

## Videos as an Instructional Tool in Pre-service Science Teacher Education

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### Abstract

*Problem Statement:* Student teaching is an integral part of teacher education. While it provides pre-service teachers with real classroom experience, though, it is limited in that it does not provide shared experience. Used as instructional tools, videos provide a shared common experience in a controlled environment to pre-service teachers in teacher education. Video use as a part of teacher education requires that student teachers be skilled in observation and ability to notice. However, in many cases, pre-service teachers' observation skills and ability to discern the effects of different strategies are neither questioned nor investigated.

*Purpose of Study:* The purpose of this study was to investigate the effects of video use on pre-service teachers' ability to observe and evaluate teaching practices and explore how that ability develops.

*Methods:* This study was conducted with the participation of 26 senior pre-service science and technology teachers who were enrolled in a teacher practice course during the fall semester of their fourth-year undergraduate education program. Three different videos were used as instructional tools; participating pre-service teachers were asked to evaluate the teaching practice in each video. A three-item questionnaire was used for data collection purposes.

*Findings and Results:* The findings of the study suggest that, initially, pre-service teachers failed to notice details and were only partially able to recognize the main features of a teaching practice. Most participant comments focused on what the teacher was doing rather than on students. As time progressed, participants' ability to notice instructional strategies was found to be developed through use of videos.

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*Conclusions and Recommendations:* Through use of videos, pre-service teachers' selective attention and ability to perceive details of a teaching practice was found to be improved. Since the ability to notice is an important skill for novice teachers, based on the finding of this study, video use is recommended as a part of teacher education.

*Keywords:* Pre-service teacher education, video training, ability to notice teaching strategies, field experience.

Pre-service teacher education relies on various components for successful outcomes such as student teaching, which is an important part of pre-service teacher education in many countries including Turkey and the United States (Star and Strickland, 2008; YOK, 2006). The most important aspect of student teaching is experiencing real classroom settings through a teacher practice course, which pre-service teachers do not undertake during the first three years of their education.

Although the teacher practice course offers many opportunities for future teachers, there may be some limitations due to the way the course is structured. In many cases, only two to three pre-service teachers are assigned to a given classroom. This means that students would experience different teaching experience and different mentoring relationships as well different classroom environments, which leads to lack of common experience. Although it is impractical, given the unavoidable variability of the field experience, a shared common experience is necessary for the professional development of pre-service teachers. Videos are an instructional tool that can provide the needed common experience. A variety of videos can be used to present pre-service teachers with many different examples of teaching.

Successful teaching practices require teachers to be able to recognize students' ideas and make necessary pedagogical decisions (American Association for the Advancements of Science [AAAS], 1993; National Council of Teachers of Mathematics [NCTM], 2000) while forming their lessons based on these ideas. Teachers need to be skillful in noticing and interpreting these interactions to be able to use an adaptive style (Sherin & van Es, 2005). However, in many cases developing pre-service teachers' ability to observe and notice is not emphasized in teacher practice courses or field experiences. The ability to notice is also important when using videos. According to the work of Berliner and colleagues (1988), the ability to notice differs among teachers based on their experience. They report that experts are able to recognize subtle differences in instructional strategies while advanced beginners and novices are not. In addition, they also report that the advanced beginners and novices focus on teacher, but not student, actions and discussions. Therefore, when working with pre-service teachers the ability to notice becomes an important focus point for educators.

#### *Videos as an Instructional Tool*

As an instructional tool, videos provide valuable insight into teaching and its complex nature and present examples for the purpose of professional development.

Videos can focus on particular aspects of teaching or allow teachers to evaluate their own teaching (Beck, King, & Marshall, 2002; Brunvand & Fishman, 2007; Madsen & Cassidy, 2005, Sherin & van Es, 2005). In today's world, with advancements in technology, videos are reasonably cheap and are becoming more available for use in such different situations as microteaching, video cases, and modeling expert teaching (Star & Strickland, 2008). The flexibility of videos is another factor that makes them appealing. It is possible to edit or reassemble videos and use them to launch an open-ended discussion. In addition, use of videos allows instructors to present examples of teaching or make connections with theory (Brophy, 2004). The length of a video may vary; depending on their lesson's purpose, educators may utilize a one- to three-minute video clip focusing on a specific issue or screen an entire lecture (Brophy, 2004). In the last 15 years, there has been an increase in use of videos in all subject areas, with various focuses including teachers' perception.

The history of using videos in teacher education in the United States goes back to the 1960s with the availability of portable video equipment and the emergence of videos as an instructional tool. Microteaching, interaction analysis, modeling expert teaching, video-based cases, hypermedia programs, and recorded field observations have been accepted approaches for exploring and studying different aspects of teaching such as classroom management, instructional strategies, time management, and specific teaching behavior (Sherin, 2004; Brophy, 2004; Sherin, 2004).

In general, the main purpose of video use is for professional development through the presentation and reviewing of examples that show students how to teach in the classroom. A variety of programs and approaches use videos as a part of instructional materials in teacher education. They include the Space for Learning and Teaching Exploration (SLATE) program, Video Analysis Support Tool (VAST) software, Literacy Education: Application and Practice (LEAP), and Multimedia Interactive Learning Environment (MILE) (DeMonner & Espinosai, 1998; Lampert & Ball, 1995; van Es & Sherin, 2002; Stephens, 2004; Oonk, Goffree & Verloop, 2004).

Different approaches can be used in implementing videos in pre-service teacher education. Educators can use an entire lecture slot to demonstrate the dynamics of a lesson or they can employ self-evaluation videos to help pre-service teachers recognize the strengths and weaknesses in their own teaching. Another approach is using short fragments of videos. Thus, educators can present best practices of teaching or focus on particular aspects of teaching and emphasize a specific topic such as classroom management. Videos present pre-service teachers with the opportunity of experiencing a wide range of examples in terms of teachers, students, classroom settings, and pedagogies or content (Star & Strickland, 2008), which may not be possible in field observations such as the teacher practice course. Also, the development of a shared language may help pre-service teachers discuss what they observe. Since videos make an actual record of classroom interactions, they are more reliable than teacher memory for learning what happened in the classroom. In addition, while in the classroom teachers have little opportunity to analyze the impact of what they are doing, but they can reflect on video material using as much time as they need to gain from the example (Sherin & van Es, 2005).

In field observations, pre-service teachers' experiences tend to be individual as they do not share the same classroom environments and mentor relationships as their peers. Star and Strickland (2008) discuss the benefits of using videos as compared to field observation experiences, and point out that using videos in teacher education provides the advantage of giving the whole class a chance to observe and share the same examples and launch group discussions on those examples. As discussed above, the success of using videos relies on teachers' ability to recognize the dynamics of a classroom, the strengths or weaknesses of classroom management, teaching skills, and student-teacher interactions.

Pre-service teachers' observational skills are important not only when videos are used as instructional tools but also in observing other teachers. The teacher practice course relies on pre-service teachers' ability to learn through observation at practice schools; observing other teachers is an essential part of teacher education. However, regardless of the teacher educators' expectations, pre-service teachers will fail to learn from mentor teachers if they are unsuccessful in learning through observing other teachers (Star & Strickland, 2008).

The structure of the teacher practice course does not question pre-service teachers' ability to notice and interpret what they observe and to learn from their observations. The design of a course should take individual differences into account. In addition, supervisors at the university level have limited opportunities to go into the field and share classroom experiences with the pre-service teachers. Therefore, in most cases they are unable to analyze the pre-service teachers' ability to observe or determine how they interpret their observations unless they refer to other instructional resources such as videos.

The main focus of this study was to investigate effects of using instructional videos on pre-service teachers' ability to notice strengths and weaknesses of a teacher or teaching method. Using videos for instructional purposes provides a controlled environment in which all student teachers experience the same material. Thus, a controlled environment makes it possible to explore what pre-service teachers notice from their observations.

## Method

Keeping in mind the importance of observational skills in teacher education, this study aims to investigate effects of video use on pre-service teachers' ability to notice details of a teaching practice and explore how pre-service teachers' discernment ability changes. Therefore, the study required an in-depth understanding of participants' abilities. For this reason, during this study a qualitative research methodology was employed. Data collection took place during the teacher practice course. Three locally recorded videos were used as an instructional tool. These videos were selected from a pool of videos ( $n=20$ ) that were recorded in real-classroom settings in previous years. These videos include teaching practices in natural environments; no scenario or advance class preparation was used for the recording process. The videos were recorded with a digital camera, which was

stationed at the back of the classroom. The camera was focused on the teacher and when necessary its angle was adjusted to follow the teacher's movements during the lesson. The lessons were unscripted and there were no outside interruptions causing any change in the flow of the lesson.

#### ***Selection and Description of Videos***

At the beginning of the study, selection criteria were determined for evaluation of videos based on the literature (MEB, 1998). For the purpose of this study, the evaluation criteria were identified under four main themes: *planning of the lesson, progress of the lesson, quality of teaching, and management of the learning environment*. Three experts who are familiar with video use in the classroom took part during the selection of videos. Presenting pre-service teachers with videos of exemplary cases was not a concern of this study. Therefore, teaching quality was not a selection criterion, but existence of the four predetermined main themes was considered during the selection process.

The three selected videos were of complete lectures from six to eight science and technology classes with lengths of 30 to 40 minutes. The three videos were found to be similar in teaching quality based on the criteria that was determined prior to the selection by the researchers and experts. Using locally recorded videos had benefits: First, using videos in Turkish prevented any language barrier and allowed participants to have a complete understanding of the lesson. Second, evaluating locally recorded videos might have been easier for pre-service teachers since the classroom environment and culture were familiar.

#### ***Participants***

Participants in this study were 26 fourth-year pre-service teachers (21 females, 5 males) majoring in science and technology teaching at one of the major public universities in Turkey. All of the participants were enrolled in the teacher practice course. Pre-service science teachers started to take part in this study after completing the third week of the semester at their assigned practice school. Thus, participating pre-service teachers had settled into their practice schools and were used to the school environment.

#### ***Procedure and Data Collection***

During data collection, pre-service teachers were asked to watch three videos, one per week, and then complete a lesson analysis with the purpose of identifying strengths and weaknesses of the teaching practice they had watched.

The instrument used to collect data consisted of three questions. The first asked participants to rate the quality of the teaching based on a 1 to 10 rating scale (1=lowest and 10=highest). The following two questions were open ended and asked pre-service teachers to identify the strengths and weaknesses of the teaching in the video and explain the rationale for their evaluation.

Data collection from video-watching was completed in three stages. The first stage consisted of a preliminary assessment that aimed to explore pre-service teachers' initial ability to notice and identify strengths and weaknesses of a sample

lesson. Therefore, without any instruction, pre-service teachers were asked to watch the first video. Then they were asked to rate the lesson they had watched and write a report on their observations, stating reasons for their ratings. After completion of the first report, pre-service science teachers were assigned to investigate and identify the criteria for evaluating a teaching practice. Pre-service teachers were expected to submit a written report of the evaluation criteria they identified.

The second phase included watching the second video during the following week. This time, pre-service teachers were asked to evaluate the second teaching video based on the criteria they reported on their assignments. At the end of the second phase, participating teachers were provided with an evaluation criteria sheet that was developed by the researchers for this study.

The third phase included watching the third video. However, before watching the video, pre-service teachers were given instructions by the researchers on how lessons can be evaluated; the evaluation criteria were discussed in the classroom to make definitions clear and prevent any misunderstandings. The criteria discussed included the following themes: *planning of the lesson*, *progress of the lesson*, *quality of teaching*, and *management of the learning environment*. After watching the third video, pre-service teachers were asked to evaluate the video content based on the latest criteria discussed and submit their written evaluations.

#### **Data Analysis**

The criteria identified for the selection of videos were also used as a baseline for the purpose of data analysis. Out of 26 pre-service teachers, two were excluded from the study due to attendance issues. Each pre-service teacher's responses to the questionnaire inquiring about the teaching quality in the three videos were analyzed and coded separately by the researchers. The predetermined themes were used as a framework. Upon completion of the coding, researchers compared identified subthemes and categories. The subthemes and categories that differed were reanalyzed and a consensus was reported (Bodgan & Biklen, 1998).

The responses to the questionnaires were analyzed in two sections. The first question of the questionnaire was analyzed separately to explore the distribution of rating scores given by each pre-service teacher for each video. Pre-service teachers' responses to questions two and three were analyzed together for each video.

### **Results**

Analysis of the first question on the questionnaire included examining the scores given to each video by the participating pre-service teachers. The findings reveal an inconsistency among participants' ratings. While some pre-service teachers rated the first video as 7 or 9, others rated it as low as 2 to 3 out of 10. Similar inconsistencies were also observed for the second video ratings. However, the distribution of scores was found to be not as diverse as in the first video evaluations. This outcome may be interpreted as the result of differences in how pre-service teachers evaluate a teaching practice based, in this case, on their own criteria. On the other hand, the

distribution of rating scores shows consistency among participants for the third video.

Pre-service teachers' responses to the second and third questions of the questionnaire were analyzed across each video. The identified themes and subthemes are reported in Table 2 below. A detailed table of themes, subthemes, categories and comment distributions are presented in the appendix.

**Table 2**

*Themes and subthemes identified from pre-service teachers' responses*

<i>Theme / category</i>	<i>Subthemes</i>
Planning of Lesson	Appropriate content and lesson plan Suitable choice of resources Variety of classroom activities
Progress of Lesson	Introduction Stating the purpose Development Timing of the lesson Ending of the lesson
Quality of Teaching	Questions Feedback and monitoring Teacher provided explanations
Management of Learning Environment	Classroom management Establishing a learning environment Use of resources Communication

*Theme 1: Planning of Lesson*

Participants' responses were analyzed across three videos. Under the theme *Planning of Lessons* three subthemes were identified: "Appropriate content and lesson plan," "Suitable choice of resources," and "Variety of classroom activities." As seen in the appendix, at the beginning of the study, participants were not paying attention to the *Planning of Lesson* theme. As the study progressed, participants' responses were found to be focusing on the details categorized under this theme, including "Suitable choice of resources." Although participants identified and commented on the subthemes "Suitable choice of resources" and "Variety of classroom activities"

for the second and third videos, very few participants commented on the subtheme “Appropriate content and lesson plan.”

“(…) Teacher started the lesson with an activity and taught the lesson based on the activity. The choice of activity was appropriate for the content. (…)” (T12, V3)

“[A]t the beginning of the lesson, the teacher used a variety of resources and material to get the attention of the students and wanted them to learn the content of the lesson. His choice of materials was appropriate, I think.” (T20, V3)

#### *Theme 2: Progress of Lesson*

The analysis found participants’ responses on the first and second video to be limited for the subtheme “Introduction.” However, for the third video, the number of comments on this subtheme was found to have increased. In particular, the comments on the subtheme of “Stating the purpose” were found to be a focus of attention for the participants. While there was only one comment on this subtheme for the first and second video evaluations, for the third video ten different comments were identified.

“[T]he teacher explained the purpose of the lesson at the beginning.” (T11, V3)

“[T]hrough use of different materials such as a mirror, the teacher identified the purpose of the lesson.” (T4, V3)

For the subtheme “Development,” the ‘timing of the lesson’ category was a concern with all three videos used during the study. However, the frequency of comments from participants on this category was found to have increased for the third video in comparison to the first and second video. A similar trend was also detected for the other categories; ‘student motivation and attention,’ ‘pace of the activity,’ and ‘development of lesson for acquisition of knowledge.’

“Teacher is very successful at keeping students’ attention on the lesson. Students are willing to participate and listen to the lesson. Even though the class is over they are still attentive to the teacher.” (T20, V3)

“Teacher is unable to manage the time.” (T1, V3)

“[T]he pace of showing pictures was too fast.” (T12, V1)

The subtheme “ending of lesson” was focused on whether the pre-service teacher noticed the lesson’s conclusion. Participant comments organized under this theme did not focus on the ending of the lesson at all for the first video. For the third video, the responses of the pre-service teachers focused on not only the ending of the lesson but also the nature of the ending, including whether or not there was any reinforcement of the learning.

“(…) I think the downside of the teaching was not having the ‘what have we learned’ part.” (T2, V3)

"[A]t the end of the lesson the teacher did not summarize the lesson and emphasize the content. No assignment or information was provided to students for the next lesson." (T20, V2)

*Theme 3: Quality of Teaching*

The theme *quality of teaching* consisted of subthemes including "Questioning," "Feedback and monitoring," and "Teacher provided explanations." The teacher's ability to ask questions plays an important role in teaching practices at every level, and the subtheme "Questioning" was investigated at two levels. The first concerned whether the 'teacher was asking questions' or not. Participants who noted and commented on teacher questioning were coded under this category. Participants who discussed the nature of the questions and how the teacher used questions as a part of teaching practice were coded under the category 'nature of questions.' The 'nature of questions' category includes comments that are focused on higher-order thinking skills, students having enough response time, students having opportunity to respond, and teachers asking purposeful questions throughout the lesson. Analysis of the data revealed that frequency of pre-service teachers' comments on the first and second video was higher only for general comments such as references to the teacher asking questions; they were not commenting on the quality or nature of the questions asked. They were basically stating the fact and failing to notice the details. On the other hand, on the third video, pre-service teachers were found to be commenting on the nature and quality of the questions the teacher was asking. Their comments focused on whether or not the questions asked by the teacher were designed to promote higher-order thinking skills.

"... starting the lesson with questions." (T16, V1)

"[T]eacher's questions required students to think critically. Instead of asking yes or no questions, teacher asked questions that required reasoning in responses." (T16, V3)

The subtheme "feedback and monitoring" was categorized based on participants' responses. Either feedback was provided by the teacher and this was reported with a statement that feedback was provided or participants commented on the nature of the feedback, including the teacher's response to student answers, uptake of student responses, and probing to obtain correct responses. The participant responses included the following:

"[T]he teacher was asking questions and allowed a couple of students to respond. When he got the right answer he provided incentive to students." (T1, V1)

"The teacher was asking questions throughout the lesson. When he asked a question of the students and got a correct answer, he highlighted the key points of the response. When the student's response was incorrect he provided the correct answer immediately. I believe instead of giving the correct answer immediately he should have asked other students and involved them in coming up with the correct answer." (T1, V3)

As seen from the comments presented above, participants were able to recognize details, including how a teacher verbally responded to a student or how a teacher used non-verbal feedback during instruction.

*Theme 4: Management of Classroom Environment*

“Classroom management” was one of the subthemes that was highly emphasized from the beginning of the study. However, the nature of pre-service teachers’ comments was found to have changed toward the end of the study. In the first and second videos, pre-service teachers were recognizing classroom management as “being able to provide a silent environment” in which students were paying attention to the teacher. This control of student behavior was the only method of classroom management they identified. Pre-service teachers also commented on classroom management issues with statements like “the classroom is too loud,” but they were not focusing on the nature of the student conversations and whether they were content-related or not. Accordingly, they were not recognizing student involvement as a part of the learning atmosphere but focusing only on the setting—whether it was dark or whether the classroom set-up was acceptable or not. Nevertheless, pre-service teachers’ comments on the third instructional video included references to the control of oral responses as well as classroom activities as a part of classroom management. They also recognized student involvement as a part of teaching practice, something they did not identify earlier.

The “Establishing a learning environment” subtheme included comments on classroom environment and its structure as well as interactions between teacher and student, and student involvement in the lesson. At the beginning of the study, preservice teachers’ comments primarily identified the classroom setting and its pros or cons; only two comments focused on student involvement. In contrast, toward the end of the study the frequency of comments on this category were found to be increasing, as seen in the appendix.

“He didn’t prepare the environment for the use of a projector. Students were unable to view the slides.” (T3, V3)

“He completed an activity with the participation of some students; meanwhile, he was able to involve the whole classroom in the activity. Students were active.” (T2, V3)

“Teacher was continually allowing the same student to respond to the questions. He should have provided the same opportunity to other students as well. Then the lesson would be more appealing.” (T11, V3)

There was little or no emphasis on the students, student behavior, or teacher-student interactions. The only student-related comment was “students asked interesting questions,” which was noted by only a few pre-service teachers. Pre-service teachers failed to recognize the involvement of students that is required for a successful classroom environment and the importance of student-student interactions and conversations to support the learning process. Pre-service teachers’ comments were failing to identify the details that are related to the quality of teaching.

The “Use of resources” subtheme included the identification of resources and instructional materials such as projectors, chalkboards, and handouts in the classroom during instruction. Any “yes” and “no” comment or statement of an existence of use of such materials was coded under the general category of use of resources. Pre-service teachers’ comments on the quality of resources or instructional materials and how effectively they were used were coded separately as more detail was provided. More descriptive comments were provided from the pre-service teachers in the evaluation of the third video in comparison to the first and second videos.

“It is nice that the teacher uses visual materials during instruction.” (T6, V1)

“The teacher used verbal statements to explain how light travels. I think it would be more effective if he used the chalkboard to explain the content through drawing.” (T11, V3)

Participating pre-service teachers also commented on the use of resources such as video or a chalkboard. Their comments were focused on stating the facts—“teacher used video and asked questions” and “it is nice that he is using visual material.” However, there were no comments regarding whether the use of video was a successful strategy or not.

“Communication” was identified as the last subtheme of *Management of Learning Environment*. Any verbal and non-verbal communication was included in this subtheme. Three subtheme categories were identified: ‘suitable use of language by the teacher,’ ‘teacher’s voice quality and speed,’ and ‘non-verbal communication.’ One of the findings of this study was that while pre-service teachers were focused on the suitable use of language by the teacher, very little attention was given to voice quality and speed and non-verbal communication during the first video evaluations. On the third video, more pre-service teachers’ comments were identified regarding suitable use of language and both voice quality and speed (n=20), while non-verbal communication was found to be receiving very little attention (n=3). The following comments were categorized under this category:

“[T]he way the teacher refers to students is not appropriate; it would have been better if she/he called them kids.” (T4, V3)

“The teacher was able to use proper and appropriate language. The tone of his voice was very effective and changed when he needed to emphasize something. He was very capable during the instruction.” (T2, V3)

Participants’ other comments were focused on time-management issues related to the progress of the lesson and sequence of the lesson.

### Discussion and Conclusion

Student teaching practices play an integral role in pre-service teacher education programs. Use of videos as an instructional tool to support professional development of student teachers has been a focus of many different studies (Brophy, 2004; Marsh,

Mitchell & Adamczyk, 2010; Menirovsky & Galvis, 2004; Sherin & van Es, 2009). In pre-service teacher education programs, students are expected to spend time in practice schools and teach in actual classrooms as a part of their student teaching requirement. However, in many cases there is less emphasis on improving pre-service teachers' ability to recognize and analyze the strengths and weaknesses of a lesson. In this study, the goal was first to investigate pre-service teachers' ability to discern such factors and then to improve their abilities to recognize certain aspects of teaching by means of using video material as an instructional tool. This study's findings reveal that participant student teachers' selective attention and ability to notice increased through use of videos. This way, students were able to pay selective attention to specific instances of a teaching practice taking place in a complex environment such as a classroom, as presented through a video. Pre-service teachers were more capable of identifying strengths and weaknesses of a lesson in detail.

Based on the findings, it is evident that at the beginning of this study participating pre-service teachers were able to identify only partially the main aspects of a lesson, and their responses focused merely on the existence or non-existence of certain instructional behaviors and tools. They were not able to recognize quality of teaching or the students' role in the learning process. This finding is consistent with the work of Sherin & Han (2004). As the study progressed, with instructions provided by their supervisors, pre-service teachers' ability to discern such factors developed. Based on the findings of this study, through a systematic approach of assignments and discussions in the classroom, pre-service teachers showed progress in their ability to recognize the important details of teaching practices.

During this study, through the use of videos, pre-service teachers were able to observe and experience an actual middle school classroom in their learning environment. Use of videos provided a controlled environment for focusing on pre-service teachers' observation and recognition skills in a way that is not possible in an actual classroom setting. Results of this study suggest that using recorded video materials facilitate student teachers' ability to observe teaching practices in real time. Mitchell et al. (2008) report similar results by using an INSTEP-type program that focuses on teachers' ability to connect theoretical concepts with observed classroom activities and improve trainees' observational skills. In addition, Brophy (2004) points out the importance of real-time experiences.

The ability to notice is an important skill that should be emphasized and developed to ensure successful outcomes in teacher development. The benefit of using and discussing videos appears to increase student teachers' skills in observation and evaluation. Videos can be successfully used as an instructional tool to improve pre-service teachers' ability to recognize details in teaching practices. In conclusion, use of videos as an instructional tool improves student teachers' observational skills in complex environments, which in turn is expected to influence their own teaching skills and abilities. From this perspective, using videos as a part of pre-service and in-service teacher education is highly recommended.

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## Öğretmen Eğitiminde Eğitim Materyali Olarak Video Kullanımı

### (Özet)

*Problem Cümlesi:* Eğitim Fakültelerinin son sınıfında verilmekte olan okul deneyimi dersi, öğretmen adaylarının okul ortamını tecrübe etmelerine olanak sağlayan niteliğiyle öğretmen eğitiminde önemli bir yer tutmaktadır. Bu ders kapsamında öğretmen adayları, sınıf ortamını gözlemleme ve derslerde öğrenmiş oldukları eğitim kuramlarını uygulama fırsatı bulmanın yanında, öğretme becerilerini geliştirme imkanı bulmaktadırlar. Bu süreçte öğretmen adaylarının gözlem becerileri sürecin etkinliği açısından öne çıkmasına rağmen çoğu zaman okul deneyimi dersi kapsamında göz ardı edilmektedir. Okul deneyimini dersi kapsamında ortak deneyimlerin öğretmen adaylarına sunulmasında yaşanan sınırlılıklar ise diğer bir eksikliği teşkil etmektedir. Öğretmen adaylarının profesyonel gelişimlerine katkı sağlamak amacıyla ders ortamında çekilmiş olan videoların eğitim amaçlı kullanımı, öğretmen adaylarının ortak deneyim yaşamasına olanak sağlar. Videoların sınıf içinde kullanımı amaçlar doğrultusunda farklılıklar gösterebilmektedir. Tüm dersin örnek olarak gösterildiği 30-40 dakikalık videolar veya belli öğretim tekniklerinin

vurgulandığı 5-10 dakikalık kısa video bölümleri belirlenen hedefler doğrultusunda tercih edilebilir. Videoların öğretmen eğitiminde kullanılması 1960'lardan beri kabul gören bir yöntemdir. Elli yıllık süreçte mikroöğretim, hipermedya ve uzman öğretimini modelleme gibi yaklaşımlarla videoların öğretmen eğitiminde kullanımı kabul görmektedir. Videoların öğretmen eğitiminde kullanılması veya okul deneyimi dersi söz konusu olduğunda öğretmen adaylarının gözlem ve öğretim stratejilerini farkına varma becerilerini kullanmaları gerekmektedir. Her iki süreçte de öğretmen adaylarından beklenti, öğretim yöntem ve stratejilerini farkına varma ve ayırt edebilmeleridir. Yapılan çalışmalar; tecrübeli öğretmenlerin öğretim yöntem ve stratejilerini farkına varma ve belirleme konusunda, tecrübesiz öğretmenlerle kıyaslandıklarında daha başarılı olduklarını göstermektedir. Bu farklılığa rağmen öğretmen adaylarının gözlem ve farkına varma becerileri sorgulanmamakta ve bu konuda sınırlı sayıda çalışma bulunmaktadır.

*Araştırmanın Amacı:* Bu çalışma, öğretim yöntem ve stratejilerini farkına varmanın önemini göz önünde bulundurarak; öğretmen adaylarının sınıf ortamında bir öğretmeni izlerken, öğretimin güçlü ve zayıf yönlerini farkına varma ve belirleme becerileri üzerine odaklanmaktadır. Çalışmanın amacı iki kısımdan oluşmaktadır. İlk amaç; öğretmen adaylarının; gözlemedikleri bir derste öğretimin niteliklerinin farkına varma becerilerinin hangi seviyede olduğunu araştırmaktır. İkinci amacı ise; video kullanarak verilen eğitim aracılığıyla öğretmen adaylarının öğretim niteliklerinin farkına varma becerilerinin gelişim sürecini gözlemlemektir.

*Araştırmanın Yöntemi:* Bu çalışma, dördüncü sınıf fen ve teknoloji öğretmen adaylarının katılımı ile gerçekleştirilmiştir. Çalışmaya güz döneminde açılmakta olan Okul Deneyimi I dersine kayıtlı 26 öğretmen adayı katılmıştır. Öğretmen adaylarının okul deneyimi dersi kapsamında üniversitedeki ders sorumlusu ile sürdürdükleri dersler sürecinde bu çalışma gerçekleştirilmiştir. Çalışma esnasında üç öğretim videosu üç hafta boyunca öğretim amaçlı olarak kullanılmıştır. Bu videolar 6-8 sınıf fen ve teknoloji dersi kapsamında kaydedilmiştir ve sınıf ortamını tam olarak gösteren 30-40 dakika uzunluğunda videolardır. Kullanılan videolar içerik olarak öğretmen adaylarının gerçek ortamda karşılaşılabilecekleri sınıf ortamlarını göstermektedir. Çalışmaya katılan öğretmen adaylarından, her bir videoyu izledikten sonra, öğretim yöntemlerini göz önünde bulundurarak güçlü ve zayıf yönlerini değerlendirmeleri istenmiştir. Öğretmen adaylarının farkına varma becerilerini geliştirmek amacıyla haftalık olarak ödevler verilmiştir ve sınıf ortamında tartışmalar gerçekleştirilmiştir. Her bir dersin sonunda veri toplama aracı olarak üç sorudan oluşan bir anket kullanılmıştır. Elde edilen veriler iki araştırmacı tarafından ayrı ayrı analiz edilmiş ve temalar ve alt temalar oluşturulmuştur.

*Araştırmanın Bulguları:* Elde edilen verilerin analiz sonuçları; çalışmanın başlangıcında öğretmen adaylarının, öğretimin güçlü ve zayıf yönlerini detaylı olarak fark etme konusunda başarısız olduklarını göstermektedir. Öğretmen adayları; soru sorma, tahta ve diğer teknolojilerin kullanımı gibi belirgin öğretim yöntemlerini belirlemede başarılı olurken, daha fazla farkına varma becerisi gerektiren öğretim yöntem ve stratejilerini belirlemede başarı gösterememişlerdir. Katılımcılar yaptıkları yorumlarda genel olarak öğretmen üzerinde odaklanmakta ve

öğrenci davranış ve derse katılımlarını dikkate almamaktadırlar. Öğretmen adaylarının izledikleri ilk video üzerine yaptıkları yorumlarda odaklandıkları konulardan bir tanesini sınıf yönetimi teşkil etmektedir. Sınıf içinde öğrencilerin kendi aralarında çok konuşmaları ve sınıfın gürültülü olması sınıf yönetimi açısından başarısızlık olarak belirtilmiştir. Öğretmen adayları, öğrencilerin diyaloglarının niteliği üzerine yorum yapmamışlardır. Ders kapsamında video kullanılarak verilen eğitim sonrasında ise, öğretmen adaylarının öğrenci diyaloglarının niteliklerine dikkat ettikleri görülmektedir. Eğitim verilmeden önce izlenen ilk videoya öğretmen adaylarının yaptıkları yorumlar ve gözlemler değerlendirildiğinde öğretmen adaylarının becerileri ve değerlendirme kriterleri açısından büyük farklılıklar olduğu gözlemlenmiştir. Çalışma sonunda ise öğretmen adayları arasında değerlendirme kriterleri açısından genel bir anlayış oluşmuş ve ilk video için gözlemlenen beceri farklılıkları ortadan kalkmıştır. Yapılan çalışma göstermiştir ki; verilen eğitim sayesinde öğretmen adayları farkına varma becerilerini geliştirmişlerdir.

*Araştırmanın Sonuçları ve Önerileri:* Çalışmanın sonuçları incelendiğinde, öğretmen adaylarının öğretim yöntemlerinin detaylarını farkına varma becerilerinin okul deneyimi dersi kapsamında gerçekleştirilen eğitim sürecinde geliştiği gözlemlenmiştir. Okul deneyimi dersi ve öğretmen eğitiminde video uygulamaları gözlem ve farkına varma becerilerinin kullanılmasını gerektiren durumlar olup, bu dersler öncesinde öğretmen adaylarının beceri seviyelerinin sorgulanması gerekmektedir. Bu amaçla video kullanımı olumlu sonuçlar vermektedir. Videolar 1960'lardan beri eğitim amaçlı olarak kullanılmakta ve farklı yaklaşımlarla eğitim sürecine dahil edilmektedirler. Video kullanıldığı takdirde hedeflerin ve ulaşılabilecek kitlenin özelliklerinin iyice belirlenmesi ve uygun uzunlukta ve nitelikteki video materyallerinin kullanılması olumlu sonuçların elde edilebilmesi için önem taşımaktadır. Bunun yanı sıra, özellikle öğrenme ortamında tecrübesi bulunmayan öğretmen adaylarına gerekli ön bilgiler ve yapılandırılmış yönergeler verilmediği takdirde istenilen hedef davranışların oluşması zorlaşmaktadır. Bu çalışmada video kullanarak kontrollü bir öğrenme ortamı oluşturulmuş ve öğretmen adaylarının farkına varma becerilerinin geliştiği gözlemlenmiştir.

*Anahtar Sözcükler:* öğretmen eğitimi, video ile eğitim, okul deneyimi, öğretim yöntemlerini farkına varma,

## Appendix

Table of themes, subthemes and categories identified during the study.

Themes			
<b>Subthemes</b>	VI	VII	VIII
<b>1. Planning of Lesson</b>			
1. a Appropriate content and lesson plan	0	2	4
b. Suitable choice of resources	1	8	10
2. Variety of classroom activities	0	7	8
<b>2. Progress of the Lesson</b>			
<i>1. Introduction</i>			
a. Establishing a set	5	13	14
b. Lesson related with the context	3	6	11
c. Stating the purpose	1	1	10
<i>2. Development</i>			
a. Student motivation and attention	1	2	10
b. Pace of the activity	1	1	8
c. Timing of the lesson	6	7	18
d. Development of lesson for acquisition of knowledge	1	3	9
<i>3. Ending of the lesson</i>			
a. General comment	0	0	4
b. Reinforcement of learning	0	3	10
<b>3. Quality of Teaching</b>			
<i>1-Questions</i>			
a. General comments	7	9	14
b. Nature of questions (higher order thinking skills, students have enough responding time, students have opportunity to respond, asking purposfull questions throughout the lesson)	4	6	23
<i>2. Feedback and Monitoring</i>			
a. Feedback is provided	4	3	12
b. Nature of feedback		5	13
<i>3. Teacher explanations</i>			

a. Teacher provides explanations	0	0	1
b. Quality and depth of explanations	0	2	11
<b>4. Management Learning Environment</b>			
<i>1. Classroom management</i>			
a. Classroom management in general	3	7	10
b. Management of routine in classroom	3	7	10
c. Teacher ability to manage student behavior	3	9	10
d. Teacher ability to manage oral responses	1	4	4
e. Teacher ability to manage classroom activities	0	9	9
<i>2. Establishing a learning environment</i>			
a. Classroom setting ( dark condition)	4	6	7
b. Interactions between student and teacher	2	5	7
c. Involvement of student	2	9	13
<i>3. Use of resources</i>			
a. Use of resources (projector, chalk board... (Y/N)	2	1	8
b. Quality of resources	2	7	8
c. Effective use	0	1	6
d. Use of handout/worksheet	0	8	9
<i>4. Communication</i>			
a. Suitable use of language	8	3	12
b. Voice quality and speed	3	5	8
c. Non-verbal communication	2	5	3