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Title: Student teachers' emotions when watching their own videos and those of their peers

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Purpose – This case study explored the emotions reported by a group of student teachers (STs) after viewing their own teaching videos and those of their peers, as well as the reasons for those emotions. It also investigated the perceived influence of the STs' emotions on their learning from the videos.

Design/Methodology/Approach – The study involved twelve STs, and was situated in the context of a science methods course on a postgraduate teaching diploma program. The emotions associated with watching different types of video materials were investigated using a variety of data-collection methods, including written surveys, student-generated metaphors, and interviews. The emotion labels/words (e.g., horrible, joyful) and metaphors the STs used to describe their video-viewing experience, as well as the reasons for their emotions, were analyzed. The perceived influence of the participants' emotions on their learning from the different types of video material was also analyzed qualitatively.

Findings – The findings suggested that most of the STs experienced negative emotions when viewing their own videos, whereas all of them reported positive emotions when viewing their peers' videos. Distinct groups of STs displaying similar emotions while viewing the different video materials were distinguished. Their characteristics and the reasons for their emotions were identified. Analysis of the perceived influence of emotions suggested that they exert differential influences on learning from video materials, with the negative emotions associated with viewing one's own videos reported to hinder such learning in most cases.

Originality/Value – This study represents one of the few attempts to investigate the emotions related to STs' video-viewing experience. The case study problematizes the lack of attention to the emotions associated with ST's video-viewing experience in existing scholarship and highlights the fact that research findings on in-service teachers' emotions associated with viewing different types of video material might not be transferable to novice teachers. The identification of distinct groups of STs who experience particular emotions when viewing different types of video material, as well as the differing perceived influence of those emotions on their learning, has implications for the effective use of videos to enhance learning in initial teacher education.

Keywords Videos, Initial teacher education, Teacher emotions

Paper type Research paper

1. Introduction

Video is widely touted as a powerful tool for enhancing learning in teacher education and teacher professional development (Gaudin and Chaliès, 2015; Marsh and Mitchell, 2014). Many studies have demonstrated the thoughtful use of video records of instruction in teacher education can lead to desirable teacher learning outcomes (e.g., Sherin and van Es, 2005; Stockero, 2008). As Gaudin and Chaliès (2015) point out, “viewing a classroom video engages [the] teacher in a complex activity that elicits cognitive, emotional, and motivational processes” (p. 46). Although numerous studies have focused on the cognitive processes associated with the video-viewing process (i.e., teachers’ selective attention and knowledge-based reasoning) while teachers are viewing videos (see the review by Gaudin and Chaliès, 2015), relatively few have explored teachers’ affect (i.e., their emotional and motivational processes) during viewing. Even in that limited number of studies, very few have systematically investigated the emotions of teachers when they are individually watching different types of videos (e.g., their own videos and those of others). Although Kleinknecht and Schneider (2013) and others (e.g., Seidel *et al.* (2011)) have compared the emotions experienced by in-service teachers while watching their own videos versus those of others, few if any studies compare the differing emotions experienced by student teachers (STs) when watching different types of videos. It seems that the field has either ignored novice teachers’ emotions associated with viewing different types of videos or assumed that research findings on in-service teachers’ emotions associated with the viewing of different types of video material might be transferable to novice teachers.

To fill this gap in the research literature, the study reported herein investigated the emotions reported by a group of STs after completing an assignment that required them to watch and analyze both their *own* teaching videos and those of their *peers* individually. It was believed that such in-depth analysis of the emotions experienced by novice teachers and the reasons given for those emotions would afford a better understanding of the emotions associated with watching different types of video material and how those emotions influence video-related learning. The study’s results have important implications for teacher educators, suggesting how they can make better use of videos to enhance ST learning in initial teacher education.

2. Literature review

Following a review of the extant literature on video use in teacher education, the paper problematizes the lack of attention to the emotions associated with ST’s video-viewing experience in existing scholarship.

2.1 Use of video in teacher education

There have been growing calls for more practice-based approaches in the field of initial teacher education (Ball and Cohen, 1999; Grossman *et al.*, 2009). This model of teacher education requires that teacher learning be situated in artifacts of instructional practice. Of the various such artifacts available, videos are commonly used to promote teacher learning owing to their distinct affordances (Blomberg *et al.*, 2013; Gaudin and Chaliès, 2015). Videos, for example, allow the complexity and immediacy of classroom interactions to be captured and preserved in authentic ways (Sherin, 2004). Teachers can retrospectively study and reflect on the practices recorded in videos away from the cognitive and emotional involvement they experience while teaching (Derry, 2007). Some evidence suggests that the thoughtful use of classroom video footage in teacher education activities can lead to desirable teacher learning outcomes, such as greater ability to notice salient classroom interactions (Sherin and van Es, 2005) and the development of a more reflective stance (Stockero, 2008).

There is considerable diversity in the *types* of video material available and the *ways* in which they are used in teacher education activities. For example, teachers' own videos and those of others, whether publicly available or recorded by their peers, have distinct affordances (Zhang *et al.*, 2011), with prior research suggesting that the former are of greater personal relevance, whereas the latter encourage teachers to develop a more critical stance in teaching (Blomberg *et al.*, 2013). There is also diversity in *how* videos are used in initial teacher education activities. In their pioneering work on using videos to enhance STs' ability to notice salient classroom interactions, van Es and Sherin (2002) asked the participating STs to analyze their *own* teaching videos *individually* and *others'* teaching videos in a *collective* setting using video analysis software. Other researchers have *first* engaged pre-service teachers in reflecting on their *own* teaching videos *individually* before *subsequently* engaging them in discussing both their *own* and their *peers'* videos *collectively* (e.g., Danielowich, 2014; Harford *et al.*, 2010). Despite the diverse ways in which videos have been used in prior research, a common thread is that the STs involved were tasked with watching and analyzing different types of videos, generally their own videos and those of others (often their peers). The current study focused on STs' video-viewing experience while watching and analyzing both their *own* and their *peers'* videos *individually* before being afforded an opportunity to discuss the videos with peers in a collective setting. Engaging teachers in viewing and reflecting on their own teaching videos (e.g., see the review by Tripp and Rich, 2012) and those of their peers (e.g., Danielowich, 2014; Harford *et al.*, 2010) is a popular strategy for enhancing teacher learning not only in initial teacher education programs but also in teacher professional development activities.

2.2 Affect related to video-viewing

As noted above, in their recent extensive review of the use of video in teacher education, Gaudin and Chaliès (2015) argue that "viewing a classroom video engages [the] teacher in a complex activity that elicits cognitive, emotional, and motivational processes" (p. 46). Most studies investigating the video-viewing experience of teachers focus on their cognitive processes (i.e., teachers' selective attention and knowledge-based reasoning), with very few studies attending to their affective dimensions, as evidenced by the minimal discussion of the role of affect in teachers' video-viewing process in three recent reviews (Gaudin and Chaliès, 2015; Marsh and Mitchell, 2014; Major and Watson, 2018). This neglect of affect is somewhat surprising given that numerous emotion studies have established the influential role of affect in learners' judgement and decisions (e.g., Forgas, 2001). Indeed, there is some evidence to suggest that teachers' affect can influence what they learn from a video. Sherin and Russ (2014) recently explored the interpretive frames that teachers use when viewing video clips, and found that teachers bring an affective frame to video-viewing tasks. The teachers in their study expressed emotions in their comments on the video clips they had viewed, leading the authors to speculate that a strong affective response may serve as an important trigger for close attention to be paid to what is happening in the clips. However, how teachers' affect influences the video-viewing process was not the focus of Sherin and Russ's (2014) study.

Even fewer studies have systematically compared the video-viewing experiences of teachers watching different video material in terms of their affect. Seidel *et al.* (2011) investigated the motivational experiences of video-viewing in an experimental study involving eight *in-service* German teachers, and found the teachers' own videos to be more motivating than those of other teachers. The participating teachers were more likely to activate their prior experience and feel more "inside the classroom" when watching their own videos. Hence, affective responses seem to be important, as they potentially influence teachers' cognitive processes during video-viewing. The teachers in Seidel *et al.* (2011) were, in general, reported to notice more components in their own teaching videos (i.e., their selective attention), but to be less able to identify critical incidents in their knowledge-based reasoning process. The authors suggested that a self-defense mechanism may hinder teachers' identification of critical incidents in their own videos.

More recently, Kleinknecht and Schneider (2013) investigated the emotions activated when teachers are watching different types of videos. In their quasi-experimental study involving ten eighth-grade *in-service* mathematics teachers with varying amounts of teaching experience, the researchers analyzed the differences in emotions between teachers viewing their own videos (“Own video group”) and those viewing others’ videos (“Other video group”) based on the teachers’ written comments. The latter group watched lesson videos conducted by a person who was *unfamiliar* to them. The researchers identified the positive and negative emotions expressed by the two groups of teachers in their comments on the two types of videos. Interestingly, some of their findings were rather counterintuitive. For example, the teachers in the “Other video group” expressed more negative emotions (e.g., disappointment that the teacher in the video had not handled a particular teaching incident better) and slightly more positive emotions than their counterparts in the “Own video group.” Although Kleinknecht and Schneider (2013) labeled this a counterintuitive finding, we lack confirmation from other studies and other contexts.

2.3 Summary

The foregoing review suggests two important points. First, engaging STs in watching and analyzing their own videos and/or those of their peers is a popular strategy for enhancing learning in initial teacher education. Second, although initial evidence suggests that affect plays an influential role in the video-viewing experience, novice teachers have rarely been the subject of investigation in studies systematically exploring the emotions associated with the viewing of different types of video material. It seems that the field has either ignored novice teachers’ emotions associated with viewing different types of videos or assumed that research findings on in-service teachers might be readily transferable to novice teachers. To verify this assumption, the current study set out to explore the emotional experiences of STs while watching their own videos and those of their peers. The study posed the following research questions.

1. What emotions do STs report when watching their own videos and those of their peers?
2. How can STs be distinguished in terms of the emotions they experience while watching their own videos as opposed to those of their peers?
3. What influence do STs perceive their emotions to exert on their learning from the two types of videos?

3. Methods

3.1 Research approach

The case study approach was adopted in this research. Yin (2008) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context” (p.18). Here, the case study approach was adopted to examine the emotions experienced by a group of STs as they viewed two different types of videos. The study also adopted an interpretive paradigm (Erickson, 1985). The objects of interest were the participants’ perspectives (i.e., what they felt while watching different types of videos) and actions (i.e., what they did while watching the videos) in the research context. The convenience sampling method (Patton, 1990) was employed, with participants constituting the entire cohort of students enrolled in a science methods course on a postgraduate teaching diploma program in Hong Kong.

3.2 Research context

The reported research is part of a larger study investigating the learning of twelve STs on a year-long video-based science methods course (Chan, Leung, He, Lam, and Ng, 2017). One of the major goals of this reform-based course is to enhance STs' ability to attend to important features of the classroom (i.e., STs' selective attention) and make sense of important classroom events (i.e., STs' knowledge-based reasoning) (see Sherin and van Es, 2005), in other words to notice and interpret pedagogically salient events (van Es and Sherin, 2002). The participating STs, all of whom participated voluntarily, were either fresh science graduates in their early twenties or science graduates with one or two years of teaching experience who were seeking certification to work as science teachers in Hong Kong. None of them had experience working in other fields, and they had little or no experience filming their own teaching. In the first semester, the STs attended several video-based workshops related to lesson analysis. The current study focused on one of the major assignments, which required the STs to plan, enact, and video-tape a double lesson (80 minutes) during their student teaching in the second semester. They used their own video-recorders, which were placed at the back of the classrooms, to film their lessons. As part of the course assignment, each ST watched a video of his or her own teaching and the teaching videos of two peers at home and then completed a *Video Analysis Form* reporting his or her analysis of the three videos. In brief, the *Video Analysis Form* required the STs to identify salient aspects they noticed in the video and record them in form of noticing statements (Roller, 2016) and to identify three pedagogically significant events. The questions were open-ended in nature, with the observation focus left undefined. The STs then attended a *Video Discussion Workshop* in which they exchanged comments on the teaching videos they had watched and analyzed. Figure 1 presents the major activities involved in the assignment.

<Insert Figure 1 about here>

3.3 Data collection

A number of instruments, yielding both qualitative and quantitative data, were used to gain insights into the emotional process associated with the viewing of the two types of videos (i.e., the STs' own videos and those of their peers; see Appendix 1 for a summary). While watching and analyzing the videos, the STs completed a *Written Survey*, adapted from the questionnaire used by Kleinknecht and Schneider (2013), asking them to rate their level of agreement with several statements related to the emotions they experienced while watching the videos on a scale ranging from 0-3. Open-ended responses explaining their ratings were also solicited. As Sutton and Wheatley (2003) point out in their review of research on teachers' emotions and teaching, teachers' emotions can be studied through the metaphors they use. Accordingly, metaphors were also elicited from the STs during a *Metaphor Sharing Workshop*. In the workshop, they were asked to use a metaphor to describe their experience of watching their own and their peers' videos and then share them with the other workshop participants. The STs then completed a *Metaphor Reflection Task* after the workshop. The task required the STs to explain their metaphors. Readers are encouraged to review the full version of the instruments (obtainable from <https://drive.google.com/open?id=1BIRpzeds0N-lcmKpKL71U-1kzaKboO4k>) to develop a better sense of the data collection tools.

Several interviews were also conducted to further explore the emotions associated with the STs' video-viewing experience. More specifically, *Storyline Interviews* (Beijaard *et al.*, 1999) were carried out with four STs who were available for an interview during their practicum period. The focus was on probing into the perceived changes in their feelings and experiences while engaging in different stages of the video analysis assignment (i.e., lesson planning, lesson enactment, video viewing, and the sharing of views on the videos with peers in the *Video Discussion Workshop*). At the end of the semester, all twelve STs attended *Individual Interviews* in which they recounted their experiences of working on the course assignments (see Appendix 2 for the interview questions).

All but two of the STs also took part in a *Focus Group Interview* in which they discussed statements related to their video-viewing experiences (see Appendix 2).

3.4 Data analysis

Data analysis moved between the individual STs and the group as a whole to balance breadth and depth. In addressing RQ1, the focus was on the collective. First, the average rating scores of the items concerning the emotions associated with viewing the different types of videos in the *Written Survey* were analyzed, with the results reported graphically. Second, the open-ended responses in the *Written Survey*, the interview transcripts, and the answers in the *Metaphor Generation Tasks* were analyzed to identify the emotions the STs experienced. The emotional labels/words (e.g., horrible, joyful, happy, etc.) they used to describe their experience watching the different videos were first identified, followed by analysis of the total occurrence of each emotion label/word related to each category of emotions (*Positive emotions*: enjoyment, interest, relief, surprise; *Negative emotions*: disappointment, sadness, anger, boredom, shame, anxiety, horror). The categories were based on those used by Kleinknecht and Schneider (2013) and inductive analysis of the data. The number of emotion labels related to each category were tallied, with the category occurrence tabulated. Third, the findings were further enriched by analysis of the metaphors generated by the STs, which were classified into emotion metaphors and emotion-free metaphors. Emotion metaphors, which capture “how someone feels about events, objects, or people in his or her life” (Zembylas, 2004, p. 302), were further divided into three categories: (1) negative emotion metaphors, (2) positive emotion metaphors, and (3) mixed-emotion metaphors (i.e., metaphors with both positive and negative emotion labels).

To address RQ2, initial characterization of the reasons for the reported emotions was developed using open-coding (Strauss and Corbin, 1990) through analysis of the interview transcripts. The codes and definitions were then refined through the iterative reading of all data sources (e.g., interview transcripts, written surveys, explanation of metaphors). A holistic reading of those sources afforded a determination of the major types of emotions (e.g., positive emotions, negative emotions, or mixed emotions) experienced by the STs, who were then categorized into groups displaying similar emotions, with the distinct characteristics of each group also identified. The results are summarized using tables. The detailed code list and the tables summarizing the emotions experienced by each ST are available from <https://drive.google.com/open?id=1B1Rpzeds0N-lcmKpKL71U-1kzaKboO4k>.

Finally, to address RQ3, instances in which the STs described the influence their emotions had exerted on their learning from the video material in general and their selective attention and knowledge-based reasoning in particular were sought in all data sources. This analysis focused on (1) the type of emotions (i.e., positive or negative), (2) the type of video (i.e., one’s own or a peer’s), and the perceived effects of emotions on learning.

The study relied on investigator triangulation (Denzin, 1989), with the first two authors working together to code all of the data. Emergent findings were then discussed and debated by the entire research group. Any discrepancies were further discussed until consensus was reached. The researchers also achieved method triangulation through the use of several different data-collection methods.

4. Findings

This section first presents data on the emotions the participating STs experienced while watching their own videos and those of their peers, followed by data on the reasons for those emotions. The section concludes with illustration of the possible influence of the STs’ emotions on their learning from the videos.

4.1 What STs felt when viewing their own and their peers' videos

Figure 2 displays the results of the self-rating statements in the *Written Survey* (i.e., the average rating scores for the group; the scale of rating is 0-3 which indicates the extent of agreement with the statement given). From the items that the STs agreed with most, it can be seen that the STs felt *tense* (mean = 1.75) when watching their own videos and *joyful* (mean = 2.21) when watching their peers' videos. Analysis of the emotion labels/words the STs used to describe their video-viewing experience (Table 1) revealed the three emotions most commonly activated when watching one's own video to be *anxiety*, *shame*, and *horror*, whereas those activated when watching peers' videos were *interest*, *enjoyment*, and *anxiety*.

Fifteen and thirteen metaphors were used by the STs to describe their experience of watching their own videos and those of their peers, respectively. Six positive emotion metaphors, five distinct negative metaphors, and one mixed-emotion metaphor were identified (Table 2). It is noteworthy that *all* five of the negative emotion metaphors were used to describe the experience of watching one's own videos and *all* six of the positive emotion metaphors used to describe that of watching one's peers' videos. The mixed-emotion metaphor was used to describe the experience of viewing one's own videos.

<Insert Figure 2 about here>

<Insert Tables 1 and 2 about here>

The *Written Survey* data suggest that most of the STs experienced *negative* emotions when watching their own teaching videos and *positive* emotions when watching those of their peers. Metaphor analysis further confirmed this trend. The use of mixed-emotion metaphor by the ST suggests that both positive and negative emotions may be evoked by the video-viewing experience.

4.2 Emotions of different groups of STs during video-viewing

The emotions activated in each ST and the reasons for those emotions were also identified. The STs were then classified into distinct groups based on the emotions associated with their viewing of the two types of videos. The distinct characteristics of each group are highlighted in the following.

Own videos: In terms of watching one's own videos, the eleven STs can be broadly classified into four groups: *Pessimists*, *Pessimists (mixed)*, *Optimists*, and *Optimists (mixed)* (see Table 3). One ST, Shirley, was excluded from analysis because she confessed in the focus group and final interviews that she had not watched her own teaching video even though doing so was a course requirement. She explained:

I didn't want to watch my own video. I already knew that my performance was very bad.... I already knew how poor [a teacher] I am; I didn't need to watch the video to realize that! (Shirley, *Final Interview*)

The clear implication is that Shirley had already formed a very negative perception of her lesson, which led her to feel there was no point in viewing her own teaching video. However, such avoidance arguably robbed her of an opportunity to learn from her mistakes.

In fact, many of the STs in Groups 1 and 2, i.e., *Pessimists* and *Pessimists (mixed)* (seven STs in total), who reported experiencing mainly or only negative emotions during the video-viewing process, also said they would have preferred not to watch their own videos, as the following comments demonstrate.

Watching my own video was a *horrible* process. It was *very frightening*.... Actually, I didn't perform well, but I still needed to watch how poorly I performed. This was a *cruel* event! (Mary, Storyline Interview)

I was *so frightened*. I *feared* that I would be able to spot nothing but my mistakes.... I wondered whether I should continue watching. I didn't know how to "remove" myself from the video! (Yvonne, Focus Group Interview)

I felt *nervous* and *frightened*. I didn't want to watch [my video] ... because I didn't know when something I didn't want to see would pop up. (Vanessa, Final Interview)

The statements above highlight one characteristic of these two groups. They suggest that these STs had already formed a negative perception of their teaching performance before watching the lesson videos. It was thus unsurprising that they reported experiencing negative emotions when asked to revisit their "failures."

Another characteristic of these two groups is that most of their members were highly critical of themselves, focusing on every little "mistake" captured in the videos, as demonstrated in the two following representative quotes.

I criticized everything! I criticized my own appearance, voice, dress, flow of teaching, student reactions, questioning techniques, teaching activity, the flow of the lesson, and the PowerPoint [presentation]. (Yuki, Focus Group Interview)

I was very sensitive to my mistakes like my little gestures. I couldn't accept them! When you were a student, you counted the number of gestures your teacher made. (Yvonne, Focus Group Interview)

The highlighted expressions suggest that these STs were overcritical of themselves, regarding trivial matters as mistakes. Interpreted in light of teachers' professional identity – how teachers perceive themselves as teaching professionals (Beijaard *et al.*, 2000) – it appears that the STs in the first two groups expected teachers to be perfect, free from any mistakes. Such unrealistic expectations meant that negative emotions were readily evoked when they watched videos of their own teaching. The following illustrative statements show how these STs felt when they noticed their weaknesses.

When I realized that I had made a mistake, I really wanted to cry! I wanted to find a hole where I could hide. I felt so *disappointed* and *worried*. (Stephy, Focus Group Interview)

There were some moments in the video that I could not bear; I needed to stop it for a while.... Why was my laugh so ugly? I didn't want to hear my *disgusting* voice. It was *so painful!* Why didn't the students respond? Why didn't they laugh? I felt like a *clown* rather than a teacher! (Yuki, Focus Group Interview)

Stephy's statement suggests that the negative emotions (i.e., disappointment, anxiety) triggered by viewing one's weaknesses in a teaching video can be very intense. Similarly, Yuki's observations are indicative of the strong negative emotions (i.e., anger) associated with noticing the discrepancy between one's expected teaching performance and the actual performance captured in a teaching video. The reasons Yuki gave for her negative emotions echo one of the basic conditions for the arousal of emotions reported by Turner (2007), namely, the failure to live up to one's expectations of oneself. It is noteworthy that Yuki's emotional experience was so intense that she sometimes needed to stop the video and wait for a while before returning to it. Her use of the word "clown" to describe herself suggests that her image of herself as a teacher was actually diminished by watching herself on video. The foregoing accounts speak collectively to the intensely negative emotions sometimes associated with reviewing one's own video-taped lessons.

Unlike the *Pessimists* (five STs in total), the two STs in the *Pessimists (mixed)* group (i.e., Stephy and Mary) occasionally experienced positive emotions when viewing their own videos. They explained the reasons for those emotions:

Unexpectedly, I saw that the students were responsive during some class activities.... When I saw the reaction of the students, I felt quite *happy*. (Mary, Final Interview)

It was a complex feeling.... When I was performing the demonstration, I had not thought that some students would take notes.... When I noticed them taking notes, I felt *happy*. (Stephy, Focus Group Interview)

Distinct from the first two groups, the STs in the other two groups (four STs in total), namely, *Optimists* and *Optimists (mixed)*, felt mostly positive when watching their own teaching videos, as the following accounts of their video-viewing experiences show.

I've learnt to accept that I am a new teacher and that I am new to teaching.... When I was watching my own video, I tried to search for my strengths. I did not want to magnify my weaknesses. That doesn't mean that I simply ignore my weaknesses, but that I think about how to improve. (Amy, Focus Group Interview)

I felt *happy* [when watching my own video] ... because if you can identify some weaknesses for improvement, you can improve yourself in the future. I view that as something positive. (Dave, Focus Group Interview)

It is clear from the foregoing accounts that one characteristic of these two groups was a relatively positive mindset while watching videos of their own teaching. For example, Amy explained that she had already learnt to accept her weaknesses, and thus made an effort to pinpoint her strengths, whereas Dave viewed the experience as a chance to identify areas for improvement. Their positive mindset allowed these STs to notice their strengths, recognize their achievements, and make interesting discoveries in their teaching videos, as demonstrated in the following.

I *enjoyed* hearing my own voice a lot and found it to be one of my strengths in getting the students' attention. There was still a lot that could have been improved in the structure of the lesson. (Amy, Written Survey)

It was *funny* and *exciting* to watch my own teaching video. I felt *happy* to see that I had achieved a lot in my teaching. (Dave, Written Survey)

When I was viewing [my own] video, I noticed that I made a lot of facial expressions ... [and] the students were very quiet when I [appeared] stricter.... I found [these observations] very *interesting*. (BoBo, Final Interview)

These statements are representative of the common reasons given for the positive emotions experienced, namely, discovering positive aspects of one's lesson and one's strengths (emotions evoked: enjoyment, relief) and making unexpected/interesting discoveries in the lesson (associated emotions: enjoyment, interest).

Unlike the *Optimists* group (one ST in total), who only recalled positive emotion, the STs in the *Optimists (mixed)* group (three STs in total) did occasionally experience slightly negative emotions, as evidenced below.

Initially, I was *a little bit nervous* as I found that I made some little gestures. After ten minutes, I didn't have that feeling anymore. I became used to watching myself. (Amy, Final Interview)

I think I am generally *happy* to watch myself, but it is always *a little awkward* to see yourself. At times, you also [feel that you are] see[ing] very bad teaching. (Sara, Written Survey)

I was *a bit worried*. . . . I was able to identify my own problems [when watching the video] but was not able to come up with any solutions or useful strategies or alternatives. (Dave, Storyline Interview)

<Insert Table 3 about here>

Table 3 summarizes the reasons given for the respective emotions triggered in the four distinct groups of STs, as well as the characteristics of those groups. The main contrast is that both the *Pessimists* and *Pessimists (mixed)* held negative views of their video-taped lessons and identified trivial mistakes in their teaching performance therein, whereas the *Optimists* and *Optimists (mixed)* displayed a more positive mindset and saw their mistakes as an opportunity to improve their teaching performance in the future.

Peers' videos. The STs can be categorized into three distinct groups with respect to their responses to watching videos of their peers' lessons: *Enthusiasts*, *Enthusiasts (mixed)*, and *Critics* (Table 4). *Enthusiasts* reported having experienced *only* positive emotions during the peer video-viewing process, whereas *Enthusiasts (mixed)* recounted *mainly* positive emotions, and *Critics* recalled *both* negative and positive emotions.

Mary's response is a representative of all STs' views about viewing peers' videos:

I was able to learn [from others' videos]. I learnt some strategies I have not yet tried out myself in the classroom. Moreover, they are my friends. Seeing them being a teacher is different from how you normally see them [during our courses]. I think this [watching peers' lesson videos] was very interesting. It was a rare chance. Even if we all become teachers in the future, there will be few opportunities to go to their classrooms to observe their lessons. I think this was a really good experience. (Mary, Focus Group Interview)

Notable is Mary's view that her peers' videos constituted potential learning materials. Her use of such words and phrases as "friends" and "different from who you normally see" suggests that there is a distinct social dimension to the use of peer videos, as well as a degree of emotional attachment. In fact, *all* of the STs expressed positive emotions about the peer video-viewing process and regarded watching their peers teach as a chance to learn. The STs were further divided into three groups as described below.

The *Enthusiasts* group (six STs in total) only recalled positive emotions when watching their peers' videos. The following representative comments indicate some of the reasons for these positive emotions.

I felt very *surprised*. . . . Stephy was very confident in her lesson delivery and demonstration. I admired a lot her lesson design and demonstration which were very impressive for students. (Yvonne, Written Survey)

I felt *intrigued* that I had a chance to "walk" into the classroom of another school. . . . My peer was very energetic with her body movement. (Dave, Written Survey)

I felt *relaxed* and *interested* as I did not know how the teaching would unfold in the video. (Benny, Focus Group Interview)

The comments indicate that the common triggers of the positive emotions experienced (i.e., enjoyment, interest, relief, surprise) were recognition that they were being afforded a rare opportunity, the learning achieved by watching their peers teach, and an absence of knowledge of what would happen next.

Unlike the STs in the *Enthusiasts* group, the *Enthusiasts (mixed)* (four STs in total) also experienced some slightly negative emotions, as indicated in the following.

However, the former part of the lesson involved too much talking and not much interaction. I felt *a bit bored* when watching the former part of the lesson. (Amy, Written Survey)

I felt *a little bit bored* while watching Vanessa's video, as I am not too interested in ecology [the topic of the lesson depicted in the video]. But in general, it was an *enjoyable* watch. (Sara, Written Survey)

It can be speculated that because the STs had been interacting socially with one another for an entire semester, they were more tolerant of their peers' lessons even when they detected negative aspects. They also may have positioned their peers as friends, meaning they were naturally less critical, as evidenced by their use of such qualifiers as "a little bit" and "a bit" when expressing mild criticisms.

The final group, *Critics*, comprised just two STs: Jack and Yuki. This group was distinct in experiencing a variety of negative emotions (e.g., shame, horror, and anxiety) when watching their peers' videos:

I thought of my own lesson while I was watching my peer's video, and so I *worried* a lot... I felt *tense*, *ashamed*, and *guilty* because ... I already knew that my lesson was worse than hers even though I had not yet watched mine. (Jack, Open-ended Survey)

I felt *ashamed* [when] I compared her teaching strategies with my teaching strategies. It was obvious that mine were much worse in comparison. (Yuki, Focus Group Interview)

These descriptions suggest that Yuki and Jack's discovery of the strengths and positive aspects of their peers' lessons caused them to perceive themselves as inferior to their peers. Their propensity to make a direct comparison between their peers' teaching performance and their own, a distinct characteristic of this group, prompted negative feelings and turned them into *critics* of their own performance.

<Insert Table 4 about here>

Table 4 summarizes the emotions experienced by the three groups of STs when watching videos of their peers, the reasons for those emotions, and the characteristics of the three groups. It is noteworthy that the STs who engaged in social comparison (Festinger, 1954) also engaged in self-evaluation of their own teaching performance, activating negative emotions.

4.3 Possible influence of emotions on video-related learning

At various instances during the study, the STs described the possible influences of their emotions on the learning they achieved from the video materials, selective attention and knowledge-based reasoning in particular. Nearly half of them described the influence of negative emotions on their learning from their own videos, with Stephy's views being a representative example:

When I was viewing my own video, I felt very *stressed*. At times, I chose to skip some parts of the video. Even when I didn't skip [parts], I would automatically "delete" what I considered to be weaknesses in my mind. It was like I was *daydreaming*. I didn't want to accept the reality, which influenced whether I was able to identify my own weaknesses. (Stephy, Final Interview)

Here, Stephy is describing how her negative emotions prompted her to avoid watching and analyzing some parts of the video. Her ability to concentrate on the video analysis task was also compromised by what she described as "daydreaming." It seems fair to say that Stephy's cognitive process during the video-viewing task was affected by her negative emotions. Benny and Mary described other possible effects of negative emotions:

I tended to focus on the good students when I was watching my video.... I wanted to do something to make myself feel better, to compensate for my negative feelings.... I realized that some students were quite happy [during the group activity], and this made me feel *happy*. I then started to pay attention only to these students' reaction to see how the activity may have helped them to learn. (Mary, Final Interview)

When I was watching my own lesson, I was very *tense*.... I *worried* that I wasn't teaching well. Because of this feeling, I focused only on what I wanted to see. For example, when I noticed that some students gave responses, I automatically inferred that most students had learnt from the lesson. As my peers pointed out, I actually ignored some students at the back who were off-task. (Benny, Final Interview)

Mary's account illustrates how her selective attention was influenced by her negative emotions. She admitted focusing only on particular students during the video-viewing process. Benny's interpretation of the possible influence of his emotions is also interesting. He explained that he was unable to make objective inferences about student learning based on the evidence in the video (i.e., his knowledge-based reasoning). Although most of the STs reported a negative influence of negative emotions on their own video-related learning, Vanessa and Yuki presented alternative perspectives on the effect of negative emotions on their learning in general:

Although I did not want to watch my own video, I still learnt from the video in terms of what I needed to improve. A learning journey should include negative emotions, and these negative emotions did not influence my learning. (Vanessa, Final Interview)

No one is perfect! You must experience the painful experience of identifying your own weaknesses for improvement.... If you do not experience any negative emotions, it means you do not care about your own performance. It follows that you will see less of what you are not doing well [in the video]. (Yuki, Final Interview)

Vanessa took the view that negative emotions should be part of the learning journey and believed that she was able to learn from her video despite those emotions. Yuki went even further, positing that negative emotions are an essential part of the learning process that leads to becoming a better teacher.

With respect to the viewing of peers' videos, there was evidence to suggest that the positive emotions triggered by the viewing process facilitated learning:

I observed every detail [of the peer videos] and their [my peers'] teaching strategies using a logical thought process. I felt *relaxed* as the videos were not done by me, meaning it was easier for me to point out what they should improve. (Stephy, Metaphor Reflection Task)

I felt *relaxed* while watching the videos and *enjoyed* seeing the communication between my peers and their students. I sometimes replayed parts I was interested in a few times. (Vanessa, Metaphor Reflection Task)

Here, it seems that the positive feelings of relaxation and enjoyment served to focus the STs' attention and trigger a process of deep analysis, with one of the STs even replaying parts of the video multiple times to learn as much as she could.

5. Discussion

The exploratory study reported herein constitutes a rare attempt to better understand the emotions experienced by a group of STs watching different types of videos, namely, videos of their own teaching and videos of their peers' teaching, as part of a take-home assignment. This is much-needed research, as video is being increasingly used as a tool to enhance teacher learning in initial teacher education (Blomberg *et al.*, 2013). The analysis herein suggests that the participating STs experienced different emotions depending on whether they were viewing their own or their peers' teaching videos. Importantly, nearly all of the STs reported experiencing *negative* emotions while watching their own videos, whereas they *all* reported experiencing *positive* emotions while watching those of their peers. The STs' recounting of the video-viewing experience leads to the conclusion that watching one's own teaching videos can be a discomfiting and emotionally laden experience, whereas watching peers' teaching videos, in contrast, is a generally enjoyable and interesting process.

Although video allows teachers to retrospectively analyze their own practices away from the cognitive and emotional involvement that occurs during teaching (Derry, 2007), it is clear from this study that watching teaching videos elicits emotions. Its findings thus expand scholarly understanding of the emotional processes triggered in STs while watching different types of video material in two major ways. First, the study data suggest that the emotions experienced by STs while watching teaching videos are more complex and nuanced than previously thought, as the participating STs clearly experienced more than one type of emotion. However, some emotions did seem to dominate during the video-viewing process, depending on the type of video watched. The use of multiple data-collection methods allowed the complexity of the emotions experienced to be revealed. Second, the data identified distinct groups of STs who experienced particular emotions when watching different types of video material, and further revealed both the characteristics of the members of those groups and the reasons for the emotions triggered (see Tables 3 and 4). These findings offer important insights for the design of video-based learning tasks that take into account the emotional experiences of STs.

Some of the results herein conflict with those reported in prior studies exploring the feelings of in-service teachers viewing different types of video material (e.g., Kleinknecht and Schneider, 2013). There are several possible explanations for the discrepancies. First, STs have less experience video-taping themselves than in-service teachers, and certain emotions may well be likelier when watching a video of one's own teaching for the first time. Second, STs by nature are at an early stage of the teaching profession, and hence they have different, and perhaps even unrealistic, expectations of their teaching performance relative to experienced teachers. In the current study, it was often the discrepancy between the STs' expected performance and their actual performance that activated negative emotions, which may account for the greater expression of negative emotions while watching their own rather than others' videos, the reverse of what Kleinknecht and Schneider (2013) reported for in-service teachers. Moreover, the STs in the present study had been part of the same social group for an entire academic year, and the feelings of friendship they had established may explain the positive feelings associated with the viewing of their peers' videos.

It is noteworthy that many of the STs in this study perceived that the negative emotions, such as anxiety, that they experienced when watching their own videos influenced their cognitive process of video viewing to some extent, leading to outright avoidance of those videos, inability to concentrate on the video analysis task, diminished ability to make informed observations, and/or biased interpretations of observations. At the same time, the findings suggest that the positive emotions, such as relief, associated with the viewing of peers' videos prompted closer examination of those videos, which in turn facilitated the learning process. The findings thus suggest that peer videos have distinct affordances. Although there is certainly no single view on what constitutes the emotion most conducive to video-induced learning, this study calls attention to the need to find ways to reduce the experience of negative emotions when STs are viewing their own teaching videos because of the potentially negative impact of those emotions on learning.

5.1 Implications and directions for future work

This study has important implications for how initial teacher education programs can make better use of videos to facilitate teacher learning. First, teacher educators can more readily offer tailor-made emotional support based on the characteristics of the ST groups identified herein. Second, they should try to inculcate a positive mindset in STs during the video-viewing process. For example, educators could design video analysis prompts that focus the viewers' attention on their own strengths, which can be a source of positive emotions. Third, because negative emotions may be triggered by comparison of one's own teaching performance with that of one's peers when watching the latter's teaching videos, it would be useful to provide guidance that shifts STs' focus away from a *comparison* of teaching performance to objective analysis of the lesson *per se*. Finally, and more broadly, the findings speak to the need for teacher educators to model the process of emotion management while viewing and analyzing ST's own videos and those of their peers.

In conclusion, although the study offers important initial insight into the emotions associated with watching different types of video material in the initial teacher education context, one limitation of this study must be acknowledged. The study relied on STs' retrospective accounts of their video-viewing experience. The emotions they actually experienced while watching the two sets of videos were not monitored in real time. Further research incorporating observations and physiological measures would help to provide a fuller understanding of the dynamics of the emotions STs experience while watching different types of videos (Ritchie *et al.*, 2016). Despite this limitation, this study makes an important contribution to the field. First, the case study clearly illustrates the complex and nuanced emotions associated with ST's video-viewing experience of different video materials and problematizes the lack of attention to this issue in existing scholarship. Second, it challenges the assumption that research findings on in-service teachers' emotions associated with the viewing of different types of video material might be transferable to novice teachers. It also provides a timely reminder of the role of emotions in influencing the video-viewing experience, and hence the learning therefrom, at a time when videos are increasingly being used in initial teacher education activities.

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Figure 1. Major activities associated with this part of the research

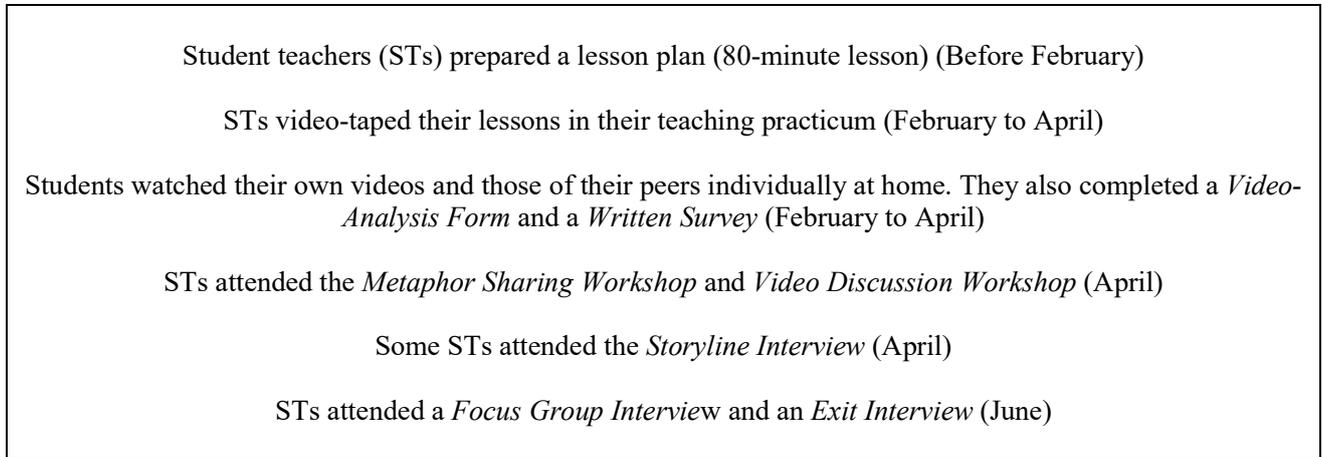
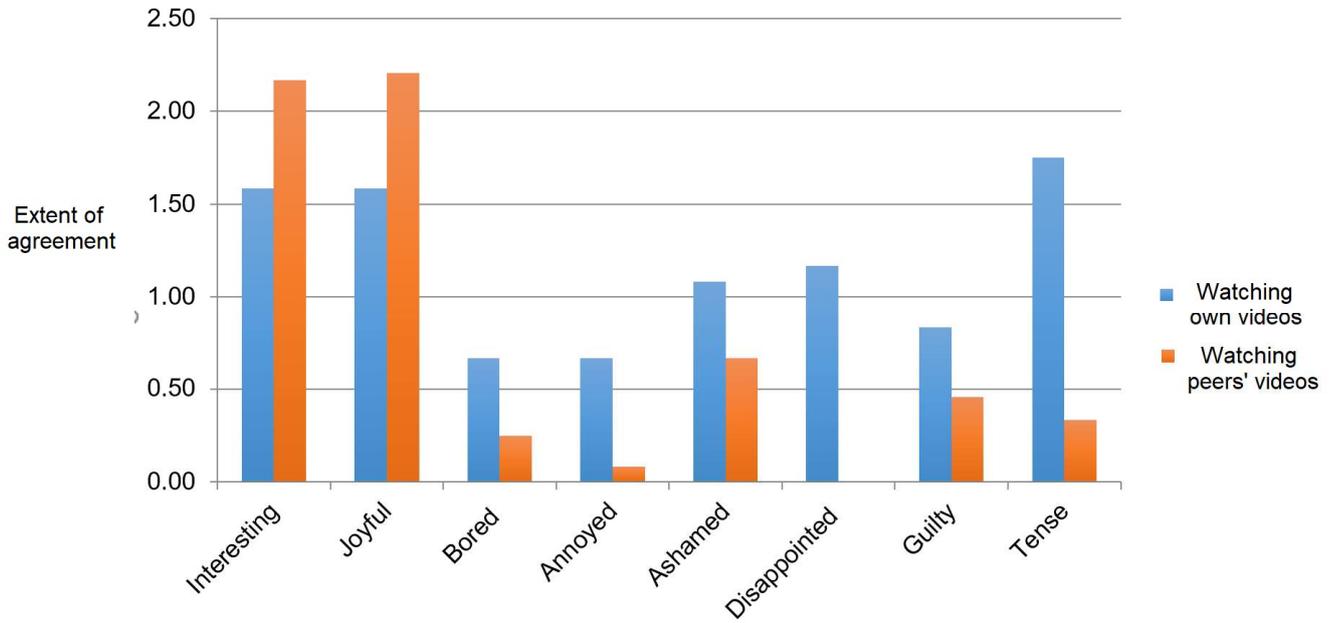


Figure . Student teachers' feelings when viewing their own videos and those of their peers (the scale of rating is 0- which indicates the extent of agreement with the statement given e.g. was joyful while watching this video)



e 1. Student teachers' emotions when viewing their own videos and those of their peers

	i	ie	i g	ide	ie	i g	eer	ide
positive emotions	interest		8					
	enjoyment							
	relief					8		
	Surprise							
negative emotions	Boredom							
	Anger							
	Shame							
	disappointment		0				0	
	Sadness						0	
	Anxiety							
	horror							

e . Metaphors used by the student teachers to describe their video-viewing experiences

ide eri	Me r					
	i ree	i i e e	i	eg i e e	i	Mi ed e i
<i>Own video</i>	1. Audience	/		8. A ghost/horror movie critic		13. A passenger in a crazy drive
	2. Detective X2			9. Riding a roller coaster		
	3. Movie critic X2			10. Children who do something wrong		
	4. My supervisor			11. Criminal		
	5. Playing the 'find the difference' game			12. Watching a horror/ghost movie		
	6. Plumber					
	7. Reporter					
<i>Peers' video</i>	1. Friend	8. Audience		/		/
	2. Judge	9. Enjoying a relaxing movie				
	3. Learner	10. Detective				
	4. Reporter	11. Student X2				
	5. Student	12. Watching a magic show				
	6. Translator					
	7. Window shopper					

e . Four distinct groups of STs based on the emotions associated with viewing their own teaching videos

r u	ude e er	r eri i	e e i	eg i e e i		i i e e i	
essimists	Benny Jac anessa vonne u i	Already formed a negative perception about their video-taped lessons before watching the videos Focusing on mistakes of the past teaching performance shown in the videos	nly negative emotions	<i>Anxiety, Shame, Horror, Disappointment, Anger, Sadness, Boredom</i>	<i>Common reasons:</i> discovering own weaknesses negative aspects of the lesson Being forced to revisit failure noticing discrepancy between the expected performance and the reality Finding unforeseen weaknesses at any moment	ot evident	
essimists (mixed)	Mary Stephy		Mixed emotions (mainly negative emotions)			<i>Enjoyment</i>	discovering some positive aspects of own lesson own strengths
ptimists	BoBo	iewing the experience as an opportunity to improve their own teaching performance in the future Being able to identify their own strengths positive aspects of the lessons	nly positive emotions	ot evident		<i>Enjoyment, Interest, Relief, Surprise</i>	
ptimists (mixed)	Amy ave Sara		Mixed emotions (mainly positive emotions)	<i>Anxiety, Shame</i>	discovering own weakness negative aspects of the lessons not being able to come up with solution to the weaknesses noticing discrepancy between the expected performance and the reality	<i>Common reasons:</i> discovering own strengths positive aspects of the lesson Making unexpected interesting discoveries	

ε . Three distinct groups of STs based on the emotions associated with viewing their peers' teaching videos

r u	ude e er	r eri i	e e i	eg i ee i		i i ee i	
nthusiasts	Benny BoBo ave Shirley Stephy vonne	Seeing the video-viewing experience as a chance to learn from the peers	nly positive emotions	ot evident		<i>Enjoyment, Interest, Relief, Surprise</i>	<i>Common reasons:</i> aving a chance to see peer(s) teach earning from peers iscovering positive aspects of the lesson peer(s) strengths Ma ing une pected interesting discoveries ot nowing what would happen in the teaching videos
nthusiasts (mi ed)	Amy Mary Sara anessa		Mi ed emotions (mainly positive emotions)	<i>Boredom</i>	<i>Common reasons:</i> ontent of the video iscovering negative aspect of the lesson peers weakness		
ritics	Jac u i	Seeing the video-viewing experience as a chance to learn from the peers omparing their own teaching performance with that of their peers	Mi ed emotions (both positive and negative emotions)	<i>Anxiety, Horror, Shame</i>	<i>Common reasons:</i> omparing own teaching performance with that of peer(s)		