

Çelik, S., Baran, E. & Sert, O. (forthcoming, 2018). The Affordances of Mobile-app Supported Teacher Observation For Peer Observation. [International Journal of Mobile and Blended Learning](#).

The Affordances of Mobile-App Supported Teacher Observation for Peer Observation

Sercan Çelik

TED University

Evrin Baran

Middle East Technical University

Olçay Sert

Mälardalen University

ABSTRACT

Mobile technologies offer new affordances for teacher observation in teacher education programs, albeit under-examined in contrast to video technologies. The purpose of this research is to investigate the integration of mobile technologies into teacher observation. Using a case study method, authors compare the traditional narrative paper-pen, mobile app-supported, and video observation methods. Participants included 2 experienced teachers of English as a Foreign Language who were selected as the observers and observees in a higher education institutional context. The data was collected in three different teaching sessions over the course of 4 weeks. Data sources included lesson observation notes and semi structured post-interview questions conducted with teachers after each session. Results reveal recommendations for the integration of mobile and video based observation tools into teacher professional development programs, pre-service and in-service teacher education programs, as well as teacher certificate programs aiming to utilize mobile technologies within their curricula.

Keywords: Peer Observation, Peer-feedback, In-service training, Self-reflection, Mobile apps, EFL

INTRODUCTION

Professional development activities, particularly for in-service teachers, serve as the primary means of learning from colleagues and others, disseminating their own knowledge and more importantly, reflecting on their own teaching in their micro-contexts (Bullough Jr, 2009). Approaches to professional development include consultation, coaching, lesson study, mentoring, reflective supervision, and technical assistance (Alfaki, 2014). Although these have been in practice for a long time, recent research addresses the importance of authentic

teacher learning in professional development programs (Park & Lee, 2015). Peer observation is one way to facilitate and enhance professional development activities in a collaborative manner (Carroll & O'Loughlin, 2014). The ultimate goal of such activities is to enable one's development by engaging in meaningful activities with others. Mobile and video based technologies, when used with appropriate applications, can provide more collaborative learning opportunities by creating what would not be possible without having them (Valdivia & Nussbaum, 2007; Zurita & Nussbaum, 2004). Nevertheless, choosing the best technology and application combination for peer observations to facilitate more effective practices requires trying out different technologies and evaluate their usefulness.

Researchers have studied the impact of mobile technologies on both traditional and innovative ways of teaching and learning, revealing how mobile learning is practiced in numerous ways (Kukulka-Hulme & Traxler, 2007). Recently, teacher education research has had a growing interest in exploring the potentials of mobile learning and devices for enhancing teacher learning in pre-service and in-service teacher training programs (Baran, 2014; Kearney & Maher, 2013). The key to an enriched teacher learning experience is having an effective, evidence-driven and innovative practice of mobile tool integration (Melhuish & Falloon, 2010). There is a need for an evidence based discussion on the affordances of mobile and video based technologies on teachers' peer-feedback and peer-observation practices.

This case study aimed to reveal how mobile technologies as well as video observation and traditional paper-pen methods support teacher observation schemes for professional development. The study examined: a) the affordances of these methods, b) their challenges, and c) how they differ in terms of their effectiveness in post-observation feedback.

PEER OBSERVATIONS AND PEER REVIEW FOR TEACHER PROFESSIONAL DEVELOPMENT

Observations are one of the most common methods used in teacher professional development programs to foster the spirit of collegiality, self-esteem, self-respect, self-awareness, mutual trust, respect and cooperation between teachers (Drew, Phelan, & Lindsay et al., 2017). As one of the ways to carry out observation in teacher education, peer observation is defined as a reflective process in which teachers find a way to critically approach and analyse their own teaching, which leads to development of teaching practices in terms of both methodology and pedagogy (Eri, 2014; Hendry, Bell, & Thomson, 2014).

There are different ways peer observation is implemented; although it is mostly preferred to be conducted face-to-face, alternatives include blended and online learning modes (McKenzie & Parker, 2011). However, for any peer observation system to be successful, initially set foci and clear goals, mutual understanding of breadth and depth of the process, and a rationale behind it are seen as the key (Cosh, 1999). Creating a professional community built upon learning together helps the development of teacher reflection (Butler & Schnellert, 2012). Research up to date do not provide a certain framework to select the best instruments or tools for peer observation (Carroll & O'Loughlin, 2014). Jones and Gallen (2015) stated that “any change that requires new pedagogical practices raises the question of how best to support staff through such a change” (p. 2). This is due to “different purposes and roles associated with different peer observation techniques” (Carroll & O'Loughlin, 2014, p. 447). Therefore, there is no one-size-fits-all approach to peer observation and its success relies on the quality of the process and the skills of the participants (Hammersely-Fletcher & Orsmond, 2005).

Observations play a critical role for continuing professional development (Kurtoglu-Eken, 2001; McMahan, Barrett & O'Neil, 2007). Peer observations are found to be advantageous in many sense, but one of the crucial aspects of an effective peer observation lies at the feedback exchanged between the observer and the observee. While peer observation is a means for self-reflection, its effectiveness can be determined to the extent of the feedback provided by both parties. As Schön (1987) puts it, it is “a dialogue of thinking and doing through which I become more skilled” (p. 31). Learning is likely to occur through the analysis stimulating reflection on one's own practice because reflection is potentially a powerful learning mechanism (Darling-Hammond et al., 2009). The purpose of reflections is not to judge the observee's teaching, yet to foster self-reflection and increase self-awareness concerning teaching performance (Cosh, 1999). That is, reflections are considered integral for self-development.

AFFORDANCES OF VIDEO AND MOBILE OBSERVATION TOOLS FOR FEEDBACK IN PEER OBSERVATIONS

Videos have been on demand recently due to an increasing interest for integrating information technologies into the use of cases in teacher education (Boling, 2007). One of the primary reasons of using video based reflections within in-service teacher education is that videotaping lessons allow encouraging and deepening reflective practice. To illustrate, Sherin

and van Es (2005) documented that as a result of watching video cases, overtime, both pre-service and in-service teachers showed gains in their ability to discern and interpret the features of classroom teaching. Zhang, Lundeberg, Koehler and Eberhardt's (2011) research concluded that peers benefit from seeing others in action and learning new techniques from colleagues in video observations. One recent example for the use of videos in teacher development in English as a Foreign Language (EFL) settings is the reflective video based observation and feedback cycle employed by Sert (2015), which puts L2 Classroom Interactional Competence (CIC, Walsh 2011) at the heart of its developmental agenda. Sert's (ibid.) longitudinal study shows that language teachers create more engaging language lessons after getting involved in critical self-reflection and peer feedback practices, evidenced through increased CIC and teacher language awareness. Previous research also indicated the overall benefit of interactive video case discussions for improving the quality of teacher discourse and reflection (McGraw, Lynch-Davis, Koc, Kapusuz-Budak, & Brown, 2007).

Currently, a good number of mobile applications are available to be used with mobile technologies (Johnson et al., 2013). Traxler (2007) noted that the original characteristics of mobile learning technologies include enabling transmission and delivery of rich multimedia content, providing discussion and discourse, being real-time, serving in both synchronous and asynchronous modes, and lastly using voice, text and multimedia. Mobile learning technologies usually operate through apps that are critical to maximize the potential of these technologies. There are many categorisations of apps available to teachers and students in different subjects. For instance, Naismith et al. (2005) review mobile learning applications and group them as behaviourist learning, constructivist learning, collaborative learning, situated learning, and informal learning apps. However, which application is the best fit for a particular context is a question in many fields. Therefore, new pedagogies allowing more effective use of new technologies should be analysed in-depth to come up with more informed pedagogies in connection to teacher education programmes.

Although video technologies have been investigated extensively, research on the role of mobile teacher observation technologies and their effect on facilitating post-observation feedback in peer observation is scarce. Because video observation relies on traditional video cameras independent of an observer, researchers need to examine how teachers' and teacher educators' professional development could be aided with mobile and video based observation tools (Aubusson et al., 2009; Baran, 2014). To address this research gap, this study aims at

exploring the potentials of a mobile-app and compare traditional narrative paper-pen, mobile app-supported and video observation methods. Three research questions are examined:

- 1) What are the affordances of traditional narrative paper-pen, mobile app-supported and video observation methods on teacher observation practice?
- 2) What are the challenges of traditional narrative paper-pen, mobile app-supported, and video observation methods on teacher observation practice?
- 3) How do different observation methods affect post-observation peer feedback practices of in-service teachers?

METHOD

The study followed a case study methodology which is defined as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenology and context are not clearly evident” (Yin, 2009, p. 18). The aim was to collect in-depth data regarding teachers’ peer observation processes in a single context.

CONTEXT AND PARTICIPANTS

This study was conducted in the context of an English preparatory school within an English-medium private university in Turkey in 2016 – 2017 Fall semester from November until December. Participants included two English instructors who took the roles of the observer and the observee. Ethical approval for this study was granted by Human Subjects Ethics Committee and it was ensured that the participation in the study was on a voluntary basis.

OBSERVATION TOOLS

In order to understand the role of different modes of teacher observation tools, three observation tools were used separately in three different class times over the course of a month: (a) traditional running commentary with paper and pen, (b) a tablet computer with VEO (Video Enhanced Observation) mobile application and (c) video recording analysed on VEO portal.

Writing down the key moments of classroom actions on various types of teacher protocols during observations is undoubtedly the most common way of taking notes to be used in post-observation conferences in peer observations. Traditionally, this has been practiced in paper

and pen format. Discussions in post-observation feedback session is based solely on these notes and whatever the observer recalls.

VEO (Video Enhanced Observation) is a mobile application that runs on tablet computers (VEO, 2016). With its live tagging feature, it allows capturing key moments in real-time with pre-set tags available on the screen. The recording, with tags visible on it, can be saved and shared so that the experience can be benefitted from mutually with real evidence in a feedback session. It also provides ubiquity by removing the barrier of having to face-to-face feedback sessions following an observation. VEO Portal includes an online interface which provides exactly the same functions with that of VEO app. However, while VEO app is compatible with iPads only, VEO portal can be accessed through PCs or laptops with any operating systems. The video recorded with any type of recorder is uploaded to VEO portal and can be reviewed with different users in separate sessions. It also allows adding comments on the tags during or after a review session. Later, the tags and the notes can be used in post-observation feedback sessions. A screenshot of VEO, based on the VEOEuropa Project, can be seen in Figure 1.



Figure 1. A Screenshot of VEO (forthcoming 2018, Sert. Used with permission.)

PROCEDURES

Initially, the participants conducted an observation using paper-pen, which was followed by a post-observation conference and an interview with researcher separately. The participants were asked separate sets of questions regarding their observation and post-observation conference experience focusing on the role of the paper-pen notes taken during the observation.

On the next observation day, the lesson was recorded by a video camera while the observer was not present in the class. Later, the video was shared on the portal and both the observer and the observee were asked to proceed with tagging a 15-minute segment of the recording and later hold a post-observation conference reviewing each tag session together. Finally, individual interviews were conducted to understand how using the portal and reviewing video beforehand affected the post-observation conference.

Lastly, the observation was done with a tablet computer using its features in real-time. Following this, post-observation conference and interviews were conducted to reveal how using a tablet computer affected both observation and post-observation conference sessions. The data collection scheme is illustrated in Table 1.

Table 1. Distribution of Roles During the Phases of Study

Observation method	Pre-observation conference	During observation	Post-observation conference	Post-interview focus
1. Observation with traditional paper and pen	Δ =available \bullet =available	taking running commentary teaching	using observation notes unavailable	taking observation notes / using notes during feedback
2. Video observation	Δ =available \bullet =available	unavailable teaching	reviewing the video and tagging reviewing the video and tagging	tagging the video / using video during feedback tagging the video / using video during feedback
3. Observation with a mobile device	Δ =available \bullet =available	tagging the real-time data on iPad teaching	using the video with tags unavailable	observing the class with iPad / using iPad during feedback

Δ = observer \bullet =observe

DATA SOURCES

Data sources included three post-feedback interviews conducted with the observer and the observee. Initially, themes to be discussed in post-observation conferences, which would provide the basis for post-interview interviews, were determined altogether as 1) interaction, 2) classroom atmosphere, 3) discipline, 4) feedback, 5) instruction clarity, 6) speed of instruction, 7) tone of voice, and lastly, 8) manner of instruction. Additionally, two sets of questions to be addressed to the observer and the observee in the semi-structured interviews were created based on the relevant literature and research questions of the study. A total of 16 questions were created that aimed to provide insights about both the observation process and post-observation conference sessions, which ultimately helped the researchers to understand teachers' perspectives and experiences with the different medium, and compare and contrast each of them in relation to teacher observations.

DATA ANALYSIS

This case study utilized semi-structured interviews aiming elicitation of rich descriptions for the use of different modes of teacher observation. The interview data were analysed thematically (Braun & Clarke, 2006) using the qualitative software package NVivo11. The first author analysed the data extensively to gain a holistic sense, generated the themes, and selected quotes to illustrate each theme. Then, the other authors were invited to read a draft version of this paper, and there was a mutual agreement on the themes.

RESULTS

Both the observer and the observee shared their experiences with three different observation tools in the interviews. Their answers showed that different tools have different affordances in supporting teachers' observation and feedback practices as well as different challenges.

Affordances of Using Paper and Pen in the Observations

The major affordance of observer using paper-pen to take notes was that the observer's presence in the classroom was invisible to students and the observee. This state of hers was frequently referred to as being a "fly on the wall", a critical condition key to a successful observation. That the observer was available in the class, albeit unobtrusive, gave her a unique chance to be able to observe the class and note down instances occurring unexpectedly that differed from the observation foci. Such details later provided a more holistic picture during the feedback session with the observee. She noted in the post interview:

Another advantage of her being there in one of the activities, I didn't notice that... one activity I thought I didn't do it well because I wanted students to talk to each other and communicate. She later told me students were actually communicating with each other and they were able to gather information from other groups.

Observee claimed the observer being present in the class and taking observation notes with paper and pen might be more preferable in certain situations; particularly, where contextual clues have allegedly more critical role to identify and resolve the discussion points in the feedback session. She explained:

For instructions and the learning environment, which is general, it could have an observer there with a paper and pen and just giving me her general comments on the learning environment, which I think a video wouldn't do well.

Challenges of Using Paper and Pen in the Observations

The biggest disadvantage using paper and pen caused during observation was the difficulty of actively observing the classroom and taking effective and detailed notes at the same time. It was referred to being time consuming in many instances. This might be the reason the observer had to take relatively shorter notes, which may not prove to be so effective during the feedback session, and always felt the need to make a choice between trying to write an instance in detail and trying to continue observing the lesson by skipping it. The observee noted:

I couldn't write everything during the observation, so I completed some of the longer parts and the questions I had after the observation. So during the observation if I had written everything I had in mind, I wouldn't be able to follow the next parts of the class. So it's like taking mini reminders and then filling in the gaps post observation. It actually takes a bit more time because you have to spend more time after the observation filling in those blanks.

Another challenge that occurred while the observer was taking notes with paper and pen was the distraction caused on the side of students. Combined with the seating arrangement in the class and the positioning of the observer, the act of writing down notes sometimes distracted students' attention even though the observation focus was not on them. Participants noted that anything written down on the observation form in class not only aroused interest but caused nervousness as well. The observer stated:

Since no student was looking at me, it wasn't a problem but in some classes, from previous observation experiences, the class wonders what you keep writing continuously about the class so they're wondering what's going on.

Additionally, both the observer and the observee had similar concerns regarding the practicality of using paper and pen and suggested that this could not be favourable in observations with certain focus as it wasn't practical enough. For example, the observer stated:

I think the paper technique is difficult to do to look at interactions because the observer has to sit there and any charts and diagrams I think that takes a long time and especially if the observer is looking at not just interaction but has been asked to look at instructions and interaction, then that's hard to jot.

The observer added that "maybe a more focused observation protocol or guide would be better." Briefly, the practical aspect of paper and pen was found to be limiting in both physical and pedagogical terms.

Affordances of Using Tablet Computer in the Observation

The most frequently uttered affordance of using tablet computer for observations was the practicality it brought to the observation practice. Unlike losing valuable time trying to take notes on paper, the instant tagging feature made it much easier to catch the important instances during the observation without being distracted by losing the focus and progression of events as the observer stated “During tagging, tags are simple. Therefore, the main focus is to tag. As long as the tags are there, I think, it serves its purpose.” It was even claimed to be much more effective for those who are not good at writing fast. The observer noted:

If a person can't really take fast notes, this application would be even more useful. Because they will miss a lot of information during the lesson if they can't take notes. But here, they can add the tags, and then they can take notes later on.

Compared to video observation, the observer stated that doing the observation with a tablet computer was much better because of the interactivity it brought which lead to an increased sense of ownership particularly on the side of the observer. She noted: “If there's a camera there, you can't do anything. But if there's an application, you click the tags, I think you can make more use of the tool - the device than a camera.” Lastly, the observer stated there was more focus on the observee that he understood from the observer’s movements and the angle of the tablet computer. Later, the observee found out that this allowed them to have a more teacher-oriented and thus more fruitful feedback session in the post-observation conference.

Challenges of Using Tablet Computer in the Observation

The challenges related to using tablet computer for observations were grouped under two main categories. The first one was about technical capabilities and limitations of it. Inability to take notes in real-time was a serious limitation for an effective observation on the observer’s side. She pointed this out “I had to take notes. Because at the same time, I couldn't add anything there, also of course during the observation, that's impossible because you're recording but not to forget and save time for the future, I took a few notes.” What’s more, in order to make up for this, she had to spend extra time reviewing the video and adding notes, which doubled the total observation time and decreased its practicality greatly. The observer expressed:

Of course, the notes also help but, for this one I didn't take that many notes. I again wrote on paper, during the observation. Because you can't add note while you're watching the video. And then to be able to add notes again after that, you have to first press play where you add the tag, and then watch that part again and then add the note to remember, which I think is like doubling your time. You're in class observing for 15 minutes, and you're here tagging for 15 minutes, and then you're going back again

because you want to add some notes to certain parts so you're adding more time to the observation.

Other major challenges were rather about the physical aspects of using a tablet computer in the classroom with the purpose of observation. Besides, the observer stated her discomfort having to hold up the tablet computer for some time by saying “after 5 minutes, my arms started hurting. The tablet stand wasn't working, so you couldn't put it on the desk and just let it record. You had to hold it.” In addition, the possibility of moving around in class to capture the teacher from the best angle was considered too challenging for the observer. That is, both the capabilities of the related application and practical solutions concerning its practical features were the most frequently mentioned challenges concerning using tablet computers for observation.

Affordances of Using Video in the Observations

The major affordance of using video to observe was attributed to its practicality. Both the observer and the observee went through the same steps during tagging and reported the system as easy. The observer said “Watching and just tagging the video is practical. You can go back, you can watch something over again.” However, a demo to familiarise themselves with the interface to understand its capabilities was reported to be a more effective solution in order to benefit the most from the system. Apart from that, having the necessary tags might turn the process into an easier one especially because for repetitive actions, obviously, one would not have to write the same notes a lot of times. The observee expressed:

We didn't watch every part during the feedback session. I think it's more practical than when you're doing the tagging. Because when you do the tag, you tag and you do the comments after that. But during the post conference, when you look at the video, you can actually see the time, and the tag, and the notes when you click on it.

Another major advantage was about having concrete evidence that can be watched over time again and again. This is highly different from doing observations with pen and paper as the details start to fade away as the lesson ends, or there is always the possibility of losing the feedback sheet. However, the possibility of reviewing the video over and over again, maybe each time with a different focus, definitely increases the value of video recording and provides a more objective and valid standpoint later in the feedback session. The observer commented:

You can go back, you can watch something over again. Because you don't remember everything the minute you leave the classroom, so in terms of that, the application and having a video recording of the session is of course a very big advantage.

Moreover, video observations provide a unique opportunity by removing the necessity for the observer to be present in class in order to do observation. This was reported several times to be more time-effective considering the busy schedule of teachers. Accordingly, the observer stated:

And you're not in class. So you don't spend the time there. You don't have to come up with a common time, which is difficult to arrange in peer observations. I could watch the video whenever I want it, and do the tagging whenever I want it regardless of my program or teacher's program.

This brings additional advantages as well. The observer commented:

Because you can do it at your own pace, and you can do it more than once, the tagging. So that's also good. And, if it was a running commentary, I would be writing more. So I guess it might be also something that saves time both in terms of observation, time is limited.

All in all, video observations were found to be beneficial in several ways, many of which were relevant to its ease of use, being tangible, and ubiquitous.

Challenges of Using Video in the Observations

On the other hand, several issues occurred as a result of having camera present in the classroom. Mainly, in addition to being a source of distraction on behalf of students, videos and VEO portal was found to be too limiting by the teachers in different ways. Having the camera in class caused distraction in the class as the observee stated "My students were more aware of the camera than when the observer was actually sitting there. They were more aware that there is a camera there. So even looking at the camera, turning back, and when it first started, they all waved at the video." The most significant challenge was due to teachers' having difficulty in tagging the video at the exact times while reviewing the recording on VEO portal. The observee said "I was doing it too early or too late, that was missing I think. That was difficult to do."

Another technical limitation was the lack of ability to take notes while tagging the recording on computer, which also resulted in spending more time in total. The observer said "I wanted to write notes but I noticed that I can't write notes when I'm watching. But I wanted to tag and write a note at the same time, which I can't do. So it takes longer actually, because you then watch it in a way, some parts again, and then you can write notes." These were the most frequently mentioned challenges regarding using videos for observation.

DISCUSSION AND CONCLUSION

This study aimed to contribute to our understanding of the use of mobile technologies in teacher education and professional development in several ways. First, this is the first comparative study to use mobile application VEO in educational settings to improve teachers' observation and reflection skills along with other methods. By means of comparing this to other tools, this study found that each tool had its own affordances as well as limitations, although teachers favoured an improved version of video observation. This study also compared different roles of observer and observee using different technological tools. While in paper-pen, they relied on the observer's notes, tablet computer tags were done by the observer but analysed together and they both reviewed the video. Consequently, they stated that each feedback session was different because they experienced using different procedures and tools.

The participants reported that it was an enlightening experience for them because they tried out different technologies and discovered their potential first-hand. They noted that even though they were used to paper-pen, they would definitely invest in these technologies and recommend it to their colleagues who might easily adapt them to their needs. Thus, this case study provided data on the experiences for using different technologies in teacher observation. The findings supported Aubusson et al.'s (2009) result claiming mobile tools could give a better reflection opportunity to teachers. Additionally, the results were parallel to Davys and Beddoe's (2016) because mobile tools were found to quicken feedback process providing more focused feedback and removing time barrier. Yet, the data were at odds with that of Mann and Walsh (2013) who criticized lack of proper data in reflection and unequal role share in collaboration, and overreliance on the written reflections and frequently missing details on the use of reflective tools. All in all, the findings of this study add to the understanding of how difficult it was to effectively integrate mobile technologies into teacher observation schemes, and there was no one-size-fits-all approach (Hammersely-Fletcher & Orsmond, 2005) because each tool was perceived differently and created unique potentials and limitations. While there were mutual agreements on issues like practicality and simplicity of using tablets for doing observations, the problems were different on the side of the observer and the observee. Therefore, these concerns must be explored in new contexts to come up with more-informed pedagogies to welcome these tools in the best possible ways into teacher education settings (Jones & Gallen, 2015).

There were several limitations in this study. First, although the data was grouped under several headings with two focuses – affordances and challenges – still the examined data may not be enough to reveal all the potential affordances and limitations of these tool. Second, this case study was conducted with only one observer and one observe and each tool was used only in a lesson time, thus their own experience with the tools may not be all-encompassing.

RESEARCH RECOMMENDATIONS AND IMPLICATIONS FOR PRACTICE

There are several recommendations to be considered in the upcoming research concerning using mobile technologies in teacher observation programmes. First of all, these tools must be examined in similar contexts with the purpose of teacher professional development and the results must be compared in order to validate each other because as Koehler, Mishra, Hershey and Peruski (2004) suggest, more-contextualized programs are needed to come up with more contextualized solutions to the need of teachers in different contexts. Second, although this study was conducted with in-service teachers, the tools' potential with pre-service teachers, or teacher certification programs like CELTA or DELTA – specifically to ELT – that consist of intense skill development or trainer training programs can be analysed (Naismith et al., 2004). Additionally, future research can analyse the feedback sessions utilized by different tools can be analysed for teacher discourse and reflection (McGraw, Lynch-Davis, Koc, Kapusuz-Budak, & Brown, 2007) to see what kind of differences using each tool causes in teacher interaction. All of these possible topics can widen the spectrum of mobile observation tools and widen the limits for its usability not only in teacher professional development but other contexts as well.

REFERENCES

- Alfaki, I. (2014). Professional development in English language teaching: a teachers' view. *British Journal of Education*, 2(7), 32–49.
- Aubusson, P., Schuck, S., & Burden, K. (2009). Mobile learning for teacher professional learning: benefits, obstacles and issues. *Research in Learning Technology*, 17(3), 233–247.
- Baran, E. (2014). A review of research on mobile learning in teacher education. *Journal of Educational Technology & Society*, 17(4), 17–32.
- Boling, E. C. (2007). Linking technology, learning, and stories: implications from research on hypermedia video-cases. *Teaching and Teacher Education*, 23(2), 189–200.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Bullough Jr, R. V. (2009). The continuing education of teachers: In-service training and workshops. *International Handbook of Research on Teachers and Teaching* (L. J. Saha & A. G. Dworkin, Eds.). New York, NY: Springer US.
- Butler, D. L., & Schnellert, L. (2012). Collaborative inquiry in teacher professional development. *Teaching and Teacher Education*, 28(8), 1206–1220.
- Carroll, C., & O'Loughlin, D. (2014). Peer observation of teaching: enhancing academic engagement for new participants. *Innovations in Education and Teaching International*, 51(4), 446–456.
- Cosh, J. (1999). Peer observation: a reflective model. *ELT journal*, 53(1), 22–27.
- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession*. Washington, DC: National Staff Development Council.
- Davys, A. M., & Beddoe, L. (2016). 'Going live': An exploration of models of peer, supervisor observation and observation for assessment. *Practice*, 28(1), 3–20.
- Drew, S., Phelan, L., Lindsay, K., Carbone, A., Ross, B., Wood, K., ... & Cottman, C. (2017). Formative observation of teaching: focusing peer assistance on teachers' developmental goals. *Assessment & Evaluation in Higher Education*, 42(6), 914–929.
- Eri, R. (2014). Peer observation of teaching: reflections of an early career academic. *Universal Journal of Educational Research*, 2(9), 625–631.
- Hammersley-Fletcher, L., & Orsmond, P. (2005). Reflecting on reflective practices within peer observation. *Studies in Higher Education*, 30(2), 213–224.
- Hendry, G. D., Bell, A., & Thomson, K. (2014). Learning by observing a peer's teaching situation. *International Journal for Academic Development*, 19(4), 318–329.

- Johnson, L., Adams, S., Cummins, M., Estrada, V., Freeman, A., & Ludgate, H. (2013). The NMC Horizon Report: 2013 Higher Education Edition. Austin, TX: The New Media Consortium.
- Jones, M. H., & Gallen, A. M. (2016). Peer observation, feedback and reflection for development of practice in synchronous online teaching. *Innovations in Education and Teaching International*, 53(6), 616–626.
- Kearney, M., & Maher, D. (2013). Mobile learning in maths teacher education: Using iPads to support pre-service teachers' professional development. *Australian Educational Computing*, 27(3), 76–84.
- Koehler, M. J., Mishra, P., Hershey, K., & Peruski, L. (2004). With a little help from your students: A new model for faculty development and online course design. *Journal of Technology and Teacher Education*, 12(1), 25–55.
- Kukulska-Hulme, A., & Traxler, J. (2007). Designing for mobile and wireless learning. In (H. Beetham & R. Sharpe, Eds.) *Rethinking pedagogy for a digital age: Designing and delivering e-learning*, (pp. 180–192). London: Routledge.
- Kurtoglu-Eken, D. (2001) 'The wood or the trees? Classroom observation and effective teaching'. In A. Pulverness (Ed.), IATEFL 2001 Brighton Conference Selections, pp. 11–112.
- Mann, S., & Walsh, S. (2013). RP or 'RIP': A critical perspective on reflective practice. *Applied Linguistic Review*, 4(2), 291–315.
- McGraw, R. H., Lynch-Davis, R. K., Koc, Y., Kapusuz-Budak, A., & Brown, C. A. (2007). The multimedia case as a tool for professional development: an analysis of online and face-to-face interaction among mathematics pre-service teachers, in-service teachers, mathematicians, and mathematics teacher educators. *Journal of Mathematics Teacher Education*, 10(2), 95–121.
- McKenzie, J., & Parker, N. (2011). Peer review in online and blended learning environments. *Final Report. Melbourne, Australia: Australian Learning & Teaching Council*.
- McMahon, T., Barrett, T., & O'Neill, G. (2007). Using observation of teaching to improve quality: Finding your way through the muddle of competing conceptions, confusion of practice and mutually exclusive intentions. *Teaching in Higher Education*, 12(4), 499–511.
- Melhuish, K. & Falloon, G. (2010). Looking to the future: M-learning with the iPad. *Computers in New Zealand Schools*, 22(3), 1–16.
- Naismith, L., Lonsdale, P., Vavoula, G. N., & Sharples, M. (2004). *Mobile technologies and learning*. Bristol: Futurelab.
- Naismith, L., Sharples, M., & Ting, J. (2005). Evaluation of CAERUS: a context aware mobile guide. *mLearn*.

Park, J. H., & Lee, J. Y. (2015). School-level determinants of teacher collegial interaction: Evidence from lower secondary schools in England, Finland, South Korea, and the USA. *Teaching and Teacher Education*, 50, 24–35.

Schön, D. (1987). *Educating the reflective practitioner*. San Francisco: Jossey-Bass.

Sert, O. (2015). *Social Interaction and L2 Classroom Discourse*. Edinburgh: Edinburgh University Press.

Sert, O. (forthcoming, 2018). Transforming CA findings into future L2 teaching practices: Challenges and prospects. In (eds.) S. Kunitz, O. Sert & N. Markee, *Classroom-based conversation analytic research: Theoretical and applied perspectives on pedagogy*. Springer.

Sherin, M.G. & Van Es, E. (2005). Using video to support teachers' ability to notice classroom interactions. *Journal of Technology and Teacher Education*, 13(3), 475–491.

Traxler, J. (2007). Defining, discussing and evaluating mobile learning: The moving finger writes and having writ. *The International Review of Research in Open and Distance Learning*, 8(2), 1–12.

Valdivia, R., & Nussbaum, M. (2007). Face-to-face collaborative learning in computer science classes. *International Journal of Engineering Education*, 23(3), 434–442.

VEO. (2016). Retrieved from <http://www.veo-group.com>

VEO Europa Project Website: <https://veoeuropa.com/>

Walsh, S. (2011). *Exploring Classroom Discourse: Language in Action*. London: Routledge.

Yin, R. K. (2009). *Case study research: Design and methods* (4 ed.). Thousand Oaks, CA: Sage.

Zhang, M., Lundeborg, M., Koehler, M. J., & Eberhardt, J. (2011). Understanding affordances and challenges of three types of video for teacher professional development. *Teaching and Teacher Education*, 27(2), 454–462.

Zurita, G., & Nussbaum, M. (2004). Computer supported collaborative learning using wirelessly interconnected handheld computers. *Computers & Education*, 42(3), 289–314.