"I MUST BE A GLUTTON FOR PUNISHMENT": TEACHERS' EMOTIONS RELATED TO VIDEORECORDING OF MATHEMATICS INSTRUCTION

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Along with the rapid development of technology, videorecording teachers' lessons for professional development or educational research have become commonplace. Although the benefits of the use of videorecording has been well documented, few studies have attended to teachers' affective experiences in relation to videorecording. In this study, we examined teachers' emotions to being videorecorded and watching their videos. We found that all teachers experienced negative emotions related to videorecording at the initial stage of the PD but these negative experiences faded over five coaching cycles. Despite the negative emotions all teachers found the use of video tremendously beneficial to their own professional development.

Keywords: Emotions, Videorecording, Mathematical coaching, Professional development

The Role of Video in Professional Development

The value of videorecording in teacher education and professional development has been widely acknowledged (Gaudin & Chaliès, 2015; Marsh & Mitchell, 2014). Having access to video of one's own instruction allows teachers to re-watch the teaching episodes and analyze the aspects of their teaching that go beyond just recall (Roller, 2016). By providing teachers with a clear picture of what their teaching looks like, videos provide essential information about their practices that allows teachers to craft a professional vision oriented towards developing necessary skills critical for appropriately noticing and attending to students' academic needs (Sherin 2004; Sherin et al. 2011). Having continuous experience with watching videos enhances teachers' abilities to observe, identify, and interpret classroom actions (Coffey, 2014; Krammer et al., 2006; Sherin & van Es, 2009; Star & Strickland, 2008). Gaudin and Chaliès (2015) pointed out that, "viewing a classroom video engages [the] teacher in a complex activity that elicits cognitive, emotional, and motivational processes" (p. 46).

Chan et al., (2018) suggests that videos engage teachers in retrospection about their own practices, while minimizing the "cognitive and emotional involvement they experience while teaching" (Chan et al., 2018, p.193). However, others (e.g., Kleinknecht & Schneider, 2013) suggest that teachers' do engage emotionally and motivationally when watching videos, but this engagement is higher while watching the videos of unknown teachers. Although having opportunities to watch and reflect on instruction is generally useful for teachers' professional development, there is added value in engaging in this practice around one's own teaching (Zhang et al., 2011). Gradual exposure to similar experiences helps teachers get accustomed to recognizing elements in their existing practices that need improvement (Borko et al., 2008). However, despite the benefit of reflecting on your own instructional video, researchers found that the teachers usually feel uncomfortable with being filmed or being watched by others (Borko et al., 2008; Lasagabaster & Sierra, 2011; Sherin & Han, 2004). Hence, public viewing of teachers' videos requires building a safe and friendly community of support. As pointed out by Borko et al. (2008, p. 422), "to be willing to take such a risk, teachers must feel a part of a safe and supportive professional environment. They also should feel confident

that showing their videos will provide learning opportunities for themselves and their colleagues, and that the atmosphere will be one of productive discourse." Although watching videos can elicit a range of negative emotions, they provide evidence of the complexity of classroom practice and make student thinking visible (Barnhart & van Es, 2015; Santagata & Yeh, 2013), thereby motivating teachers to continue with effective practices and innovative to address issue they observe that deter positive student outcomes (Siry & Martin, 2014; Sun & van Es, 2015).

Teaching is emotional work (Hargreaves, 2000; Nias, 1996, Sutton & Wheatley, 2003). Studies of teachers' emotions has increased in recent years because of their influence on teachers' motivation and subsequently their behaviours (Mesquita et al., 1997). Teachers' negative emotions (e.g., anger and frustration) (Emmer, 1994) have been found to negatively influence teachers' focus and attention, thereby reducing their intrinsic motivation to teach (Ryan & Deci, 2000; Trigwell, 2002). On the other hand, emotions, like joy and satisfaction, assist in generating effective ideas and strategies (Sutton & Wheatley, 2003). As such, emotions are deeply connected to teachers' cognitive and psychological processes which influences their instructional outcomes. In this regard, exploring teachers' emotional experiences related to videorecording – including being videotaped and watching the videos – will provide insight into the range of emotions teachers' experience in relation to videorecording and the reasons underlying these emotions. A significant number of studies have documented the positive influences of video on teachers' professional growth, however, these findings of this study will provide insight into the extent to which elementary teachers may experience negative emotions related to videorecording; the extent to which elementary teachers experience positive emotions related to videorecording; what triggers these emotions; and, whether or not, they may influence what and how a teacher instructs. We focus specifically on answering the following research questions:

1. How do elementary teachers describe their emotions in relation to videorecording their instruction and watching their videos? How do they describe these emotions?
2. What reasons do teachers describe for their emotions related to videorecording their mathematics instruction?

Method

Participants

The participants included seven elementary (grades K-6) teachers working across three different schools within the same district. Table 1 shows demographic data on the teachers.

Table 1. Demographic data on participants

Teacher	Position	Gender	Grade Level	#of years of teaching
Bill	Special education teacher	Male	3rd	5
Sandra	Special education teacher	Female	Kindergarten	6
Laura	Elementary grades teacher	Female	4th	9
Anthony	6th grade math teacher	Male	6th	15
Wilma	Elementary grade teacher	Female	2nd	10
Katie	Kindergarten teacher	Female	1st	19
Jessica	Elementary grade teacher	Female	2nd	5

Holistic Individualized Coaching (HIC)

This study was situated in a larger study that unfolded over a year. Participants were involved in a year-long professional development (PD) program, that involved a coaching model called Holistic Individualized Coaching (HIC) (Author, 2019). Holistic Individualized Coaching (HIC) is a coaching model designed to attend to the multi-dimensional aspects of teaching with the goal of advancing

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teachers' instructional practices and overall professional well-being. For an academic year, the participants engaged in five cycles (5) of coaching that focused on enhancing their mathematical knowledge for teaching (MKT), shaping productive mathematics-specific beliefs, developing emotional regulation strategies, and promoting efficacy calibration. It involves five steps: (i) a pre-coaching discussion of a lesson to be coached, (ii) development of a content-specific mini teacher profile, (iii) third, pre-lesson support, (iv) in-class coaching where the instruction is videotaped, and (v) the post-coaching conversation which focused on data from the videotaped lesson. The teacher and coach watched the videorecorded lesson before the post-coaching calls. Pre-coaching and post-coaching conversations were audio-recorded.

Data Sources

Audio-recordings of post-coaching conversations. The post-coaching conversations provided data about participants' mathematical knowledge for teaching, emotions, efficacy, and their teacher role during the lesson. Regarding emotions we specifically asked teachers to describe their emotions related to the video-recording. We also probed to determine the underlying reasons for the emotion. For this study we specifically focused on data related to the teachers' emotions about videorecording. Each of seven teachers engaged in five coaching cycles that had one post coaching conversation where they talked about emotions related to videorecording. In total, there were 35 possible instances where teachers described their emotions and the reasons underlying these emotions.

Analyses and Findings

(1) What emotions do elementary teachers describe in relation to having their instruction videorecorded and watching their instructional videos? How do they describe these emotions?

To answer this research question, we focused on the emotion they stated, in relation to being videotaped and watching their own instructional videos and used thematical analysis (Braun & Clarke, 2006) to determine their emotion categories. To value the participants experiences, we used their own words. In instances where the word or term used was not a documented emotion, we determined by the category of emotion by analyzing the context in which it was stated. Of the 35 possible experiences (5 coaching cycles x 7 teachers), teachers reported emotions on 30 experiences. For five instances the teachers did not state an emotion related to videorecording. Figure 1 shows the words and phrases teachers used to describe their emotions related to videorecording – including being videotaped and watching their instructional videos.

Teacher	Coaching Sessions				
	Post-coaching 1	Post-coaching 2	Post-coaching 3	Post-coaching 4	Post-coaching 5
Kate	Pretty good/Ok/not anxious Neutral	Not too anxious Negative	Feel good/Curious Positive	Usually don't care Neutral	No emotional reaction/Pretty comfortable Neutral
Wilma	Unbothered Neutral	More comfortable Positive	N/A	Fine Neutral	Struggled/Relief Mixed-C
Bill	Uncomfortable Negative	n/a	A little bit of anxiety Negative	Pretty calm/Never excited Neutral	Easier to watch Negative
Laura	Positive outlook Positive	Nervous Negative	Avoided watching/Pleased Mixed -C	Not anxious anymore Neutral	Frustration Negative
Antwon	Felt good/Anxious Mixed -C	N/A	Anxious/useful Mixed-C	Reflective Neutral	Appreciative Positive
Sandra	Nervous/Uncomfortable/Better Mixed-C	Enjoyment/better Positive	N/a	Dislike/Fine Mixed-C	Comfortable Neutral
Jessica	Anxiety/Relief Mixed-C	Intimidating/self-conscious/Comfort/More calm/less nervous/less anxious Mixed -C	N/a	Excited/Anxious/Comfort Mixed-C	Comfort Positive

Figure 1. Teachers' descriptions of their emotions related to videorecording

Very few of the emotions stated aligned with the discrete emotions described in the literature, such as enjoyment and anxiety (Barrett, Gendron & Huang, 2014; Frenzel, 2004). In particular, there was one instance of enjoyment (which was mixed); no instances of anger or excitement; and, no instances of pride, shame, or guilt. Teachers tended to describe their emotions in non-typical ways, such as (a) in reference to a previously felt emotion, "easier to watch" or "feeling better" and (b) using a negative emotion in a positive way, for example "not bothered" or "not anxious anymore". We also observed that teachers talked about their experiences with multiple emotions. For example, when talking about the video-recording experience, Jessica described three emotions, "excited-anxious-comfort". We labeled teachers' experience of multiple emotions as mixed emotions. Figure 2 shows the categorizations of the emotions.

Teacher	Emotions			
	Positive	Negative	Neutral	Mixed Complex
Katie	Feel good/Curious	Not too anxious	Pretty good/Ok/not anxious Usually don't care Pretty comfortable	
Wilma	More comfortable		Unbothered Fine	Struggled/Relief
Bill		Uncomfortable A little bit of anxiety Easier to watch	Pretty calm/Never excited	
Laura	Positive outlook	Nervous Frustration	Not anxious anymore	Avoided watching/Pleased
Antwon	Appreciative		Reflective	Felt good/Anxious Anxious/useful
Sandra	Enjoyment/better		Comfortable	Nervous/Uncomfortable/Better Dislike/Fine
Jessica	Comfort			Intimidating/self-conscious/Comfort/More calm/less nervous/less anxious Excited/Anxious/Comfort Anxiety/Relief
Total	6	6	9	9

Figure 2. Teachers' emotions about videorecording organized by category

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We observed that when teachers experienced mixed emotions, they were a combination of both negative, positive and neutral emotions; for example, "anxiety-comfort-intimidating" [Jessica, coaching cycle 2]. This was in contrast to prior work on teachers' emotional experiences related to teaching (e.g. Authors, under review) where teachers also experienced what we referred to as mixed-positive, a combination of multiple positive emotions; and, mixed-negative, a combination of multiple negative emotions. Jessica's videorecording experience during the second round of coaching provides an example of the mixed-complex emotional experience. She stated,

> …when it started, it was, you know, just videorecording myself, it was a little intimidating. And then having people watch it. You weren't-- you weren't sure, because it's like, OK. What are they going to think?... I believe in what you say, that you're not in here to judge what's kind of going on. You're in here to help with-- or, you know…. Because, I mean, I'm not saying I'm not a little self-conscious when somebody is in here watching and listening, but I-- it's helped me work through that, because I don't want to be. When somebody comes in my room, I don't want to have to change my way of teaching or be nervous or things like that. So, it's helped me in that aspect, also. [So I'm] a little bit more calm, less nervous, less anxious.

In the excerpt Jessica described her initial feelings of intimidation about the videorecording, concerned about whether she would meet expectations. She talked about feeling a bit self-conscious about being watched but she felt comfortable knowing that the coach was in the classroom to provide support, not to judge. She had been actively working on regulating her emotions so she was relatively calmer and less nervous about being videotaped.

Along with neutral emotions, mixed-complex were the most predominantly felt emotions related to videorecording stated by teachers in nine instances each. Teachers also experienced positive and negative emotions with similar frequency – six instances each. Teachers appeared to become more neutral or positive about videorecording over time or repeated exposure, although they didn't end the year having positive emotions. This may be due to the reasons underlying the emotion – why they were feeling these emotions. We describe these reasons next.

(2) What reasons do teachers describe for their emotions related to videorecording their mathematics instruction?

To answer the second research question, we identified teachers' responses related to their emotions about videorecording and the reasons underlying these emotions. We coded each of these reasons to reflect what elicited the emotion. We then looked across the codes and organized them in themes that captured the core aspects of teachers' videorecording experiences including: (i) teacher self-related, (ii) student-related, (iii) teaching-related, (iv) coach-related, and (v) videorecording related. Table 2 shows types of emotions (row) in relation to reasons (column).

Table 2. Reasons Underlying Emotions

Emotions	Reasons				
	Teacher (Self)-related	Student-related	Teaching-related	Coach-related	Videorecording-related
Positive	Knowing teacher self Appreciation of the entire process	Opportunity to enhance learning opportunities for students	Opportunity for reflecting on and improving instructional practices Objective	Conversation around the video is helpful	Video captures crucial moments in teaching not accessible in memory

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			evaluation of teaching		
Negative	Discomfort with watching self on video (hearing voice and seeing self)	Makes students' thinking visible	Unsatisfied with lesson Discomfort with watching instruction process	Pressure to perform for coach Ensure they meet coach's expectations	Video reveals the unknown about students' thinking, behavior and teaching
Neutral	Objective evaluation of teaching	Provides window into students' thinking	Opportunity for reflecting on and improving instructional practices	Will not be judged by coach Comfort with conversation around the video	Comfort with video in the classroom over time Video does not record personal thoughts
Mixed-Complex	Reasons including a combination of those described from each of the above categories				

Positive. Reasons for positive emotions were aligned with a mastery goal orientation perspective (Elliot, 2005) where teachers saw the videorecording experience as a way to learn more and improve their instruction in ways that would benefit students' learning (Maher et al, 2014). Sandra and Anthony's statements capture the teachers' experiences well.

> Teachers don't get this. You do have to watch yourself when you were student teaching, but then you had no experience so you couldn't really use it very well. Whereas now I've been teaching only seven years, but it's nice to see myself and what I'm doing. I really enjoyed that part of it and it's great. There's nothing I don't like about it. Because you've [the coach] provided me with ideas and you also tell me some things I can work on or things that you like. Just the feedback is great. I really liked it. [Sandra, Coaching Cycle #2]

> I don't want to mess up the concept, as far as presenting it to the students. Number one, I don't want myself as a professional to look bad. And then, number two, I don't want the students to get the wrong information, or for me to tell students something that's inaccurate. And so the video documents that. If I said something that was inaccurate or if I taught the students something that was wrong, it's documented. [Anthony, Coaching Cycle #5]

Teachers appreciated the videorecording as it allowed them to see who they were as teachers and how that was enacted in the classroom. They allowed the teachers to see critical moments in their teaching that were not accessible through memory and with enough detail that would be useful. Watching the videos also allowed for meaningful conversation around their teaching that was data-driven. One central reason was that being able to watch their teaching themselves, teachers did not have to rely on the feedback of others, or interpretations from their own memory, but allowed for a more objective self-evaluation of their teaching.

Negative. Teachers experienced a range of negative emotions related to videorecording including, "uncomfortable", "a bit of anxiety", "nervousness", "frustration", and "more comfortable", in relation to being videotaped, the anticipation of watching the video, and watching the video. Most teachers experienced discomfort in seeing and hearing themselves on video and felt anxious thinking about what would possibly be revealed on the video that they did not observe during instruction. Sandra, for instance, reported her sense of discomfort to seeing herself teaching on the video:

> Yeah, and then hearing your voice, maybe no one likes to hear their voices. I'm so high-pitched, I'm like really, no wonder they don't listen to me. I don't have that voice, down and deep [Sandra, Coaching Cycle #1]

Wilma, Anthony, and Jessica also discussed the presence of the camera seemed to set both teachers and students in performance mode – making them more conscious of their actions and perhaps diminishing authenticity. Willa discussed her feeling to "perform" in front of camera:

> Instead of probably conducting my class in a way that maybe I typically would, it's like I got to speed this through to the end because by gosh, this is what she's [the coach] here to see... It's still--I'm getting more comfortable with having the camera there, but I still feel like I'm performing versus just teaching somewhat. [Wilma, Coaching Cycle #2]

Neutral. Several teachers reported neutral emotions such as "calm", "not bothered", "not anxious", and "comfortable", as they did not feel they were being judged about their teaching (e.g., Katie). In recognizing that his calibration between his thoughts about the lesson and the actual lesson was misaligned, Bill had feelings of calm about the videotaping process.

> I was pretty calm today. Yeah, I think when I think the lesson goes terribly, I watch the video and go, oh, it wasn't as bad as I thought. And when I think the lesson goes really well, I watch the video, and I was like, oh, it wasn't as good as I thought either. It's always somewhere in the middle of what I actually perceived it to be. [Bill, Coaching cycle #4]
>
> I mean, does anybody really like the way they look on video? I don't know...Yeah. So I didn't even think about that. Yeah, I don't really mind being recorded because I don't think that anybody will ever see that in the way that they would judge me. Like only teachers or people involved in education would ever look at that-- which makes it way more comfortable [Katie, Coaching Cycle #5]

Mixed-Complex. Mixed-complex emotions include a combination of positive, negative, and/or neutral emotions in relation to the videorecording experience. As shown in the quote below. Sandra felt initially nervous about watching herself on video but seeing her instruction made her feel great because it turned out well. She also expressed some generalized discomfort about watching herself on video. Sandra's range of emotions reflects the complexity of calibration and evaluation processes before and during watching videos.

> So I was nervous, and then so I was able to watch it by myself, which was great. but yeah, I was really nervous at first. And being that you never see me teach, you don't want to look like you don't know what you're doing. It turned out good. I personally like the whole process, because when you have a regular evaluation in the classroom-- well, you have lesson plans, and you turn it in, but you never really talk about it. you never know what day they are going to show up anyways. I guess I just felt like I was more prepared doing this this way, and it made me really think it through. Really doing it, like when you said, what activities will you have? What are you expecting from them? And then watching, which is just very uncomfortable, for anybody watching it, and seeing yourself in the video. [Sandra, Coaching Cycle #1]

Emotions about Watching Video vs. being Videotaped. One interesting point to note is that five of the seven teachers distinguished their emotions about watching videos and being videotaped. They expressed 23 instances within three major types of emotions about being videotaped: positive emotions (6 instances, e.g. "I think it's [videorecording] one of the best things going on" Anthony C4); neutral emotions (12 instances, e.g. "I was okay being videotaped…comfortable, Sandra C5); and negative emotions (5 instances, e.g., I feel like during my lesson especially when you guys are there, when it's being videotaped, I'm paying extremely close attention to things that, you know, every little detail that is going on, Jessica C4). Reasons underlying these negative emotions include

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the first time of being videorecorded, perceiving videorecordings as performances, and the anxiety of meeting instructional expectation. These concerns and negative emotions were not reported in emotions related to watching videos.

Discussion

One key finding was that the emotions teachers described about videorecordings do not align with the kinds of discrete emotions described in the literature. Instead of using the emotion words such as "anger", which is one of the most reported emotions in prior studies (e.g. Sutton & Wheatley, 2003), or "anxiety", teachers used words and phrases like "avoided watching" or "intimidating" to explain the negative emotion they felt about videorecording. Moreover, teachers' descriptions of their emotions about videorecording did not mirror the emotions related to teaching described in the literature. For example, the teachers used words such as "better, feel good, felt better" more in expressing their positive emotions around videorecording, while the most commonly used words for positive emotions found in the literature in relation to teaching are "enjoyment" and "pride" (Frenzel, 2014).

While there was greater consistency across teachers in moving towards neutral and positive after cycle 3, some of our teachers did not get "used to" the videorecording over 5 cycles even though they appreciated the benefits of it. Although they became more comfortable or positive over time, most of the teachers did not feel positive emotions by coaching cycle 5. For example, Bill expressed that he found watching the recordings of his instruction "easier to watch" meaning he still did not feel comfortable about watching the videorecordings. Borko and colleagues suggest that gradual exposure to similar experiences helps teachers to get accustomed with recognition of the elements in their existing practices that need improvement (Borko et al., 2008). This suggests some teachers need more experience with the videorecording so their respective emotions are neutral or positive.

One important take-away for us as professional developers and researchers is that although teachers experienced negative emotions, they still found the experience valuable and they wanted to continue the program because of the perceived benefits. This implies that teachers have professional capacity to prioritize their learning and growth, even if it comes with negative emotions. Researchers and professional developers should pay close attention to teachers' emotions when videorecording is utilized, so that teachers' negative emotions are addressed in a way to maximize their learning. Another point to consider is the relative nature of emotions when multiple PD sessions are used over time. As shown in our data, teachers often reported their emotions in the current video recording in comparison to their earlier video-recordings. Thus, professional developers need to listen and attend to teachers' emotions carefully from the onset of their collaborative work to create a rapport, engendering trust and showing genuine interest in supporting teachers in their work. In so doing, we can more effectively utilize available tools and resources, like videorecording, to foster teachers' continued engagement in professional development.

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