video problems	1

Quotes from the interviewees:

> Sometimes, I experienced audio loss problems. I muted and unmuted volume level of my computer. Then, audio problem resolved. There might be a problem with my computer or my connection. [I-23]

> I usually browse the Internet with Firefox browser. However, the video case pages were to be viewed with Internet Explorer. I did not want to use something else other than my usual stuff. [I-24]

Technical aspects of online video cases

Most of the reflections included technical issues about the online video cases. Student A reported in his/her reflection that the quality of video needs improvements. He/she also pointed out that the size and the placement of video and slides on the web page should be well organized. Student B stated that the video was prepared with Microsoft Producer software and he/she encountered some problems opening the video since he/she used Mozilla Firefox browser. Three other students also indicated this browser dependency issue in their reflections. Student C indicated that apart from lack of audio quality, everything about the video cases was perfect. One of the reflections proposed using Red5 media server to broadcast the online video cases and he/she indicated Red5 media server was a better and free solution than Microsoft Media Services.

Table 20 – Students' reflections – Technical Aspects – Pilot Study

Themes	n
Quality of video	1
Size and placement of video	1
Browser dependency	4
Suggesting another delivery medium	1

4.2.6 Summary of the Pilot Study

The most important finding in the pilot study was about the technical issues of the online video cases. Both in the interviews and in the reflections, the participants reported that there was a browser dependency problem with the online video cases, that there were difficulties regarding the audio of the online video cases and that there should be more online video cases. The researcher took these findings into account and redeveloped the available online video cases again, and added a new online video case about the ADDIE instructional model. Also the pilot study helped the researcher get used to the interview protocol and conduct interviews in a more professional manner.

4.3 Results of Cycle I

Based on the *Reflection* step of the pilot study, there were some improvements in cycle I as described in the Research Context section. The third step, *Observation*, in cycle I included data collection with both quantitative and qualitative instruments. These instruments are the evaluation of video case based training questionnaire, students' reflections about online video cases, web server logs and interviews.

4.3.1 What do the pre-service teachers think about the content of an online video-based teacher training system?

The first research question has possible answers from the interviews about the online video cases. There are two themes emerging from the interviews: *Students' understanding of video based training*, and *Components of online training environment.*

Students' understanding of video based training

The interviewees' responses to the first question of the interview were grouped in two categories unlike the pilot study. The responses revealed that the participants expected using videos as the delivery medium for the course; and adding instructional enhancements like recording in-class sessions and presenting videos of best practices about the subject matter.

Table 21 – Students' understanding of video based training – Cycle I

Themes	n
Delivery medium	6
Broadcasting in-class sessions	1
Demonstrating content of course	4
Video conferencing	3

Four of the participants interviewed in cycle I indicated that they were expecting sample videos demonstrating the content of the course. One of the participants stated that he expected live and recorded streams of classroom sessions in video based training. Three of the interviewees declared there would be video conference opportunities. Another participant said that video based training was adding videos to the training schedule.

Quotes from the interviewees:

> Since the name of the course is Foundations of Distance Education, I thought that there would be videos of professionals in the distance education field, sharing their experiences, thoughts, etc. Something like best practices. [I-25]

> What you called video based training is adding video to the training/learning. There is no special meaning. Same as the issue with Computer Based Training, as computer is added to training, here you add videos. [I-26]

> Some of our instructors offer courses to other universities by video conferencing in the Smart Classroom. I imagined there was an instructor from some other university lecturing to us by video conferencing. [I-27]

Components of online training environment

In cycle I, all of the participants stated the same features: forum, email and wiki. The main usage of these tools was to communicate with the instructor and the other students. They used forum to write messages and questions related with weekly assignments and readings whereas email for direct communication with the instructor. The students declared that the weekly reflections and assignments were submitted by wiki pages.

Table 22 – Components of online training environment – Cycle I

Themes	n
Lecture notes /presentations / readings	6
Messaging	5
Assignments	5
Wiki	3

Quotes from the interviewees:

> I followed weekly course readings from the web site. When I had questions to the instructor I emailed him. [I-28]

> There were lecture presentations, weekly assignments. I submitted my assignments with the assignment tool and learnt my grading as well. [I-29]

4.3.2 How do the pre-service teachers think about the online video cases used in this training environment?

The second research question involves responses both from the questionnaire and the interviews. There are three themes from the interviews for this question: *Students' perceptions about their video based training experience*, *Attitudes toward online training environment*, and *Utilizing online training in professional life*.

Evaluation of Video Case Based Training Questionnaire

The Evaluation of Video Case Based Training Questionnaire is composed of 30 Likert-type items and 1 open-ended item. There were also some other items to be able to understand descriptive information for the participants; such as gender, department, grade level, and number of online courses taken. The questionnaire is provided in Appendix A and the following table lists questionnaire items and the participants' responses given for cycle I.

Items 4, 8, and 11 in the questionnaire are negatively worded and these items were coded inversely for calculating the mean scores. However, in the results table, the item ratings are expressed as it is. In cycle I of the main study, the

individual scores of the participants ranged between 81 and 138, where the possible minimum score is 30 and maximum score is 150. The mean score of the questionnaire in cycle I is 104.68.

Table 23 – Results of Evaluation of Video Case Based Training Questionnaire – Cycle I

Items	SA	A	N	D	SD	$\bar{x}$	σ
1. I learned more using the online video case based method than the traditional way of instruction.	5 (25.00)*	4 (20.00)	7 (35.00)	4 (20.00)	0 (0.00)	3.58	1.07
2. I needed more guidance from the instructor while using the online video case based training environment than I need normally.	1 (5.26)	6 (31.58)	3 (15.79)	8 (42.11)	1 (5.26)	2.89	1.10
3. The online video cases helped me understand better.	2 (10.53)	11 (57.89)	2 (10.53)	4 (21.05)	0 (0.00)	3.58	0.96
4. The online video case based training was confusing than traditional one.	0 (0.00)	7 (36.84)	3 (15.79)	8 (42.11)	1 (5.26)	2.84	1.01
5. I thought myself more engaged in the online video case based training.	0 (0.00)	13 (65.00)	5 (25.00)	2 (10.00)	0 (0.00)	3.58	0.69
6. The online video case based training was challenging.	1 (5.00)	6 (30.00)	6 (30.00)	7 (35.00)	0 (0.00)	3.05	0.97
7. The online video case based training was motivating for me.	2 (10.00)	9 (45.00)	6 (30.00)	2 (10.00)	1 (5.00)	3.47	1.02
8. I was frustrated with the online video case based training.	1 (5.00)	3 (15.00)	6 (30.00)	8 (40.00)	2 (10.00)	2.58	1.12
9. The online video cases took more time than worth.	1 (5.00)	9 (45.00)	6 (30.00)	4 (20.00)	0 (0.00)	3.37	0.9
10. The online video cases added realism to this course	2 (10.00)	9 (45.00)	7 (35.00)	2 (10.00)	0 (0.00)	3.58	0.84
11. Use of the online video cases was inefficient.	1 (5.00)	7 (35.00)	2 (10.00)	7 (35.00)	3 (15.00)	2.80	1.24
12. The online video case based training allowed me to retain more from this course.	2 (10.00)	9 (45.00)	6 (30.00)	3 (15.00)	0 (0.00)	3.50	0.89

Table 23 – Results of Evaluation of Video Case Based Training Questionnaire – Pilot (continued)

Items	SA	A	N	D	SD	$\bar{x}$	Σ
13. The online video case based training allowed deeper understanding of course content.	3 (15.00)	9 (45.00)	4 (20.00)	4 (20.00)	0 (0.00)	3.55	1.00
14. I was more engaged in the course with video cases.	1 (5.00)	12 (60.00)	3 (15.00)	4 (20.00)	0 (0.00)	3.50	0.89
15. The online video cases were more entertaining than educational.	2 (10.00)	8 (40.00)	6 (30.00)	4 (20.00)	0 (0.00)	3.4	0.94
16. I learned more effectively by using online video cases.	2 (10.00)	14 (70.00)	2 (10.00)	2 (10.00)	0 (0.00)	3.80	0.77
17. I will use online video cases to be able to teach more effectively.	3 (15.00)	8 (40.00)	6 (30.00)	3 (15.00)	0 (0.00)	3.55	0.95
18. Using online video cases will better prepare me for the teaching profession.	1 (5.00)	13 (65.00)	5 (25.00)	1 (5.00)	0 (0.00)	3.70	0.66
19. The video quality of the video cases was good	1 (5.00)	15 (75.00)	3 (15.00)	1 (5.00)	0 (0.00)	3.80	0.62
20. The audio quality of the audio cases was good.	3 (15.00)	13 (65.00)	3 (15.00)	1 (5.00)	0 (0.00)	3.90	0.72
21. It was easy to access the video cases.	3 (15.00)	13 (65.00)	3 (15.00)	1 (5.00)	0 (0.00)	3.90	0.72
22. I encountered technical problems when watching the video cases.	2 (10.00)	7 (35.00)	3 (15.00)	6 (30.00)	2 (10.00)	3.05	1.23
23. I prefer to ask the instructor questions after watching the video case, e.g. email or forum messaging.	4 (20.00)	5 (25.00)	7 (35.00)	4 (20.00)	0 (0.00)	3.45	1.05
24. I learned a lot from the video cases.	0 (0.00)	16 (80.00)	2 (10.00)	2 (10.00)	0 (0.00)	3.70	0.66
25. The information was presented effectively in the video case.	1 (5.00)	15 (75.00)	1 (5.00)	3 (15.00)	0 (0.00)	3.70	0.8

Table 23 – Results of Evaluation of Video Case Based Training Questionnaire – Pilot (continued)

Items	SA	A	N	D	SD	$\bar{x}$	Σ
26. The video case based training helped me to stay focused during the instruction.	1 (5.00)	12 (60.00)	4 (20.00)	3 (15.00)	0 (0.00)	3.55	0.83
27. Viewing the video case more than once helped me to learn.	4 (20.00)	13 (65.00)	1 (5.00)	2 (10.00)	0 (0.00)	3.95	0.83
28. I liked having control over the instructional flow (e.g., go back, forward the video).	6 (30.00)	9 (45.00)	3 (15.00)	1 (5.00)	1 (5.00)	3.90	1.07
29. It was convenient to fast forward/rewind the video to a specific part of video case.	3 (15.00)	11 (55.00)	4 (20.00)	1 (5.00)	1 (5.00)	3.70	0.98
33. I would recommend courses utilizing online video case based training to others.	6 (30.00)	7 (35.00)	4 (20.00)	2 (10.00)	1 (5.00)	3.75	1.16

(* Numbers in parentheses are percentages)

There were a few responses for the open-ended item, excluding the parts students thanked for the study; two of the responses indicate positive comments:

> Video case based training was very beneficial for me.
>
> It was the first time I learnt a topic from video. It was beneficial but I could also understand the content from an instructor in a traditional class.

The questionnaire results indicated students' partially positive attitudes toward online video based training. The top three highest mean scores in the questionnaire are provided to the items, "Viewing the video case more than once helped me to learn.", "I liked having control over the instructional flow

(e.g., go back, forward the video)." and "It was easy to access the video cases." The least favored items are "I was frustrated with the online video case based training.", "The online video case based training was confusing than traditional one" and "I needed more guidance from the instructor while using the online video case based training environment than I need normally."

Students' perceptions of video based training experience

In cycle I, data analysis of interview transcripts revealed two main categories: Liked features and disliked features of video based training. Liked feature included understanding the content better, helping retention of content; whereas disliked features consisted of limited number of video cases.

Two of the students reported that video cases helped them understand related content better. Three of the participants stated that videos helped them retain more of the content. One student indicated that the number of video cases was not enough and there should be more cases for the entire course content, in an ideal way.

Two of the students also reported that preparing videos need creativity and this takes enormous amount of time. They elaborated this as forming a team of many individuals; consisting of instructional designers, subject matter experts, and technical experts. One of the participants also criticized that videos should be more creative, such as having more real life experiences of the course content apart from steady monologues of a person, namely an instructor. Another comment was that the video cases needed to be creative, not presenting prerecorded lectures.

Table 24 – Students' liked and disliked features of video based training experience – Cycle I

Themes	n
Understanding the content better	2
Helped retention	3
Limited number of cases	1
Lacking creativity	2

Quotes from the interviewees:

> The videos presented needs to be more creative. This is time consuming. There should be a team of instructional designers, subject matter experts, technical experts, and an administrator. They should prepare well written scenarios and then record the videos. [I-30]

> With related video or movies, retention of the topic increases. You can boost learning with related videos. I can say that I understood very well what is expected from a distance education student. For instance, if you show a video to someone who has ever seen İstanbul rather than give him a book about İstanbul, he would gain much more information. [I-31]

> There should be more creative videos. You need to provide real life examples. There were only monologue talks in the videos at the course web site. [I-32]

Attitude toward video case based training

In cycle I, four of the participants expressed that the video cases did not affect their motivation for the course. Only one of the participants reported that the use of video cases for the course affected his/her motivation. He/she explained that the availability of the video cases provided confidence and motivation for the course. Another student also elaborated that he frequently used the video case on instructional design for distance education, and he/she became competent of ADDIE design model by utilizing that video case.

Table 25 – Attitudes toward video case based training – Cycle I

Themes	n
Not motivated for the course	4
Added motivation for the course	1
Frequent user	1

Quotes from the interviewees:

> It was a bit appealing using video in the course, and this inspired me for the class. But the content of video cases was limited and I can't say I was totally motivated. [I-33]

> Use of videos presents many advantages like self paced learning, anytime anywhere learning, etc. The use of video cases in this course provided confidence for me and I was motivated for the course. [I-34]

> I can say I became competent in Instructional Design with ADDIE model. If there were only lecture notes, I wouldn't be this much enthusiastic for the course I guess. [I-35]

> If I had to take the same content without videos, time of learning might be a bit longer. When I needed to review something, I checked the ADDIE video first, before I checked the lecture notes. [I-36]

Utilizing video based online training in professional life

One of the questions of the interview was aiming to understand the students' preference of video case based learning. In the interviews in cycle I, four of the participants indicated that they would select and recommend to others video based learning environments as they believed that use of video makes a difference in their learning. Two of the participants reported that they would prefer video case based learning over traditional learning, if there were no technical problems stated before. Three of the participants also declared that they would use videos to enhance their teaching activities. They would not prefer any video case based learning if there were videos only for the sake of providing some videos. Other way, having printouts of text would provide much more self confidence.

Table 26 – Utilizing video based training in professional life – Cycle I

Themes	n
Would prefer video in training	4
Would use to enhance teaching activities	3
Would not prefer video	2

Quotes from the interviewees:

> Of course I will choose video based training. Using videos in teaching and learning environments have benefits both for the teacher and the students. You

> can provide students with videos of what you cannot bring to class, for example. [I-37]
>
> I choose video based activities in a course if only there are no technical problems. [I-38]
>
> Video makes a difference in learning. Therefore, when I am participating in training I prefer video based one and recommend to my friends to do so. [I-39]

4.3.3 How do the pre-service teachers use the online video cases in this training environment?

The possible answers to the third research question are provided both from the interviews and the server logs. The emergent theme from the interviews is *Usage of online video cases*.

Usage of online video cases

All of the five participants in cycle I had personal notebooks and could access to course site and video cases from any convenient place, such as dormitory, home, library and any public areas within wireless coverage. Two of the interviewees reported that they had not watched all of the video cases; they had started the video case to see what was in it and fast forwarded the videos till the end. The other three participants watched the video cases for at least once. Two of those participants indicated that they had viewed the video cases from start till end, however, when they needed to view the video cases at another time, they searched for the related part of the video and viewed that part.

Table 27 – Usage of online video cases – Cycle I

Themes	n
Video cases were reviewed from start to end	2
Video cases were reviewed zapping	3
Video cases were reviewed at least once	2
Anywhere access to video cases	5

Quotes from the interviewees:

> I reviewed all of the video cases. I enjoyed most the ADDIE video and watched it more than four times at various occasions. I looked at the others just for once. [I-40]

Server Log Results

The number of visits to the video cases is shown in Figure 8. The first video case was published on 4th week of the semester, the second case was published on 5th week and the third case was published on 8th week. The number of visits to video cases is provided as data labels in the related graph.

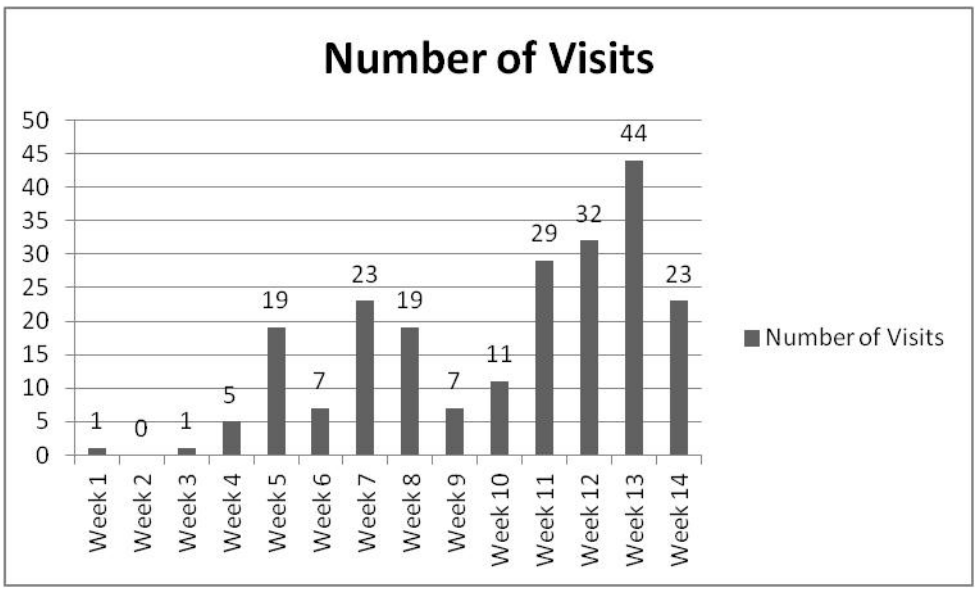

Figure 8 – Number of visits to video cases in cycle I

From the data provided by the web server logs, we could presume that the number of visits to the video cases at the following week the video cases were announced was more than the number of visits to the video cases at the week of announcement. In addition, at the end of the semester, there is an increase in the number of visits and the duration of the visits, as well. Students may prefer visiting the video cases at the end of semester in order to

- review the course materials for their final assignments
- complete the missed assignments

Figure 9 presents the average watching durations of video cases. Overall, the average visit to the video case web server lasted 656 seconds, approximately 11 minutes. The latter graph, Figure 10 shows the types of browsers used to access video case web server. 48% of the visits were with Internet Explorer, 38% of the visits were with Mozilla Firefox, and 14% with Google Chrome.

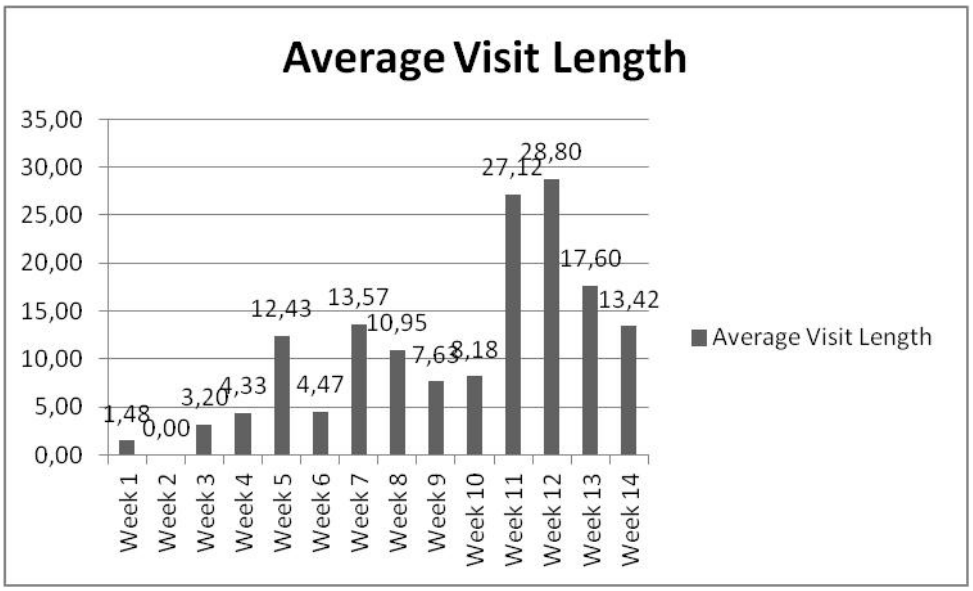

Figure 9 – Average visit length in cycle I (in minutes)

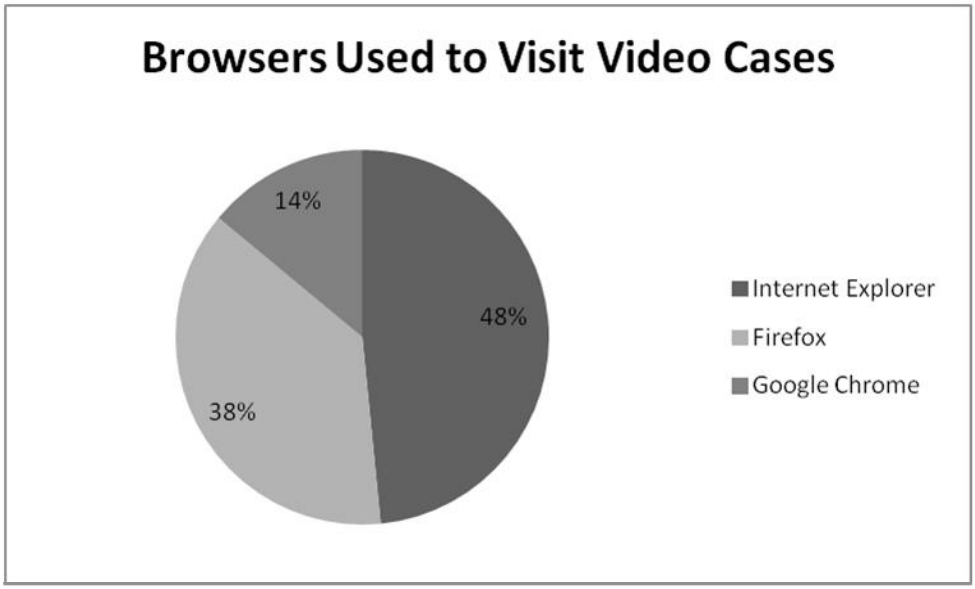

Figure 10 – Browsers used to visit video cases in cycle I

4.3.4 How does the video case-based approach help the pre-service teachers to comprehend the content?

The fourth research question is answered with both the interviews and the students' reflections about online video cases. The theme from the interviews is *Factors affecting learning* and the theme from the reflections is *Instructional aspects of online video cases.*

Factors affecting learning

In cycle I, all of the students referred to the same point that there were not many videos to be able to rate the comprehension of the course content. On the other hand, the available videos were helpful to understand the related course content. One of the students indicated that apart from reading the text from the book, one could look at the video and make use of the functions like rewinding, forwarding, and repeating of the video to be able to comprehend the content better.

The participants agreed on studying at one's self pace idea as an advantage. However, they also stated that technical problems were a disadvantage of such a system and this needs to be eliminated. Two of the participants indicated that the most valuable outcome of the online video case based learning was learning ADDIE design. One participant reported that the design of the online video case based learning was weak which could affect learner attention and eventually, their learning.

Table 28 – Factors affecting learning with video based training – Cycle I

Themes	n
Advantages	5
Disadvantages	3

Quotes from the interviewees:

> It was nice that everyone can follow the topic in his own pace. Appropriate use of videos made learning easier. [I-41]

> There was a case presenting Instructional Design. However, the design of itself was weak. If you want to teach something, the course material you create should be well designed, otherwise it would be nonsense expecting the student learn the content. [I-42]

Instructional aspects of online video cases

Three participants reported the quality of the information and explanations presented in the videos and also stated the related educational concept of dual mode coding:

> While a guy was talking about the topics mentioned above, the related texts were appearing at the right side of the page coherently. This directs to two different senses of learners: auditory and visual. Using both textual and auditory together helps the learners encode the information easier (Dual-mode coding).

Another student stated the importance of videos to "gain experience with realistic environments." Two of the participants referred to the flexibility of online learning, with the example of completing the units at their own pace.

One participant commented that the use of the online video cases presented a new perspective of learning, and another said, "It gives you another way to learn instead of reading from a book."

> There was a part in the video in which the ADDIE model was applied to a real-life problem, helping the watchers construct a bridge between what they have already known and ADDIE concept, and making it more concrete
>
> The video demonstrates Dr. Merrill's thoughts on Instructional Design for Internet

Table 29 – Students' reflections – Instructional Aspects – Cycle I

Themes	n
Self paced	2
Realistic environments	1
Controlling instructional flow	1
Information coding	1

4.3.5 What are the difficulties and the suggested solutions in using online video?

The possible answers for the fifth research question are from both the interviews and the students' reflections about online video cases. The theme from the interviews is *Problems related with online video cases* and the theme from the reflections is *Technical aspects of online video cases*.

Problems related with online video cases

Two of the participants in cycle I informed that the video cases were dependent on Microsoft Internet Explorer Browser. To be able to view the

video cases, they had to unwillingly run Microsoft Internet Explorer. Another point reported was the unsynchronized audio and video. Two participants expressed that the online video case based environment is limited to only three cases and they expected more. Another student indicated that although the case was about Instructional Design for Distance Education, the video cases were weak according to those criteria. Two of the students said that the loading time for videos was too long and this was not acceptable. Three of the participants declared that there were only three video cases and the number of video cases should be more, providing much more of the content for students.

Table 30 – Problems related with video based training – Cycle I

Themes	n
Browser dependency	2
Audio-video problems	1
Loading time	2
Limited number of cases	3
Instructional design	1

Quotes from the interviewees:

> One of the cases presented Instructional Design but the design of it was terrible. The design of the screen was complicated. When I first faced the video case, I had difficulty in navigating through it, and then I got used to it. [I-43]

> The video size and resolution was not appropriate. When I made the video full screen, the objects were hardly seen. [I-44]

> I had difficulty in hearing the audio in some parts. There might be a problem with the microphones used while recording or something like that. [I-45]

> I believe the number of cases should be increased. If this is a pilot study, then it might be OK. But, if you aim to enhance instruction, then the video content should enlarge and provide alternative ways for students to comprehend the content. [I-46]

Technical aspects of online video cases

The most common reflection was the browser dependency of the video cases. Four of the students stated the browser dependency issue in their reflections. One of those students also reported that

> Although stated it was declared in the web site that the video cases work only with IE browser, there shouldn't be such a restriction. I should use the software I use every day.

Three of the students indicated that the video quality is fair enough for delivery via Internet, however, one of them also added that when he/she resized the video to fit full screen, there were distortions as the used resolution was not enough for full screen size. Whereas seven of the participants reported that audio quality was satisfactory, two of the students elaborated that use of proper microphones would prevent background noise.

> Audio was audible but the narrator should use a microphone, perhaps on his desk, to prevent the noise heard sometimes in the background.

One of the students pointed out an important issue that there was not enough light during shooting the video and he/she could not see the face of the narrator and suggested that

> Lighting is very important during video shootouts. You have to pay attention to it. You should google about shooting the video in low light conditions.

Table 31 – Students' reflections – Technical Aspects – Cycle I

Themes	n
Browser dependency	4
Use of light during shootout	1
Quality of video	3
Quality of audio	2

4.3.6 Summary of Cycle I of the Main Study

At the end of cycle I of the main study, the researcher realized that there were some important responses to the interview questions; however, for a detailed research, there should be in depth interviews. Therefore, some revisions should be done in the interview protocol. Before conducting the cycle II of the main study, he revised the interview questions according to the findings of this cycle.

4.4 Results of Cycle II

Following the *Reflection* step of cycle I, there were some improvements and minor revisions in the interview questions before cycle II as described in the Research Context section. The third step, *Observation*, in cycle II included data collection with both quantitative and qualitative instruments. These instruments are the evaluation of video case based training questionnaire,

students' reflections about online video cases, web server logs and interviews.

4.4.1 What do the pre-service teachers think about the content of an online video-based teacher training system?

The first research question has possible answers from the interviews about the online video cases. There are two themes emerging from the interviews: *Students' understanding of video based training*, and *Components of online training environment*.

Students' understanding of video based training

The three categories emerged in the previous cycles suggested the initial coding for the data analysis process of cycle II. In addition to those categories, one more category came out in this cycle, non applicability.

Unlike the findings of the previous two cycles, one of the participants indicated that using video to deliver the content of the Foundations of Distance Education course was not applicable. He/she elaborated that video was most suitable to enhance classroom management courses and he/she could not imagine the applicability of enhancing distance education course with video. Two other participants stated that they expected biweekly class sessions to be recorded and to be published via course web site. Two more participants reported that they would be given assignments to analyze and reflect on video cases about course content and to prepare video recordings on various subject matters.

Table 32 – Students' understanding of video based training – Cycle II

Themes	n
Delivery medium	6
Instructional enhancements	1
Assignments	2
Non applicability	1

Quotes from the interviewees:

> Actually, I had no idea about using video in this [Foundations of Distance Education] course. We had videos in EDS courses for classroom management issues, but for distance education, I could not think it was possible. However, the video demonstrations used were appropriate in my opinion. [I-47]

> I thought recording biweekly class sessions and publishing them on the course web site. This would help me not to miss the classes as I had another course at the very same hours. [I-48]

> Our instructor would provide us videos about content and give us assignments to analyze those. [I-49]

Components of online training environment

The participants interviewed declared that apart from the video cases, there were the following features in the learning environment: lecture notes, readings, forum, email, and assignments. The students used these features mainly for communication purposes. Another purpose for use is reaching the course materials. As the course was offered online, most of the

communications with the instructor and other students occurred in the forum and via emails.

Table 33 – Components of online training environment – Cycle II

Themes	n
Lecture notes /presentations / readings	6
Messaging	6
Assignments	5

Quotes from the interviewees:

> I only used the online site to download lecture notes and readings. There was a forum, but I did not post any messages there. I watched the video cases just for once. [I-50]

> We had to communicate with other students and the instructor as we didn't have the opportunity to meet every week. For this reason, I used forum and email most. [I-51]

4.4.2 How do the pre-service teachers think about the online video cases used in this training environment?

The second research question involves responses both from the questionnaire and the interviews. There are three themes from the interviews for this question: *Students' perceptions about their video based training experience, Attitudes toward online training environment*, and *Utilizing online training in professional life*.

Evaluation of Video Case Based Training Questionnaire

The Evaluation of Video Case Based Training Questionnaire is composed of 30 Likert-type items and 1 open-ended item. There were also some other items to be able to understand descriptive information for the participants; such as gender, department, grade level, and number of online courses taken. The questionnaire is provided in Appendix A and the following table lists questionnaire items and the participants' responses given for cycle II.

Items 4, 8, and 11 in the questionnaire are negatively worded. These items were coded inversely for calculating the mean scores. However, in the results table, the item ratings are expressed as it is. The individual scores of the participants ranged between 81 and 125, where the possible minimum score is 30 and maximum score is 150. The mean score of the questionnaire in cycle II is 105.40.

Table 34 – Results of Evaluation of Video Case Based Training Questionnaire – Cycle II

Items	SA	A	N	D	SD	$\bar{x}$	σ
1. I learned more using the online video case based method than the traditional way of instruction.	5 (26.32)*	9 (47.37)	2 (10.53)	2 (10.53)	1 (5.26)	3.79	1.13
2. I needed more guidance from the instructor while using the online video case based training environment than I need normally.	0 (0.00)	2 (10.53)	8 (42.11)	7 (36.84)	2 (10.53)	2.53	0.84
3. The online video cases helped me understand better.	2 (10.53)	10 (52.63)	5 (26.32)	0 (0.00)	2 (10.53)	3.53	1.07
4. The online video case based training was confusing than traditional one.	1 (5.26)	2 (10.53)	5 (26.32)	8 (42.11)	3 (15.79)	2.47	1.07

Table 34 – Results of Evaluation of Video Case Based Training Questionnaire – Cycle II (continued)

Items	SA	A	N	D	SD	$\bar{x}$	σ
5. I thought myself more engaged in the online video case based training.	2 (10.53)	8 (42.11)	8 (42.11)	1 (5.26)	0 (0.00)	3.58	0.77
6. The online video case based training was challenging.	0 (0.00)	6 (31.58)	9 (47.37)	2 (10.53)	2 (10.53)	3.00	0.94
7. The online video case based training was motivating for me.	4 (23.53)	10 (58.82)	3 (17.65)	0 (0.00)	0 (0.00)	3.95	0.71
8. I was frustrated with the online video case based training.	0 (0.00)	2 (10.53)	3 (15.79)	10 (52.63)	4 (21.05)	2.16	0.90
9. The online video cases took more time than worth.	0 (0.00)	4 (21.05)	7 (36.84)	5 (26.32)	3 (15.79)	2.63	1.01
10. The online video cases added realism to this course	4 (21.05)	10 (52.63)	5 (26.32)	0 (0.00)	0 (0.00)	3.95	0.71
11. Use of the online video cases was inefficient.	0 (0.00)	1 (5.26)	6 (31.58)	8 (42.11)	4 (21.05)	2.21	0.86
12. The online video case based training allowed me to retain more from this course.	1 (5.26)	12 (63.16)	5 (26.32)	1 (5.26)	0 (0.00)	3.68	0.67
13. The online video case based training allowed deeper understanding of course content.	2 (10.53)	11 (57.89)	5 (26.32)	1 (5.26)	0 (0.00)	3.74	0.73
14. I was more engaged in the course with video cases.	3 (15.79)	11 (57.89)	3 (15.79)	2 (10.53)	0 (0.00)	3.79	0.86
15. The online video cases were more entertaining than educational.	2 (10.53)	10 (52.63)	3 (15.79)	3 (15.79)	1 (5.26)	3.47	1.07
16. I learned more effectively by using online video cases.	2 (10.53)	12 (63.16)	4 (21.05)	1 (5.26)	0 (0.00)	3.79	0.71
17. I will use online video cases to be able to teach more effectively.	2 (10.53)	11 (57.89)	5 (26.32)	1 (5.26)	0 (0.00)	3.74	0.73
18. Using online video cases will better prepare me for the teaching profession.	3 (15.79)	9 (47.37)	5 (26.32)	2 (10.53)	0 (0.00)	3.68	0.89

Table 34 – Results of Evaluation of Video Case Based Training Questionnaire – Cycle II (continued)

Items	SA	A	N	D	SD	$\bar{x}$	σ
19. The video quality of the video cases was good	3 (15.79)	11 (57.89)	5 (26.32)	0 (0.00)	0 (0.00)	3.89	0.66
20. The audio quality of the audio cases was good.	3 (15.79)	12 (63.16)	4 (21.05)	0 (0.00)	0 (0.00)	3.95	0.62
21. It was easy to access the video cases.	3 (15.79)	14 (73.68)	2 (10.53)	0 (0.00)	0 (0.00)	4.05	0.52
22. I encountered technical problems when watching the video cases.	1 (5.26)	8 (42.11)	2 (10.53)	6 (31.58)	2 (10.53)	3.00	1.20
23. I prefer to ask the instructor questions after watching the video case, e.g. email or forum messaging.	2 (10.53)	9 (47.37)	4 (21.05)	3 (15.79)	1 (5.26)	3.42	1.07
24. I learned a lot from the video cases.	2 (10.53)	9 (47.37)	7 (36.84)	1 (5.26)	0 (0.00)	3.63	0.76
25. The information was presented effectively in the video case.	3 (15.79)	9 (47.37)	6 (31.58)	0 (0.00)	1 (5.26)	3.68	0.95
26. The video case based training helped me to stay focused during the instruction.	1 (5.56)	12 (66.67)	3 (16.67)	2 (11.11)	0 (0.00)	3.53	0.84
27. Viewing the video case more than once helped me to learn.	2 (10.53)	11 (57.89)	4 (21.05)	2 (10.53)	0 (0.00)	3.68	0.82
28. I liked having control over the instructional flow (e.g., go back, forward the video).	8 (42.11)	10 (52.63)	1 (5.26)	0 (0.00)	0 (0.00)	4.37	0.60
29. It was convenient to fast forward/rewind the video to a specific part of video case.	7 (36.84)	10 (52.63)	1 (5.26)	1 (5.26)	0 (0.00)	4.21	0.79
30. I would recommend courses utilizing online video case based training to others.	6 (31.58)	9 (47.37)	3 (15.79)	0 (0.00)	1 (5.26)	4.00	1.00

(* Numbers in parentheses are percentages)

There were a few responses for the open-ended item and all of them included appreciation for the study. The questionnaire results indicated students'

partially positive attitudes toward online video based training and the mean score of the questionnaire was slightly higher than that of cycle I. Comparing with the results of cycle I, the scores are nearly the same and agreements were provided almost to the same items.

The top three highest mean scores in the questionnaire are provided to the items, "I liked having control over the instructional flow (e.g., go back, forward the video)", "It was convenient to fast forward/rewind the video to a specific part of video case." and "It was easy to access the video cases." The least favored items are "I was frustrated with the online video case based training.", "Use of the online video cases was inefficient." and "The online video case based training was confusing than traditional one."

Students' perceptions of video based training experience

In cycle II, all of the students indicated that video based training met what they expected. Data analysis of interview transcripts revealed two main categories: Liked features and disliked features of video based training. Liked feature included helping retention of content; whereas disliked features consisted of lacking creativity and limited number of video cases.

Table 35 – Students' liked and disliked features of video based training experience – Cycle II

Themes	n
Helps retention	4
Understand content better	3
Needs creativity	2
Limited number of cases	2

Three of the students reported that video cases helped them understand related content better. Four of the participants agreed on videos helped them retain more of the content. Two students indicated that the number of video cases was not enough and there should be more cases for the entire course content, in an ideal manner. Two other students reported that there should be more creative videos in a teaching/training environment.

Quotes from the interviewees:

> There were not much video cases for a distance education course, I mean for the whole course. If you think of a part of a course, then this is acceptable. Ideally, if you are doing video based training, you need to cover the whole course with videos. [I-52]

> The video case about ADDIE design was creative, there should be other videos like that, and they should be creative. [I-53]

> Videos help us learn more of the topic. If the content of the video is good, then we can learn any subject with that video. The important issue is designing the appropriate instructional video. [I-54]

Attitude toward video case based training

Four of the participants interviewed agreed that the video cases caused not much motivation for the course. Three of the participants indicated that the video cases were helpful to some extent; however, if there were no such opportunity like videos, there would be no change in the students' motivation. Two of the students stated that the videos or other materials used in the course had no effect on motivation; they only provided ways to

enhance learning. More materials or ways offered in the course only help the students have more chances for better learning.

Table 36 – Attitudes toward video case based training – Cycle II

Themes	n
Motivation for the course	3
Enhancement to learning	2

Quotes from the interviewees:

> If there were no video cases in this training environment, it would be the same. For me, there is no effect of the content or the medium of instruction. [I-55]

Utilizing video based online training in professional life

Another question of the interview was aiming to understand the students' preference of video case based learning. Three of the participants emphasized that they would prefer videos, however, the quality of the video content was extremely important. But, one participant stated that although he would prefer video based environments for himself, he/she would not recommend any methods to other people. She/he believed that video based learning would be the better way; however, if he/she would recommend to some other person and that person failed after having video based learning, he would like not to be held responsible for this failure.

Table 37 – Utilizing video based training in professional life – Cycle II

Themes	n
Would prefer video	4
Not recommend video	1

Quotes from the interviewees:

> If you ask me about my choice of training, I would prefer video based one. I feel more confident with videos other than lots of texts. [I-56]

> When I am participating in a training session, video would be my choice. However, I would not recommend this to someone else. Because, if he fails the course, I don't want to get that responsibility. [I-57]

4.4.3 How do the pre-service teachers use the online video cases in this training environment?

The possible answers to the third research question are provided both from the interviews and the server logs. The emergent theme from the interviews is *Usage of online video cases*.

Usage of online video cases

All of the students who were interviewed indicated that they all had notebook computers and also reported that they watched the video cases for at least once. One of the participants indicated that he/she had watched the video cases more than five times each. Four participants stated that they watched the video cases only once. Four of participants stated watching the cases

from the start to the end. Another participant had downloaded the video file at first visit and copied the file to a mobile phone, and viewed the video file while on the way. As all of the participants had personal notebooks, they had the opportunity to access course site and video cases anywhere. All of the participants accessed the video cases from any public area within wireless coverage.

Table 38 – Usage of online video cases – Cycle II

Themes	n
Video cases were reviewed more than five times	1
Video cases were reviewed only once	4
Video cases were reviewed from start to end	4
Video cases were reviewed at least once	6
Video cases were reviewed with mobile phone	1
Anywhere access to video cases	6

Quotes from the interviewees:

> I definitely liked watching the videos and watched all of them six-seven times. There should be more of those video cases. I believe video based training is an excellent job. [I-58]

> When I first visited the site, I downloaded the video files and copied them to my mobile phone. Then, when I needed, I looked at them a few times. [I-59]

Server Log Results

The number visits to the online video cases is shown in Figure 11. The first video case was published on 4th week of the semester, the second case was published on 5th week and the third case was published on 8th week. The number of visitors to video cases is provided as data labels in the related graph.

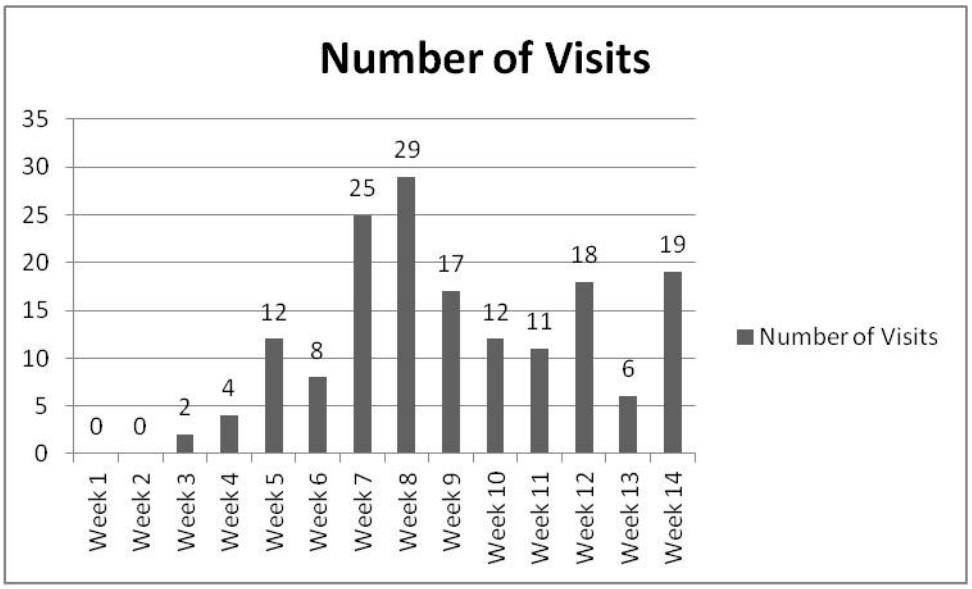

Figure 11 – Number of visits to video cases in cycle II

The data provided by the web server logs presents that the number of visits to the video cases increases immediately after the announcement of the second case. In addition, after all of the cases were published, there is an increase in the number of the visits. There is also a slight increase at the end of the semester.

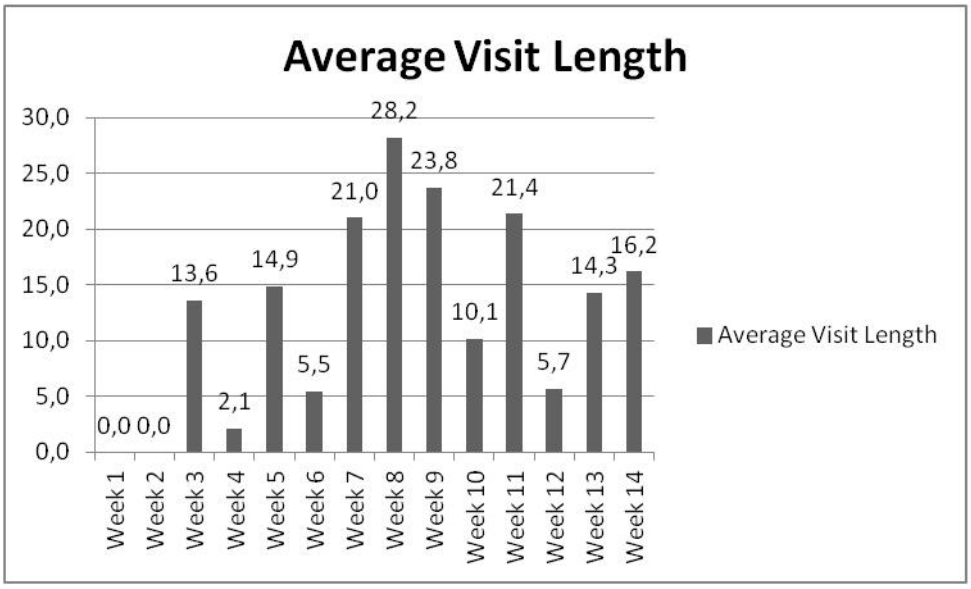

Figure 12 - Average visit length in cycle II (in minutes)

Figure 12 presents the average watching durations of video cases. Overall, the average visit to the video case web server lasted 757 seconds, approximately 12.5 minutes. The latter graph, Figure 13 shows the types of browsers used to access video case web server. 52% of the visits were with Internet Explorer, 39% of the visits were with Google Chrome, and 9% with Mozilla Firefox.

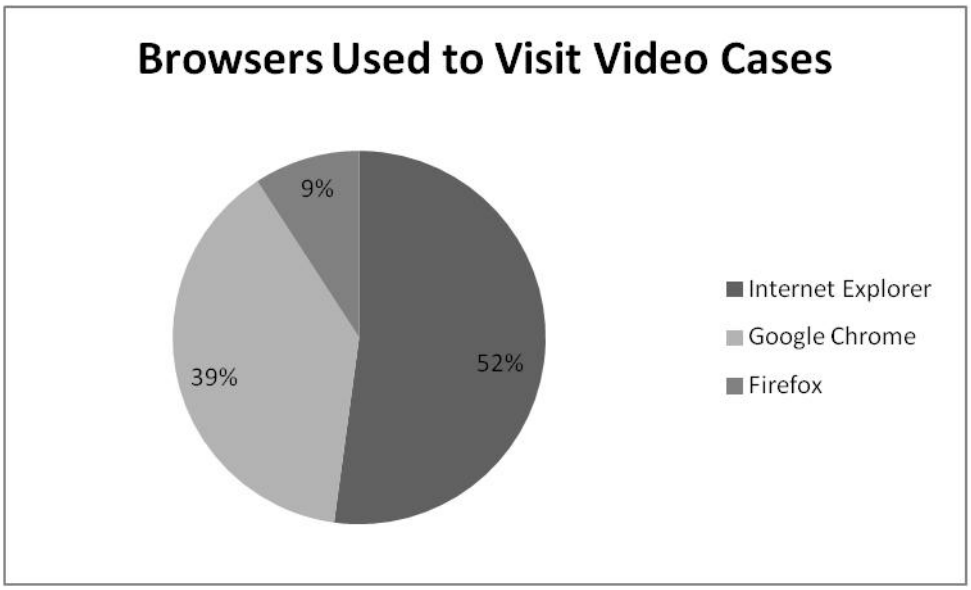

Figure 13 - Browsers used to visit video cases in cycle II

4.4.4 How does the video case-based approach help the pre-service teachers to comprehend the content?

The fourth research question is answered with both the interviews and the students' reflections about online video cases. The theme from the interviews is *Factors affecting learning* and the theme from the reflections is *Instructional aspects of online video cases.*

Factors affecting learning

The students agreed that they had benefited from the video cases to help them comprehend the course content. However, they also indicated that as the videos consist of two cases, the videos were not helpful for the whole course. Two of the participants reported that the video cases would be beneficial for students to grasp the course content if videos were in line with

the syllabus of the course. The common answer from the interviewees was that video case based learning helped them study at their own paces. Apart from studying at their own pace, four of the participants reported that video cases and video based learning assist learners with providing audio visual enhancements to still textbooks.

Another positive issue declared was that one can easily search the case for a desired location by rewinding and fast forwarding. One participant reported that the design of the online video case based learning was weak which could affect learner attention and eventually, their learning. The final disadvantage expressed was that the videos took much time to start. Two of the participants also indicated that as the videos consist of two cases, the videos were not helpful for the whole course. Two of the participants reported that the video cases would be beneficial for students to grasp the course content if videos were in line with the syllabus of the course.

Table 39 – Factors affecting learning with video based training – Cycle II

Themes	n
Advantages	6
Disadvantages	3

Quotes from the interviewees:

> I liked going forward and backward in the videos. This is good if you are watching the video for a second or third time. This helps skipping unrelated parts. [I-60]

> If the videos cover all of the content in the course, then it would be helpful for students. Here, we had

> three videos. That was good for its purpose. I took advantage of them, however, the important point is providing such enhancements. [I-61]

Instructional aspects of online video cases

Two of the participants stated that when video was added to enhance instruction, there would be an increase in student retention. Four participants stated that online video cases helped them cover the content at their own pace. Student F emphasized the importance of the scenario of the video cases. One of the students stated that using videos helped making the impossible become possible:

> I liked the videos because they allowed you to watch and examine things that you cannot afford in real life. Normally, I cannot see Dr. Merrill and listen to his thoughts if there weren't this video.

Giving an example of the effectiveness and efficiency of video cases, Student E reported that

> Maybe, video case can be more beneficial than the traditional education system and students can focus on courses effectively and efficiently.

Another student reflected that including videos in the learning environment e/she criticized that for the sake of adding video would not help; however, a good video prepared with good planning would help.

Table 40 – Students' reflections – Instructional Aspects – Cycle II

Themes	n
Self paced	4
Importance of content	2
Make the impossible possible	1
Good planning	1

4.4.5 What are the difficulties and the suggested solutions in using online video?

The possible answers for the fifth research question are from both the interviews and the students' reflections about online video cases. The theme from the interviews is *Problems related with online video cases* and the theme from the reflections is *Technical aspects of online video cases*.

Problems related with online video cases

As in the previous cycles, the main problem that the participants interviewed in cycle II reported that the video cases only worked in Microsoft Internet Explorer browser. The students declared that they preferred to use other browsers like Mozilla Firefox and Google Chrome; however, the video cases did not work in these browsers. Two of the students said that they found a hack to download the videos and they watched the video cases that way. Two other students indicated that in the parts where the narrator talked, there were not much light and they had difficulty following the videos. Three of the participants pointed out that in some parts of the videos; audio and video were not synchronized, which makes the video difficult to view.

Table 41 – Problems related with video based training – Cycle II

Themes	n
Browser dependency	4
Audio-video problems	3
Lighting issues	1

Quotes from the interviewees:

> Videos were IE dependent. I am running Google Chrome and cannot watch the video cases. So, I downloaded the video file and then watched the videos. [I-62]

> The video was too dark at some points where the narrator talks, this caused difficulties following the video. There should be more importance on backstage. [I-63]

Technical aspects of online video cases

Student A stated in his/her reflection that the quality of video needs improvements and when the video showed scenes other than the narrator, the images were not clear. He/she also proposed using high definition cameras and using high resolution in the web videos. Another student reflected likewise. There were five comments on the dependency on the IE browser.

Table 42 – Students' reflections – Technical Aspects – Cycle II

Themes	n
Browser dependency	5
Quality of video	1

4.4.6 Summary of Cycle II of the Main Study

At the end of cycle II of the main study, the researcher analyzed the data and decided to finish data collection process. Afterwards, data from both of the cycles of the main study were assessed all together to be able to provide the discussion chapter of the study.

4.5 Summary

This chapter provided descriptive information about the participants, results of the questionnaire, students' reflection on online video cases, course web server logs and interview transcripts for the pilot study and both cycles of the main study in detail. In all of the cycles, the results of the questionnaire proposed that the students had partially positive attitudes for the online video cases included in the study. In addition, the interview questions provided answers to the research questions about

- students' understanding of online video case based training and their expectations,
- effects of online video cases to comprehension of course content and to students' motivation for the course,
- problems related with the online video cases,
- students' online video case usage,
- advantages and disadvantages of online video case based training, and
- students' preferences of online video cases for their professional lives

Additionally, the results of the analysis of students' reflections about the video cases on the forum pages and web server logs were also provided to

supplement the main findings of the study. Wherever related, quotations were provided from interview transcripts and students' reflection postings. Summing up the data analysis of the reflections, interviews, questionnaire and server logs; this chapter can be summarized as follows:

Students' understanding of video based training included the delivery medium, course assignments and enhancements to instruction. Their perceptions of their video based training experience consisted of liked and disliked features of video cases, such as helping retention, understanding the content better, controlling instructional flow, self-paced training, importance of well-prepared videos, lacking of creativity and limited number of video cases. The major components of online training environment as stated by the participants were lecture notes, presentations and readings; synchronized and unsynchronized messaging tools; assignment and grading tools; and wiki pages. The students' attitudes toward video case based training included their motivation for the course and utilizing video based training in their professional lives.

The students' usage of online video cases was expressed in the number of times video cases were reviewed and, apart from interviews; the course web server logs revealed that the average duration of video case visits was 11'44" for the cycles of the study. For the factors affecting students' learning and comprehension of course content, there were advantages and disadvantages of video based training, which included audio visual enhancements to instruction, abilities like rewinding and forwarding of videos, and the technical and instructional problems. These technical problems were about the browser dependency of the video cases, and quality of audio or video

issues. There was an instructional problem reported, which was about the limited number of video cases.

CHAPTER 5

DISCUSSION

In this chapter, an interpretation and discussion of the results given in the previous chapter are presented. In addition, implications and recommendations are offered.

In this study, the purpose is to understand the pre-service teachers' perceptions about an online video based training environment. A case study in line with an action research design was conducted to understand what the students think about online video based training. In order to collect data, the evaluation of video based training questionnaire and interviews were administrated to the students. Other documents including course web server logs and students' reflections about the video cases in the web forum were also analyzed to ensure the trustworthiness of the study.

5.1 Discussion

The analysis of the interviews conducted with students and students' reflections about video cases concluded with some themes that could serve as possible answers to the research questions. These themes and possible answers to the research questions are provided in the following table.

Table 43 – Research Questions and Related Themes

Research questions	Themes
What do the pre-service teachers think about the content of an online video-based teacher training system?	Students' understanding of VBT Components of online training environment
How do the pre-service teachers think about the online video cases used in this training environment?	Attitudes toward online training environment Students' perceptions about their video based training experience Utilizing online training in professional life
How do the pre-service teachers use the online video cases in this training environment?	Usage of online video cases
How does the video case-based approach help the pre-service teachers to comprehend the content?	Factors affecting learning Instructional aspects of online video cases
What are the difficulties and the suggested solutions in using online video?	Problems with video based training Technical aspects of online video cases

In addition to the analysis of the interviews and students' reflections about the online video cases, the Evaluation of Online Video Case Based Training Questionnaire and course web server logs were also utilized to supplement the findings. According to SPSS data reduction analysis, the questionnaire items formed no meaningful factors. Therefore, the questionnaire results are presented on item basis.

The mean score of the questionnaire for the main study is 105.04, where the possible minimum score is 30 and maximum score is 150. The minimum and maximum scores of the cycles in the main study are as follows: 81 and 138 for cycle I with a mean of 104.68, and 81 and 125 for cycle II, with a mean of 105.40.

5.2 Possible Answers to the Research Questions

5.2.1 Research Question 1

How do the pre-service teachers think about the online video cases used in this training environment?

To answer the first research question, results of the interviews are investigated. According to the interview results, students' understanding of video based training included the delivery medium of the course, enhancements to the instruction and the course assignments.

The interview results revealed four categories for the use of video in an educational setting. The first category was using videos to deliver course content. The second category was using video conferencing, short movie clips, recording in-class sessions, and presenting videos of best practices as supplements to the course materials. The third category was giving assignments to the students to prepare videos related with course content and to analyze and reflect on video cases about course content. The final category emerged from the interview analysis was the non applicability of using video in a distance education course. Controlling the flow of instruction, increasing student retention of course content and self paced learning were also the main categories related with the online video cases.

An important response was stated by two of the participants during the interviews in the main study cycle I. They declared one important issue that preparing videos need creativity and this takes enormous amount of time. They also elaborated this as forming a team of many individuals; consisting of instructional designers, subject matter experts, and technical experts.

Abell and Cennamo (2003) reported the same findings that such a study involved collaboration among many individuals, including the project staff, the technical crew, classroom teachers, their students, science educators, instructional designers, and computer technicians. They also stated that it is important for team members from different backgrounds to clarify their strongly held beliefs about teaching, learning, and curriculum throughout a project such as this.

Kay (2012) reviewed studies on using pod-casts in education and reported main benefits. One of the reported benefits suggested that the main usage reason of video casts is to improve learning. In the current study, the participants also indicated the fact that video based training permitted them to learn anywhere and anytime, and at the pace they wanted.

Bolliger et al. (2010) stated in their study that the majority of students in traditional courses rated use of video as very useful and reported very positive experiences. Students use video in the preparation of assessments, note-taking, and review of missed lectures.

The online course environment was running on Moodle LMS offering many tools to be used in the course delivery. The study revealed that apart from the video cases, there were lecture notes and presentations, course readings shared by the instructor, messaging tools such as chat and forum, measurement tools such as grading, quizzes and assignments, and wiki pages. The students used these features for reaching the course materials and communicating with the instructor and other students. As the course was offered in blended format, most of the communications with the instructor and other students occurred in the forum and via emails. Course wiki pages were used to submit reflection papers and other course assignments. These

findings are similar to the reports of Cannings & Talley (2002) who stated that nonlinear integration of video, audio, text, and graphics can provide a rich environment for case studies which promote the construction of knowledge in a learning community.

The participants' responses in the interviews revealed that the most used components in the online learning environment were the lectures notes and the messaging tools. The usage of the video cases offered in the online learning environment was explained with the third research question.

5.2.2 Research Question 2

How do the pre-service teachers think about the online video cases used in this training environment?

To answer the second research question, the evaluation of online video case based training questionnaire, and the interviews were analyzed. According to the interview responses, three themes emerged providing possible answers to this research question. The themes are "Attitudes toward online training environment", "Students' perceptions about their video based training experience" and "Utilizing online training in professional life".

The participants reported that their experience with video cases met their expectations before the course to an extent. The participants also indicated that video cases caused not much more motivation for the course and one of them elaborated that if there were no such videos, he/she would also be excited about the course. Only one student reported to get motivated by the online video cases, when he/she needed to review the content, before checking the lecture notes, he/she checked the online video cases and this

reduced the time of learning. Kay (2012) also indicated that students have very positive attitudes toward video podcasts, describing them as useful, helpful and effective, as well as enjoyable, motivating, and stimulating.

The questionnaire scores of the study ranged between 81 and 138, where the possible minimum score is 30 and maximum score is 150. The mean score of the questionnaire is 105.04, being in the middle of neutral and agreement with the items. Stirling et al. (2004) studied participants' attitudes toward an online digital video library and using video cases as a learning tool. The mean scores on the seven-point scale were 5.33 and 5.54, respectively, which are both favorable results. They suggested that the novice pre-service teachers need more scaffolding and guided assistance in analyzing video cases before completing a written assignment on their own. Comparing results of the current study with their study, the current study have less favorable agreement scores.

The top three highest mean scores in the questionnaire were above 4.10 and provided to the items, "I liked having control over the instructional flow (e.g., go back, forward the video)", "It was convenient to fast forward/rewind the video to a specific part of video case." and "It was easy to access the video cases." The least favored items were near 2.00, for the items "I was frustrated with the online video case based training.", "Use of the online video cases was inefficient." and "The online video case based training was confusing than traditional one." These items provided that the most liked feature of online video cases is the advantages it brought to the flow of instruction. Another outcome of the questionnaire was the self-reported satisfaction and level of anxiety of the pre-service teachers about the online video cases.

According to a study by Bolliger et al. (2010), participants were motivated by the use of the podcasts that were integrated into their online courses. The confidence and attention subscales received the highest ratings of the four subscales, indicating that use of video helped the participants feel comfortable and believe they could learn the content provided by their instructors. The participants were confident that they were able to understand the instructional content. The satisfaction subscale received the lowest mean; the conclusion is that students were moderately satisfied with the use of video casts. There were not any subscales in the questionnaire to decide on the motivation for online video cases, however, the item "The online video case based training was motivating for me" received agreements and strongly agreements in all of the cycles of this study.

Students' perceptions about their video based training experience also revealed liked and disliked features of video based training. Liked features included understanding the content better, helping retention of content, and searching the case for a desired location by rewinding and fast forwarding; whereas disliked features consisted of limited number of video cases, interaction problem in video based training, being only suitable for demonstration, and lacking creativity in video cases.

Fernandez et al. (2009) proposed findings revealing that video casting was fully consistent with three principles (time on task, high expectations, and respecting diverse ways of learning) and partially consistent with two other principles (contact between students and teachers, and feedback). These results suggested that the use of video casting allows for the promotion of good practice in distance courses in higher education.

Copley (2007) and Dupagne et al. (2009) provided general comments suggesting that use of video were enjoyable to watch and satisfying. Fernandez et al. (2009) also stated that students described videos as interesting when the material was intellectually stimulating.

Dupagne et al. (2009) and Lonn & Teasley (2009) reported that almost 70% of the students agreed that videos were very useful for catching up on classes they were unable to attend. In one of the interviews, one of the participants reported the very same reason and declared that video use would help him/her not to miss the classes. Similar to this finding from the interviews, Foertsch et al. (2002) suggested that students valued use of video in a course because this allowed them to fit courses into their loaded course schedules. Another study also showed that use of video was appreciated by students who had to travel a significant distance to attend classes (McKinney & Page, 2009).

Another theme that emerged during data analysis of interviews was utilizing online training in professional life. This theme exposed that all of the participants would prefer video based learning over traditional learning. Some of the participants also stated that they would use video based learning in their teaching activities, an example of this could be recording own lectures in the classroom and publishing that video from web.

This theme also revealed the appreciation of the participants about using online video in a blended course. In a similar manner, Rose (2009) reported that findings suggest the use of instructor-made videos in both online and face-to-face classes may be beneficial, but especially in 100% online classes.

Interestingly, one participant in cycle II stated that although he/she would prefer video based environments for himself/herself, he/she would not recommend any methods to other people. He/she believed that video based learning would be the better way; however, if he/she would recommend to some other person and that person failed after having video based learning, he/she would like not to be held responsible for this failure. This situation might depict that the participants like the use of online video cases and they would continue to use it; however, they might have some uncomfortable experiences during their practice and they did not want these experiences occur to anyone else. The reasons of preferring but not recommending online video cases should be investigated in another study.

5.2.3 Research Question 3

How do the pre-service teachers use the online video cases in this training environment?

For this research question, both the interview responses and the web server logs were analyzed. The web server logs provide information like visits to the video cases, and for how long the video cases were viewed. According to the web server logs, the students' usage of online video cases was expressed in the number of times video cases were reviewed. The durations of the video cases in the study are 8'59", 7'53" and 9'45", respectively, totaling 26 minutes and 37 seconds.

The web server logs reflected that the video case files were accessed 221 times for cycle I and 163 times for cycle II. The average length of the visits to the video case files is 703 seconds (11'43") on average. There were 29 students in cycle I and 21 students in cycle II who were enrolled to the CEIT

321 course. However, the web server logs did not reflect whether one student or all of the students included in this much number of visits. Moreover, although there was a decrease in the number of students from 29 and 21 from cycle I to II, the number of visits to the online video cases did not decrease by the same rate. This information may provide that in cycle II of the study, the students spent much time with the online video cases more than the students in cycle I.

Trying to understand the places where the students access the online video cases, we conclude that most of the participants had personal notebooks and had the opportunity to access course site and video cases anywhere, within wireless coverage or ADSL network at their homes. The participants also indicated that they had reviewed the video cases three or four times generally. However, some participants stated that they watched the video cases only once, as well. Some of the participants viewed the cases from the start to the end and some of the others watched some parts of the vide cases.

All of these findings are consistent with the results of de Boer et al. (2011) who studied the video watching behaviors of students. In the study, they stated four distinct styles of video watching: linear (watching a complete video once), elaborative (watching a complete video twice), maintenance rehearsal (watching part of a video repeatedly) or zapping (skipping through video and watching brief segments). There were eight-minute long segmented videos demonstrating how to use a piece of digital equipment. They also reported that viewing style was not constant, and the style was changing based on the cognitive needs of the user. They elaborated this with an example: “Students with a low short-term memory capacity are expected to have a more global learning style and student with a high short-term

memory capacity are expected to have a more sequential learning style." (de Boer et al., 2011, p. 734).

There are some other video viewing patterns emerging from the literature. One of the patterns shows that students prefer to view videos outside work hours and weekends (Copley, 2007). Brittain et al. (2006) suggested that students viewed videos immediately before exams. In line with their study, according to the web server logs, there is an inclination of the number of visits to the video cases at the end of the semesters. Kay (2012) also reported that students use videos frequently, especially prior to a test or examination.

Another pattern of video viewing is that students viewed videos at home using their personal computers and not on mobile devices (McGarr, 2009). Most of the participants in the study reported that they accessed the online video cases at home and in anyplace within wireless coverage. However, in the interviews one of the participants reported that he/she downloaded the video file to his/her mobile phone. Walls et al. (2010) contributed to McGarr's finding that choice of device partially depends on video content. Students preferred listening to accompanying video with mobile devices and lecture videos on computers at home while studying.

In a similar study, Wang et al. (2010) reported that students wanted to see an exceptional lecture for a second time. In the current study, some of the participants stated that they viewed the online video cases more than three times and when they wanted to review some of the course topics, they utilized the video cases before looking at the lecture notes or course readings.

5.2.4 Research Question 4

How does the video case-based approach help the pre-service teachers to comprehend the content?

Both the interviews and the students' reflections were analyzed for this research question. The major theme in the interview analysis was "Factors affecting learning". The students stated the factors affecting their comprehension of course content as the advantages and the disadvantages of video based training on their learning experience. The main advantage of the online video cases was to help the students comprehend the course content. Some of the participants reported explicitly that video cases would assist learners with providing audio visual enhancements over static textbooks. Another positive issue was the ability to easily search the case for the required position by rewinding and fast forwarding the video. The most common answer from the interviews was that online video cases helped them study at their own paces.

As a disadvantage, the number of video cases was reported to be not enough and there should be more cases for the entire course content and another issue was that the videos should be more creative in a teaching/training environment.

Hew (2009) stated that participants' self-reports and experimental or quasi-experimental designs could be used to answer whether podcasts can help improve students' learning. The former design implements perception questionnaire or interviews and the latter employs test scores or quiz scores. There were some studies implementing the first approach. For example, Anzai (2007) administered a questionnaire on students regarding their

experiences in using video podcast in a foreign language course and reported that most of the students considered video could enhance their learning of English. In another study, students also identified that video could be useful in helping them increase their understanding of material covered in lectures. (Bongey et al., 2006) In another study, Rose (2009) reported that students showed feelings as if they learned better with instructor-made videos. In this study, we had the perceptions of the participants about the online video cases presented and the participants also reported that online video cases could help them comprehend the course content and study at their own pace.

In a literature review study, Kay (2012) reported that 23 studies showed that the first reason students declared for using video was to improve learning. Other reasons for using video included preparing for class (Bennett & Glover, 2008), self-checking for understanding (Fernandez et al, 2009), obtaining an overview of chapters read (Fernandez et al., 2009), and taking better notes (Copley, 2007).

Kay and Kletskin (2012) reported that almost 90% of the students who used problem-based video casts rated them as useful or very useful, as well. The researchers also indicated that this result is consistent with students' comments that video supported learning, provided clear, direct explanations, control over the pace of learning, and helpful visual aids.

In the current study, the questionnaire items "I learned more effectively by using online video cases", "I liked having control over the instructional flow (e.g., go back, forward the video)" and "It was convenient to fast forward/rewind the video to a specific part of video case" reported mostly favorable responses in the questionnaire.

5.2.5 Research Question 5

What are the difficulties and the suggested solutions in using online video?

According to the interviews and the students' reflections, there were a few challenges reported. Most of the challenges were about technical problems like unsynchronized audio-video, browser dependency; and other problems like limited number of video cases and weak instructional design were the other challenges indicated by the participants. In students' reflections about video cases, the students reported lighting and audio problems, browser dependency and video resolution problems, supporting the findings of the interviews.

In line with the interviews and the reflections, some of the questionnaire items were about the technical aspects of the video cases. For example, the video quality of video cases received agreement with a mean score of 3.84 and 3.89 mean score showed an agreement of the item that the audio quality of video cases was good. The mean score of 3.11 indicated neutrality about the item that the students encountered technical problems when watching the video cases.

The most stated challenge of browser dependency problem is caused by the Microsoft Producer software used to produce the video cases, which required plug-in software for browsers other than Internet Explorer. According to the web server logs, 58% of the access to the video cases was accomplished with Internet Explorer and 42% were with other browsers. As nearly half of the participants were not using Internet Explorer, to reach those individuals, the video case files should be accessible with most of the browsers. Current

technologies like Microsoft Silverlight or Adobe Flash can produce video cases accessible with most of the current browsers, without the need of extra plug-in software.

The other challenges provided by the participants were about the number of cases and the instructional design of video cases. Abell and Cennamo (2003) reported that producing online video cases involves collaboration among many individuals, including the technical crew, subject matter experts, science educators, instructional designers, and computer technicians. As reported by this study and according to the researcher's previous experience, online video case preparation involves such a team. Since the researcher was working alone in this study, these challenges reported by the participants were understandable.

There were some challenges reported about the audio of the video cases. Fishman (2003) stated the difficulty of recording audio in noisy classrooms. This challenge may happen in any use of video, but is more than a complication in online uses of video for teacher learning. There should be suitable microphone(s) during the shooting of video in order to provide a clear audio of the people speaking and the environment.

Another challenge in the delivery of video over the Internet uses a considerable amount of bandwidth, and the amount required rises rapidly with the quality of the video. There are two main ways to decrease the amount of bandwidth required for video, either increasing the amount of compression used or decreasing the screen size of the video.

An additional technical issue reported was the light conditions in the video. The video shooting team must provide proper light conditions during the

shootout; however, the researcher was on his own in this research, as reported previously, and this issue is above his limits.

Fishman (2003) stated many challenges to design and to use video for teacher learning environments. For the challenges about audio, he proposed that wireless lapel microphones, desk microphones or microphones mounted on cameras could be used according to the situation. Whereas a lapel microphone could be useful for a clear voice of the teacher, microphones on cameras could pick-up the sound in the room. He also suggested "the more microphone sources one uses, the more complicated the shooting becomes and the more potentially disruptive to regular classroom activity. Striking the right balance takes time and practice." (p. 224)

The other challenges reported by the students were the number of video cases and the instructional design issues. Both of these problems were directly related with the issue of composing a team of individuals to be able to prepare proper online video cases.

Some other challenges reported by the literature but not discovered in this study are as follows: Chester et al. (2011) identified that most of the participants favored face-to-face lectures and declared that video podcasts were not adequate to maintain their needs. In another study, students did not want to watch video podcasts because they thought them as inappropriate to the learning goals of the course (Dupagne et al., 2009). Foertsch et al. (2002) reported that students noted that videos were not as appealing as real lectures and they were distracted more when viewing videos at home.

5.3 Summary

During the implementation of the online video cases, the elements reported by Cannings & Talley (2002) were taken into consideration. These elements were a) an engaging tool interface, b) an ongoing communication system, c) contextual clues for viewing, and d) access to additional resources. The findings of this study showed some evidence that these elements were effective in video case study development. However, the pre-service teachers in the study also stated that video cases can provide some benefits but many of the participants indicated that the content of video cases is very important.

The participants of the study also indicated that effective video cases depend on some factors: technology used for the production, content of the video cases and selected delivery method of the video cases. Pre-service teachers in the study generally reported that online video case based training can be used with different instructional aims. Enhancing the instruction was the most common stated reason of the usage of online video cases.

Preference of online video case usage depends on the content of video case, the technology that the video case is offered, the delivery medium that the video case is offered, the attitudes toward the course, and personal preference.

5.4 Implications for Practice

1. This study is an example of an online video case based training with three cases. Practitioners, who are designers or teacher educators who want to use online video cases in training environments could utilize the findings of the current study.

2. To be able to collect more data, a new cycle of this study can be conducted. In the *Plan* phase of the new cycle, the number of video cases should be increased and then the *Observation* phase should be implemented.

3. This study also includes a summary of advices to practitioners about which aims they can use the online video case based training environments in pre-service and in-service teacher education and which points they have to take into account before and during the design of these environments.

4. This study contributes to a better understanding of how online video based training should be designed to deliver online teacher training courses.

5. The results of the current study supported the view that taking an online video based course affects student teachers attitudes toward video based training (Mitra and Steffensmeier, 2000).

6. It can be concluded that using online video case based instruction in a distance education course can be effective in terms of time and cost.

7. This study was a PhD study. However, design of online video case based learning environments requires a constant collaborative effort. According to the researcher's experience and as stated by Abell and Cennamo (2003), there should be a team of a researcher or a designer; a subject matter expert, technical experts of both Internet technologies and video technologies and at the top of them, there should be an administrator who maintains the relationship between the groups of people.

5.5 Recommendations for Further Research

Based on the findings of this study, the following recommendations are listed for further research.

1. As multimedia material (video, audio, etc.) are presented in an online video case based training environment, the learner might find this more enjoyable than working in a classroom setting or working with books.

2. In this study, the participants used all of the video cases a few times in total. The reason(s) for this may be studied.

3. Although Kay (2012) suggested that students rate use of video in education as motivating, the participants in the current study reported that they were not much motivated for the video cases. Another study should investigate the motivation factor for the video case use in educational settings.

4. Most of the participants in this study had taken other online courses before, and this might have affected their attitudes towards computers and online video based training. Another research should be carried out with a group of participants who have not used such a tool before.

5. This study revealed some benefits of using online video cases in teacher education. In addition, the researcher concluded the importance of the content of video cases. Another research should investigate the design of video cases.

6. In this study, only the three video cases, *Instructional Design for Distance Education*, *Teaching at a Distance* and *ADDIE Instructional*

Model were provided to supplement the CEIT321 course. In another research, all of the course content should be used.

7. Further research may be carried out to measure the perceptions of an online video case based tutorial for in-service teachers.

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APPENDIX A

EVALUATION OF ONLINE VIDEO CASE BASED TRAINING QUESTIONNAIRE

This questionnaire is one of the data collection instruments of a Ph.D. study. The aim of the study is to understand what pre-service teachers think about the video cases in the online training environment.

Participation in the questionnaire is on voluntary basis. There are no identity information required. All of your responses will be kept confidential and can only be investigated by the researcher. The findings may be used in scientific publications.

In case you hesitate for any reason responding the questionnaire items, you may quit immediately. Thanks in advance for your cooperation.

To have detailed information about this study, you may contact CEIT Ph.D. student Levent BAYRAM (Phone: 312 210 3345; e-mail: leventb@metu.edu.tr) and his thesis supervisor Prof. Dr. M. Yaşar ÖZDEN (Phone: 312 210 4061; e-mail: myozden@metu.edu.tr).

I voluntarily participate in this research and I am aware that I can quit any time during responding the questionnaire. I permit my responses to be used for scientific publications.

In this questionnaire there are 30 items. Please indicate your thoughts about the statements below. In each item, please select only one of the boxes from "Strongly Agree" – SA to "Strongly Disagree" – SD. While answering the questions please consider the online video cases that you have used during this course.

		SA	A	N	D	SD
1.	I learned more using the online video case based method than the traditional way of instruction.					
2.	I needed more guidance from the instructor while using the online video case based training environment than I need normally.					
3.	The online video cases helped me understand better.					
4.	The online video case based training was confusing.					
5.	The online video case based training was engaging.					
6.	The online video case based training was challenging.					
7.	The online video case based training was motivating.					
8.	The online video case based training was frustrating.					
9.	The online video cases took more time than worth.					
10.	The online video cases added realism to this course					
11.	Use of the online video cases was inefficient.					
12.	The online video case based training allowed me to retain more from this course.					
13.	The online video case based training allowed deeper understanding of course content.					
14.	I was more engaged in the course with video cases.					
15.	The online video cases were more entertaining than educational.					
16.	I learned more effectively by using online video cases.					
17.	I will use online video cases to be able to teach more effectively.					

		SA	A	N	D	SD
18.	Using online video cases will better prepare me for the teaching profession.					
19.	The video quality was good					
20.	The audio quality was good.					
21.	It was easy to access the video cases.					
22.	I encountered technical problems when watching the video cases.					
23.	I prefer to ask the instructor questions after watching the video case, e.g. email or forum messaging.					
24.	I learned a lot from the video cases.					
25.	The information was presented effectively in the video case.					
26.	The video case based training helped me to stay focused during the instruction.					
27.	Viewing the video case more than once helped me to learn.					
28.	I liked having control over the instructional flow (e.g., go back, forward the video).					
29.	It was convenient to fast forward/rewind the video to a specific part of video case.					
30.	I would recommend courses utilizing online video case based training to others.					
31.	Is there anything else you would like to add?					

APPENDIX B

INTERVIEW PROTOCOL WITH THE PARTICIPANTS

ORIGINAL INTERVIEW PROTOCOL for PILOT STUDY and CYCLE I

Tarih ve Saat:

Görüşmeci: Levent BAYRAM

Görüşme Formu

Merhaba. İlk olarak görüşmeyi kabul ettiğiniz için teşekkür ederim. Bu görüşmenin amacı CEIT 321 dersi süresince kullandığınız çevrimiçi video temelli eğitim sistemi hakkında görüşlerinizi almaktır. Görüşme sırasında soracağım sorular ile kullandığınız video temelli eğitim sistemi ve video görüntüleri ile ilgili fikirlerinizi, karşılaşmış olabileceğiniz zorlukları ve düşüncelerinizi anlamayı amaçlıyorum. Belirteceğiniz düşünce ve fikirler hem bu çalışma için hem de ileride gerçekleştirilebilecek benzer çalışmalar için oldukça önemlidir.

Görüşmede belirteceğiniz tüm bilgiler tamamen gizli tutulacaktır. Söyleyecekleriniz kesinlikle üçüncü şahıslara iletilmeyecek ve çalışmada isminiz kullanılmayacaktır. Ayrıca bu görüşmede ifade edeceklerinizin CEIT 321 dersi notunuz üzerinde de bir etkisi olmayacaktır.

Görüşmemiz yaklaşık olarak 30 dakika sürecektir. Sizin için sakıncası yoksa görüşmemizi kaydetmek istiyorum. Görüşmenin hemen ardından ses kaydı yazıya aktarılacak ve onayınıza sunulacaktır.

Hazırsanız ilk soru ile başlıyorum.

Interview Questions

1. Kullandığınız çevrimiçi video temelli eğitim öncesi bu eğitim hakkında ne düşünüyordunuz?
    a. Alacağınız bu eğitim öncesinde beklentileriniz ne idi?
    b. Sizce video temelli eğitimden kastedilen nedir?
2. Kullandığınız video temelli eğitim ortamı hakkında ne düşünüyorsunuz?
3. Video temelli eğitim konuyu kavramanıza ne ölçüde yardımcı oldu?
4. Video temelli eğitim alıyor olmanız bu eğitime karşı motivasyonunuzu ne şekilde değiştirdi?
    a. Aynı içeriği videolar olmadan almanız gerekseydi, öğrenme ve motivasyonunuz nasıl değişirdi?
5. Eğitim aldığınız çevrimiçi ortamı tümüyle düşünürseniz, videolar dışında hangi özelliklerini hatırlıyorsunuz, hangilerini ne şekilde kullandınız?
    a. Çevrimiçi eğitim ortamı içinde bulunan videoları kullanma
    b. Çevrimiçi eğitim ortamı içinde bulunan forum uygulamasını kullanma
6. Video temelli eğitimde ne gibi sıkıntılarla karşılaştınız?
7. Video temelli eğitim ortamında bulunan videolar ile ne kadar zaman geçirdiniz?
    a. Ders videolarını ne zaman ve nerede izlediniz, ne kadar süre ile izlediniz?
8. Bu çevrimiçi eğitim ortamında öğrenmenizi etkileyen ne gibi öğeler bulunduğunu düşünüyorsunuz?
    a. Bu çevrimiçi eğitim ortamının size göre ne gibi artıları veya eksileri vardı?
9. Video temelli eğitimde yaşadığınız tecrübeyi eğitim öğretim hayatınızda nasıl uygulayacağınızı düşünüyorsunuz?

Eklemek istediğiniz başka bir şey var mı?

Teşekkürler.

REVISED INTERVIEW PROTOCOL for CYCLE II

Tarih ve Saat:

Görüşmeci: Levent BAYRAM

Görüşme Formu

Merhaba. İlk olarak görüşmeyi kabul ettiğiniz için teşekkür ederim. Bu görüşmenin amacı CEIT 321 dersi süresince kullandığınız çevrimiçi video temelli eğitim sistemi hakkında görüşlerinizi almaktır. Görüşme sırasında soracağım sorular ile kullandığınız video temelli eğitim sistemi ve video görüntüleri ile ilgili fikirlerinizi, karşılaşmış olabileceğiniz zorlukları ve düşüncelerinizi anlamayı amaçlıyorum. Belirteceğiniz düşünce ve fikirler hem bu çalışma için hem de ileride gerçekleştirilebilecek benzer çalışmalar için oldukça önemlidir.

Görüşmede belirteceğiniz tüm bilgiler tamamen gizli tutulacaktır. Söyleyecekleriniz kesinlikle üçüncü şahıslara iletilmeyecek ve çalışmada isminiz kullanılmayacaktır. Ayrıca bu görüşmede ifade edeceklerinizin CEIT 321 dersi notunuz üzerinde de bir etkisi olmayacaktır.

Görüşmemiz yaklaşık olarak 30 dakika sürecektir. Sizin için sakıncası yoksa görüşmemizi kaydetmek istiyorum. Görüşmenin hemen ardından ses kaydı yazıya aktarılacak ve onayınıza sunulacaktır.

Hazırsanız ilk soru ile başlıyorum.

Interview Questions

1. Kullandığınız çevrimiçi video temelli eğitim öncesi bu eğitim hakkında ne düşünüyordunuz?
    a. Alacağınız bu eğitim öncesinde beklentileriniz ne idi?
    b. Sizce video temelli eğitimden kastedilen nedir?
2. Beklentilerinizi düşünecek olursak, video temelli eğitim beklentilerinizi karşıladı mı?
    a. Kullanıldığınız video temelli eğitim ortamı hakkında beğendiğiniz yönler nelerdir?
    b. Kullanıldığınız video temelli eğitim ortamı hakkında beğenmediğiniz yönler nelerdir?
3. Video temelli eğitim sırasında izlediğiniz videoların konuları öğrenmeniz ve kavramanız üzerinde nasıl bir etkisi oldu?
4. Video temelli eğitim alıyor olmanız bu eğitime karşı motivasyonunuzu ne şekilde değiştirdi?
    a. Aynı içeriği videolar olmadan almanız gerekseydi, öğrenme ve motivasyonunuz nasıl değişirdi?
    b. Video temelli eğitim almanız durumunda sizi daha fazla motive edecek ne gibi değişiklikler yapılabilir?
5. Eğitim aldığınız çevrimiçi ortamı tümüyle düşünürseniz, videolar dışında hangi özelliklerini hatırlıyorsunuz, hangilerini ne şekilde kullandınız?
    a. Çevrimiçi eğitim ortamı içinde bulunan videoları kullanma
    b. Çevrimiçi eğitim ortamı içinde bulunan forum uygulamasını kullanma
6. Video temelli eğitim sırasında sıkıntı yaşadınız mı? Olduysa yaşanan sorunlar nelerdi, sorunu nasıl giderdiniz?
7. Video temelli eğitim ortamında bulunan videolar ile ne kadar zaman geçirdiniz?
    a. Ders videolarını ne zaman ve nerede izlediniz, ne kadar süre ile izlediniz?
8. Bu çevrimiçi eğitim ortamında öğrenmenizi etkileyen ne gibi öğeler bulunduğunu düşünüyorsunuz?
    a. etkileyen, hızlandıran, kolaylaştıran veya zorlaştıran
    b. Bu çevrimiçi eğitim ortamının size göre ne gibi artıları veya eksileri vardı?

c. Bu çevrimiçi eğitim ortamının size yaptığı en önemli katkı nedir?

9. Bu eğitim sırasında öğrendiklerinizi öğretmenlik hayatınızda kullanmayı düşünür müsünüz?
    a. Kullanmayı düşünürseniz nasıl uygulayabilirsiniz?
    b. Kullanmayı neden düşünmüyorsunuz, alternatif olarak ne kullanabilirsiniz?
    c. Katılacağınız bir çevrimiçi eğitimde video destekli ve düz metin olmak üzere iki seçeneğiniz olsa hangisini tercih edersiniz, neden?
    d. Bir arkadaşınız sizden bir çevrimiçi eğitim için video ve düz metin alternatifleri arasında seçim yapmak için yardım isterse hangisini önerirsiniz?

Eklemek istediğiniz başka bir şey var mı?

Teşekkürler.

APPENDIX C

INTERVIEW CONSENT FORM

Gönüllü Katılım Formu

Bu görüşme bir doktora tezinin veri toplama araçlarındandır. Yürütülen çalışmanın amacı, katılımcıların CEIT321 dersi kapsamında kullandıkları çevrimiçi video destekli eğitim ortamı hakkında algılarını anlamaktır.

Görüşmeye katılım tamamen gönüllüdür. Görüşmede kimlik belirleyici hiçbir bilgi istenmemektedir. Verdiğiniz cevaplar tamamen gizli tutulacak ve sadece araştırmacılar tarafından görülecektir. Elde edilen bilgiler bilimsel yayınlarda kullanılabilir.

Görüşme kişisel rahatsızlık verecek sorular içermemektedir. Yine de görüşmede bir sorudan ya da herhangi başka bir sebepten rahatsız olursanız, cevaplamayı yarıda bırakabilirsiniz. Çalışmaya katıldığınız için şimdiden teşekkür ederiz.

Çalışma hakkında daha fazla bilgi almak için Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü doktora öğrencisi Levent BAYRAM (Tel: 312.210 3345; e-posta: leventb@metu.edu.tr) ve tez yöneticisi Prof. Dr. M. Yaşar ÖZDEN (Tel: 312.210 4061; e-posta: myozden@metu.edu.tr) ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip bırakabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Adı Soyadı	Tarih	İmza
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APPENDIX D

INTERVIEW RESPONSES IN TURKISH

[I-1] Video temelli eğitim için bir şey düşünmedim aslında. Web sayfasında örnek videoların linkleri verilmeden önce video temelli eğitime yönelik aktivitemiz olacağı söylendi. Dersin birazı da online olduğu için sınıftaki saatleri kaydedip web sayfasından yayınlayacaklar diye düşünmüştüm.

[I-2] Dersimiz blended olduğu için hoca ve öğrenciler arasında interaction sağlanması çok önemli. Bu nedenle çeşitli communication araçları kullanılması gerekiyor. Bu derste de hocamız ve diğer arkadaşlarla haberleşmek için bazen text bazen video chat uygulamalar yapabileceğimizi düşünmüştüm.

[I-3] Video temelli eğitim dersin içeriğinin videolarla zenginleştirilmiş halidir. Ders içeriği video kullanımı ile sunulabilir. Bu ders için de uzaktan eğitim ortamı ve ders içeriği ile ilgili kısa videolar verilebilir.

[I-4] Hocamız bize çeşitli konularda ödevler verecek ve bu konularla ilgili videolar hazırlamamızı isteyecek diye düşünmüştüm.

[I-5] Videoların dışında forumu kullandım. Hocamızla, diğer arkadaşlarla tartışmalarımız vardı haftalık olarak. Bir de built-in mesajlaşma özelliği bulunuyordu. Hocamıza soru sormam gerektiğinde site üzerinden mesaj gönderebiliyordum.

[I-6] Ödevlerimizi yazdığımız wiki sayfaları vardı, ödevleri ve reflection paper'ları wiki sayfasından yazıp gönderdim.

[I-7] Ders okumalarını web sitesi üzerinden indirebildim. Bunun dışında ders sunularını da ödevlerimin sonuçlarını da siteden gördüm.

[I-8] Haftalık olarak sınıfta yapılan derslerin kaydedilmesi, dijital ortama aktarılması ve web sayfasından yayınlanması olarak düşünmüştüm. Yaşadığımız uygulama is bundan kat be kat daha fazlaydı bana göre. Bu şekilde öğretim materyalini videolarla sunmak çok müthiş bir uygulama.

[I-9] Ders web sitesinde ders notları, presentationlar, forum, quizler, questionnaire, duyurular falan vardı. Bunların hepsi bir online ders ortamında bulunması gerekli öğeler. Bunların dışında video case'ler vardı. Bu videolar ile ders contenti hakkında daha fazla bilgi alma imkanımız oldu.

[I-10] Video case uygulaması idare ederdi, ama bir interaction eksiği gördüm. Eğer demontrasyon amaçlı birşeylerden bahsediyorsanız bu yöntemi kullanabilirsiniz, olabilir. Ama interaction olmalı bir şekilde. Belki uzaktan eğitim alan bir öğrenciyi gösteren bir video olabilir, uzaktan eğitim dersinde ne yaptığını gösterirsiniz. Sonra da bizim kritik yapmamızı isteyebilirsiniz.

[I-11] Bir konuyu kitaptan okumak yerine onunla ilgili bir film veya kısa bir video seyretmek daha iyidir. Böylece daha iyi anlaşılır. Distance teaching video case ile distant öğrenci hakkında daha verimli bir öğrenme olduğunu söyleyebilirim.

[I-12] Video caseler derse olan motivasyonumu değiştirmedi. Derse kendi isteğimle kaydolduğum için yeterli motivasyonum vardı. Video based eğitim motivasyonumu etkilemedi.

[I-13] Derslerde kullanılan video veya diğer materyallerin motivasyon için bir etkisi yoktur. Sadece öğrenmeyi zenginleştirecek farklı yollar sağlar.

Derste sunulan materyal çeşitleri ve alternatifler öğrencilerin daha iyi öğrenme şansını arttırır sadece.

[I-14] Videolar olmasaydı? Önceki derslerimde hiç video yoktuki. O yüzden burada da video olmasaydı farklı birşey olacağını düşünmüyorum. Normalde olduğu gibi kitap ve ders notlarını okurdum.

[I-15] Öğretmenliğe başladığımda video based yöntemi tercih ederim. Mesela sınıftaki etkinlikleri kaydeder ve webe koyarım. Böylece öğrenciler etkinlikleri tekrar tekrar izleyebilirler.

[I-16] Video kullanmak ilk tercihim olur. Ama videonun içinde ne anlattığınız çok önemli. Öğrencilerin dersin içeriğini kolayca anlamalarını sağlayacak well designed videolar olmalı kesinlikle.

[I-17] Caseleri ilk izlediğimde sonuna kadar izledim. Her biri 10 dakika kadar sürüyordu sanırım. Daha sonra izleme ihtiyacım olduğunda sizin olduğunuz kısmı atlayıp distance teaching kısmına odaklandım.

[I-18] Videoların hepsini baştan sonra izlemek istemedim. Sadece linke tıkladım ve video case'lerde ne varmış diye hızlıca baktım. Toplamda 3-4 dakikada bitirdim herhalde.

[I-19] Linkler web sayfasında ilan edildikten sonra yurttaki bilgisayar salonunda çalışırken video case'lere baktım ve hepsini seyrettim.

[I-20] Birşeyi izlemeniz retention'ı arttırır. Videolarda real life example'ler olduğundan ders contenti gerçeklerle connect edilebilir. Bu da daha iyi retention sağlar.

[I-21] Profesör biri uzaktan eğitim sınıfı hakkında konuşuyordu. Hem onun deneyimlerini öğrendim hem de uzaktan eğitimde öğrenci ve öğretmenin farklı görüşlerini aldım.

[I-22] Video bulunması daha akılda kalıcı yapıyor konuyu. Ve istediğin zaman tekrar tekrar izleme imkanı olması da ödevler için topic review yapmama yardım etti.

[I-23] Bazen ses kesiliyordu. Bilgisayarımın sesini kapatıp açınca düzeliyordu aslında. Belki bilgisayarım veya bağlantımla ilgili sorun vardı.

[I-24] İnternet tarayıcısı olarak Firefox kullanırım genelde. Ama video case sayfaları Internet Explorer ile görüntülenmeliydi. Kendi kullandıklarım dışında birşey kullanmak istemiyorum.

[I-25] Dersin adı Foundation of Distance Education olduğu için uzaktan eğitim ile ilgili profesyonel kişilerin videoları olabileceğini düşündüm. Kendi deneyimlerini, düşüncelerini falan anlatmak için. Bir nevi best practices yani.

[I-26] Video temelli eğitim dediğiniz şey eğitim öğretim ortamına video eklemektir. Özel bir anlama gelmez. Nasıl Bilgisayar Temelli Eğitim dediğinizde bilgisayar ekliyorsanız, burada da video ekliyorsunuz.

[I-27] Bazı hocalarımız Akıllı Sınıfta video konferans ile diğer üniversitelere ders veriyorlar. Ben de bu uygulamada başka bir üniversiteden bir hoca video konferans ile bize ders anlatacak diye düşünmüştüm.

[I-28] Web sitesinden haftalık ders okumalarını takip ettim. Hocama sorularım olduğunda hocamıza email attım.

[I-29] Ders sunumları vardı, haftalık assignmentlar vardı. Assignment tool aracılığıyla ödevleri gönderdim ve notlarımı da öğrendim.

[I-30] Sunulan videoların daha yaratıcı olması gerekli bence. Yoksa bu haliyle boşa zaman harcanıyor. Bir ekip kurmanız gerekiyor video hazırlarken, öğretim tasarımcısı, alan uzmanı, teknik kişiler ve yöneticiden oluşan. Senaryolar üzerinde yoğunlaşmalı, iyi bir senaryo hazırlayıp ardından videoları çekmeliler.

[I-31] Video olsun film olsun konunun akılda kalıcılığını arttırıyor. Konuyla ilgili videolar ile öğrenmeyi hızlandırabilirsiniz. Diyebilirimki uzaktan

eğitim öğrencisinden neler beklendiğini videoyu izledikten sonra tam olarak öğrendim. Örneğin, İstanbul'a gitmemiş birine İstanbul hakkında bir kitap vereceğinize bir video gösterin, çok çok daha fazla şey öğrenir.

[I-32] Daha yaratıcı videolar olması gerektiğini düşünüyorum. Hayatta karşılaşılacak örnekler vermelisiniz. Ders sitesinde gördüğümüz videolar sadece monolog konuşmalardan ibaretti.

[I-33] Dersteki videoları kullanmak bir miktar cazipti ve ders için beni heyecanlandırmıştı. Ancak içerik sınırlı olduğu için tamamen motive oldum diyemeyeceğim.

[I-34] Video kullanmak kendi hızında öğrenme, anywhere anytime öğrenme gibi avantajlar sunar. Bu dersteki video case kullanımı da bana güven verdi ve derse karşı motive oldum tam anlamıyla.

[I-35] ADDIE modeli ile öğretim tasarımı konusunda kavramları iyice öğrendim diyebilirim. Sadece ders notları olsaydı ders için bu kadar heyecan duyacağımı sanmıyorum.

[I-36] Aynı içeriği video olmadan almam gerekseydi öğrenme süresi biraz daha uzun olurdu bence. Birşeyleri tekrar etmem gerektiğinde ders notlarından önce ADDIE videosuna baktım.

[I-37] Tabiki video temelli eğitimi seçerim. Eğitim öğretim ortamlarında video kullanmak hem öğrenci hem de öğretmenler için faydalar sağlar. Mesela sınıf ortamında sunamayacağınız bir şeyi öğrencilerinize videolar aracılığıyla gösterebilirsiniz.

[I-38] Eğer teknik sorunlar olmayacaksa bir derste video based aktiviteleri seçebilirim.

[I-39] Video kullanımı öğrenmede bir fark yaratıyor. Bu yüzden katılacağım bir eğitimde videolu olanı seçerim ve arkadaşlarıma da bunu seçmelerini öneririm.

[I-40] Video caselerin hepsini inceledim. En çok ADDIE videosunu beğendiğimi söyleyebilirim. Ve çeşitli tekrarlar için dörtten fazla defa izledim. Diğerlerini sadece birer kez izledim.

[I-41] Herkesin konuyu kendi hızında takip edebilmesi güzel. Videoların uygun kullanımı öğrenmeyi kolaylaştırır.

[I-42] Instructional design konusunu anlatan bir bölüm vardı. Ama kendi tasarımı zayıftı. Eğer bir konu öğretmek istiyorsanız hazırladığınız materyal well designed olmalı, yoksa öğrencilerin konuyu anlamalarını, öğrenmelerini beklemek anlamsız olur.

[I-43] Video caselerden biri ID üzerineydi ama tasarımı korkunçtu. Ekran tasarımı çok karışıktı. Video case'e ilk baktığımda navigasyonu zor kavradım, neyse sonra alıştım gitti.

[I-44] Video boyutu ve çözünürlüğü uygun değildi. Videoyu full ekran yaptığımda ekrandaki nesneleri zor görebiliyordum.

[I-45] Bazı bölümlerde sesi duymakta zorlandım. Kayıt sırasında kullanılan mikrofonla ilgili bir sorun vardı, ya da benzeri birşey.

[I-46] Case sayısının arttırılması gerektiğini düşünüyorum. Eğer çalışmanız bir pilot çalışma amaçlıysa olabilir. Ama eğitim öğretimi geliştirmeyi hedefliyorsanız video içeriğiniz de geniş olmalı ve öğrencilerin içeriği anlaması için çeşitli alternatif yollar sunmalı.

[I-47] Aslında bu dersteki video kullanımı ile ilgili bir fikrim yoktu. Daha önce EDS dersinde sınıf yönetimi için videolar kullandık ama uzaktan eğitim için de kullanılabileceğini düşünmemiştir. Gördümki yapılan video sunumları benim için yeterliydi.

[I-48] İki haftada bir toplandığımız sınıf session'larını kaydedip ders sitesinden yayınlanacağını düşünmüştüm. Aynı saatlerde başka bir dersim daha olduğu için kaçırdığım dersleri toparlayabilirdim.

[I-49] Hocamız ders içeriği ile ilgili videolar gösterip bu videoları analiz edin diyecek diye düşünmüştüm.

[I-50] Online siteyi sadece ders notlarını ve readingleri download için kullandım. Bir de forum vardı ama bir-iki mesaj gönderdim sadece. Video caseleri de bir kere izledim.

[I-51] Her hafta derste buluşma imkanımız olmadığı için hocamız ve diğer öğrencilerle iletişim kurmamız gerekiyordu çeşitli nedenlerle. Bunun için forum ve email kullandım en çok.

[I-52] Uzaktan eğitim dersi ile ilgili çok fazla video case yoktu, dersin tümünden bahsediyorum. Bir bölümünü düşürseniz kabul edilebilr bir çalışmaydı. İşin ideali, video based training yapıyorsanız dersin tümünü videolar ile işlemelisiniz.

[I-53] ADDIE design anlatan video case akıllıcaydı, onun gibi başka videolar da olmalıydı. Ve onlar da yaratıcı olmalı.

[I-54] Videolar konuyu öğrenmemize yardımcı olur. Eğer verilen videonun içeriği iyiyse o video ile herhangi bir konuyu öğrenebiliriz. En önemli nokta uygun instructional videoyu hazırlamak.

[I-55] Bu eğitim ortamında video case olmasaydı bence aynı olurdu. Bana sorarsanız içeriğin de kullanılan ortamın da öğrenme üzerinde etkisi yoktur.

[I-56] Eğitim tercihimi soracak olursanız videolu olanı seçerim. Bir sürü metinlerle boğuşmaktansa videolar ile kendimi daha rahat hissederim.

[I-57] Katılmam gereken bir eğitimde video öncelikli tercihim olacaktır. Ama bunu başkasına önermem. Çünkü eğitimde başarısız olursa o sorumluluğu almak istemem.

[I-58] Açıkcası videoları seyretmek hoşuma gitti ve hepsini 6-7 kere seyrettim. Keşke daha fazlası olsaydı. Video based training çok hoşuma gitti.

[I-59] Siteye ilk gittiğimde video dosyalarını download ettim ve telefonuma kopyaladım. Sonra, aklıma gelince, ihtiyacım olduğunda bir kaç kere izledim.

[I-60] Video içinde ileri geri gidebilmeyi sevdim. Videoyu ikinci üçüncü seyredişinizde güzel bir özellik. İlgili olmayan kısımları atlayabilmeniz...

[I-61] Dersin tüm içeriğini kapsadığı sürece öğrenciler için faydası olacaktır. Burada üç video vardı. Amacına uygun olarak hazırlanmışlar. Kullandım, başarılı buldum, ancak önemli nokta böyle zenginleştirici öğelerin bulunması.

[I-62] Videoları IE olmadan çalışmıyordu. Google Chrome kullanıyorum ve video caseleri izleyemedim. Bu yüzden video dosyasını download ettim ve ardından izledim.

[I-63] Konuşmaların olduğu bölümlerde bazı çok karanlık bölümler vardı, videoyu takip etmemi zorlaştırıyordu. Kamera arkasındaki işlere daha çok önem verilmeli diye düşünüyorum.

APPENDIX E

SCREENSHOTS OF ONLINE LEARNING ENVIRONMENT

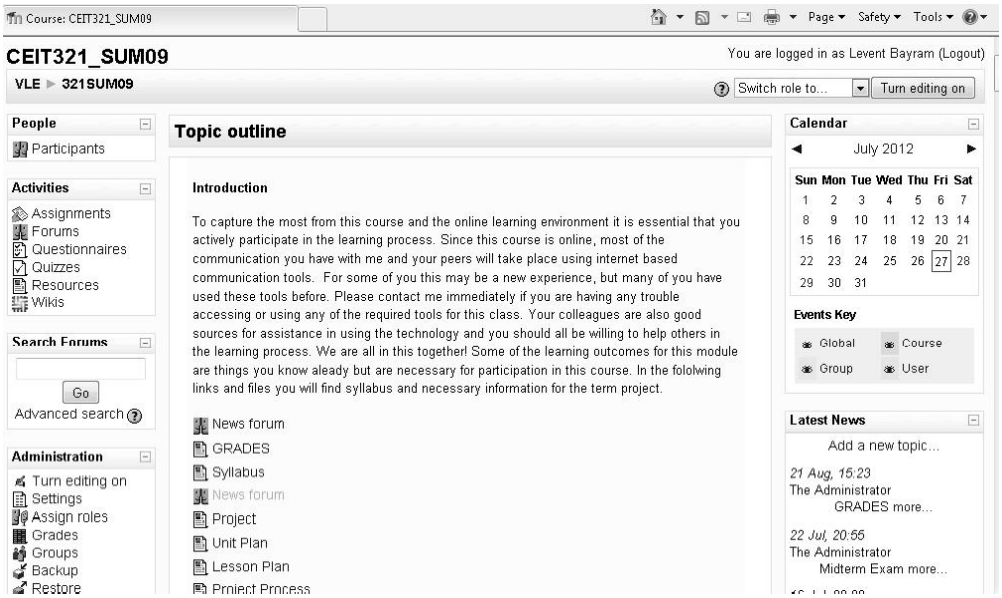

Figure 14 – LMS Main Page

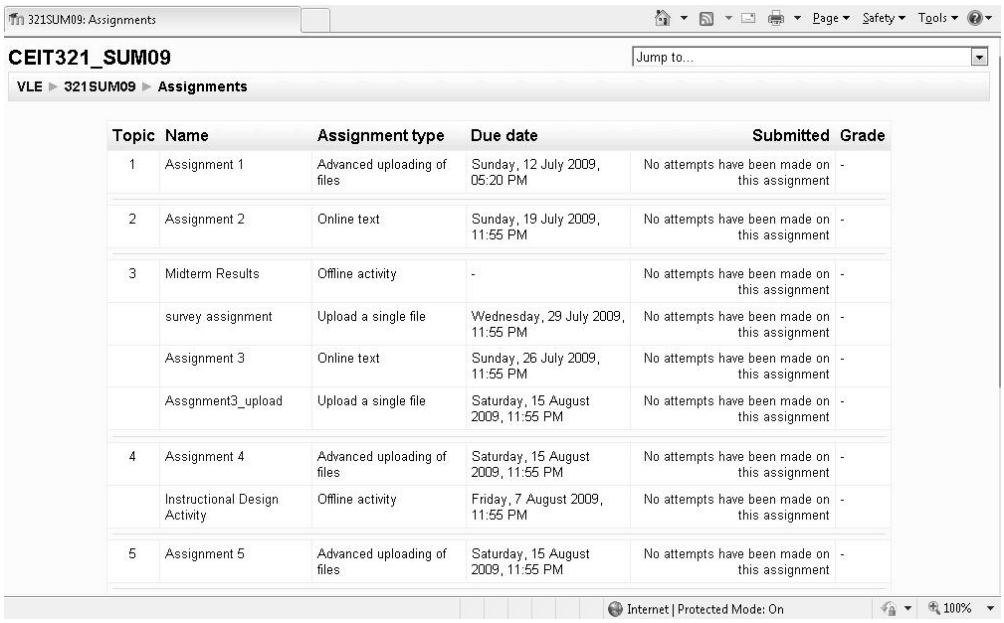

Figure 15 – LMS Assignments Page

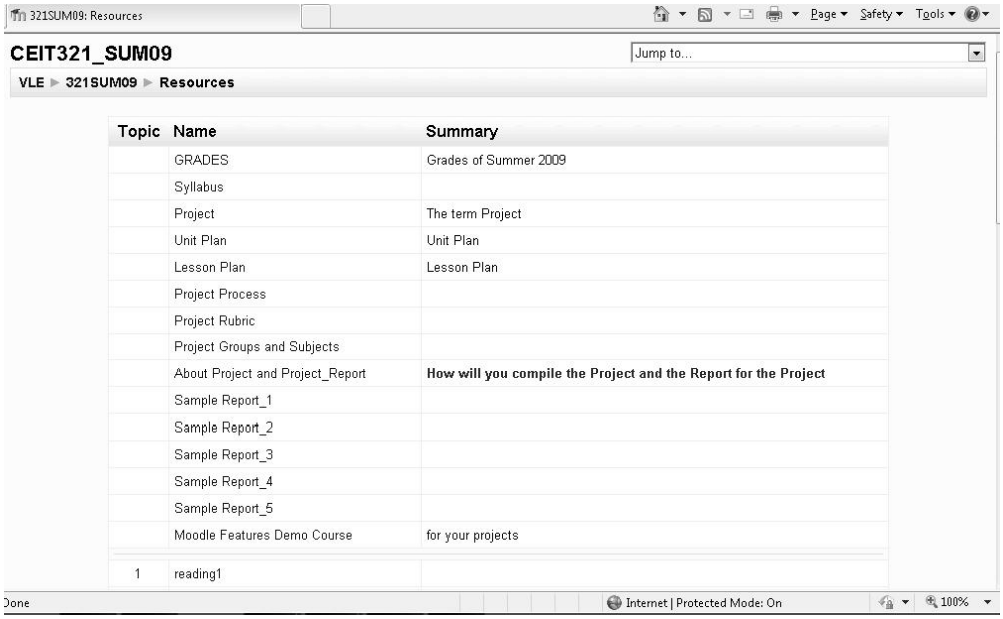

Figure 16 – LMS Resources Page

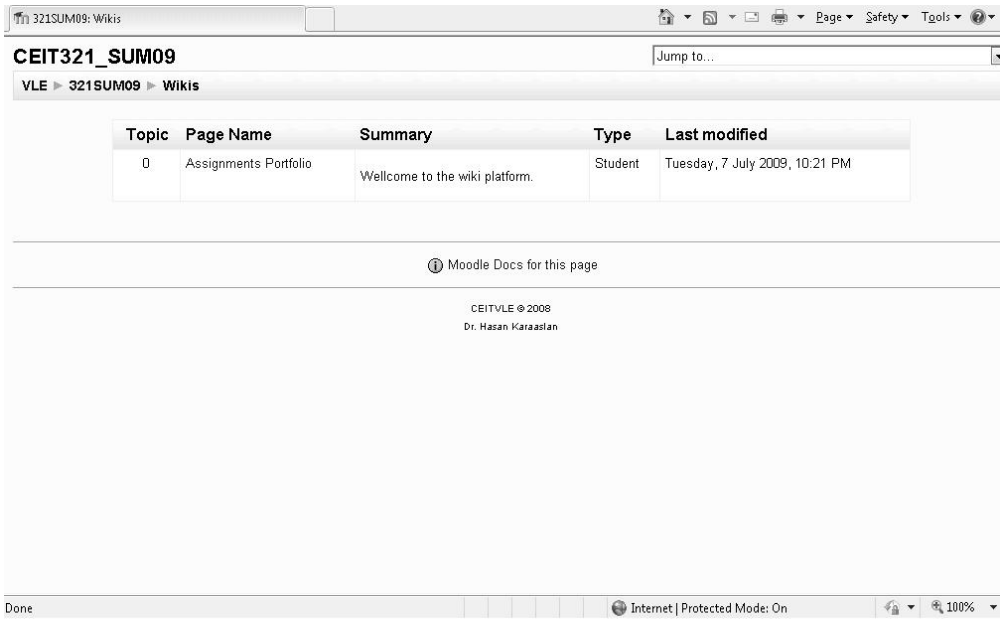

Figure 17 – LMS Wiki Page

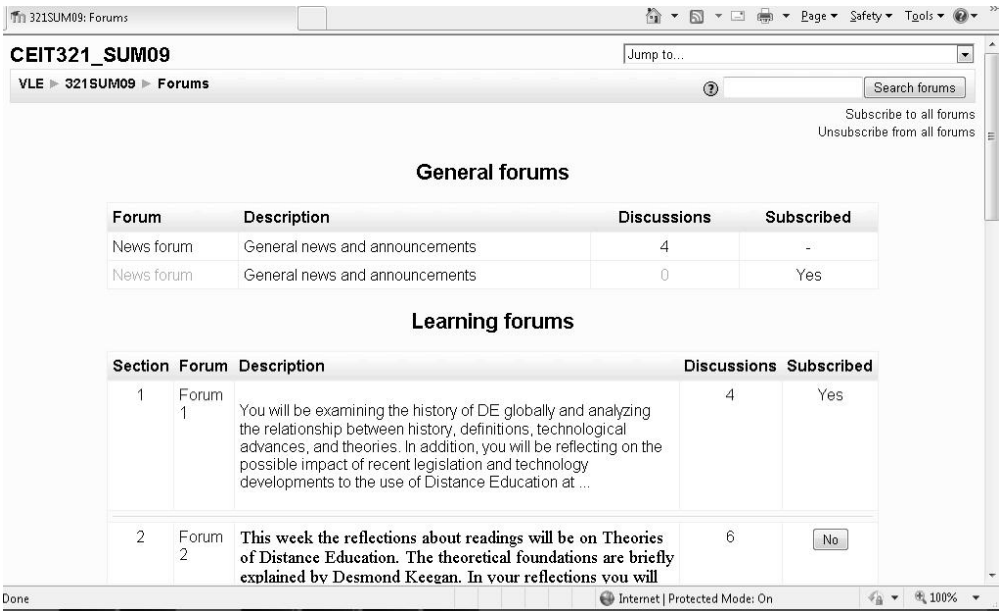

Figure 18 – LMS Forum Page

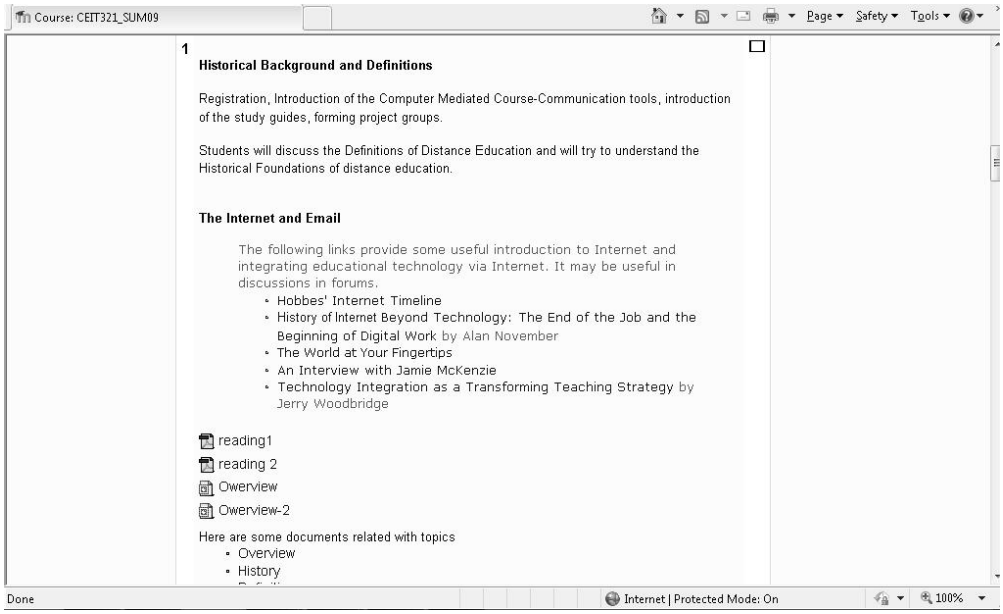

Figure 19 – LMS Week view

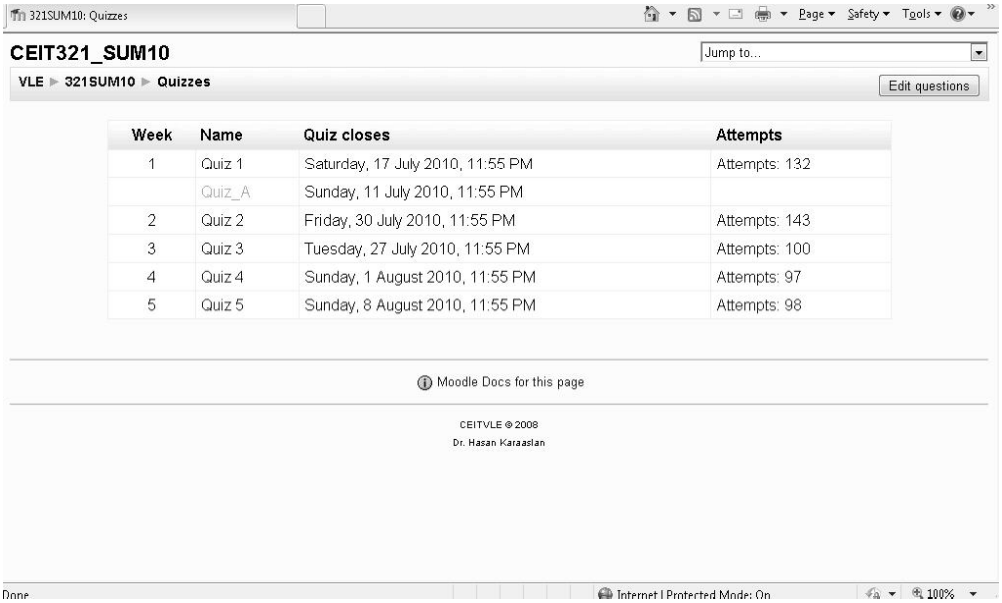

Figure 20 – LMS Quizzes Page

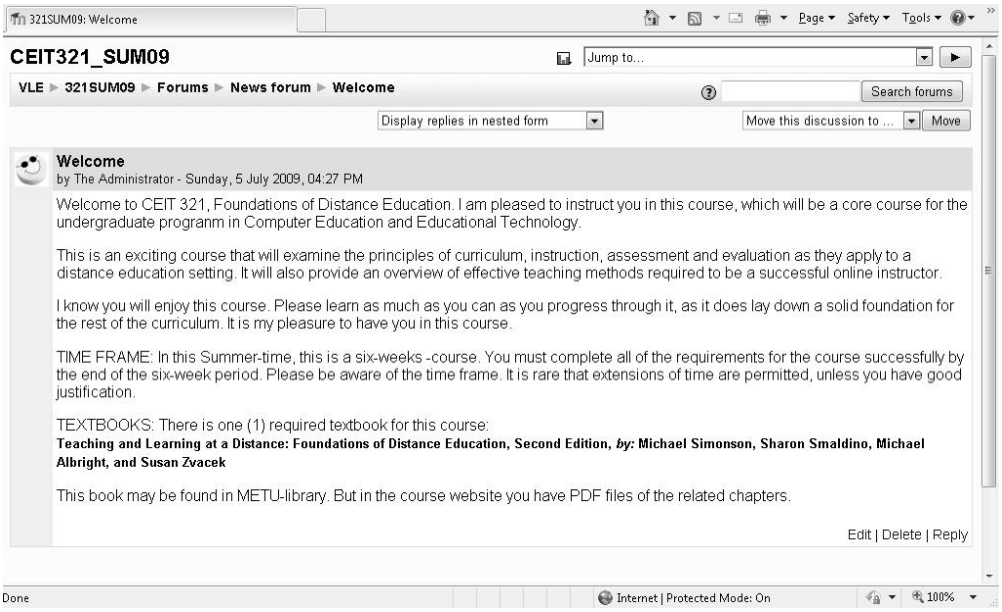

Figure 21 – LMS News Page

APPENDIX F

SCREENSHOTS OF ONLINE VIDEO CASES

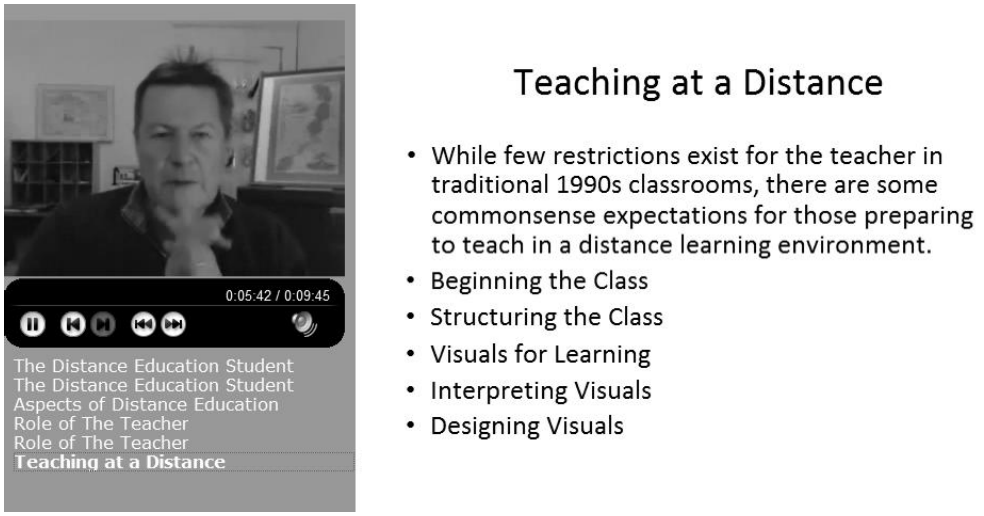

Figure 22 – Teaching at a Distance Video Case

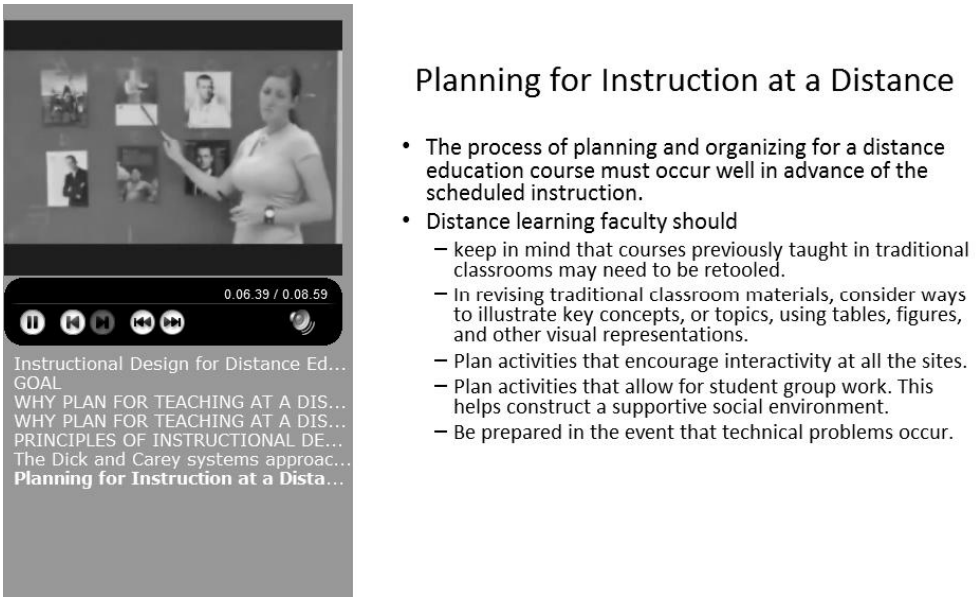

Figure 23 – ADDIE Instructional Design Video Case

CIRRUCULUM VITAE

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EDUCATION

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M.S.	Computer Education and Instructional Technology, Middle East Technical University, Ankara, Turkey, *"Effectiveness of a Web-Based Tutorial on Computer Literacy for Pre-Service Teachers: A Case Study"*	2002
B.S.	Computer Education and Instructional Technology, Middle East Technical University, Ankara, Turkey	2000
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WORK EXPERIENCE

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LANGUAGES

Turkish (Native), English (Advanced), Italian (Intermediate)

PUBLICATIONS

Bayram, L. (2012). Use of Online Video Cases in Teacher Training, *Procedia - Social and Behavioral Sciences*, Volume 47, Pages 1007-1011, ISSN 1877-0428, 10.1016/j.sbspro.2012.06.770.