

Video-enhanced Reflection in Iran: Impacts of Gender and Experience

Saeedeh Kavoshian^{1,2}, Saeed Ketabi¹, Mansoor Tavakoli¹, Thomas Koehler²

¹ University of Isfahan

² Technical University of Dresden

Abstract

The present study aimed at investigating the video-enhanced reflections of Iranian EFL teachers. It also made an attempt to cast light on the differences between male and female teachers' video-enhanced self-reflections of their own teaching process. Moreover, the role of experience in changing their video-enhanced reflection was explored. Applying instruments like video-recording, reflection checklists and semi-structured interviews, this study implemented a mixed-method approach with a triangulation design focusing on both quantitative and qualitative data. The findings of the study demonstrate that the video-enhanced reflections of Iranian EFL teachers mostly pivot around issues consisting of innovative teaching strategies, classroom management, learners' characteristics, classroom interactions, teacher talk, organization of the lessons, technology resources and visual aids. Results also show that the above-mentioned reflections are both experience and gender-sensitive. Keywords: Video-enhanced reflection, Reflective teaching, EFL teachers

1 Introduction

Reflective teaching is a complicated issue within which room for maneuver is possible and indeed desirable. Considering the origin and importance of reflective teaching, books, indeed entire libraries have been written on different definitions and conceptualizations of the term. According to an often-cited definition, in a reflective approach to teaching “teachers collect data about teaching, examine their attitudes, beliefs, assumptions and teaching practices, and use the information obtained as a basis for critical reflection” about teaching (Richards & Lockhart, 1994, p. 1). In practice, all teaching involves some sort of reflection which is “context and practice-bound... [and] does not occur in a vacuum” (Edwards & Thomas, 2010, p. 404).

Specifically, when it comes to reflecting on teaching in the area of applied linguistics in general, and English Language Teaching (ELT) in particular, the following quotation might reveal the significance of reflection to EFL/ESL teachers:

“Critical reflection can trigger a deeper understanding of teaching. Teachers who are better informed as to the nature of their teaching are able to evaluate their stage of professional growth and what aspects of their teaching they need to change. In addition, when critical reflection is seen as an ongoing process and a routine part of teaching, it enables teachers to feel more confident in trying different options and assessing their effects on teaching” (Richards & Lockhart, 1994, p. 4).

That is to say, “reflection is a regular, daily activity for ELT professionals who have certain standards, beliefs, and criteria regarding how a language should be taught” (Eröz-Tuğa, 2012, p. 176).

2 Review of Literature

The existing body of literature on reflection is quite rich (e.g., Blomberg, Sherin, Renkl, Glogger & Seidel, 2014; Calandra, Sun & Puvirajah, 2014). These studies notwithstanding, the empirical literature on differences between experienced and novice teachers with regard to their reflections on classroom events is relatively thin and outdated (e.g., Berliner, 1986, 1991; Sabers, Cushing & Berliner, 1991). Seen in this light, Berliner (1986) elucidated that expert teachers reflect on classroom events argumentatively, while novices are deemed to have mostly descriptive reflection by merely describing classroom events without reasoning about them. Additionally, experienced teachers tend to have abstract in-depth classifications of classroom events and practices. On the contrary, novice teachers classify classroom events superficially (Berliner, 1991).

One way of providing teachers with opportunities to reflect on their own teaching is to videotape their classroom performance (Fuller & Manning, 1973). Hence, video-enhanced reflection gained momentum. Video-enhanced reflection may be useful in different areas such as teacher training, second language speaking skills (Mulac, 1974), public speaking (Lucas, 2000), theatrical, athletic, musical skills and also in other fields in which performance can be videotaped. As to the purpose of the current study, it is worth mentioning that a large and growing body of literature has substantiated the significant role of watching video-recorded classroom situations for fostering teachers’ reflection skills and providing them with opportunities to be more reflective teachers carrying out more in-depth, elaborate, interpretive, expert, and detailed analysis of classroom events (Santagata, Zannoni & Stigler, 2007; Stockero, 2008).

Moreover, many researchers and teacher educators are unanimous in supporting the value of media, in general, and classroom video, in particular, in teacher education. That is to say,

Media Literacy is a 21st century approach to education. It provides a framework to access, analyze, evaluate and create messages in a variety of forms –from print to video to the Internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression necessary for citizens of a democracy (Thoman & Jolls, 2005, p. 190).

With regard to the use of video in teacher education, Masats and Dooly (2011, p. 2) elucidated that there are three types of experiences

According to the way in which videos were used: video-viewing, video-modelling and video-coaching. Video-viewing is often used as a method to focus student-teachers' attention on certain topics and to set up a base for class discussion and assignments. Video-modelling is a means of getting student-teachers' to focus their attention on target skills or behaviour. Video-coaching has been used to refer to the use of taped activities of the student-teachers' themselves which then leads into group discussion.

They maintained that, because of the rapid advancement of digital technology, a new dimension called 'in-class video-making' has been added to the aforementioned categories. "Video viewing is used today to prepare both primary and secondary school teacher" (Gaudin & Chaliès, 2015, p. 42). In the growing body of literature, according to Gaudin and Chaliès (2015), three main reasons have been mentioned for using videos in teacher education: 1. Videos provide teachers with better access to classroom events; 2. "Digitalization, vastly improved storage capacities, and sophisticated software have all contributed to the development of video in the framework of professional practice analysis" (p. 42); 3. Videos are used for institutional reforms (e.g., analyzing classroom events to reform).

Further, Kennedy, Alves and Rodgers (2015) enumerated five principles of "involving expert coaches, integrating with classroom learning, discussing short, focused clips, using authentic, complex situations, and focusing on what happened" as the main features of video-based reflection to be considered by teacher educators in teacher preparation courses (p. 77).

Arguing along similar lines, according to a thorough and comprehensive review of literature by Gaudin and Chaliès (2015), research studies focusing on video viewing mostly pivot around a conceptualization including four categories of

1. Teachers' activity as they view a classroom video;
2. The objectives of video viewing;
3. The types of videos viewed;
4. The effects of video viewing on teacher education and professional development (p. 41).

With regard to the teachers' activities as they watch classroom videos, Sherin (2007) argued that watching videos "involves perceptual processes, it is not passive, and along with all perceptual processes, professional vision is characterized by bottom-up as well as top-down processes" (p. 384). In this context, there is a large volume of published studies substantiating the pivotal role of fostering teachers' 'selective attention' to certain classroom events in both teacher professional development and teacher education courses (e.g., Seidel & Stürmer, 2014; van den Bogert, van Bruggen, Kostons & Jochems, 2014; van Es & Sherin, 2010). Additionally, there is a substantial research base that acknowledges the importance of teachers' 'knowledge-based reasoning' involved in watching classroom videos (e.g., Lussi Borer & Muller, 2014; Sherin & Russ, 2014). That is to say, when teachers talk about "what they identify in classroom videos, they do not simply provide a list of items or events that were identified"; rather, "they describe their reasoning about what they identify" (Gaudin & Chaliès, 2015, p. 47).

Considering the objectives of video viewing, in a related strain of research studies (Fadde & Rich, 2010; Martin & Siry, 2012), six objectives of video viewing in professional development and teacher education have been recognized as follows:

1. Showing examples of good teaching practices;
2. Showing characteristic professional situations;
3. Analyzing the diversity of classroom practices from different perspectives;
4. Stimulating personal reflection;
5. Guiding/coaching teaching, and
6. Evaluating competencies (Gaudin & Chaliès, 2015, p. 47).

Regarding the third category of the above-mentioned conceptualization pertaining to types of videos viewed, research documents three types of videos consisting of one's own (e.g., Brouwer, 2012; Coffey, 2014; Seidel, Stürmer, Blomberg, Kobarg, & Schwindt, 2011), peer (e.g., Flandin & Ria, 2012; Leblanc & Seve, 2012) and unknown teacher (e.g., Kleinknecht & Schneider, 2013; Leblanc, 2012; Zhang, Lundeberg, Koehler, & Eberhardt, 2011) teaching practices which have been implemented in different professional development and teacher education courses.

The last category of the conceptualization has got to do with the effects of video viewing on teacher education and professional development. In this context, judging by the growing body of literature, it seems clear that the emphasis has been put largely on the benefits associated with the implementation of video viewing in enhancing teachers' motivation, attention and improving classroom practices (e.g., Brunvand, 2010; Gaudin & Chalies, 2015; Gaudin, Flandin, Ria, & Chalies, 2014; Wang, 2013). Additionally, the value of videos in enhancing teachers' professional development has been corroborated by a number of studies (e.g., Calandra et al., 2014; Masats & Dooly, 2011; Zhang et al., 2011).

Based on the theoretical and empirical rationales expounded on so far, and because of the felt lacuna in research studies focusing on video-enhanced reflections in Iran (e.g., Kavoshian, Ketabi & Tavakoli, 2016) and scarcity of studies focusing on gender and experience in the field of English Language Teaching (ELT), the current study set out to fill this gap by investigating the following research questions:

1. What are the video-enhanced self-reflections of Iranian EFL teachers?
2. Are there any significant differences between video-enhanced reflections of male and female Iranian EFL teachers?
3. Are there any significant differences between video-enhanced reflections of experienced and novice Iranian EFL teachers?

3 Method

In order to investigate the video-enhanced reflection of the participants, the researcher conducted this study by means of triangulation of data through semi-structured interviews, video-recording of class sessions, and self-reflection checklists. Therefore, a mixed-method approach with a triangulation design was implemented to conduct the study.

3.1 Participants

Through purposive sampling, sixteen EFL teachers of a language institute were selected to participate in the study. In order to choose the participants, three criteria were taken into consideration. Firstly, all of them agreed to participate in the study voluntarily. Secondly, their genders were taken into account (10 male & 6 female EFL teachers). Third, the extent of their experience in teaching English was important (8 experienced & 8 novice teachers). By way of illustration, 50 % of the participants were experienced and 50 % were novice teachers in both the male and female group. It is worth mentioning that we did not have equal numbers of male and female teachers due to the females' refusal to be videotaped.

3.2 Instrumentation

Video-recording: Video-recording: Initially, audio/video consent forms were submitted to the participants and subsequently, their English teaching processes were recorded using special video cameras. All the classes of the institute were equipped with such cameras; as a result, they were not strange and unusual for the students and teachers. The videos were recorded twice, both at the onset and the end of the project (with a 2-month period interval). Therefore, each participant was video-recorded twice and received two 60-minute films of his/her own teaching process to watch, think about, and reflect on regarding different aspects of classroom practices. Finally, they were supposed to provide answers to the items in self- reflection checklists.

Self-reflection checklists: In order to shed light on video-enhanced reflections of Iranian EFL teachers and make some sorts of comparisons with regard to their genders and level of experience, a self-reflection checklist was designed to capture their reflections after watching the films of their own teaching process. It is noteworthy that there were 43 items in the checklist incorporating five sections on different facets of the teaching process. Song and Catapano's sheet (2008), Danielson's Framework for Teaching (Danielson, 1996), and Doff's reflection sheet (Doff, 2000) were incorporated in the design of the checklist (Kavoshian et al., 2016). The internal consistency of the checklist was found to be .86 (Cronbach alpha coefficient), indicating high reliability. Having watched the films of their own teaching process, the participants filled out the reflection checklists.

Face-to-face interview: Semi-structured interviews were conducted in order to gain a better understanding regarding the video-enhanced reflections of the participants and the differences in their reflections with regard to their gender and level of experience. The interviews began with demographic information with a focus on the interviewees' English background, teaching experience, age, gender and so forth. It is worth mentioning that face-to-face interviews were carried out in Farsi (and then translated into English), each lasting about 30 minutes. Interviews were audio-recorded for more

detailed investigations. Data were subsequently transcribed, modified, analyzed, and translated into English. The inter-rater reliability between the raters was found to be .85, indicating good agreement between raters.

4 Data Analysis and Results

Having implemented a mixed-method approach with a triangulation design, the researchers conducted both qualitative and quantitative analyses to address the research questions.

4.1 Quantitative Analysis

To address the second and third research questions of the study, Statistical Package for the Social Sciences (SPSS 19) was used to analyze the data.

- 1) Male and female teachers' video-enhanced reflection scores

Table 1 summarizes the descriptive statistics of male and female teachers' video-enhanced reflection scores gained from the results of self-reflection checklists. The self-reflection checklist contains 43 items classified into five sections, part A on demographic items, part B (12 items) on general evaluation of teaching process, part C (7 items) on general evaluation of learning process, part D with different survey items for teaching practice consisting of different domains for planning and preparation (10 items), learning environment (4 items), and instruction (10 items). An open-ended section on the teacher's self-reflections formed the last part of the checklist (Kavoshian et al., 2016). Having watched the videos of their own teaching process, teachers filled out the above-mentioned reflection checklists representing their own reflection and evaluation of different facets and aspects of the teaching process.

Table 1. Descriptive Statistics of the Video-enhanced Reflection Scores of Males and Females

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
male	10	143.00	213.00	180.5000	24.84731
female	6	141.00	184.00	156.0000	16.21111
Valid N (listwise)	6				

As depicted, the mean scores of video-enhanced reflections of male and female teachers are different with the mean score of the males being higher ($M = 180.50$) than the mean score of the females ($M = 156.00$). Remarkably, male teachers achieved the highest possible score of 213 ($Max = 213.00$).

To see whether the difference depicted in Table 1 is significant or not, a Mann-Whitney U Test was employed. Since the z value is -1.95 (rounded) with a significance level of $p = .05$, it can be concluded that the result indicates a significant difference between male and female teachers.

Table 2. Mann-Whitney U Test for Video-enhanced Reflection Scores of Males and Females

	Reflection
Mann-Whitney U	12.000
Wilcoxon W	33.000
Z	-1.952
Asymptotic Significance (2-tailed)	.051
Exact Significance [2*(1-tailed Sig.)]	.056(a)

a Not corrected for ties.

b Grouping Variable: gender

2) Novice and Experienced teachers' video-enhanced reflection scores

Table 3 summarizes the descriptive statistics of novice and experienced teachers' video-enhanced reflection scores.

Table 3. Descriptive Statistics of the Video-enhanced Reflection Scores of Novice and Experienced Teachers

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Novice	8	141.00	196.00	161.2500	21.19131
Experienced	8	143.00	213.00	181.3750	24.95102
Valid N (listwise)	8				

As depicted in Table 3, the mean scores of video-enhanced reflections of novice and experienced teachers are different with the mean score of the experienced teachers being higher ($M = 181.37$) than the mean score of the novices ($M = 161.25$). The highest possible score is 213 ($Max = 213.00$) for experienced teachers.

To see whether the difference depicted in Table 3 is significant or not, a Mann-Whitney U Test was employed. Since the z value is -2.10 (rounded) with a significance level of $p = .03$, it can be concluded that the result indicates a significant difference between experienced and novice teachers.

Table 4. Mann-Whitney U Test for Video-enhanced Reflection Scores of Novice and Experienced Teachers

	Reflection
Mann-Whitney U	12.000
Wilcoxon W	48.000
Z	-2.100
Asymptotic Significance (2-tailed)	.036
Exact Significance [2*(1-tailed Sig.)]	.038(a)

a Not corrected for ties.

b Grouping Variable: experience

4.2 Qualitative Analysis

After watching the videos and conducting content analyzes of the films, investigating self-reflection checklists and transcribing, modifying, and analyzing the interviews, themes, and patterns of video-enhanced reflection provided by male, female, experienced and novice teachers were extracted from the data. MAXQDA 12, a qualitative analysis software, was used during the coding process. In order to extract the following themes and patterns from the data, videos were analyzed carefully. Thereafter, all semi-structured interviews were read, reread, and transcribed. Having read over, reread, and listened to the data, data analysis began by open coding and data were coded for major categories of information (Strauss & Corbin, 1990). Thereafter, the data was broken down into discrete points to be analyzed. Then, different events, actions, and interactions were classified into different categories. Subsequently, the researchers highlighted and identified the most important parts of each category. All relevant and important information was summarized into an outline consisting of the most interesting and revealing categories with different subcategories related to the current study.

Then, axial coding was implemented to integrate the major categories, establish links between them, and define categories around them (Strauss & Corbin, 1990). Eventually, all the data were reviewed to shed light on the contents of reflections provided by teachers

3) Video-enhanced reflections of male versus female teachers

The video-enhanced reflections of male and female teachers showed distinct differences. Naturally some of the contents overlapped, as shown in, Table 5:

Table 5. Video-enhanced reflections of male versus female teachers

Males	Females	Both of them
<ul style="list-style-type: none"> • Innovative teaching strategies • Classroom management • Learners' characteristics • Questioning patterns 	<ul style="list-style-type: none"> • Classroom interactions • Teacher talk • Organization of the lessons • Technology resources and visual aids 	<ul style="list-style-type: none"> • Peer coaching (collaboration) • Error correction • Group work & pair work • Awareness of teaching practices • Assessment

4) Video-enhanced reflections of novice versus experienced teachers

The findings indicated that there were differences in the video-enhanced reflections of novice and experienced teachers. On the one hand, reflections of experienced teachers mostly pivot around issues regarding innovative teaching strategies, learners' characteristics, classroom interactions, organization of the lessons, and assessment. On the other hand, reflections of novices mainly focus on classroom management, questioning patterns, teacher talk, technology resources and visual aids, peer coaching, error correction, group work and pair work, and awareness of teaching practices (see Table 6). The above-mentioned differences (both quantitative & qualitative) may pertain to a number of factors such as previous familiarity of experienced teachers with video-recording, their high level of self-confidence, and accepting themselves as qualified teachers on one hand and novice teachers' lack of self-confidence and paying too much attention to suggestions and criticisms of peers on the other hand.

Table 6. Video-enhanced reflections of novice versus experienced teachers

Experienced	Novice
<ul style="list-style-type: none"> • Innovative teaching strategies • Learners' characteristics • Classroom interactions • Organization of the lessons • Assessment 	<ul style="list-style-type: none"> • Classroom management • Questioning patterns • Teacher talk • Technology resources and visual aids • Peer coaching (collaboration) • Error correction • Group work & pair work • Awareness of teaching practices

5 Conclusion

The findings of the current study shed light on differences in video-enhanced reflections of Iranian EFL teachers with regard to their gender and level of experience. The results indicate that males' reflections mostly pivot around innovative teaching strategies, classroom management, learners' characteristics and questioning patterns, while females reflect on classroom interactions, teacher talk, organization of the lessons, technology resources and visual aids. These gender-sensitive reflections might pertain to the differences in characteristics of male and female teachers on the one hand, and their different perspectives on teaching on the other hand. For instance, female teachers reflect on affective aspects of classroom such as classroom interactions and the relationships between students and themselves as well as among the students; while male teachers focus on classroom order and reflect on classroom management more than female teachers. Additionally, both genders reflect on peer coaching, error correction, group work and pair work, awareness of teaching practices and assessment. Moreover, considering teaching experience, findings indicated some noticeable differences in the reflections of novice and experienced teachers.

It is noteworthy that this study is limited in the following ways. Firstly, because of the limited sample size, which consisted of only 16 participants, the findings of the study are not generalizable. Secondly, the process of videotaping, conducting, transcribing, and analyzing 16 interviews were time-consuming and subjective.

The last limitation of the current study pertains to the participation of female teachers in the research process. Unfortunately, female teachers refused to be videotaped as participants. As a result, we had an unbalanced sample consisting of 10 male and 6 female teachers.

It is worth emphasizing that the findings of the current study will have some enticing implications for the syllabus designers, teacher trainers, and materials developers providing them with opportunities to design video-based teacher education courses. The complex nature of the issues investigated in the current study warrants consideration and further research. More research is also merited to better understand how to use video-recording in teacher education and teacher training courses not only in ELT but also in many other disciplines.

References

- [1] Berliner, D. C., In pursuit of the expert pedagogue, *Educational Researcher*, 15, 1986, 5–13. doi: 10.3102/0013189X015007007.
- [2] Berliner, D. C., Perceptions of student behavior as a function of expertise, *Journal of Classroom Interaction*, 26, 1991, 1–8.
- [3] Blomberg, G., Sherin, M. G., Renkl, A., Glogger, I., & Seidel, T, Understanding video as a tool for teacher education: Investigating instructional strategies to promote reflection, *Instructional Science*, 42, 2014, 443–463.
- [4] Brouwer, C. N, Self-viewing with structured video guide, Paper presented at the Annual Meeting of the American Educational Research Association, Vancouver, 2012.
- [5] Brunvand, S, Best practices for producing video content for teacher education, *Contemporary Issues in Technology and Teacher Education*, 10(2), 2010, 247-256.
- [6] Calandra, B., Sun, Y., & Puvirajah, A, A New Perspective on Preservice Teachers' Video-Aided Reflection, *Journal of Digital Learning in Teacher Education*, 30(3), 2014, 104–109.
- [7] Coffey, A. M, Using video to develop skills in reflection in teacher education students, *Australian Journal of Teacher Education*, 39(9), 2014, 86–97.
- [8] Danielson, C, *Enhancing Professional Practice: A Framework for Teaching*, Alexandria, VA: Association for Supervision and Curriculum Development, 1996.
- [9] Doff, A, *Teach English: A training course for teachers*. UK: Cambridge University Press, 2000.
- [10] Edwards, G., & Thomas, G, Can reflective practice be taught?. *Educational Studies*, 36(4), 2010, 403–414.
- [11] Eröz-Tuğ̃a, B. Reflective feedback sessions using video recordings, *ELT journal*, 67(2), 2012, 175–183.

-
- [12] Fadde, P. J., & Rich, P, Guerrilla video: a new protocol for classroom video, *Educational Technology*, 50(1), 2010, 4–8.
- [13] Flandin, S., & Ria, L, Making dissatisfaction emerge about activity: Video-training for teachers' professionalization, Paper presented at the European Conference on Educational Research, Cadiz, Spain, 2012.
- [14] Fuller, F. F. & Manning, B. A, Self-confrontation reviewed: a conceptualization for video playback in teacher education, *Review of Educational Research*, 43, 4, 1973, 469–528.
- [15] Gaudin, C., & Chaliès, S, Video viewing in teacher education and professional development: A literature review, *Educational Research Review*, 16, 2015, 41–67.
- [16] Gaudin, C., & Chaliès, S, Learning 'Rules' of practice within the context of a teacher video-enhanced education: Effects on the professional activity of preservice teachers, Paper presented at the 1st CIDREE International Seminar on Professional vision in teacher video-enhanced education: Aims, means and issues, Lyon, France, 2015.
- [17] Gaudin, C., Flandin, S., Ria, L., & Chaliès, S, An exploratory study of the influence of video viewing on preservice teachers' teaching activity: normative versus developmental approaches, *Form@re*, 14(2), 2014, 21–50.
- [18] Kavoshian, S., Ketabi, S., & Tavakoli, M, Reflective Teaching through Videotaping in an English Teaching Course in Iran, *Journal of Teaching Language Skills*, 35(2), 2016, 1–38.
- [19] Kennedy, M. J., Alves, K. D., & Rodgers, W. J, Innovations in the delivery of content knowledge in special education teacher preparation, *Intervention in School and Clinic*, 51(2), 2015, 73–81.
- [20] Kleinknecht, M., & Schneider, J, What do teachers think and feel when analyzing videos of themselves and other teachers teaching?, *Teaching and Teacher Education*, 33(1), 2013, 13–23.
- [21] Leblanc, S, Conception d'environnements video numeriques de formation. D_veloppement d'un programme de recherche technologique centre sur l'activite dans le domaine de l'education [[Design of training digital video environments. Development of a technological research program focused on the activity in the field of education]], Unpublished summary note for accreditation as a research director. France: University of Montpellier 3, 2012.
- [22] Leblanc, S., & Seve, C, Video-formation et construction de l'experience professionnelle [[Video training and construction of professional experience]], *Recherche et Formation*, 70(2), 2012, 47–60.
- [23] Lucas, S, *The Art of Public Speaking*, New York: Random House Publishers, 2000.

- [24] Lussi Borer, V., & Muller, A, Exploiter le potentiel des processus de renormalisation en formation a l'enseignement [[Using The Potential Of Renormalization Processes In Teacher Education]], *@ctivites*, 11(2), 2014, 129–142.
- [25] Martin, S., & Siry, C, Using video in science teacher education: an analysis of the utilization of video-based media by teacher educators and researchers, In B. Fraser, K. Tobin, & C. Campbell (Eds.), *Second international handbook of science teaching and learning*, 2012, 417–433, The Netherlands: Springer.
- [26] Masats, D., & Dooly, M, Rethinking the use of video in teacher education: A holistic approach, *Teaching and Teacher Education*, 27(7), 2011, 1151–1162.
- [27] Mulac, A, Effects of three feedback conditions employing videotape and audiotape on acquired speech skill, *Communications Monographs*, 41(3), 1974, 205–214.
- [28] Richards, J.C. & Lockhart, C, *Reflective Teaching in Second Language Classrooms*, Cambridge: CUP, 1994.
- [29] Sabers, D. S., Cushing, K. S., & Berliner, D. C, Difference among teachers in a task characterized by simultaneity, multidimensionality, and immediacy. *American Educational Research Journal*, 28, 1991, 63–88. doi:10.3102/00028312028001063.
- [30] Santagata, R., Zannoni, C., & Stigler, J, The role of lesson analysis in pre-service teacher education: An empirical investigation of teacher learning from a virtual video-based field experience, *Journal of Mathematics Teacher Education*, 10, 2007, 123–140. doi:10.1007/s10857-007-9029-9.
- [31] Seidel, T., Stürmer, K., Blomberg, G., Kobarg, M., & Schwindt, K, Teacher learning from analysis of videotaped classroom situations: Does it make a difference whether teachers observe their own teaching or that of others?, *Teaching and Teacher Education*, 27(2), 2011, 259–267.
- [32] Seidel, T., & Stürmer, K, Modeling and measuring the structure of professional vision in pre-service teachers, *American Educational Research Journal*, 51(4), 2014, 739–771.
- [33] Sherin, M. G, The development of teachers' professional vision in video clubs, In R. Goldman, R. Pea, B. Barron, & S. J. Derry (Eds.), *Video research in the learning sciences*, 2007, 383–395, Mahwah, NJ: Lawrence Erlbaum
- [34] Sherin, M. G., & Russ, R. S, Making sense of teacher noticing via video, In B. Calandra, & P. Rich (Eds.), *Digital video for teacher education: Research and practice*, 2014, 3–20, New York: Routledge.
- [35] Song, K. H., & Catapano, S, Reflective professional development for urban teachers through videotaping and guided assessment, *Journal of In-Service Education*, 34 (1), 2008, 75–95.

-
- [36] Stockero, S. L., Using a video-based curriculum to develop a reflective stance in prospective mathematics teachers, *Journal of Mathematics Teacher Education*, 11, 2008, 373–394. doi:10.1007/s10857-008-907
- [37] Strauss, A., & Corbin, J., *Basics of qualitative research: Grounded theory procedures and techniques*, Newbury Park, CA: Sage, 1990.
- [38] Thoman, E., & Jolls, T., Media literacy education: lessons from the center for media literacy, In G. Schwartz, & P. U. Brown (Eds.), *Media literacy: Transforming curriculum and teaching*, Vol. 104, 2005, 180–205, Malden, MA: National Society for the Study of Education.
- [39] van den Bogert, N., van Bruggen, J., Kostons, D., & Jochems, W., First steps into understanding teachers' visual perception of classroom events, *Teacher and Teacher Education*, 37, 2014, 208–216.
- [40] van Es, E. A., & Sherin, M. G., The influence of video clubs on teachers' thinking and practice, *Journal of Mathematics Teacher Education*, 13, 2010, 155–176.
- [41] Wang, X., A potential approach to support pre-service teachers' professional learning: the video analysis of the authentic classroom, *US-China Education Review B*, 3(3), 2013, 149–161.
- [42] Zhang, M., Lundeberg, M., Koehler, M.-J., & Eberhardt, J., Understanding affordances and challenges of three types of video for teacher professional development, *Teaching and Teacher Education*, 27(2), 2011, 454–462.