THE EFFECT OF VIDEOCONFERENCING ON SOCIAL PRESENCE AND SOCIAL INTERACTION IN SYNCHRONOUS ONLINE EDUCATION

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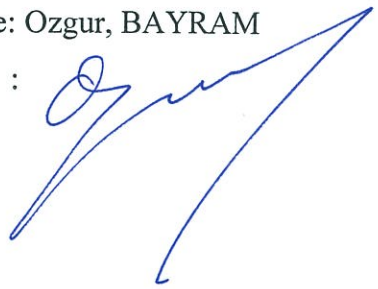

ABSTRACT

THE EFFECT OF VIDEOCONFERENCING ON SOCIAL PRESENCE AND SOCIAL INTERACTION IN SYNCHRONOUS ONLINE EDUCATION

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Student interaction in synchronous online lessons (SOLs) can be a problem for teachers at times. Students may refuse to interact with each other or with the teacher either through audio or text channels. Teachers may be left without a response to their questions or be faced with an impassive and aloof online class. Based on prior research, it was hypothesised that videoconferencing, where the students' webcams are turned on, would increase students' perceived social presence, which would then improve the frequency and quality of their interaction in these sessions. A mixed method study was conducted at the institution where the researcher worked. The sample consisted of advanced level EFL university freshmen students (N = 61). The treatment group conducted the SOLs for 6 weeks with the student webcams turned on while the control group had them turned off for the same duration. Data collection was conducted through a survey, questionnaire and unstructured interviews. Results indicate that videoconferencing does not improve learner interaction; however, the study does reveal some practical suggestions.

Keywords: EFL, Learner Interaction, Social Presence, Synchronous Online Lesson, Webcam

ÖZ

EŞ ZAMANLI ÇEVRİMİÇİ EĞİTİMİNDE VİDEOKONFERANSIN SOSYAL BURADALIĞA VE SOSYAL ETKİLEŞİME ETKİSİ

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Eş zamanlı çevrimiçi derslerinde öğrenciler zaman zaman derslere katılmaktan kaçınabiliyorlar. Bazı öğrenciler, öğretmenleriyle veya diğer öğrencilerle bu tür derslerde etkileşim kurmayı tercih etmiyorlar. Daha önceden yapılmış çalışmalarda, öğrencinin derse katılımının, etkili öğrenim açısından önemli olduğu ifade edilmektedir ve bu yüzden de yaygın bir araştırma konusu olmuştur. Yapılan araştırmalar, öğrencilerin eş zamanlı derslerde birbirlerini görmelerinin onların sosyal buradalığını arttırdığını ve bunun da katılımı olumlu etkilediğini ortaya çıkarmıştır. Bu yüzden, araştırmacı, öğrencilerin web kameraları açılırsa, onların derse daha çok katılacağını düşünmüştür. Araştırmacı çalıştığı kurumda, karma yöntemli araştırma uygulamıştır. Deneyler (N = 61) yabancı dil olarak İngilizce eğitimi alan birinci sınıf hazırlık öğrencileriydi. Bu deney grubu, eş zamanlı çevrimiçi derslerini, 6 hafta boyunca kameralarını açık tutarak işlerken, kontrol grubu, öğrenci kameralarını kapalı tutarak ders işlemiştir. Veriler nicel ve nitel anketlerle ve görüşmelerle gerçekleştirilmiştir. Araştırmanın sonuçlarına göre, kameraların açık olması öğrenci etkileşimi etkilememiştir fakat daha başka önemli bulguları ortaya çıkartmıştır.

Anahtar Kelimeler: Eş Zamanlı Çevrimiçi Dersleri, Öğrenci Etkileşimi, Sosyal Buradalık, Web Kamerası, Yabancı Dil Olarak İngilizce Eğitimi

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EFL	English as a Foreign Language
F2F	Face to Face
MOOC	Massive Open Online Course
SOL	Synchronous Online Lesson

Chapter 1

Introduction

Online education has become extremely popular in recent years and has been seen as an alternative to face to face instruction (Moore & Kearsley, 1996). One of the reasons for its popularity is that it can reduce the problem of distance and time experienced by teachers and learners (Moore & Kearsley, 1996). Recent developments in online education show an increase in the use of synchronous communication tools that are similar to face to face interaction (Pullen, 2004). Widely available web-video conference tools like Adobe Connect offer real-time communication through a combination of audio, video and chat. Synchronous online technology has numerous advantages including live interaction between the participants, immediate response time, reduced travelling time, and creating a somewhat authentic classroom environment (Salmon, 2000).

To develop online learning environments and to improve their effectiveness, it is essential to take learners' engagement into consideration (Oncu & Cakir, 2011). Learner engagement has been taken notice of, as it is known to promote learners' retention and success in areas such as test performance, attaining a diploma, acquisition of knowledge, or skills and prevent boredom, disinterest, absenteeism, and dropout (Appleton, Christenson, Kim & Reschly, 2006; Kinzie & Gonyea, 2008; Kuh, Cruce, Shoup,). Researchers claim that facilitating interaction and online learner participation are crucial for the enhancement of learning (Bower, 2016). Furthermore, the quality and frequency of interactions affects the value of an online learning platform (Pittinsky & Chase, 2000). In other words, fostering a highly interactive online learning platform is necessary for a valuable learning experience.

Social presence is "the ability of participants in a community of inquiry to project themselves socially and emotionally as real people through the medium of communication being used" (Garrison & Anderson, 2003, p. 94). In other words, social presence is a popular construct used to understand how people socially interact in online learning environments (Whiteside, Dikkers, & Swan, 2017). According to

Liu, Magjuka, Bonk and Lee (2007), social presence and student engagement are highly related and so they must go hand in hand. Furthermore, when students feel connected to other students, and there is a sense of psychological closeness instead of isolation, they will be more open to the idea of becoming actively involved in online learning. According to Picciano (2002), students who feel that they are part of a group or "present" in a community will, in fact, wish to participate actively in group and community activities. According to Tu (2002), face to face communication is the most important form of media in the sense of feeling present in the lesson, while video and audio communications ranked second and third, respectively. According to Yamada and Kitamura (2011), online education with videoconferencing enables participants to feel other's presence much more than they do in text-based lessons. De Fornel (1994) shows that webcam-mediated interaction establishes a virtual co-presence. Develotte, Guichon, and Vincent (2010) concluded that "webcamming creates presence at a distance, installs an obvious connection between the participants and, furthermore, develops the quality of the pedagogical relationship" (p. 309). The possibility of seeing all participants in an online lesson has ignited numerous descriptions of pedagogical experiences (Wang, 2004) and instigated discussions on social presence in computer-mediated communication (Yamada & Akahori, 2007).

1.1 Theoretical Framework

The following two theories are the framework for this study. The social constructivist theory builds the basis for "why?" this study aims to deal with the problem of learner interaction, while the social presence theory is the basis for "how?" this study intends to find a solution to the problem.

1.1.1 Social Constructivist Theory. Social constructivist theories, such as those coined by Vygotsky (1978) state that we learn through social interaction, and that we perform better when working with others. We know from second language acquisition research on oral speech that language learning is closely related to the learners' interaction (Long, 1983), the negotiation of meaning, and the mental activities involved in processing input and output in the target language (Krashen, 1981; Swain, 1985). The guidelines that constructivism has for online learning are

similar to those for traditional instruction: Learning should be active, knowledge should be constructed by the learners, they should make effective use of collaboration and cooperation, and the experience should be meaningful to learners (Ally, 2004). As a result, online learning environments should promote the feeling of social presence while creating meaningful interactions. Under these conditions, effective learning could occur. Learners can also learn by observing others' behaviours (Bandura, Ross, & Ross, 1961). In the synchronous online lessons (SOLs), such observational learning may occur when learners read comments expressing ideas posted by others. These become "models" for learning (Bandura et al., 1961).

1.1.2 The Social Presence Theory. The social presence theory was originally defined by Short, Williams, and Christie (1976) as, "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (p. 65). A more modern definition of social presence theory was refined by Gunawardena (1995) to state, "the degree to which a person is perceived as a 'real person' in mediated communication" (p. 151). According to Short et al. (1976), social presence as a construct was primarily composed of two main concepts: *intimacy* (Argyle & Dean, 1965) and *immediacy* (Wiener & Mehrabian, 1968). Argyle and Dean (1965) posited that *intimacy* in a communication medium is influenced by a number of factors, such as: Physical distance, eye contact, smiling, and personal topics of conversation. *Immediacy* was conceptualized by Wiener and Mehrabian (1968), as a measure of psychological distance that a communicator puts between himself and the object of his communication. Early applications of social presence yielded a theory (Short et al. 1976) that situated social presence as a quality of the medium being used. Telecommunication media were considered along a warm–cold spectrum based on their potential to communicate intimacy and immediacy. Warmer or richer media, due to the presence of more verbal and nonverbal cues allowed mediated or remote others to be more "present" (Biocca, Harms, & Burgoon, 2003).

1.2 Statement of the Problem

We learn through social interaction, and we perform better when working with others (Vygotsky, 1978). Learning should be active, knowledge should be constructed by the learners, they should make effective use of collaboration and cooperation, and the experience should be meaningful to learners (Ally, 2004). In addition, learner engagement and collaboration is necessary to improve student satisfaction in online courses (Oncu & Cakir, 2011). Learner interaction has been taken notice of, as it is known to promote learners' retention and success in areas such as test performance, attaining a diploma, acquisition of knowledge, or skills and prevent boredom, disinterest, absenteeism, and dropout (Appleton, Christenson, Kim & Reschly, 2006; Kinzie & Gonyea, 2008; Kuh, Cruce, Shoup,). Researchers claim that facilitating interaction and online learner participation are crucial for the enhancement of learning (Bower, 2016).

As higher education institutions continue to deliver more and more courses through the online platform, such rapid growth raises numerous concerns, such as how are students responding to the move from the classroom to the computer. The shift to distance education would appear to lead to greater student isolation, and therefore decreased interaction with peers. Ensuring participation in tasks and activities are becoming more a concern to teachers and educational institutions since many students are reluctant to interact in online activities (Kuyini, 2011). Paradoxically, alongside opportunities afforded by technology for students to engage, there are just as many students who disengage (Hughes, 2007). "One of the biggest barriers in online learning is the lack of interactions" (Purarjomandlangrudi, Chen & Nguyen, 2016, p. 269).

Lack of interaction has produced dropout rates that are higher in online classes than those in traditional face to face courses (O'Brien, 2002). This may result in decreased interest in the class, which leads to poor learning outcomes (Susan, Donohue & Larry, 2009). Laws, Howell and Lindsay (2003) report that many studies have found that completion rates in distance courses have historically been very low,

with some estimating between 40 – 50 % at best citing lack of interaction as the major cause. While improving online learner interaction presents a major challenge to the educational community, the affordances of online learning environments present many opportunities that can lead to improvements in student interaction.

1.3 Purpose

Given the importance of interaction in online learning, the purpose of this mixed method study is to improve student interaction in the SOLs. Social presence is said to be a crucial factor in improving online interactions (Tu, 2002) and according to Liu et al. (2007), are so closely related to one another that one cannot exist without the other. The key to social presence in education is for students to feel connected to each other and to their instructors (Goldingay & Land, 2014). Educators deploy various strategies to generate feelings of connectedness in online settings. For instance, group work helps students to develop trust, respect, and belonging (Dixson, 2012) because they relate, interact, and are involved with each other. Another strategy is to have students see each other. Seeing the entire class creates a feeling of presence while being distant and creates connection between the participants (Develotte et al., 2010). Therefore, it was hypothesised that videoconferencing in the SOLs, where the webcam is turned on, will improve the quality and frequency of their interaction.

1.4 Research Questions

The present study attempted to answer the following four research questions:

RQ_1. Is there a significant difference in students' perception of *social presence* in the SOLs between the groups where the webcams are turned on and off?

RQ_2. Is there a significant difference in students' level of *interaction* in the SOLs between the groups where the webcams are turned on and off?

RQ_3. Is there a *correlation* between the students' level of interaction and the students' perception of social presence?

RQ_4. How do students *feel* about seeing each other in the SOLs?

1.5 Significance of the Study

Institutions are now delivering a wide range of purely online and blended degrees, short courses, and other accredited activities to a broad range of domestic and global students. Some offer the broadest range of subjects and compete in multiple markets while others seek to differentiate by specialising in their traditional niches. Research that have compared face to face and online courses have shown that both are equally as effective as each other (Maki & Maki, 2007; Robertson, Grant, & Jackson, 2005). Based on this widespread consensus, research is no longer making the outdated comparison but are now exploring ways to improve the online learning environment (Levy, 2008; Young, 2006). Recent developments in computer-assisted learning show an increase in the use of synchronous communication tools in education (Pullen, 2004). Despite the numerous conveniences that it provides for students, it is confronted with a number of challenges: Students may feel that it is not an authentic environment, it is harder to communicate with peers and teachers, and often times technical problems can disrupt the lessons (Saltan, 2017). "Another noticeable challenge is the problem of students not interacting" (Purarjomandlangrudi, Chen & Nguyen, 2016, p. 269). The present study will attempt to improve the synchronous online learning environment by presenting a best practice guide that will attempt to improve student interaction.

A recent meta-analysis by Lin (2015) suggests that SOLs have a positive effect on language learning and provides optimal opportunities for language acquisition. Furthermore, it suggests that online interactions mediated by technology can generate similar or even superior opportunities for foreign language learning to that found in face to face settings. Learner interaction is crucial in these lessons, especially when students are physically isolated from each other. As Bower (2016) and a number of studies have mentioned, learning can be improved if interaction and participation flourish. This study will attempt to improve learner interaction so that language learners do not become passive recipients in the SOLs but engage and interact in them so that they acquire the language more effectively.

Finally, “the crucial decision that distance learning institutions have to make concerning whether to include web-based audio conferencing or videoconferencing tasks in an online language learning program needs to be grounded in empirical evidence” (Guichon & Cohen, 2014, p. 2). There are just a small number of research studies that have investigated the relationship between the use of webcams and its effect on learner interaction in the SOLs. This study aims to contribute to the limited number of research in this area.

1.6 Operational Definitions

1.6.1 Online asynchronous and synchronous instruction. Online instruction can be achieved through asynchronous or synchronous methods or with both. Online *asynchronous* instruction involves delayed interaction that is not simultaneous (Brown, Schroeder, & Eaton, 2016). Interactions can occur via discussion forums where the learners and teachers post messages and upload content. On the other hand, online *synchronous* instruction occurs in real-time and communication is done simultaneously. An accurate definition of synchronous instruction would be the permanent separation of place of the learner and instructor during planned learning events where instruction occurs in *real time* such that learners are able to communicate with other learners and the instructor through text, audio, and/or video-based communication of two-way media that facilitates dialogue and interaction (Martin, Ahlgrim-Delzell & Budhrani, 2017). One of the most popular tools that delivers synchronous instruction is Adobe Connect. This web conferencing tool has multiple collaboration features including video and audio conferencing, a chat box, polling features, and a white board.

1.6.2 Types of interaction. Collaborative web-based applications have created new opportunities for learners to interact with their peers, teachers, and content. Moore (1989), proposed three ways of interaction: Content interaction, interaction among the learners, and interaction with the instructor. He argued that *learner-content* interaction is “the process of intellectually interacting with the content that results in changes in the learner’s understanding, the learner’s

perspective or the cognitive structures of the learner's mind" (Moore, 1989, p. 2). Moore continues by explaining that *learner-instructor* interaction is important to nurture learners' interest to the course and to stimulate their motivation to learn. Furthermore, instructors can have a significant effect on learners' understanding of concepts and they can clarify their misunderstanding. *Learner-learner* interaction is the last type of interaction that happens among learners individually or in a group (Moore, 1989). Moore's interaction model is referenced widely in research on interaction in the context of online education.

1.6.3 Social presence. Educational researchers define social presence slightly differently. Some researchers define social presence in terms of being a 'real' person, whereas others define it in terms of feeling a connection or sense of belonging with others. Richardson and Swan (2003) characterise "social presence" as "the degree to which a person is perceived as "real" in mediated communication" (p. 70). Lowenthal and Snelson (2017) explain that "when researchers define social presence as 'projecting oneself' into a community, they appear to be talking about projecting one's personality or identity into the course" (p. 148). An important point worth mentioning here is that *presence* and *interaction* are *not* the same (Picciano, 2002). Interaction may indicate presence but it is also possible for a student to interact by communicating with his/her online peers while not necessarily feeling that he or she is a part of a group or a class (Picciano, 2002).

Chapter 2

Literature Review

2.1 Online Education

A plethora of research has been conducted on the subject of online education over the past few decades. Much of the early studies on distance education focused on the comparison of the effectiveness between online and face to face instruction, aiming to see whether technology actually works, and a number of these studies have found that online pedagogical approaches can prove as effective as traditional classroom methods (Morrison & Ross, 2014). In fact, studies reveal that blended learning, where both online and face to face exist in a course, is more effective than either single approach (de Freitas, Morgan & Gibson, 2015). In other words, combining online with face-to-face or computer mediated learning delivered the "best of both worlds" (Dziuban, Hartman & Moskal, 2004). A variety of topics have been studied in the area of online education, however, *attitude*s, *performance outcomes* and *curriculum/content development* have been the topics most commonly studied.

MOOC or Massive Open Online Course is a popular area of research. Silvia (2015) conducted a case study investigating English teachers' attitudes towards a MOOC course for professional development. Most of the participants showed positive attitudes towards the online program, appreciating its relevancy to their needs and its content. Another study, conducted by Basarmak and Mahiroglu (2016) investigated the effects of using cartoons for humour on the performance of students in an online course. Their sample was 7th grade science and technology students at a state high school in Turkey. They found that students performed better when they were exposed to humorous cartoons because it facilitated comprehension. Another study, by Kobayashi (2017), investigated students' media preferences in online learning. Their sample was 106 students at an American university. The study found that earlier research was consistent, in that online students did not necessarily favour rich media over lean media, and that they preferred recorded online slide

presentations with audio instead of live video lectures. Furthermore, online discussion boards and chat groups were less favoured than other types of media. These studies are examples of the most common areas of research on online education, namely, *attitude*s, *performance outcomes* and *curriculum/content development*.

2.1.1 Synchronous online education. Studies conducted on synchronous online education reveal three major areas of research. Most of the studies on synchronous online learning over the years have focussed on the area of perception or attitude followed by interaction, while motivation was the least studied area (Martin, Ahlgrim-Delzell, & Budhrani, 2017). Furthermore, in their analysis of the first decade of blended learning research, Halverson, Graham, Spring, Drysdale, and Henrie (2014) found that the topic of interaction was part of a research question or purpose statement in 14% of the highly cited publications. They state that nearly one-third (31%) of these publications have focussed on perceptions, attitudes, preferences, expectations, and learning styles. They argue that perception data are "fairly easy to collect", and that could be the reason for the large number of studies in this area.

2.2 Social Presence in Online Education

Numerous studies have been conducted on social presence in online education. In these studies, the perception of social presence in online educational environments was explored to be effective on the variables such as academic success, satisfaction and performance. Rodriguez (2015) expressed that there is a strong relationship between social presence, academic success and student's satisfaction. Similarly in their study, Zhan and Mei (2013) clarified that social presence affects the students' success. Hostetter and Busch (2013), by aiming to reveal the relationship between learning outputs and social presence in their study, revealed that a significant relationship exists between the mentioned variables. Additionally, Bulu (2012) found that there is a positive relationship between social presence and satisfaction, while the studies by Strong, Irby, Wynn, and McClure (2012), Nyachael

(2011) and Cobb (2011) also revealed that social presence is effective on students' satisfaction level. Kim, Kwon and Cho (2011) stated that there is a strong relationship between social presence, media integration and quality of education in their study. Additionally Tu and Mc Isaac (2002) determined that the level of social presence is closely related with interaction. Also Borup, West and Graham (2012) declared that the videos used are effective on improving social presence perception for learners and instructors.

2.3 Learner Interaction in Online Education

There have been numerous studies on online learner interaction, particularly on the relationship between interaction and learning outcomes. Beaudoin (2002) examined the relationship between student interaction and learning. The study revealed that the high interaction students achieved the highest performance. Another similar study by Sher (2009) investigated the relationship between student to instructor and student to student interaction to student learning and satisfaction. The study found that these interactions are significant contributors to the level of student learning, thus, verifying the assertions from numerous studies that interaction is an important factor in learning outcomes (Krashen, 1981; Long, 1983; Swain, 1985; Vygotsky, 1978). Evans, Baker, and Dee (2016) conducted a large study, where they observed how learner interaction changed under different circumstances. The majority of the MOOCs it analysed were from Stanford University, and it examined data from over 2 million students and more than 2,900 lectures in 44 MOOCs. It found that introductory and overview lectures, and the first lecture of the week had high student viewing. Furthermore, it found that learners showed a high level of interaction at first, but this rapidly declined and in most instances, stabilised at a low level. The greatest decline in participation occurred during the first ten lectures (Fig. 2). This finding is significant for the present study, as the researcher will ask the teachers of the treatment group to observe any similar trend. If the trend appears, then it could be inferred that there may be extraneous variables affecting learner interaction, and that further research could be warranted to understand this phenomenon.

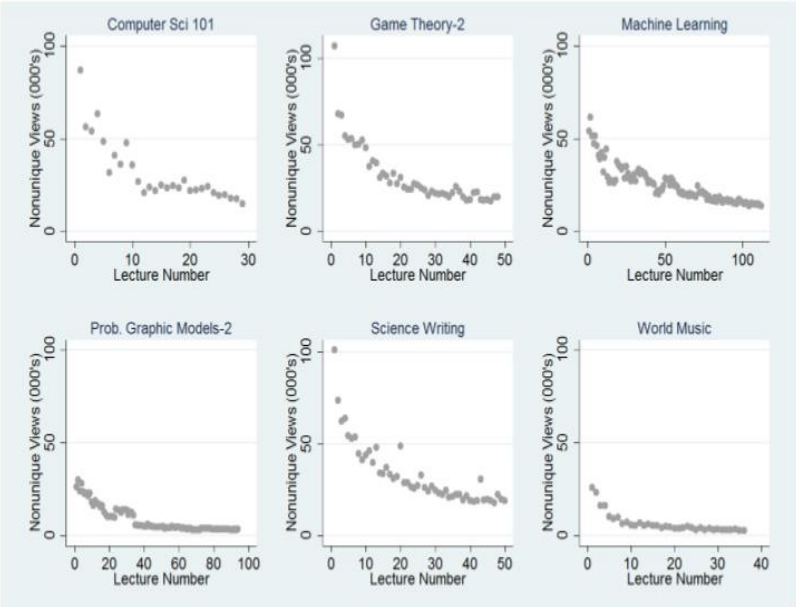


Figure 1 Lecture views across 6 MOOC courses (Evans et al., 2016, p. 224).

2.3.1 Studies on improving learner interaction. There are a number of studies on ways to improve learner interaction in online education. Dixson (2012) attempted to understand the types of activities and/or interaction channels that could lead to higher student interaction. One hundred and eighty-six students from six campuses and 38 courses completed surveys. The sample included students from courses in communication, economics, English, nursing, psychology, sociology, and tourism management. It asked students the following: "1. What assignments, activities, requirements of this course helped/encouraged/required you to really think about and be interested in the content of the course? 2. What assignments, activities, requirements of this course helped/encouraged/required you to interact with the instructor? 3. What assignments, activities, requirements of this course helped/encouraged/required you to interact with other students?" It found that there was no specific activity that would improve student interaction in online lessons, however, it did find something that is relevant to the present study:

> Clearly the path to student engagement, based on this data, is not about the type of activity/assignment but about multiple ways of creating meaningful communication between students and with their instructor – it's all about

> connections. The study yielded some interesting insights into teaching online and the importance of social presence. (Dixson, 2012, p. 8)

When students were given multiple channels to communicate, they became more engaged in the course (Dixson, 2012). Furthermore, the study suggests that it is not enough for instructors to simply provide opportunities for students to interact, but that they must make it a requirement to do so.

Alabbasi (2017) attempted to incorporate gamification into online learning in order to improve student interaction. According to this study, "traditional forms of teaching and learning are ineffective and dull to the new generation of students, and that gamification can be affective" (p. 181). The study included 47 graduate students enrolled in an instructional technology program. TalentLMS was used as the choice of learning management system in order to incorporate gaming elements such as points, badges, and leader boards into the course. At the completion of a 3-week course, students were asked to complete a survey. Results indicated that students generally had a positive perception towards the use of gamification. For example, 43% strongly agreed and 32% agreed with the statement: "I believe that using game elements in online learning increased my desire to do more than what I was required to do in the course." The students believe that they became more competitive, hardworking, and successful when a leader board was incorporated into their learning. According to Alabbasi (2017), "psychologically, the finding reveals that gamified online learning increases the students' sense of belonging to the online community, reduce lonely experiences in online learning, increase the interaction, and connection to other course learners" (p. 189). The studies by Alabbasi (2017) and Dixson (2012), show that student interaction in the online environment can be improved through different means.

2.3.2 Videoconferencing and its effect on social interaction and social presence. There have been numerous studies on the topic of learner interaction in synchronous online education. However, investigations on the pedagogical practices

of videoconferencing are scarce (Kozar, 2016). Of the few that are available, only some have investigated the effects of videoconferencing on learner interaction.

Marcelli, Gaveau and Tokiwa (2005) studied how videoconferencing impacts communication and interactions between learners in a French as a Foreign Language course. The course was implemented both face to face in France and online in Japan. Students underwent a series of communicative tasks, such as role plays, interviews, debates and project presentations. They reported that learners generally feel more engaged and motivated when their webcams are turned on.

Yamada and Akahori (2009) carried out an experimental study to examine students' self-awareness during learning and its effect on their performance in a communicative English language course. Forty university learners, who did not know each other, had to complete explanation tasks in pairs in the following conditions: 1. Videoconferencing with both students' video image; 2. videoconferencing with only one of the student's video image; 3. videoconferencing with only the other student's video image; and 4. videoconferencing without any video images (Fig. 3). The aim of the study was to investigate the contribution of video communication to perceived learning awareness, perceived social presence and to the use of target language. Two main conclusions surfaced from this study: first, that communication was facilitated when participants could see their partner's image and two, learners felt uncomfortable when they *could not* see their partner, because it increased stress. The results indicate that students appreciate seeing each other, and this facilitates communication.

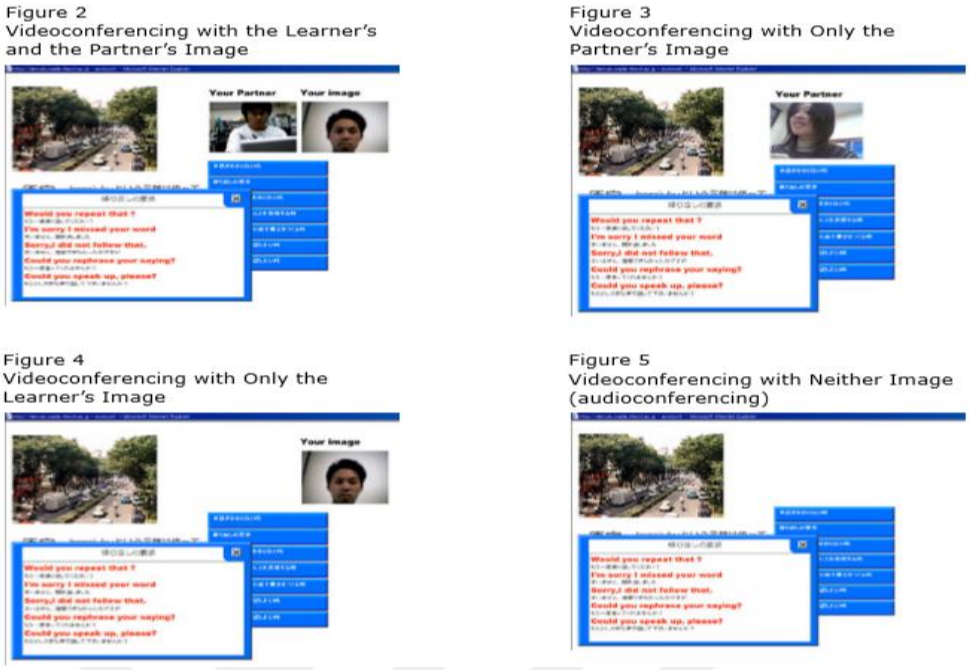


Figure 2 The four conditions (Yamada & Akahori, 2009, p. 7).

In another study, Martin, Parker, and Deale (2012) asked the question, "What strategies and tools can an instructor use to enhance learner-learner, learner-instructor, learner-content, and learner-interface interaction in the virtual classroom?". The study took place at a university in the United States. Surveys were conducted, and participants were interviewed. The synchronous virtual platform Horizon Wimba was used in the research. Based on the results, the study suggests that different mediums such as text, video chat, audio, emoticons and application sharing should be used to increase learner interaction. It suggests that a webcam be used by the instructor if possible; if not, there should be a picture of the instructor, and that learners prefer seeing a video image instead of just hearing the instructor's voice. The study also states that "the web camera provides a visual presence to the instructor and learners" (pp. 248-249).

Guichon and Cohen (2014) tested whether visual cues enhanced online communication, exploring the importance of webcams in an online second language teacher to learner interaction. Forty French undergraduate students, who had a high level of English, were asked to describe four photographs to an English teacher

through Skype. This was one of the first studies that focussed on learner to learner interactions, rather than teacher to learner interactions. The study found that being able to see the image of the interlocutor and oneself during a videoconferencing interaction may be distracting for some learners who will be less focused on the teacher's message, thus hindering understanding to some extent. In an interview with one of the teachers, the teacher remarked that she felt that "the lack of images (in the control group) helped students to focus on the words and their meaning, so maybe this obliged them to concentrate more" (p. 18). This study shows that video communication may distract some students because they may be too absorbed in their self-image, therefore, not being able to focus on the task at hand thus impacting their level of interaction.

Kozar (2016) interviewed 20 online language teachers and 20 students asking them how they felt about the use of webcams in conversational English lessons with Skype. The study found that webcams were used only in the first two weeks of the course and then its use dropped dramatically after the third week. Teachers used webcams mainly for reducing social distance and building rapport. Teachers and students commented that seeing each other early on in the course created a positive relationship. The teachers commented that they use the webcam for several lessons only, and that after a while it has no benefit so they might as well conserve energy and not use it. The study found that the majority of students and teachers in this study only turned on their webcams at the beginning of their lessons for its effect on their relationship, and it found that webcams were viewed as a benefit for this reason rather than having any pedagogical value.

Ko (2016) used 38 high-intermediate level, English learners from different faculties at a university in Taiwan. They were placed into two groups: Those who did text-chat without webcam and text-chat with the use of a webcam. The study attempted to understand the relationship between the learners' perceived notion of social presence and task types. The study was built on the theoretical framework that building online social presence contributes to the quality of the learner interaction and to their perceived learning. Ko (2016) also cites Yamada and Akahori (2009) to

say that videoconferencing leads to more active interactions because learners feel each other's presence. The study was conducted over one academic semester. Students completed two communicative tasks: 1. A jigsaw task where they had to read an article and present it to another student who had not read it and 2. a decision making task which required learners to plan a trip to a foreign city. The study found that learners' image provided by the webcam appeared the most favourable to the learners' social presence development and they favoured it because they could see their partner's facial expressions. The highest social presence was felt by students when the webcam was turned on, while the lowest social presence was felt in the non-webcam condition. Some learners expressed some negative feelings towards webcam use, saying that it made them feel embarrassed, insecure and anxious during communication.

Some of the studies on online language education published recently claim that webcams create discomfort among students (Burger, 2013; Telles, 2010). What is more, according to some studies, the use of webcams may be cognitively demanding on the participants because it creates an environment that may appear complex to navigate and they may become conscious of their webcam image (Develotte et al., 2010).

In summary, the themes *attitudes*, *perceptions* and *interactions* have been studied to a great extent in the context of synchronous online education, while research specifically on strategies to *improve* student interaction and the relationship between webcam use and learner interaction have been studied to a much lesser extent. The studies that have investigated webcam use and learner interaction have mostly focussed on students' attitudes towards the webcam, rather than the impact of webcam use on the frequency and quality of interactions, as in the present study. The studies that have focused on the frequency and quality of interactions have found that strategies such as providing opportunities for multiple communication channels and using gaming elements can lead to improved social presence and student interaction. Furthermore, these studies reveal that there is a positive correlation between learner interaction and learning outcomes, and that for most students, when they can view

each other's image in the online course, this creates a sense of community or social presence which leads to improved interaction. Based on the results of the very limited number of studies, the researcher of the present study hypothesised that turning on the learners' webcams during SOLs may improve learners' perceived online social presence, leading to improved learner interaction.

Chapter 3

Methodology

3.1 Research Design

This was a mixed method sequential explanatory study (Creswell, Plano Clark, Gutmann & Hanson, 2003), which aimed to gain an in depth insight into learner interaction and social presence in the SOLs. The mixed method sequential explanatory design consists of two distinct phases: quantitative followed by qualitative (Creswell et al., 2003). In this design, a researcher first collects and analyses the quantitative data. The qualitative data are collected and analysed second in the sequence and help explain, or elaborate on, the quantitative results obtained in the first phase. The second, qualitative phase builds on the first quantitative phase. The rationale for this approach is that the quantitative data and their subsequent analysis provide a general understanding of the research problem. The qualitative data and their analysis refine and explain those statistical results by exploring participants' views in more depth (Creswell, 2003). In the present study, quantitative data were collected with a survey that measured how social presence and social interaction changed when webcams were turned on and remained off (Appendix A). Qualitative data were collected with a questionnaire, which was given to students, asking them how they felt about seeing each other in the SOLs (Appendix B).

3.2 Setting and Participants

3.2.1 The language program. This study was conducted with English teachers and first year university students at the School of Foreign Languages in a private university in Istanbul, Turkey. The English language program here aims to teach learners a level of general English that will admit them to undertake studies at their faculties. The program has adopted the Common European Framework of Reference for Languages (CEF or CEFR), which was put together by the Council of Europe as a way of standardising the levels of language exams in different regions. It is widely used internationally and exams are mapped to the CEFR. There are six levels: A1, A2, B1, B2, C1 and C2. The C1 level is the advanced level, B2 is the

upper intermediate and B1 is the intermediate level. Only the learners in the 16-week-long C1 level at this institution have English lessons on the Adobe Connect web based conferencing platform every Friday of each week between 8.30 am to 12.10 pm, while lessons from Monday to Thursday are conducted face to face in class at the institution (Table 1). Therefore, the C1 level students have their learning experience supplemented with synchronous online lessons on Fridays, making theirs a blended learning experience.

Table 1
The weekly C1 schedule

Mo (F2F)	08:30	09:35	10:30	11:25	12:20
Tu (F2F)	13:10	14:05	15:10	16:05	17:00
We (F2F)	08:30	09:35	10:30	11:25	12:20
Th (F2F)	13:10	14:05	15:10	16:05	17:00
Fr (Online)	08:30	09:35	10:30	11:25	

Note. Each lesson is 45 minutes. The times indicate the starting time of each lesson.

3.2.2 The teachers in this study. There were four C1 level English teachers in this study, including the researcher. There were three female and one male teacher, who were all above the age of 30. Three of the teachers were Turkish while the researcher was a bilingual Turkish Australian, who spoke fluent Turkish and English. The teachers were all highly experienced and exceptionally qualified with many years of teaching experience in both this institution and in various others across Turkey. All four teachers had taught at this institution for more than 11 years. Furthermore, all of the teachers had relevant qualifications related to teaching a second language, and two of them had attained a postgraduate degree in educational sciences. They were all enthusiastic about contributing to the study.

3.2.3 The learners in this study. A purposive sample of 61 students was used in this study from four C1 level classrooms. These were students who were mostly non interactive in the SOLs, according to their teachers and verified by a pretest survey. They were first year university freshmen students aged between 17

and 20 and would study in various faculties at this institution after they completed the English program. There were 37 female and 24 male students in this sample, of which, 5 were international students from North Africa, Russia and the Middle East and the others were Turkish. The students had been studying in the C1 level for 10 weeks when this study commenced. It was the middle of the academic year, so they had been studying for four months in the B1 and B2 levels prior to the C1 level.

3.2.4 The synchronous online lessons. Also referred to as a web conferencing tool, Adobe Connect (Fig. 3), allows learners to interact through text, audio or video with all the participants. It enables simultaneous communication through audio, text chat, shared white board, desktop video, and computer desktop or application sharing. It is one of the most widely used conferencing tools globally and in both the faculty lessons and in the C1 level language lessons at the university where this study took place. In the single 45-minute C1 level SOL, at the institution where this study took place, learners typically undertake a grammar, reading, vocabulary or listening activity and then review the answers together with the teacher. These lessons are generally conducted in a highly teacher centred manner, focussing on completing the activities and reviewing students' answers. These lessons are aimed at providing feedback to the student regarding their mistakes and to ensure that students frequently ask questions about the components of the activities they do not comprehend. These lessons are not intended to conduct student centred collaborative or communicate tasks, which are more common in the face to face classes throughout the week. In the SOLs, the teacher's webcam is turned on, so that learners can see him/her, while the learners' webcam *may be* turned on by the teacher, depending on how much the connection speed is affected. Usually teachers choose not to have any of the student's webcams turned on, because it slows down the connection speed, however, some teachers may have only 2 or 3 of the student's webcams turned on at one time often to check that they are present in the lesson. The entire class attends these sessions, which consist typically of 18 to 24 students, who connect mostly from their homes.

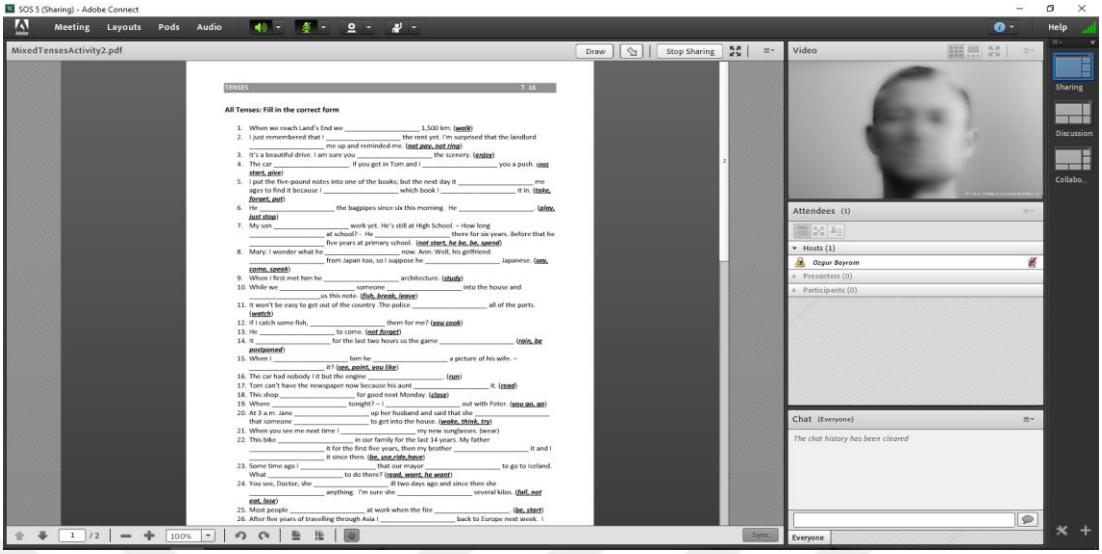


Figure 3 SOLs with Adobe Connect where the teacher's webcam is turned on and the students' webcams are turned off.

3.3 Procedures

3.3.1 Data collection instruments.

3.3.1.1 The survey. The survey aimed to measure the frequency and quality of learner interaction and students' perception of social presence (Appendix A). It consisted of two parts: Social Presence Scale followed by Social Interaction Scale.

The Social Presence Scale has been used by numerous researchers to measure online social presence (Cobb, 2009; Picciano, 2002; So & Brush, 2008; Swan & Shih, 2005). The Social Presence Scale derives from the GlobalEd Questionnaire, which was developed by Gunawardena and Zittle (1997). Gunawardena and Zittle (1997) developed the GlobalEd Questionnaire to study how effective the measurement of social presence can be to predict student satisfaction of online education. The present study has adopted the scale from Spears (2012). The Social Presence Scale measured students' perception of social presence in the SOLs. The survey items were comprised of statements that asked students about how strongly they felt that various elements of social presence existed in the course. Statements related to whether students felt each other's presence, there was a feeling of community and whether the social fabric made them feel comfortable in which to

interact. It consisted of nine, 5-point Likert-type items with response options ranging from strongly disagree (1) to strongly agree (5). Items included statements like, “the instructor created a feeling of community”, “I was able to form distinct impressions of some students in the courses”, “I felt that my point of view was acknowledged by other students”, “I felt comfortable conversing in the course” and “communication in the course was impersonal”.

The Social Interaction Scale was adopted from Spears (2012). In the present study, the instrument was used to measure students’ level of interaction in the SOLs. The survey items were comprised of statements that asked students about how strongly they felt that various elements of social interaction existed in the course. The statements related to both the quality and frequency of the interactions in the course, and it included statements relating to student to student and student to teacher interactions. The survey consisted of six, 5-point Likert-type items with response options ranging from strongly disagree (1) to strongly agree (5). Items included statements like, “the quality of interaction with other students in the courses was appropriate”, “the amount of interaction with other students in the courses was appropriate”, “the amount of interaction with instructors in the courses was appropriate” and “the quality of interaction with instructors in the courses was appropriate”.

3.3.1.2 The questionnaire. This written-response questionnaire was prepared by the researcher (Appendix B) and it was peer checked by the two teachers in this study and by a faculty member at the university to ensure that the questions would effectively get the intended data. The instrument aimed to receive data regarding how students in the treatment group felt about seeing everyone’s video image for 6 weeks in the SOLs. The questions were designed to elicit a rich description from students regarding how they felt in order to answer the fourth research question in the most accurate way. The rationale behind the questions can be found in section 4.4 Findings on student perception of the use of webcams. There were 7 questions in total, which consisted of 4 checklists, which included questions asking them which type of communication channel they used in these sessions (microphone or typing), which

adjective describes how they feel about seeing each other and whether they would prefer to have the webcams turned on or off. One of the questions in the questionnaire was an attitude scale, which asked students to mark on a scale where they felt their level of satisfaction was for their experience during the treatment phase. In addition, there were two short-answer questions, which gave students the opportunity to write freely about how they felt about having the student cameras turned on. Students were given the opportunity to write in Turkish, as it was believed that some students would be able to articulate their ideas better in their native tongue.

3.3.2 Data collection procedures.

3.3.2.1 The survey. All the students were given this survey *before* the treatment and *after* the treatment. The survey was given by the researcher at a convenient time and in the classrooms with the permission of the teachers. The students were told that the survey given to them was part of a study to improve the online lessons conducted on Fridays, that their answers were very valuable, and that their identities would be revealed to only their teacher and the researcher and be otherwise kept strictly confidential and it would be used strictly for this research.

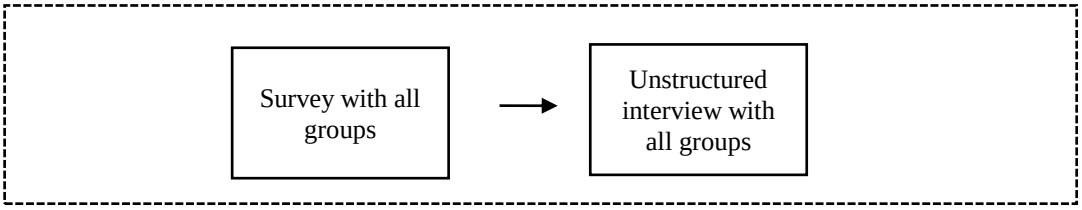
The survey was conducted *before* the treatment phase to ensure that the problem of student non interaction in the SOLs were prevalent in these classes, and that the purposive sample for this research was correctly identified. Students were shown a screen shot on the overhead projector of a SOL, which displayed a lesson with *only* the teacher's image (Fig. 3). The purpose of this was to remind them of the session, so that they could better reflect on their experiences when completing the survey. The researcher explained the purpose of both parts of the survey (Social Presence Scale and Social Interaction Scale) and the questions were answered in lockstep fashion, while the researcher translated each question to Turkish and paraphrased for the international students. The survey was completed in 15 minutes. The researcher then conducted a 5-minute unstructured interview with the classes for the purpose of triangulation. Two questions were posed to the students: 1. Did you feel that the classroom and your peers were present during the online lessons? 2. Do

you think the level of interaction was adequate and effective? Their responses were noted down by the researcher. Their interview responses were compared with their survey responses.

When conducting the survey *after* the treatment period with students in all four groups, students were shown a screen shot on the overhead projector of a SOL which displayed a lesson with *everyone's* image (Fig. 5). Again, the same lockstep method was used to answer each question with translation and paraphrasing for international students. In addition, an on-the-spot, unstructured interview was conducted with all the teachers, where they were asked how they felt about the level of their students' interaction for the past 6 weeks in the SOLs.

3.3.2.2 The questionnaire. The questionnaire was given *only* to the students who were in the treatment group after the 6-week treatment. It was given at a convenient time in their classrooms and with the permission of their teachers. The students were told that the questionnaire given to them was part of a study to improve the online lessons conducted on Fridays, and that their identities would be revealed to only their teacher and the researcher and be otherwise kept strictly confidential and it would be used strictly for this research. Students were shown a screen shot of a SOL on the overhead projector, displaying a lesson with everyone's webcams turned on (Fig. 5). The questionnaire was completed in 15 minutes. Immediately after this, an unstructured interview was conducted with these students for the purpose of triangulation and to verify their responses in the questionnaires. The researcher asked how they felt about seeing each other in the SOLs. Their responses were transcribed by the researcher. They were then asked to raise their hands to whether they would want the cameras turned on or off. The frequencies were noted down.

Pretreatment data collection procedure



Posttreatment data collection procedure

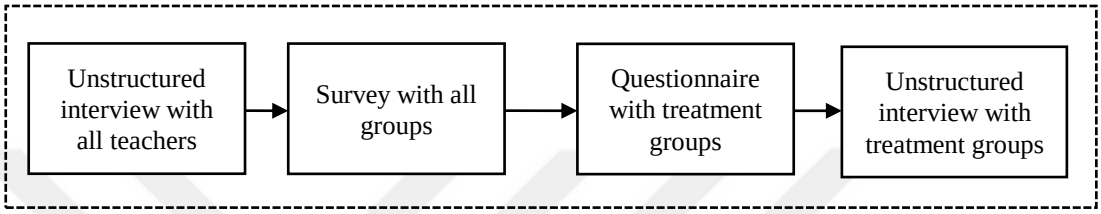


Figure 4 The data collection procedure.

3.3.3 Implementation procedures.

3.3.3.1 Treatment group procedures. The researcher and one of the other 3 teachers turned on all the learners' webcams in the SOLs during the 6-week treatment stage (Fig. 5). If the connection speed slowed down to the extent that it disrupted the lesson, they turned off as many webcams as was seen fit to conduct a smooth lesson. Turning on approximately 12 webcams was seen as an operable figure. The two teachers occasionally switched the cameras between students if they were not all turned on, so that all the students were seen at least once in the lesson. The teachers taught these lessons in the same fashion as they had conducted from the beginning of the semester with the same type of content and discourse towards students. The two treatment group teachers took note of how the students' level of interaction changed over time.

Figure 5 SOLs where the webcams are turned on.

3.3.3.2 Control group procedures. Two of the four classes were the control groups, which continued their lessons for 6 weeks with all student webcams turned off, as it had been the usual practice before this research. The teachers were asked to continue these lessons in the same fashion as they had conducted from the beginning of the semester with the same type of content and approach (Fig. 3).

3.3.4 Data analysis procedures. The SPSS statistical analysis software was used to generate descriptive, inferential and correlational statistics to describe the data received from the survey. The data showed normal distribution, the outliers were removed and the results of the Levene's test showed that the variances were homogenous. Since all the assumptions were met, the One-Way Analysis of Variance (ANOVA) was the method used to determine any statistically significant difference between the control groups and treatment groups. Two variables were used as input for ANOVA: the group variable which had two conditions (webcam on and webcam off) and the variable for the survey results. A paired sample t test was also conducted to compare the pretreatment and posttreatment survey results. A *p* value of .05 was required to determine significance. SPSS was also used to describe the correlation between the social presence and the social interaction data. The deductive approach was used to analyse the information received from the questionnaire, since the structure of the questionnaire was predetermined by the researcher. All of the

responses were read by the researcher and were organised either according to the frequency and percentage they appeared or according to negative, positive and neutral attitudes. The information received from questions 1, 2, 3, 4 and 5 were organised according to the frequency and percentage in which they appeared. For the two written-response questions 5 and 7, in vivo coding was used to organise the responses into three categories related to how they felt: Negative, positive and neutral. Key words which expressed how the student felt were identified and were placed under these three attitude categories. The frequency of each attitude that appeared in the responses was noted, and the students' responses were interpreted to understand how they perceived the treatment.

3.3.5 Reliability and validity.

3.3.5.1 The social presence scale. Gundawardena and Zittle (1997) established a reliability of .88, using Cronbach's alpha. Cronbach's alpha was also calculated on data obtained from the respondents, which was .76. Validity was not determined for the scale. Spears (2012) referred to three Iowa State University professors from the department of Agricultural Education and Studies and one Iowa State University professor from the department of Statistics to develop construct validity for this instrument. All four professors agreed the scale was a valid measure of students' perceptions of social presence. Spears (2012) modified this scale by changing the language so that it is more appropriate for use in the College of Agriculture and Life Sciences online courses. The present study has adopted the scale from Spears (2012).

3.3.5.2 The social interaction scale. Cronbach's alpha was calculated on data obtained from the respondents in the study, which was .84. Again, for construct validity, Spears (2012) referred to three Iowa State University professors from the department of Agricultural Education and Studies and one Iowa State University professor from the department of Statistics to develop construct validity for this instrument. All four professors agreed that the scale was a valid measure of how students perceived the interactions in their online course. Again, Spears (2012)

modified this scale by changing the language so that it was more appropriate for use in the College of Agriculture and Life Sciences online courses. The present study has adopted this scale from Spears (2012).

3.3.5.3 The questionnaire. The questionnaire was prepared by the researcher, and it was peer checked by the two teachers in this study and by a faculty member at the university to ensure that the questions would effectively answer the fourth research question. Some changes were made to the wording of some of the questions because 1. it was thought that it would confuse the students and 2. it would not elicit the intended information effectively because the language was either vague or the question was irrelevant. In addition, the questionnaire was piloted with two students in the sample before it was implemented, to ensure that the students comprehended the questions and to ensure that any vague question was identified and corrected. After the completion of the questionnaire, any response which was either illegible or vague was referred back to the student for clarification. The student responses were verified with an unstructured interview conducted with students to elicit comments regarding how they felt about seeing each other in the SOLs. They were also asked to raise their hands to whether they would want the cameras turned on or off. The frequencies were noted down. These responses were checked with the responses in the questionnaire.

3.4 Limitations

One of the limitations in this study was not having more time to conduct the treatment, more than 6 weeks, or 24 contact hours, which may have yielded different outcomes because the initial stage of the treatment involves students adapting to the changes. Another limitation was that approximately half of the students' webcams were turned on at one time (12 webcams), because any more would have disrupted the connection speed. Having more cameras turned on may have had a different effect on perceived social presence and social interaction. Finally, since the sample in this study had face to face lessons during the rest of the week, this may have affected online social interaction in the SOLs.

Chapter 4

Findings

The purpose of this mixed method study was to determine whether turning on the student webcams would have a statistically significant effect on students' social presence and social interaction. The qualitative analysis component of the study aimed to examine students' feelings towards the use of the webcam. The findings are organized according to the research questions.

4.1 Findings on Social Presence

The following findings refer to the first research question, which asked whether there was a significant difference in students' perception of *social presence* in the SOLs between the groups where the webcams were turned on and off. Students were asked to respond to nine Likert-type questions. The maximum response rate was achieved (100%). The data was received from the students with the Social Presence Scale. SPSS was used to generate Table 2, Table 3, Table 4 and Table 5, which list the descriptive and inferential statistics.

Comparing the treatment group with the control group

The data from the two control groups and two treatment groups were combined to form a single control group and treatment group for ANOVA.

Table 2

Descriptive statistics for social presence (posttreatment)

	N	Min	Max	Mean	Std. Error	Std. Deviation
Control	28	20	39	32,39	,833	4,408
Treatment	33	24	44	33,36	,935	5,372

Note. The maximum possible total score is 45.

Table 3

ANOVA for social presence by webcam on or off (posttreatment)

Source	*SS*	*Df*	*MS*	*F*	*P*
Between Groups	14,275	1	14,275	,582	,449
Within Groups	1448,31	59	24,548		
Total	1462,590	60			

Table 2 indicates a high mean value for the control group ($\bar{x}_{control}$ = 32.4), which is 71% of the total possible mean value, while for the treatment group it is also high ($\bar{x}_{treatment}$ = 33.4). The *standard deviation*s for both groups are high ($SD_{control}$ = 4.4, $SD_{treatment}$ = 5.4). Table 3 indicates no statistical significance between the treatment group and the control group (p = .45). The effect size for practical significance was calculated to be small (Cohen's d = 0.2).

Comparing the pretreatment with the posttreatment results

SPSS was used to generate the descriptive statistics for the pretreatment and posttreatment data received from the Social Presence Scale. After that, a paired sample t test was conducted to compare the two groups to determine any statistically significant difference between their means.

Table 4

Descriptive statistics for social presence

	N	Min	Max	Mean	Std. Error	Std. Deviation
Treatment	33	24	44	33,36	,935	5,372
Control	33	25	42	33,15	,898	5,161

Note. The maximum possible total score is 45.

Table 5

Paired sample t test for social presence

	Mean	Std. Deviation	Std. Error of Mean	95% Confidence Interval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1								
Treatment – Control	.212	1.293	.225	-.246	.671	.942	32	.353

Table 4 indicates a high mean value for both the pretreatment and posttreatmment groups ($\bar{x}_{pretreatment}$ = 33.15, $\bar{x}_{posttreatment}$ = 33.36). The *standard deviation*s for both groups are high ($SD_{pretreatment}$ = 5.2, $SD_{posttreatment}$ = 5.4). Table 5 indicates no statistical significance between the two groups (p = .35).

4.2 Findings on Social Interaction

The following findings refer to the second research question, which asked whether there was a significant difference in students' level of *interaction* in the SOLs between the groups where the webcams were turned on and off. Students were asked to respond to six Likert-type questions. The data was received from the students with the Social Interaction Scale. SPSS was used to generate Table 6, Table 7, Table 8 and Table 9, which list the descriptive and inferential statistics for the groups.

Comparing the treatment group with the control group

The data from the two control groups and two treatment groups were combined to form a single control group and treatment group for ANOVA.

Table 6

Descriptive statistics for social interaction (posttreatment)

	N	Min	Max	Mean	Std. Error	Std. Deviation
Control	28	10	22	15,54	,618	3,271
Treatment	33	10	22	15,79	,525	3,018

Note. The maximum possible total score is 30.

Table 7

ANOVA for social interaction by webcam on or off (posttreatment)

Source	*SS*	*Df*	*MS*	*F*	*P*
Between Groups	,963	1	,963	,098	,755
Within Groups	580,479	59	9,839		
Total	581,443	60			

Table 6 indicates that the social interaction mean for the control group and treatment group is similar ($\bar{x}_{control}$ = 15.5, $\bar{x}_{treatment}$ = 15.8) and that the standard deviation for both groups are the same (*SD* = 3). ANOVA for social interaction in Table 7 shows no statistical significance between the treatment group and control group (p = .76) and the effect size for any practical significance is negligible (Cohen's d = 0.1).

Comparing the pretreatment with the posttreatment results

SPSS was used to generate the descriptive statistics for the pretreatment and posttreatment data received from the Social Interaction Scale. After that, a paired sample t test was conducted to compare the two groups to determine any statistically significant difference between their means.

Table 8

Descriptive statistics for social interaction

	N	Min	Max	Mean	Std. Error	Std. Deviation
Treatment	33	10	22	15,79	,525	3,018
Control	33	11	22	16,03	,519	2,984

Table 9

Paired sample t test for social interaction

				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error of Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1								
Treatment – Control	-.242	1.347	.234	-.720	.235	-1.034	32	.309

Table 8 indicates that the social interaction mean for the pretreatment and posttreatment group is similar ($\bar{x}_{pretreatment}$ = 16.0, $\bar{x}_{posttreatment}$ = 15.8) and that the standard deviation for both groups are the same (*SD* = 3). Table 9 shows no statistical significance between the two groups (p = .31).

4.3 Correlation Between Social Presence and Social Interaction

The following findings refer to the third research question, which asked whether there was a correlation between the students' level of interaction and the students' perception of social presence. Pearson correlation was calculated on SPSS to determine the relationship between social presence and social interaction. The scatterplot diagram in Figure 6 and Table 10 indicates the relationship between social presence and social interaction for all participants (N = 61).

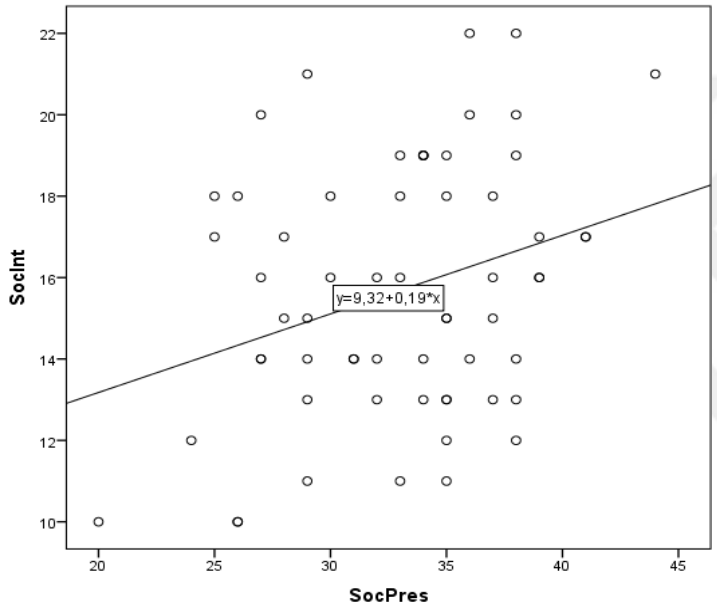


Figure 6 Scatterplot showing the relationship between social presence and social interaction.

Table 10

Statistical correlation between social presence and social interaction

		SocPres	SocInt
SocPres	Pearson Correlation	1	,306*
	Sig. (2-tailed)		,016
	N	61	61
SocInt	Pearson Correlation	,306*	1
	Sig. (2-tailed)	,016	
	N	61	61

*. Correlation is significant at the 0.05 level (2-tailed).

A scatterplot summarises the results (Figure 6). It shows a positive line of best fit, therefore indicating a positive relationship between social presence and social interaction. However, an eyeball test reveals that a lot of the data are plotted away from the line of best fit, indicating a weak relationship between social presence and social interaction. The scatterplot can be verified with the SPSS output in Table 10, which indicates that there is a positive correlation between the two variables, as the Pearson correlation coefficient is $r(59) = .31$, which is an indication of a weak correlation, however, it is a statistically significant correlation ($p = .016$).

4.4 Findings on Student Perception of the Use of Webcams

4.4.1 The questionnaire.

The maximum response rate was achieved for the questionnaire, which was given to the treatment group ($n = 30$). Table 11 indicates the frequency and percentage of students who knew how to communicate on Adobe Connect. The purpose of asking this question was to check the researcher's assumption that the sample knew how to use Adobe Connect, since they were thoroughly trained in the beginning of the course.

Table 11

Question 1: Did you know how to use the functions on Adobe Connect to help you communicate with your peers and teachers in the online lessons?

Response	Frequency	Percent
Yes	24	80%
No	1	3%
Somewhat	5	17%
Total	30	100%

Only one student stated that they did not know how to use the functions to communicate in the SOLs. The majority of students (80%) knew how to communicate online. Therefore, the assumption was met.

Table 12 lists the responses for Question 2, which was a checklist question. The purpose of this question was to see whether there was any anomaly towards the use of a particular communication medium (i.e. a medium such as typing is rarely used). If this occurred, then further investigation as to the cause could be warranted to understand if there are other reasons for the low student interaction.

Table 12

Question 2: Tick the communication medium you mostly use to communicate in the online Adobe Connect lessons

Medium	Frequency	Percent
Typing	14	47%
Microphone	8	27%
Both	6	20%
Neither	2	6%
Total	30	100%

Table 12 indicates that most students preferred to interact by typing and only two students did not use any communication channel. One of these students may have been the single student in Table 11, who did not know how to use the functions to communicate. The data indicates that there is no anomaly and that all communication channels were used.

Table 13 lists the responses to Question 3. Students gave 10 positive and 15 negative responses. Adjectives were provided by the researcher in this question to help students think better about how they felt, which could later be transferred to the written-response sections. Adjectives such as “shy”, “distracted” and “uncomfortable” were selected based on the findings of previous research (Guichon & Cohen, 2014; Ko, 2016).

Table 13

Question 3: Tick one or more adjectives below that show how you feel about the online Adobe Connect lessons when everyone's camera is turned ON and you can see the other students

Good	Shy	Confident	Distracted	Happy	Uncomfortable	Other
4	2	5	2	1	11	2
Total	27(90%)					

Note. The values represent the frequencies.

This was the first time it was revealed that a significant number of students were uncomfortable with their experience during the treatment phase (Table 13). The responses from three students were excluded because two indicated "*happy*" and "*uncomfortable*", which contradict each other, and one student indicated "other" without specifying any adjective. Two students who indicated "other" stated that they felt "*sleepy*" and the other wrote "*nothing, it doesn't matter*". These responses could be interpreted as being neither positive nor negative.

Question 4 asked "Can you show, on the line below, how you feel when everyone's camera is turned ON and you can see the other students". Figure 7 indicates the percentage of responses for each area on the line that expresses how satisfied the students feel about their experience during the treatment phase. The purpose of this question was to discern the degree of how they felt, and so it was a clarification of the responses provided in Question 3. Furthermore, this question aimed to verify the accuracy of these responses.

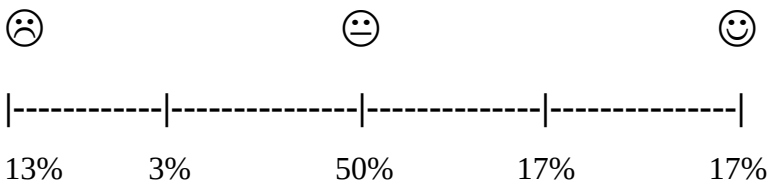


Figure 7 Question 4

Figure 7 indicates that the majority of students (50%) felt in the middle, which is a feeling of indifference, while a significant number of students (34%) felt positively about seeing each other in the SOLs. Sixteen percent of the responses were leaning towards the negative spectrum. This data suggests that a lot of the negative responses and some of the positive responses in Question 3 may be closer to the indifferent range.

Question 5 in the questionnaire asked "Can you explain how you feel when everyone's camera is turned ON and you can see the other students". This was a written response question, which aimed to allow the respondents to freely express themselves by being guided by their responses in Questions 3 and 4. The responses were divided into four themes: Feeling uncomfortable, a feeling of being present in the actual classroom, being more productive and feeling indifference.

Feeling uncomfortable

Fifty percent of the responses were negative towards turning on the cameras. The common anguish expressed by these students was that they felt uncomfortable because they were being observed, and that the lessons were early in the morning (9am to 12.30pm), so they wanted to feel comfortable at home without worrying about how they appeared. One student stated, "*uncomfortable, I feel like being watched*" while another student stated, "*can't focus on the teacher, it is distracting and uncomfortable*". There was another student who wrote, "*I want to feel comfortable and be in any clothes I want*" while a slightly different viewpoint from another student was, "*turning on cameras is pointless, because it makes you feel uncomfortable, the point of an online lesson is to feel comfortable*". Another student stated that they did not like the way they looked in the morning.

A feeling of being present in the actual classroom

Thirty percent of the responses were positive. Two major themes arose from their responses. About half of the respondents stated that when cameras were turned on, it made them feel like they were in the classroom. An example statement was "*I*

feel like I'm in a classroom atmosphere". The researcher interpreted this response as being positive because their responses to the other questions were also positive, so they felt good that it made them feel like they were in the actual face to face classroom.

Being more productive

The other major theme was that students felt that having cameras turned on made them more productive. Most of these students wrote that "*lessons will be more productive*" or "*helps development*". One student wrote, "*when cameras are turned on, everyone feels that they have to do the activities. The difference between how many activities are done while the cameras are turned on versus when they are turned off should be clear*". This final view point does not express a direct feeling, but it can be inferred that these students value having cameras turned on because it makes them more productive.

Feeling indifference

Twenty percent of the responses were indifferent. They simply responded with a "*doesn't bother me*", "*I don't feel anything*" or "*I feel nothing*".

Question 6 asked "Would you prefer to have everyone's cameras turned on or off in these online lessons". The purpose of this question was to ask students to make a decision based on their feelings. Students simply had to tick either 'on' or 'off'. Thirty percent responded 'on', while seventy percent responded 'off'.

Question 7 asked "How do you feel when everyone's camera is turned OFF and you can't see the other students, but you can only see the teacher". An overwhelming majority of students stated that they would rather have their teacher's camera turned on, and students' turned off. This was the response even by those students who gave a positive response to Question 5. Most of the students shared the opinion that turning on everyone's camera made them self-conscious (clothes, make up etc.) and uncomfortable/shy, and having only the teacher's camera turned on

helped them focus on the lesson. Some of the students stated that they would prefer to only listen to their classmates without seeing them.

4.4.2 The unstructured interviews. In the unstructured interview with the treatment group, all the students unanimously stated that they would not want to have their cameras turned on. Unfortunately, they did not comment any further on how they felt about seeing each other in the SOLs. This may be because they were shy about expressing their feelings in class or because they did not want to be put on the spot and have everyone listen to them.

Chapter 5

Conclusions and Discussion

5.1 Conclusions

Studies have mostly found that for most students, when they can view each other's image in the online course, this creates a sense of community or social presence, thus, improving learner interaction. Based on these studies, the researcher hypothesised that turning on all the learners' webcams during the SOLs may improve their perceived online social presence, leading to improved learner interaction. Based on the findings, the researcher failed to reject the null hypothesis. Interaction did not improve and students preferred to have their webcams turned off. In addition, they strongly appreciated seeing their teacher's video image for pedagogical reasons. The following section discusses these findings in further detail for each of the research questions.

5.2 Discussion of Findings for the Research Questions

RQ_1. Is there a significant difference in students' perception of *social presence* in the SOLs between the groups where the webcams are turned on and off? The findings indicate that students' perceived social presence did not change in a statistically significant way when the students' cameras were turned on. The mean social presence was high for all groups ($\bar{x}$ = 32.9). This may suggest that if students' perceived online social presence is already high, then seeing each other may not improve social presence any further. If the students had not known each other, having them see each other through their webcam could have significantly improved social presence as was the case in the study by Kozar (2016), where the teachers turned on their webcams at the beginning of their lessons for its effect on relationship building. In another study by Ko (2016), learners' image provided by the webcam appeared the most favourable to the learners' social presence development. Unlike in the present study, in Ko (2016), the students had not known each other prior to the

commencement of the research, so they had not built social presence, which was achieved with the use of the webcam.

Based on the findings of Ko (2016), which stated that high social presence would be best achieved when students could see each other, the researcher had not expected that the control group, where the cameras were turned off, would yield a high mean social presence ($\bar{x}$ = 32.4). Social presence was high perhaps because the students had gotten to know each other and their teacher in the face to face classes which were held during the week, and having participated in an already lengthy 10 weeks of the SOLs prior to the research may have helped them establish a sense of online community in their mind with the aid of audio and text communication. These findings may suggest that there could be alternative ways to effectively increase social presence as is suggested by some studies (Alabbasi, 2017; Dixson, 2012). Future research can examine the different strategies, and identify those which most effectively increase social presence.

RQ_2. Is there a significant difference in students' level of *interaction* in the SOLs between the groups where the webcams are turned on and off? The findings indicate that social interaction did not change in a statistically significant way after turning on the student cameras, therefore, the researcher failed to reject the null hypothesis. This was confirmed by the researcher's observation of his class and the unstructured interview with the other treatment group teacher, who stated that nothing had changed. The researcher observed in his treatment group that when he asked his students to participate or when he tried to elicit answers to specific questions in the activities, most students simply stared at the webcam while some avoided eye contact with it all together. The few interactions were made by the same students and they were generally brief utterances or shortly written statements about the question number they did not understand or a short statement indicating whether the teacher's explanation was clearly understood. The teacher made numerous attempts to encourage interaction. Statements were made such as "can anyone explain why this is the case?", "can someone explain to "student X" why this is the answer?" or "you must have questions" (based on the mistakes the students had made

in the activities). Despite seeing that students had made mistakes in the activities, most of them refused to ask questions. Furthermore, it was observed that this disengagement was consistent throughout the 6-week treatment period, and there was no initial increase in interaction, which would then decrease rapidly, as was the case in the study by Evans et al. (2016). There have been few studies that have investigated the effects of webcam on learner interaction. Marcelli et al. (2005) found that learners generally feel more engaged and motivated when they use webcams. Yamada and Akahori (2009) found that communication was facilitated when students could see each other's image. These studies have different results to the present research perhaps because the students tackled different tasks, where they were *required* to participate, and the webcam may be appreciated in such tasks because it helps students see who they are interacting with. On the other hand, the present study examined teacher centred lessons, where student participation was voluntary. Therefore, it could be inferred that in a teacher-led SOL, if the student is given the option of not interacting, and the student does not want to do so, then he/she cannot be persuaded to do so by turning on the student cameras. Perhaps as Dixson (2012) stated, it is not enough for instructors to simply provide opportunities for students to interact, but that they must be required to do so.

RQ_3. Is there a *correlation* between the students' level of interaction and the students' perception of social presence? There was a positive and statistically significant correlation between social presence and social interaction; however, this may not suggest that it is a causal relationship. Nevertheless, if we were to give heed to the previous literature which state that social presence improves interaction (Alabbasi, 2017; Dixson, 2012; Marcelli et al., 2005) then there may be a causal relationship in the present findings. If this is the assumption, then such high social presence as expressed by the students in this study should have yielded a higher level of interaction, one may expect. This suggests that social interaction may need more input to boost its strength. When referring to Alabbasi (2017), the study states that it is not enough for instructors to simply provide opportunities for students to interact, but that they must make it a requirement to do so. When referring to Dixson (2012),

the research utilised gaming elements to motivate students in order to improve interaction. Finally, when referring to Marcelli et al. (2005), the tasks they gave their students were specific tasks i.e. presentations, interviews etc., where students *had to* be involved. These studies suggest that other strategies may be more effective in improving learner interaction than expecting learner interaction to improve with social presence alone in a teacher centred online lesson. Instructors may consider tasks in which students interact with each other, working on group projects together, doing peer review of one another's papers or interacting within a discussion forum on a particular topic. Also, "Simply offering the opportunity i.e., having an open discussion forum where they can (but are not required) to participate, is probably not enough." (Dixson, 2012, pp. 7-8)

RQ_4. How do students *feel* about seeing each other in the SOLs? Based on the responses to the questionnaire, approximately half of the students felt positive about having the cameras turned on and found it important for their learning while the other half felt uncomfortable, distracted and self-conscious. The researcher observed in his group that one of his students sat in a darkened room in all the SOLs so that her face would not be seen. The other students who were uncomfortable either covered parts of their faces with their hand or showed discontent with their facial expressions (frowning etc.). Guichon and Cohen (2014) commented that students may be too absorbed in their self-image, therefore, distracted. In Ko (2016), some students expressed that webcam use made them feel embarrassed, insecure and anxious and in Burger (2013) and Telles (2010), some students had the same anguish. An overwhelming majority of all students stated both in the questionnaire and in the interview that they would prefer to have the cameras turned off. Based on these findings and from the responses of some of the students, it could be inferred that students do not want their cameras turned on if they do not see that it has a meaningful purpose. Instead it becomes a distraction unless it facilitates the task they are engaged in, which was seen in Marcelli et al. (2005) and Yamada and Akahori (2009), where students were involved in collaborative tasks and they appreciated seeing their partner. The findings in the present study also indicate that the majority of all students embrace the teacher's video image since, according to them, it helps

them focus on the lesson and on what is being explained. This was also found in the study by Martin et al. (2012), which suggests that a webcam be used by the instructor if possible; if not, there should be a picture of the instructor, and that learners prefer seeing a video image instead of just hearing the instructor's voice. These findings provide two best practice guidelines for instructors who teach in the SOLs: 1. Do not turn on the student cameras if it has no direct purpose for him or her and 2. always have the teacher's webcam turned on if it is a teacher-led lesson.

5.3 Suggestion for Researchers

Having slightly more time to conduct the treatment phase may lead to different outcomes. Researchers can also study different age groups and see how they respond to the use of a webcam and whether they become more interactive in the SOLs. Children or older adults may respond more favourably to seeing the entire classroom, and therefore, they may interact more with their peers. In addition, researchers could examine the relationship between videoconferencing and student *engagement* rather than student interaction. Fredricks, Blumenfeld and Paris (2004) categorise learner engagement into the following parts: Behavioural, cognitive and emotional. The present study focussed on behavioural engagement, which includes the learners physically being involved in the learning process. Researchers could examine how having all the students in the lesson see each other affects both cognitive and emotional engagement. Furthermore, researchers could build on the present study by conducting an action research to alleviate students' anxiety towards their online visual presence or to improve student interaction through other strategies. Also, researchers should ensure that in their research, the bandwidth is able to support a videoconferencing session with *all* the students, as this may yield different results, unlike in the present study, where approximately half of the students were able to have their webcams turned on at one time. Finally, in the present study, the unstructured interview conducted after the treatment with the students was not successful in eliciting individual responses to how they felt. Therefore, as a suggestion, researchers can find alternative ways to gain insight into how students

feel, i.e. with focus group interviews, where students may feel more comfortable in speaking in smaller groups.

5.4 Suggestion for Practitioners

Based on the findings of the present study, the following suggestions can be made for practitioners who teach in the SOLs: 1. Turning on the students' cameras in a teacher-led SOL does not improve student interaction, 2. improving student interaction in teacher-led SOLs may require different strategies such as having game elements to encourage competition, having students involved in collaborative tasks that require interaction, incorporating participation grades and providing multiple communication channels for students, 3. teachers should refrain from turning on the student cameras if it is a teacher-led SOL because students can be highly uncomfortable and distracted, 4. the teacher's camera should be turned on in the SOLs where the lesson is teacher-led because students find this very helpful when trying to concentrate on the lesson. Therefore, it could be concluded that in the SOLs, student webcams should only be turned on if it has a direct purpose i.e. for students to see the interlocutor in a collaborative task, for students to do a presentation, or for teachers to check that the student is present; otherwise its use is counterproductive.

In conclusion, a number of studies have found that online pedagogical approaches can prove as effective as traditional classroom methods (Morrison & Ross, 2014). However, nowadays students are unmotivated and less engaged in the learning process, a problem highly recognized by teachers, tutors, and education management (Glover, 2013). This will impact students' learning outcomes since literature show a correlation between interaction and learning. The millennial generation has been found to enjoy the concept of teamwork and collaboration achievements in learning. They possess characteristics, such as being skilled, social, demanding, and energetic (Alabbasi, 2017). Without a doubt, improving the frequency and quality of student interaction in an online environment requires educators to think innovatively.

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APPENDICES

Appendix A

SURVEY

Your Name:_____

Social Presence SD: Strongly Disagree, D: Disagree, U: Uncertain, A: Agree, SA: Strongly Agree					
1. Communication in the courses was impersonal.	SD	D	U	A	SA
2. I felt comfortable conversing in the courses.	SD	D	U	A	SA
3. I felt comfortable introducing myself in the courses.	SD	D	U	A	SA
4. The course introductions enabled me to form a sense of the community.	SD	D	U	A	SA
5. I felt comfortable participating in course discussions.	SD	D	U	A	SA
6. The instructor created a feeling of community.	SD	D	U	A	SA
7. The instructor facilitated discussion in the course.	SD	D	U	A	SA
8. I felt that my point of view was acknowledged by other students in the courses.	SD	D	U	A	SA
9. I was able to form distinct impressions of some students in the courses.	SD	D	U	A	SA

Social Interaction SD: Strongly Disagree, D: Disagree, U: Uncertain, A: Agree, SA: Strongly Agree					
10. Courses are an excellent means for social interaction.	SD	D	U	A	SA
11. I felt comfortable interacting with other students in the courses.	SD	D	U	A	SA
12. The amount of interaction with other students in the courses was appropriate.	SD	D	U	A	SA
13. The quality of interaction with other students in the courses was appropriate.	SD	D	U	A	SA
14. The amount of interaction with instructors in the courses was appropriate.	SD	D	U	A	SA
15. The quality of interaction with instructors in the courses was appropriate.	SD	D	U	A	SA

Appendix B

QUESTIONNAIRE

Your Name: _____

1. Did you know how to use the functions on Adobe Connect to help you communicate with your peers and teachers in the online lessons? Tick (☑) the relevant answer:

____ 1) Yes

____ 2) No

____ 3) Somewhat

2. Tick the communication medium you mostly use to communicate in the online Adobe Connect lessons:

____ 1) MICROPHONE

____ 2) TYPING

____ 3) BOTH

____ 4) NEITHER

3. Tick one or more adjectives below that show how you feel about the online Adobe Connect lessons <u>when everyone's camera is turned ON and you can see the other students:</u>

____ 1) GOOD

____ 2) SHY

____ 3) CONFIDENT

____ 4) DISTRACTED

____ 5) HAPPY

____ 6) UNCOMFORTABLE

____ 7) OTHER (please specify)

4. Can you show, on the line below, how you feel <u>when everyone's camera is turned ON and you can see the other students.</u> Please draw a circle on the line:

☹ 😐 ☺

|----------|----------|----------|----------|

5. Can you explain how you feel <u>when everyone's camera is turned ON and you can see the other students:</u>(Türkçe yanıtlayabilirsiniz)

_____

_____

_____

_____

_____

_____

_____

6. Would you prefer to have everyone's cameras turned on or off in these online lessons? Tick the relevant answer:

____ 1) ON

____ 2) OFF

7. How do you feel <u>when everyone's camera is turned OFF and you can't see the other students, but you can only see the teacher:</u>(Türkçe yanıtlayabilirsiniz)

_____

_____

_____

_____

_____

_____

_____

Thank you for your time.

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Bayram, Ozgur

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EDUCATION

Degree	Institution	Year of Graduation
Computer Science	The University of Melbourne, Australia	2001
High School	Trinity Grammar School, Kew	1996

WORK EXPERIENCE

Year	Place	Employment
2006-2018	Bahcesehir University	English Teacher
2004-2006	Istanbul Aydın University	English Teacher
2002-2003	Nova, Tokyo	English Teacher

CERTIFICATES

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