VIDEO CAMERA ON-OFF DURING SYNCHRONOUS ONLINE GROUP WORK

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Since its introduction several decades ago, online learning has become a component of higher education, with institutions worldwide providing a form of online course delivery. One key feature of online learning is the use of video conferencing software and the use of a video camera feature. Grounded on Vygotsky and Wallon's ideas of how emotion and cognition are interconnected and equally relevant in learning processes, this paper aims to understand how the use of the video camera feature in synchronous online group work affects relationship building in those settings and the students' overall learning experience. Qualitative findings from 22 semistructured interviews completed with 12 students and 10 instructors enrolled in Canadian postsecondary online teacher education courses are shared. Results indicate instructors and students perceive there are consequences for turning the video camera on and off during synchronous sessions and that seeing others on camera helps promote positive affective relationships among students. The findings contribute to the literature related to video camera usage in online learning environments

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and serve to inform institutions and instructors designing online courses with synchronous group activities.

KEY WORDS: educational technologies, online group work, synchronous learning, positive affective relationships, video camera

1. INTRODUCTION

Since its introduction several decades ago, online learning has become an integral component of higher education, with institutions worldwide providing a form of online course delivery (Bacow et al., 2012; Johnson, 2019; Perry & Pilati, 2011). In 2019, prior to the COVID-19 pandemic, 76% of Canadian universities and colleges who participated in The Canadian Digital Learning Research Association survey reported offering a form of online learning (Johnson, 2019). However, the opinion that online learning is an inferior form of learning exists, and critics have discussed various issues with this type of delivery, including student isolation, skepticism toward student learning outcomes, low student interactivity, lack of prestige, lack of community, technology unreliability, and instructor workload issues (Bacow et al., 2012; Betts & Heaston, 2014; Dow, 2008; Dumford & Miller, 2018; McQuiggan, 2012; Perry & Pilati, 2011; Wingo et al., 2017). Nevertheless, numerous advantages to online learning have been reported, such as convenience and flexibility with time, place, and location of learning (Song et al., 2004), an increase in student self-discipline (Newstex, 2019), and ease in accessing course materials through a learning management system (IntelligentHQ, 2021). Further, online learning has low financial overhead, making it economically appealing for educational institutions (Bacow et al., 2012; Johnson, 2019; Meyer, 2014). Arguably, online course offerings will persist; in 2021, of institutions participating in The Canadian Digital Learning Research Association annual survey, 78% reported they anticipate future growth in online learning (Johnson, 2019).

Online learning can encompass both asynchronous and synchronous learning. Asynchronous learning occurs when learning happens at both different times and places (Irvine, 2020). Commonly, a learning management system is used as a course hub for sharing class materials, communicating, collaborating, and submitting assignments. Discussion boards and email can also be used. Asynchronous learning supports independent learning activities, such as practice, group discussion, and artifact creation (Shamir-Inbal & Blau, 2021). When learning happens at the same time but in different places, it is called synchronous learning (Irvine, 2020). Commonly, a video conferencing tool is used to host an online session where the teacher and students attend together and communicate through audio, video, and chat. Synchronous sessions can be used for instruction, presentations, demonstrations, and to promote social connectedness (Shamir-Inbal & Blau, 2021; Yao et al., 2020). Notes and videos can be shared through screen sharing, and breakout rooms can divide a class into smaller groups for discussion and task

completion. During this time and through these activities, participants can turn their video cameras on or off.

A persistent public discourse holds the opinion that in-person courses are superior to their online counterparts due to underlying assumptions that online courses are mostly asynchronous and consist of independent work with a lack of interaction and connection with peers and the instructor (Clayton et al., 2018; Kebritchi et al., 2017; Marshall et al., 2012). Video camera usage in online courses that have synchronous components can help humanize a participant's presence in the learning environment (DeWaard, 2016). There are reported benefits for turning on a video camera in an online learning environment, such as fostering communication and social connections (Falloon, 2011; Kalman et al., 2020; Sederevičiūtė-Pačiauskienė et al., 2022). One way to use video in an online space is to include synchronous classes or group work in the design of the course. When the instructor and students turn on their video camera during a synchronous class or during a small group breakout room with peers, they can all see each other. However, there are also various factors influencing why students and instructors can have discomfort with turning on their camera, including technical barriers that prevent access and the usage of the video camera during a synchronous meeting (Castelli & Sarvary, 2021; Falloon, 2011; Kalman et al., 2020; Nicandro et al., 2020; Sederevičiūtė-Pačiauskienė et al., 2022).

With postsecondary institutions increasingly adopting online course offerings, there is much to learn about how video camera usage during online group work affects students' learning experience and how this influences relationship building in those settings (Hammond, 2017; Kleinsasser & Hong, 2016). Kalman et al. (2020), for instance, found that students in their upper- and entry-level chemistry courses enjoyed being able to see everyone, leading to increased motivation to pay attention, attend class, concentrate, and do well. In this article, we discuss the role of the video camera feature in synchronous online group work to promote positive relationships between students. In addition, we discuss the relevance of having positive affective relationships for an enhanced learning experience at the collective (group) and individual levels, drawing on the ideas of Vygotsky (1978) and Wallon (1995). Aligned with principles of Scholarship of Teaching and Learning (SoTL), this study aims to expand and disseminate knowledge about student learning and teaching practices to improve both. Investigations and discussions on how the affective dimension and learning intertwine help amplify such knowledge. In addition, this inquiry focuses on understanding the context of students and goes beyond conversations on disciplinary knowledge and skill development, which match the principles of good practice in SoTL according to Felten (2013).

1.2 Video Camera On-Off Debate

One key feature of video conferencing software is the video camera. Using a device's video camera, participants in a synchronous session can enable their video source so everyone in attendance can see them, as well as their background environment. Debate surrounding whether turning on video cameras should be a requirement in synchronous learning exists.

Although it seems counter to principles for Universal Design for Learning and providing students with multiple means of engagement (Costa, 2020; DeWaard, 2016), many instructors and students expect participants to turn on cameras during online classes.

Opponents of requiring participants to turn on the video camera cite reasons including student discomfort pertaining to personal appearance, their physical location being seen in the background, social norms, and unreliable technology (Castelli & Sarvary, 2021; Falloon, 2011; Kalman et al., 2020; Nicandro et al., 2020; Sederevičiūtė-Pačiauskienė et al., 2022). Conducting an end-of-semester survey with undergraduate students to better understand why cameras were not turned on in synchronous classes, Castelli & Sarvary (2021) found that 41% of participants reported being concerned about personal appearance, with 26% sharing their concern about other people being seen in the background. Similarly, student respondents in Nicandro et al.'s (2020) research reported feeling self-conscious about being seen in class, as they were not in private spaces or did not want their current living context shared. Inconsistent internet connectivity was also reported by 22% of Castelli & Sarvary's (2021) participants. Weak connectivity, impacting one's ability to stream video, has been consistently mentioned as a barrier for students (Falloon, 2011; Kalman et al., 2020; Sederevičiūtė-Pačiauskienė et al., 2022), possibly more so for “underrepresented minorities” (Castelli & Sarvary, 2021, p. 3569).

Reasons for not turning on the video camera in synchronous learning contexts are valid, as they particularly pertain to self-efficacy and socioeconomic factors. Yet, reasons for enabling the video camera are relevant as well. Utilizing the video camera can increase a learner's motivation, sense of belonging in a community, and communication efforts (Falloon, 2011; Sederevičiūtė-Pačiauskienė et al., 2022). For instance, when exploring undergraduate and doctoral students' perceptions of the significance of the video camera in synchronous learning, Sederevičiūtė-Pačiauskienė et al. (2022) found that students perceived the video camera as a tool for cooperation, interaction, self-discipline, and self-control. Students also shared they felt less inclined to participate when their cameras were off, which also resulted in a weaker student–teacher relationship. Further, the camera supported students in establishing a connection between one another and building a sense of community.

While literature demonstrates that video camera usage during synchronous sessions can be beneficial for learning, it can also be harmful to a student's health and wellbeing and can lead to burnout (Castelli & Sarvary, 2021; Reich et al., 2020). Castelli & Sarvary (2021) provided suggestions as alternatives to video camera usage: offering different means for students to participate and communicate, such as through shared documents and the chat features; asking students to properly format their names and encouraging them to add a static image; and using active learning techniques to foster engagement and promote equity. Otherwise, students can be encouraged to use the video camera when instructors set an example by using their own video camera, explaining why the camera is being used (e.g., nonverbal communication, relationship building), and by establishing video camera usage as a class norm for certain activities, such as working in small groups to humanize the learning experience and to help build a sense of belonging.

1.3 Theoretical Frame for Video Camera On-Off Debate

In philosophy and psychology, researchers often aim to study human complexity according to dimensions such as *reason* and *emotion* (Leite, 2018). Despite dedicating attention to both dimensions and recognizing their relevance in the development and comprehension of a person, these dimensions are usually studied in dissociated ways, with *reason* considered a superior human characteristic that makes humans rank above other species (Nogueira, 2016). Historically, the distance between these two dimensions and the prioritization of *reason* over *emotion* has been present for generations and observed since ancient Greece (Soligo, 2018). Plato, for example, explained the existence of two worlds—*the sensible world* (visible, physical) and *the intelligible world* (invisible, nonphysical)—adding that it is the intelligible world that is responsible for giving us the condition of humans (Soligo, 2018).

Over the years, similar views prevailed and culminated in the positivist scientific thinking that marked the 19th century, as explained by Soligo (2018). According to the author, the positivist paradigm states that the true understanding of any phenomenon must be reached through objectivity and neutrality, standing as far as possible from emotions, feelings, affections, and subjectivity. This is still the most widespread scientific paradigm observed, meaning that beliefs that prioritize reason to the detriment of emotion have been reproduced in education for decades and are still common both from the point of view of academic studies and school culture. That said, the need to explore other paths that embrace emotion and its imbrication with the processes of cognitive development and knowledge construction becomes evident. It is critical to understand humans in all their complexities, indivisibly and holistically, recognizing that reason and emotion cannot be set apart in the real dynamics of human functioning and development.

1.4 Sociocultural Theories

One of the pioneer theorists in the educational field in dealing with the interconnections between affectivity and cognitive development was Vygotsky (1896–1934). His theory explained that the natural development of any person leads to the construction of higher psychological functions, such as consciousness, creativity, reasoning, and memory (Barros, 2017). Foundational to these are lower psychological functions, which are reflexes and emotions (Veresov, 2021). Vygotsky dedicated his work mainly to the study of higher psychological functions, that is, he was interested in understanding the psychological mechanisms that involve the conscious control of behavior and intentional action (Barros, 2017; Veresov, 2021).

Vygotsky is one of the most cited forerunners of the sociocultural learning theory, which views the person and culture as not directly related (Nogueira, 2016). Instead, their relationship is mediated by psychological tools—such as signs, symbols, text, and language—that work as intermediary elements in everything that is experienced and learned. Vygotsky (2002) assumed that the person is never passive in their development and claimed

that there is a process of transformation and synthesis in which the subject continuously plays an active and interactive role with the world around them. The other with whom one interacts, which is part of the environment and a cultural object, plays a central role in sociocultural learning theory. Vygotsky stressed that one's learning and development happens through mediated interactions with cultural objects and explained the concept of mediation as the process of intervention of an intermediary element in a relationship (Barros, 2017). The theorist believed that it is through mediation and interactions with others that a subject's ways of thinking evolves and, therefore, he criticized approaches that understand human development as purely anchored in biological processes since this point of view ignores the role of higher emotions (constitutively human) and disregards the qualitative transformations undergone throughout development (Leite & Tassoni, 2002). By discussing the role of affectivity in the process of internalization, understood as the internal reconstruction of an external event (Vygotsky, 2002), Vygotsky innovated understandings present at the time, which used to prioritize cognitive aspects and were heavy on mind/body and cognition/affection dualisms.

With regard to affectivity, Wallon (1879–1962) is another author with relevant contributions that have shaken the hegemony of the aforementioned traditional dichotomies. Nogueira (2016) explained that Wallon devoted much of his work to the study of affectivity, reinforcing the understanding of the person from an integrative perspective. Wallon's work underlined that human development takes place through the process of a dialectical relationship between the motor, cognitive, and affective functions (Nogueira, 2016). From this perspective, emotions and affection are not seen as primitive in human development but, rather, they develop concomitantly and in reciprocity with the cognitive functions (Soligo, 2018). Wallon's concept of affectivity, as explained by Mahoney & Almeida (2005), is comprehensive and concerns a person's ability and willingness to be affected by the external/internal world through sensations linked to pleasant or unpleasant tones. Mahoney & Almeida (2005) clarified that being affected means reacting with external/internal activities aroused by the situation experienced.

Tassoni (2008) builds numerous links between the theories of Vygotsky and Wallon when it comes to affectivity. In the author's words,

> Both have the same philosophical assumption – dialectical-historical materialism, they adopt a social perspective and have a developmental approach to it, demonstrating, each in their own way, that emotional manifestations, therefore of an organic nature, are qualitatively transformed, passing through to act in the universe of the symbolic. In this way, the forms of manifestations of affectivity are expanded. Both also clearly defend that the affective and the cognitive are interrelated and influence each other, promoting the development of the individual as a whole. (p. 69)

Vygotsky (2002) argued that initial emotions can gradually become more complex. Likewise, Wallon (1995) identified and differentiated three components of affectivity: emotion, feelings, and passion; these components resulted from interactions between biological and social factors and they appear successively in the evolution of affectivity. Emotions are the first and strongest bond established between people, manifested through organic changes and

constituted by social influences. Feelings are psychic in nature and involve representational components—they are expressed through verbal, written, and nonverbal language (e.g., gestures) linked to the representational expression of affectivity and characterized by cognitive activity. Finally, passion appears indicating the development of self-control in the domain of a situation. Wallon (1995) argued that new feelings emerge during one's development. Leite (2006) pointed out congruencies between Wallon and Vygotsky's ideas about emotion and noted that they both valued the social character of affectivity and explained that manifestations, initially organic, gained complexity as an individual developed in the culture and started to expand his or her ways of acting in that environment. Based on that, the quality of the mediations carried out by the various cultural agents is decisive for the success or failure of the relationship established between the subjects and the cultural objects of knowledge.

Taking all that in consideration, this article focuses on the impacts of the pedagogical mediation permeated by affective interactions performed by peers in online group work. According to Leite & Higa (2011), the quality of the affective impact promoted by the mediating agents is characterized as either positive or negative and is directly linked to the quality of the learning experience. Several studies (Barros, 2018; Fracetto, 2017; Gazoli, 2020; Nogueira & Leite, 2014; Osti & Tassoni, 2021) suggested that positive affective mediation leads to successful learning experiences, analyzed not only in relation to students' academic performance, but especially in relation to students' interest and engagement levels with the topic or content learned. More specifically, this study focuses on a particular aspect of peer interaction, which is the video camera usage during online group activities, to understand its relevance to building relationships. This article aims to understand how instructors and students perceive the use of the video camera on-off during synchronous online group work and how this affects relationships and students' learning experience.

2. METHODOLOGY AND DESIGN

This qualitative inquiry focuses on the perspectives of instructors and students related to video camera usage when meeting online and working synchronously. It draws from a larger ongoing multiple case study that examines how instructors designed group work in postsecondary online teacher education courses (Hartwell et al., 2022). This study explores how video camera usage affects the construction of positive affective relationships among peers and discusses the potential impacts it has on students' learning experiences.

The research was reviewed and approved by the research ethics board from two postsecondary institutions in Western Canada prior to commencing recruitment for the study. Participants were students (preservice teachers) and instructors recruited from two Western Canadian teacher education faculties offering online courses. Participants in both institutions had the privilege of possessing and accessing devices and technology. Some of the participants were from rural areas and had adequate access to internet connectivity as part of their commitment to study in a community-based education program with online courses. Students and instructors were interviewed over Zoom using an interview protocol consisting

of open-ended questions asking students and instructors about their perceptions of using technology for online group work, and related questions were asked, such as:

1. What is your perception of group work in online courses?
2. How does group work contribute to student connectedness in your online courses (instructors)? How does online group work help you become connected or build connections to your peers (students)?
3. What are some of the barriers to positive interactions or student connectedness in the group work in your online courses (instructors)? What do you find challenging about group work in online courses (students)?

Twenty-two semistructured interviews were completed with 12 students and 10 instructors. Students were all at different stages of completion in their bachelor of education degree, and instructors included continuous and contract faculty, also known as sessional instructors. Each interview was scheduled for 60 minutes and conducted virtually using Zoom The use of the video camera was encouraged but not mandatory, and none of the participants explicitly preferred to have the camera turned off. Each participant was assigned a pseudonym (e.g., Student1, Instructor2) to ensure anonymity and increase the likelihood that participants offered their insights and perspectives without direct connection to their courses, program, or institution. Professional transcription was utilized, with each participant given a two-week window to engage in transcript validation. All transcripts were reviewed and approved by the participants.

2.1 Data Analysis

Multiple members of the research team participated in transcript analysis and used strategies to ensure intercoder reliability and reduce bias in data analysis. To begin, all members of the research team coded two transcripts over Zoom together. Similarities and differences were discussed, and consensus was reached on thematic codes to identify. A code book, with a description for each code, was created for the team to follow (Miles et al., 2020), and the transcripts were numerically ordered to assist with the coding process. Following this, two researchers coded a third transcript individually and then met to discuss differences and establish consistency in coding. After this stage was completed, one researcher completed the first round of coding on the remaining transcripts. Once finished, another researcher began the second round of coding, starting in the opposite direction of the first researcher—i.e., the second researcher started coding the last transcript on the list and worked backwards. After five transcripts had been completed by both, the two met to discuss any differences in coding. Analysis continued until two rounds of coding had occurred on each transcript and intercoder agreement was established. A further meeting with the entire research team was scheduled to discuss the coding and results. One of the themes that emerged from the two cycles of coding interview transcripts related to video camera usage during synchronous online group work, which is prioritized in this article.

During the coding process, researchers noted participants' positive or negative perspectives (e.g., feelings, opinions, and consequences) associated with the video camera on/off when working online in their groups.

3. RESULTS

According to most participants of this study, the use of the video camera feature in educational synchronous online group activities was relevant to building relationships and promoting an enhanced educational experience. Analysis of the collected data allowed for the identification of relevant elements of discourse that were coded in four categories: reasons for video cameras off; consequences of video cameras off; consequences of video cameras on; and feelings associated with video cameras off. Below are sample excerpts that illustrate the four categories.

3.1 Reasons for Video Cameras Off

Instructors and students who were interviewed in this study indicated there were a range of reasons for disabling the video camera off during synchronous sessions when working on group activities. One instructor indicated that students “didn't want to show their faces, for a cultural reason, or an internet connection, or whatever it happened to be” (Instructor2). Students discussed how it was more difficult to work with peers on group assignments particularly when there was limited audio input and the video camera was off. A common sentiment was, “If everybody was too scared and unwilling to turn on their mics, for example, or show their faces, it would take a lot longer for us to find that rhythm together” (Student3). Participants speculated that a reason the camera might be turned off is that “Some people are not necessarily comfortable having their face on the screen” (Student11).

3.2 Consequences of Video Cameras Off

Instructors found it challenging to get to know students when video cameras were off. One instructor noted,

> I did find it challenging to get to know all the students' names and faces, if they kept turning their camera off or not having their name properly put into Zoom. And so sometimes if I would call them by the wrong name (…) I could see them feeling like, how is she not connected to me, but I'm like, you never talk and you don't have your camera on. So how can I get to know you if you don't participate in the process and I don't see your face? (Instructor6)

Students discussed how communications were limited when video cameras were off, “You had people, cameras off, minimal communication” (Student11). Instructors discussed difficulties with discerning student input and noted, “You don't necessarily have the instant

feedback you would get on the face to face, especially if everybody's got their cameras turned off" (Instructor4).

3.3 Consequences of Video Cameras On

When video cameras were on during synchronous sessions, instructors appreciated receiving visual cues and, "You can tell by facial expressions as to whether people are getting things or whatever" (Instructor2). Seeing students helped discern areas of difficulty, "We're throwing a lot of jargon at them, and they were like, I could see their eyes on camera, like what are you talking about?" (Instructor6). Instructors also discussed how they preferred video camera use as it helped gauge student presence:

> "It can give the opportunity to demonstrate what your skills and your knowledge is by having your mic on and having your camera on. (…) It's not like social media, where you can sort of hide, because you are still present, your camera is still on, you're in real time. And you just have to be really aware of some of your facial expressions and remembering that you're still in, like it would be if you were present in the same room" (Instructor6)

Instructors discussed using web conference features, such as break out rooms for small groups to meet during synchronous sessions and work on group assignments. Instructors speculated students who were using video cameras during small group times benefitted from developing connectedness with peers: "In those small groups, hopefully they're turning their camera on and getting to know each other a little bit better, so I think it's absolutely essential. Group work is essential for that sense of connectedness" (Instructor7).

3.4 Feelings Associated with Video Cameras Off

Students in the study discussed how leaving the video camera off made them feel the learning experience was dehumanized and it was difficult to develop a relationship with peers who did not use the video camera:

> You kind of just don't really know who we are and it kind of feels a little dehumanizing towards them… Sometimes they have a profile picture, just the name. It's just like, I don't really care about this person that much. (Student5)

A lack of visual cues made it difficult for students to know how their peers were feeling.

> And it's really hard to read people when you can't see their face. So that's one thing that has been a challenge…. not knowing how they're feeling about the assignment, if they're feeling anxious, if they're feeling excited, or if they want changes made. (Student6)

Other students found it more difficult to work with peers in a group when some did not turn on their video camera, saying "When you only have their voice it's just super weird. It's like having a telephone conversation, but it's just awkward and it makes it hard" (Student11).

Only one participant (Student8) commented about the positives of being able to turn the video camera off in synchronous online meetings when engaged in a group assignment:

> "It's nice, some days that you don't want to show your face as well, there's a chance to turn off your camera. I've been really appreciative of the flexibility of that because some days you just don't want to be on screen, and it can be nice to just take a break. It helps also that focusing to just listen to your instructor and not have to look at anybody else. So that's another benefit too. It's a lot more flexible for your mental health on that day, because sometimes you drag yourself to your class and you're just not feeling it." (Student8)

All other participants in the study associated video cameras off with challenges in building connections and positive relationships with those who were on the other side of the screen.

4. DISCUSSION

The data suggests that not seeing others on camera while synchronously connected and working together makes it hard for most of the participants in this study to create positive affective relationships between peers and between students and instructors. In a context where students work collaboratively on a task, it is possible to affirm that peers function as mediators since they assist each other with their learning. Thus, the peer relationships in synchronous online group work analyzed in this study are equivalent to those between students and mediators; the quality of such relationships is crucial for the rise or drop of students' motivation for learning. This idea is supported by Vygotsky (1978) and Wallon's (1995) theories that explain how cognition and emotions are inseparable.

Vygotsky (2002) acknowledged the relevance of biological support in the development of an individual but rejected that it occurs independently of their sociocultural context. This author had a holistic understanding of a person and attributed great importance to the influences of culture and environment (Leite, 2018). Likewise, Wallon (1995) saw the person from an integrative perspective and believed that human development takes place through the process of a dialectical relationship between the motor, cognitive, and affective functions (Soligo, 2018). From this point of view, emotions, affection, and cognitive functions develop in an intertwined and inseparable way. These theoretical assumptions suggest that the quality of the affective relationship between peers working collaboratively is essential for a successful learning experience. Additionally, and according to the findings of this study, not seeing others on video camera while synchronously connected and working together makes it hard to create positive affective relationships between peers and between students and instructors—both situations understood as student–mediator relationships.

DeWaard (2016) stressed that video integration in online courses has the power to humanize the educational experience for students and teachers, and this argument is closely related to Student5's interview responses. This participant mentioned that whenever it is not possible to see the person on the other side of the screen, it becomes hard to build a personal connection with them. In the participant's words, it "feels a little dehumanizing," and

it is like he/she does not “really care about this person that much” if they do not show their faces. Another student (Student6) reported finding it hard to read and understand the other person's feelings when the video camera is off. Whenever this happens, it means that verbal and nonverbal communication is affected. This can be particularly dangerous, as the lack of communication elements often impacts students' abilities to help, understand, instruct, build trust, demonstrate empathy or commitment, develop a sense of belonging to that group, among others. Similarly, instructors shared that it was challenging when students turned their video cameras off. Both Instructor4 and Instructor6 underlined that the immediate feedback they get from students' faces is essential to inform them if instructions were clear or to identify which student needs more support, but this does not happen when they cannot see the person on video. Instructor6 said that he/she cannot remember students' names or who they are if they always have their video cameras off and do not interact much in class. The instructor added that some students feel disappointed when they realize that the instructor does not know them, but the participant justified why this can happen in some cases. Instructor7 also emphasized the importance of using the video camera feature in synchronous online group work so students can build a sense of social connectedness, an instructional element needed for developing group social structure in online learning (Slagter van Tryon & Bishop, 2012). In all those statements, it is clear how not seeing others live on camera when working together in online settings can affect emotions, feelings, and relationships.

It is relevant to notice that there was only one participant (Student8) in our study who focused on the positive aspects of turning off the video camera when engaged in synchronous group work. However, this participant spoke from an individual perspective and did not discuss this from a collective or interactive point of view. Most importantly, the positives associated with disabling the video camera discussed by this participant had no link to its impacts on building relationships with peers or instructors. Additionally, Student8 said that the flexibility to turn the camera off is important to one's mental health, which is considered a particularly interesting statement when associated with the explanation that followed it: “Because sometimes you drag yourself to your class and you're just not feeling it.” From what was said, it is possible to understand that the participant saw a benefit in being able to turn the camera off when not able to fully engage in the learning and/or activity. According to the information provided, there seems to be an association of two distinctive ideas: turning the video camera off in synchronous online group learning activities and being partially present and unable to fully engage with others. This idea aligns with Sederevičiūtė-Pačiauskienė et al.'s (2022) findings that showed that students who had their video cameras off were less inclined to participate, cooperate, and interact. The authors added that another negative consequence of students having their cameras off was the establishment of weaker interpersonal relationships. However, in the case of Student8, it seemed the student preferred partial presence in class with the camera off possibly due to health issues and arguably, if the course was held on-campus instead of online, Student8 may have elected to miss the class entirely instead of attending with partial presence.

In relation to the reasons for not turning the video cameras on, all arguments presented by the participants of this study pointed at issues related to culture or personal preferences. Many studies (Castelli & Sarvary's, 2021; Falloon, 2011; Kalman et al., 2020; Sederevičiūtė-Pačiauskienė et al., 2022) identified that weak connectivity was one of the major issues experienced by students in online environments, but this is inconsistent with the findings of this study. Instructor2 briefly mentioned internet connection, but most other participants did not mention this issue. One possible explanation is that all participants in the study selected online course work, lived in a developed country (Canada), and had access to reliable high-speed internet as well as reasonable equipment to engage in online course activities. Nicandro et al.'s (2020) study highlighted that another important factor that prevents some students from sharing their faces on camera is their concerns in relation to their physical environment that would be seen on the background. Similarly, this was not mentioned by any of the participants of this study, and a possible explanation is that nowadays there are tools in most video conferencing software that allow users to blur the background, use a virtual background, or hide their backgrounds, minimizing this type of problem.

5. CONCLUSION

Overall, results showed that having the video camera on was important for participants to feel connected to group members, understand their needs, support them, or rely on them. This means that enabling the video camera in synchronous online group work helped build positive affective relationships that can lead to an improved learning experience. However, the study did not focus on the reasons behind students' choices for turning their cameras off, so it is not possible to affirm that just by turning the camera on students would automatically have enhanced learning and social experiences. There are many unexplored reasons that could influence a student's decision for not enabling their video camera source during a synchronous group meeting or activity and, if forced to, this could create discomfort, embarrassment, among other negative feelings and emotions with the potential to negatively affect social interactions and relationship building. Therefore, the interpretation of the findings of this study suggests that a successful teaching-learning process is characterized by a double movement: it allows the student to take ownership of their own learning in an active and autonomous way and, simultaneously, encourages the student to engage in a positive affective way with his or her own learning process and environment. This means that the student's voice should be heard in multiple ways, and partnership with students should be supported as a way to promote a more democratic intellectual community (Felten, 2013). If possible, students should be encouraged to be heard and seen on video in synchronous online group work as it has the potential to enhance their motivation and overall learning experience, in addition to promoting social connectedness and a sense of belonging to that learning environment. However, students must also be respected in their limits and needs, especially when there are valid reasons not to turn on the camera. Not acknowledging this could hinder the establishment of positive affective bonds with peers, instructors, institutions, and the students' own knowledge-building processes.

The findings of this study contribute to the literature related to video camera usage in online learning environments and are particularly relevant to the current educational scenario given that the online delivery of courses is growing fast and significantly in postsecondary institutions. The results will be useful and can serve to inform universities and instructors to design online courses with synchronous group work, meaning that they can advance the practice and profession of teaching, which is crucial to SoTL (Hutchings & Shulman, 1999). Hutchings & Shulman (1999) argued that SoTL should examine issues related to teaching and learning to promote students' significant long-lasting learning, and the affective dimension plays a central role in that. The findings presented also contribute to the understanding that teaching and learning are complex phenomena and that many elements influence them, including the context and feelings of all those involved in those processes.

The limitations of this study include collecting data from a small group of instructors and students with the privilege of possessing devices with reasonable internet access in two Western Canadian schools of education. Recognizing the context of these participants is important when generalizing the findings that having students enable the video camera source when working online and in groups contributes to their learning and brings important advantages on social, emotional and cognitive levels, since those dimensions are intertwined and equally relevant in one's development (Vygotsky, 1978; Wallon, 1995). Reflecting on how to encourage this practice of turning on the video camera leads to a different and more complex discussion that goes beyond the objectives of this article. To better understand educational and students' contexts and reasons, and possibly infer when the video camera should or should not be turned on as well as what agreements would be reasonable to make with those engaged in synchronous online activities, further research is encouraged.

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REFERENCES

Bacow, L., Bowen, W., Guthrie, K., Lack, K., & Long, M. (2012). *Barriers to adoption of online learning systems in U.S. higher education*. Ithaka S+R Consulting. https://doi.org/10.18665/sr.22432

Barros, F. R. (2017). *Impactos afetivos das práticas pedagógicas no ensino superior: O olhar dos alunos [Affective impacts of pedagogical practices in higher education: The view of students]* [Master's thesis, Universidade Estadual de Campinas].

Barros, F. R. (2018). Impactos afetivos das práticas pedagógicas no ensino superior: O olhar dos alunos [Affective impacts of pedagogical practices in higher education: The view of

students]. In Leite, S. A. S. *Afetividade: As marcas do professor inesquecível* (pp. 175–206). Mercado de Letras.

Betts, K., & Heaston, A. (2014). Build it but will they teach? Strategies for increasing faculty participation and retention in online and blended education. *Online Journal of Distance Learning Administration*, *17*(2). https://ojdla.com/archive/summer172/betts_heaston172.pdf

Castelli, F. R. & Sarvary, M. A. (2021). Why students do not turn on their video cameras during online classes and an equitable and inclusive plan to encourage them to do so. *Ecology and Evolution*, *11*(8), 3565–3576. https://doi.org/10.1002/ece3.7123

Clayton, K. E., Blumberg, F. C., & Anthony, J. A. (2018). Linkages between course status perceived course value, and students' preference for traditional versus non-traditional learning environments. *Computers and Education*, *125*, 175–181. https://doi.org/10.1016/j.compedu.2018.06.002

Costa, K. (2020). Cameras be damned. LinkedIn. Retrieved from https://www.linkedin.com/pulse/cameras-damned-karen-costa/

DeWaard, H. (2016). Using video to humanize instruction. Chapter 4. In Kilgore, W. (ed.) *Humanizing online teaching and learning*. Pressbooks. https://humanmooc.pressbooks.com/chapter/using-video-to-humanize-online-instruction/

Dow, M. (2008). Implications of social presence for online learning: A case study of MLS students. *Journal of Education for Library and Information Science, 49*, 231–242.

Dumford, A.D., & Miller, A.L. (2018). Online learning in higher education: Exploring advantages and disadvantages for engagement. *Journal of Computing in Higher Education*, *30*(3), 452–465. https://doi.org/10.1007/s12528-018-9179-z

Falloon, G. (2011). Making the Connection: Moore's Theory of Transactional Distance and Its Relevance to the Use of a Virtual Classroom in Postgraduate Online Teacher Education. *Journal of Research on Technology in Education*, *43*(3), 187–209. https://doi.org/10.1080/15391523.2011.10782569

Felten, P. (2013). Principles of good practice in SoTL. *Teaching and Learning Inquiry: The ISSOTL Journal, 1*(1), 121–125. https://doi.org/10.20343/teachlearninqu.1.1.121

Fracetto, P. (2017). *O processo de constituição de uma professora considerada inesquecível [The constitution process of a teacher considered unforgettable]* [End of Bachelor of Pedagogy paper, Faculdade de Educação da Universidade Estadual de Campinas]. https://repositorio.unicamp.br/Busca/Download?codigoArquivo=510918

Gazoli, D. G. D. (2020). *Affectivity and subjectivity: The construction of senses in youth and adult education* [Doctoral dissertation, Universidade Estadual de Campinas]. https://bv.fapesp.br/en/dissertacoes-teses/198365/affectivity-and-subjectivity-the-construction-of-senses-in

Hammond, M. (2017). Online collaboration and cooperation: The recurring importance of evidence, rationale and viability. *Education and Information Technologies*, *22*, 1005–1024. https://doi.org/10.1007/s10639-016-9469-x

Hartwell, A., Nogueira, B., Thomas, C., & Brown, B. (2022). *Exploring Online Pedagogies for Social Connectedness and Advancing Professional Collaboration: Research Brief.* University of Calgary, Calgary, AB. http://hdl.handle.net/1880/115238

Hutchings, P., & Shulman, L. S. (1999) The scholarship of teaching: New elaborations, new developments. *Change: The Magazine of Higher Learning*, *31*(5), 10–15. https://doi.org/10.1080/00091389909604218

IntelligentHQ. (2021, March 5). 4 Advantages of online learning over physical learning. *IntelligentHQ*. Newstex. https://www-proquest-com.ezproxy.lib.ucalgary.ca/docview/2496914760?accountid=9838&pq-origsite=primo

Irvine, V. (2020). The landscape of merging modalities. *Educause Review*. https://er.educause.edu/articles/2020/10/the-landscape-of-merging-modalities

Johnson, N. (2019). *Tracking online education in Canadian universities and colleges: National survey of online and digital learning 2019 national report*. Canadian Digital Learning Research Association. http://www.cdlra-acrfl.ca/wp-content/uploads/2020/07/2019_national_en.pdf

Kalman, R., Esparaza, M. M., & Weston, C. (2020). Student views of the online learning process during the COVID-19 pandemic: A comparison of upper-level and entry-level undergraduate perspectives. *Journal of Chemical Education*, *97*, 3353–3357. https://doi.org/10.1021/acs.jchemed.0c00712

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems*, *46*(1), 4–29. https://doi.org/10.1177/0047239516661713

Kleinsasser, R., & Hong, Y.-C. (2016). Online group work design: Process, complexities, and intricacies. *TechTrends*, *60*, 569–576. https://doi.org/10.1007/s11528-016-0088-6

Leite, S. A. S. (2018). *Afetividade: As marcas do professor inesquecível [Affectivity: The marks of the unforgettable teacher]*. Mercado de Letras.

Leite, S. A. S. (2006). *Afetividade e práticas pedagógicas [Affectivity and pedagogical practices]*. Casa do Psicólogo.

Leite, S. A. S., & Higa, S. E. L. (2011). Aproximação-afastamento na relação entre crianças e as práticas de leitura: o papel da mediação pedagógica do professor [Approaching-detachment in the relationship between children and reading practices: the role of the teacher's pedagogical mediation]. In Leme, M. I. S., Oliveira, P. S. (Eds). *Proximidade e distanciamento* (pp. 139–160). Casa do Psicólogo.

Leite, S. A. S., & Tassoni, E. C. M. (2002). A afetividade em sala de aula: As condições de ensino e a mediação do professor [Affectivity in the classroom: Teaching conditions and teacher mediation]. In Azzi, R. G., & Sadalla, A. M. F. (Eds). *Psicologia e formação docente: Desafios e conversa* (pp. 113–141). Casa do Psicologo.

Mahoney, A. A., & Almeida, L. R. (2005). Afetividade e processo ensino-aprendizagem: Contribuições de Henri Wallon [Affectivity and the teaching-learning process: Contributions of Henri Wallon]. *Revista Psicologia da Educação*, *20*, 11–30.

Marshall, J., Greenberg, H., & Machun, P. A. (2012). How would they choose? Online student preferences for advance course information. *Open Learning*, *27*(3), 249–263.

McQuiggan, C. (2012). Faculty development for online teaching as a catalyst for change. *Journal of Asynchronous Learning Networks, 16*(2), 27–61. http://files.eric.ed.gov/fulltext/EJ971044.pdf

Meyer, K. A. (2014). Student engagement in online learning: What works and why. *ASHE Higher Education Report*, *40*(6), 1–114. https://doi.org/10.1002/aehe.20018

Miles, M. B., Huberman, A. M., & Saldanža, J. (2020). *Qualitative data analysis: A methods sourcebook* (4th ed.). Sage.

Newstex (2019, June 11). *Abrition – Automattic Inc.; 7 Advantages in Learning Online*. Newstex. https://www.proquest.com/docview/2237777690?accountid=9838&parentSessionId=G8e0pc7faOptU9AsGOyWcyW%2BF52QAF6a3h1Xcc884X4%3D&pq-origsite=primo

Nicandro, V., Khandelwal, A., & Weitzman, A. (2020). Please, let students turn their videos off in class. *The Stanford Daily*. https://www.stanforddaily.com/2020/06/01/please-let-students-turn-their-videos-off-in-class/

Nogueira, B. M. (2016). *A educação no contexto contemporâneo e o pensamento complexo [Education in the contemporary context and the complex thinking]* [Master's thesis, Pontifícia Universidade Catolica de São Paulo].

Nogueira, B. M., & Leite, S. A. S. (2014). A afetividade no processo de orientação de pesquisa científica [Affectivity in the process of research supervision]. *Revista de Educação da PUC Campinas, 19*, 249–259. http://periodicos.puc-campinas.edu.br/seer/index.php/reveducacao/article/view/2852

Osti, A., & Tassoni, E. C. M. (2021). Afetividade percebida e sentida: representações de alunos do ensino fundamental [Perceived and felt affectivity: representations of elementary school students]. *Cadernos de Pesquisa*, *49*(174), 204–220. https://publicacoes.fcc.org.br/cp/article/view/6575

Perry, E. H., & Pilati, M. L. (2011). Online learning. *New Directions for Teaching and Learning*, *2011*(128), 95–104. https://doi.org/10.1002/tl.472

Reich, J., Buttimer, C. J., Coleman, D., Colwell, R., Faruqi, F., & Larke, L. R. (2020). *What's lost, what's left, what's next: Lessons learned from the lived experiences of teachers during the pandemic*. MIT: Teaching Systems Lab. https://doi.org/10.35542/osf.io/8exp9

Sederevičiūtė-Pačiauskienė, Ž., Valantinaitė, I., & Asakavičiūtė, V. (2022). “Should I turn on my video camera?” The students' perceptions of the use of video cameras in synchronous distant learning. *Electronics*, *11*(5), 813–825.

Shamir-Inbal, T., & Blau, I. (2021). Facilitating emergency remote K-12 teaching in computing-enhanced virtual learning environments during COVID-19 pandemic: Blessing or curse? *Journal of Educational Computing Research*, *59*(7), 1243–1271. https://doi.org/10.1177/0735633121992781

Slagter van Tryon, P. J., & Bishop, M. J. (2012). Evaluating social connectedness online: The design and development of the social perceptions in learning contexts instrument. *Distance Education*, *33*(3), 347–364. https://doi.org/10.1080/01587919.2012.723168

Soligo, A. (2018). Prefacio [Preface]. In Leite, S. A. S. *Afetividade: As marcas do professor inesquecível [Affectivity: The marks of the unforgettable teacher]* (pp. 9–15). Mercado de Letras.

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The Internet and Higher Education*, *7*(1), 59–70.

Tassoni, E. C. M. (2008). *A dinâmica interativa na sala de aula*: *As manifestações afetivas no processo de escolarização [The interactive dynamics in the classroom: Affective manifestations in the schooling process]* [Doctoral dissertation, Universidade Estadual de Campinas].

Veresov, N. (2021). Cultural-historical theory and the dialectics of lower and higher psychological functions. *Integrative Psychological and Behavioral Science*, *55*, 735–749. https://doi.org/10.1007/s12124-021-09647-3

Vygotsky, L.S. (2002). *A formação social da mente [Mind in society: The development of higher psychological processes]*. Martins Fontes.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Vygotsky, L. S. (1986). *Thought and language* (A. Kozulin, Ed., Trans.). Cambridge, MA: MIT Press.

Wallon, H. (1995). *A evolução psicológica da criança [The psychological evolution of the child]*. Edições 70.

Wingo, N. P., Ivankova, N. V., & Moss, J. A. (2017). Faculty perceptions about teaching online: Exploring the literature using the technology acceptance model as an organizing framework, *Online Learning*, *21*(1), 15–35.

Yao, J., Rao, J., Jiang, T., & Xiong, C. (2020). What role should teachers play in online teaching during COVID-19 pandemic? Evidence from China. *Science Insights Education Frontiers, 5*(2), 517–524. https://doi.org/10.15354/sief.20.ar035