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Using video cameras in remote teaching and students' perceptions of privacy

El uso de la videocámara en enseñanza remota y la percepción de los estudiantes sobre la privacidad

Isaí Alí Guevara Bazán
Universidad Veracruzana
iguevara@uv.mx
https://orcid.org/0000-0002-1500-291X

Veronica Rodríguez Luna
Universidad Veracruzana
verorodriguez@uv.mx
https://orcid.org/0000-0003-2599-3697

Angel de Jesus Hernández Galván
Universidad Veracruzana
a.2097@yahoo.com
https://orcid.org/0000-0001-7547-6298

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Isaí Alí Guevara Bazán
Universidad Veracruzana
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Veronica Rodríguez Luna
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https://orcid.org/0000-0003-2599-3697

Angel de Jesus Hernández Galván
Universidad Veracruzana
a.2097@yahoo.com
https://orcid.org/0000-0001-7547-6298

Abstract

This study inquired about the use of cameras in the remote teaching video conference and the students' perceptions of privacy. Participants were students studying for a bachelor's degree in the English Language at the Universidad Veracruzana who were exposed to remote teaching with the use of videoconferencing platforms. The research had a mixed-method approach. A semi-structured interview was conducted to collect qualitative data and the survey collected ordinal data using the non-parametric method. Tendency graphics showed the ranks for each topic and students' perceptions, and participants' quotations derived from the interview. Results showed privacy was not the students' concern, but the ISP, which affected the appropriate image transference. Findings described that improving social interaction is essential when cameras are turned on, but students preferred saving wideband for audioconference. No perception of abuse or invasion of privacy using cameras was shown, but most preferred cameras to be turned off.

Keywords: online learning, synchronous learning, videoconference, privacy

Resumen

Este estudio indagó la percepción de estudiantes sobre el uso de cámaras en la videoconferencia para la enseñanza a distancia y la privacidad. Los participantes fueron estudiantes de la Licenciatura en Lengua Inglesa de la Universidad Veracruzana expuestos a la enseñanza a distancia con el uso de plataformas de videoconferencia. La investigación fue un método mixto. Se realizó una entrevista semiestructurada para recaudar datos cualitativos y encuesta para los datos ordinales utilizando el método no paramétrico. Los gráficos de tendencia mostraron los rangos por tema y las percepciones, así como las menciones de los participantes, derivadas de la entrevista. Los resultados mostraron que la privacidad no era la preocupación, sino el servicio de proveedores de internet. La interacción social con video es importante, pero una transmisión de audio adecuada es preferible. No se demostró ninguna percepción de abuso o invasión de la intimidad, pero se prefiere cámaras apagadas.

Palabras clave: aprendizaje en línea, aprendizaje sincrónico, videoconferencia, privacidad

Introduction Research problem

This paper aims to discuss distance learning and how videoconferences are widely used since the lockdown started in 2020. Privacy and confidence are jeopardized when turning on a student's camera during language lessons. Moreover, the use of a wideband can compromise students' performance due to loss of details and jamming in the network as well as their selfconfidence when speaking in the sight of everyone. Even though Loran-Palszyk (2015) states:

> Since video conferencing allows geographical distances to be bridged, it can be used by foreign language teachers who want to overcome the problem of limited opportunities for speaking practice in the classroom by exposing students to genuine interaction in which communicative experiences can be extended. (p. 189)

It is a matter of public concern that people in schools may not be learning or being exposed to those advantages stated before. In that, aiming to debate the impact on students' lives as well as the fact that Farr y Riordan, (2014) pointed out: "The use of social media in LTE language teacher education- contexts seems to be expanding exponentially, and research around their integration is beginning to emerge more consistently" (p. 106)

Since the ZOOM platform, Facebook groups, Microsoft Teams, and even WhatsApp have been used as tools to reach students and tried to make the lockdown easier for teachers and students. Third-world countries such as México were not prepared at all to manage these scenarios, and such things have been a topic in many conversations from students all over the Universidad Veracruzana which leads this research to the following questions.

> Is students' privacy threatened when using their cameras? How
> do students feel when turning on their cameras?

As a way of teaching on the rise due to CoViD-19, this has been a student's tool but is not as easy as learning using the net and a device, Tavangarian *et al*. (2004) stated that: "Current eLearning systems on the market are limited to technical gadgets and organizational aspects of

teaching, instead of supporting the learning" (p. 273) which from 2004 to 2021 in a country like México, has not changed that much. Creating a new account in a scholar network is not enough, the learning process requires a teacher, even though e-Learning does not have the same physical presence of people as the development of classrooms in virtual environments.

Antecedents

In the current times, it is the most important issue in teaching, using video conferences as a tool for language teaching. One of those matters is directly related to the poorly implemented network infrastructure and the inefficient service carriers all over this country. Having said that, most teachers and educational institutions were not prepared for these pandemic situations. Also, the tools are not universal for most of the students out there.

Most of the teachers in this country were not competent enough in their digital skills to manage this change of normal non-pandemic teaching and going into the net. But what most people do not know is the special phenomena that occur and threaten the learners in the special case that quarantine has been for all the third world economies, since educational systems, teaching methods, and techniques in Mexico are not as advanced as in developed countries, as well as the co-existence of brand-new technologies and teachers which are capable of using the whole power and the variety of advantages that these tools can provide into public and private schools in third world countries, as well as understand the impact that the same had had on new generations and youngsters. On the other hand, adding obstacles like jams in the network, and the abuse of services such as Meet by Google, and ZOOM by Zoom technologies. Probably, most of the students do not count with easy access to services such as data roaming and the internet at their homes -mainly due to the lack of economic resources or because living in remote villages where internet access is limited. It has caused the use of video cameras may provoke poor quality in audio and video transmission. Furthermore, even when having easy access, several connection problems occur during sessions due to the poor implementation and internet services in the country. Forcing students to keep their cameras on as requires more broadband and translates into freezing meetings with chopped audio.

Aiming at students' perceptions and to take into consideration their feelings and if they would rather not attend sessions or risk themselves to achieve low grades and see their performance go down low as well during quarantine season. The lockdown has been exhausting

for most people at different levels through the variety of Schools and their hierarchies -teachers, toddlers, teenagers, and young adults.

Research questions

As a present matter around the globe, this research tried to bring the discussion when implementing any kind of distance learning projects that could have -or not- any negative effect on students and learners of a second language -English- in this very specific context. The most important concerns of this research are depicted by the following questions:

Is students' privacy threatened when using their cameras? How

do students feel when turning on their cameras?

Regarding these questions, a qualitative inquiry was designed. Collecting techniques were conducted and content analysis was done in combination with descriptive statistics.

Objectives

This research paper aims into the teaching of English with an approach to the distance learning mode during the pandemic and the rising use of technology in schools and several educational institutions. The teaching English practice in distance learning mode was analysed.

The main goal is to get to know how students are affected while using cameras, how many of them suffered network jamming, and their feelings or concerns related to their academic context during the pandemic lockdown relying on qualitative data analysis and descriptive statistics.

Literature review

Since the sanitary lockdown started, the world changed. Teaching and education resources and techniques had to change along with the situation, it is well known that memes spread along social media on how disturbing, funny, and weird situations were faced by students all around the world. However, besides all those situations there is one topic that has not been explored enough by researchers: how distance learning and videoconferences are being widely used since the lockdown started in 2020.

Digital Competence

Rizza (2014) Defines Digital competence as a term by which a human can use

Information technology in a specific context. On the other hand, Greifenberg (2020) states: "Digital competencies are describing a set of skills, which are necessary to use digital devices and tools with an adequate degree of self-determination" (p. i). From here on digital competence can be defined as a group of skills and abilities that people must learn or acquire to develop and live in society and its current times, such as banking, working, and in the case of this very study distance learning -specifically language- with the previous statement about idea that privacy and confidence are jeopardized when turning on a student's camera during language lessons. Moreover, the use of a wideband can compromise students' performance due to loss of details and jamming in the network as well as their self-confidence when speaking in the sight of everyone. Thus, it is of paramount importance to analyze the use of cameras during language lessons.

On one hand, analyzing up to 15 different contexts Ferrari *et al.* (2012) define digital Competence as:

> […] the set of knowledge, skills, attitudes, abilities, strategies, and awareness that is required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; behave ethically and responsibly; collaborate; create and share content and knowledge for work, leisure, participation, learning, socializing, empowerment and consumerism (p.84)

One more time it's possible to see that digital competencies are not a one-way-only approach, but those that impact both professional and personal ways as the authors suggest, since in the modern era is almost mandatory the existence of this set of skills for several things as to order food delivery, paying bills, taking classes, going to work.

While on the other hand Lomäki *et al.* (2011) allege that: "Digital competence is grounded on basic skills in ICT, i.e. the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet" (p.2).

The definition again is clear, involving the use of digital software and hardware but specialized in the ICT to use and aim into education or formal use, and does not involve leisure activities but more formal goals.

Technology Competence

According to the Recommendation of Bilbao *et al.* (2014) "digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication" (p. 1) such activities embark not only on daily-life matters of the modern area but professional and academic subjects as well. Such as the use of laptops, computers, or even cell phones in the most common areas that students and teachers use every single day, good to know Gladović *et al.*(2020) state that integrating new technologies affects all aspects of higher education, including admissions to finance to teachers and learners. The modern era is pushing people to not only use current technologies but to adapt to most of the technological advances that are currently within the reach of people. Since apps and devices evolve so fast, it is not enough -nowadays- to know how to use Email and Microsoft Office anymore. People must overcome every new and popular App or dispositive out there.

Students and teachers must overcome most of these advances that are more than relevant for their purposes. ZOOM was one of the last waves of apps and .exes implemented since the outbreak started in 2020. Darmawansah & Ismaniarti (2018) affirmed that even while using Skype teachers must develop their materials to engage with students and their class and that this situation offers some challenges on how to design these digital materials, once and again requiring the use and knowledge of technological competence. Furthermore, Autio (2011) postulated that "[...] technological competence was defined as an aggregate of the three aforementioned measurements: knowledge, skill, and emotional engagement" (p. 73), which are joined -also- with the use and even creation of new materials since knowledge and skills are required for such tasks and the emotional engagement as to affirmed, there's a relationship between emotions and psychomotor & cognitive abilities.

On the other hand, some authors such as Candolfi *et al*. (2019) define technological competencies as specific performance applied to different professional fields emphasizing a *professional* as a set of skills or abilities that are only useful when talking about the enterprise

world or business matters. This often may be a short definition since it is not considered the amount of other else technologies that are used or can be applied in other fields, such as academics, leisure, or as a tool for daily life use. This paragraph shows directly that not most people think about several uses or topics when talking about Technology Competence is brought to the table and shows uses or customs from different perspectives.

Guevara *et al*. (2020) stated that educational virtual environments must be designed properly since communication and interaction are carried out within a distance and at different times through the use of computers, tablets, mobiles, and internet access. , Other researchers Fernández & Fernández (2016) affirmed that the mere existence and presence of technological gadgets do not grant the development of technological competence, since using them for basic tasks is not the only way around to acquire this set of skills, and even those authors postulate that the best opportunity to develop the digital competence is through teachers that already are both confident enough and skilled enough to teach and use all of their Technological competences. This is something to take into account, as stated before in this paper, many teachers were not prepared to give classes Online through one of the video conference services presented as well.

Audio & Video as a distance teaching tool

Special attention must be considered, given conditions such as lighting, camera resolution, and image quality and the position of the camera can have positive or negative effects on the session (Gladović *et al.* 2020). These effects -when negative- can be such as selfconfidence obstacles, as well as anxiety or miscommunication Loranc-Paszylk, (2015). As many students may face the fear of pronunciation or anxiety with everyone staring at them at the same time.

Is it useful that people should still be using videoconference and forcing students to have face-to-face interactions even when they are far away from each other? In her research LorancPaszylk (2015) found out that many students gained confidence after sessions conducted by simulating a job interview in English using video conference as a primary tool for these practice meetings.

But in third-world countries, other problems are occurring, and these kinds of matters affect directly both teachers and students, due to poor internet connections all over the country

México- and the overall performance of dispositive used by students as well as meteorological issues such as rain, thunderstorms, and other natural forces capable of interrupting the power supply and with it the net -falling trees, hurricanes, and others-.

> To support these ideas De la Rama *et al.* (2020) stated:
> In response to this situation, teachers now are working and attending sets of training through webinars to learn and explore e-learning technologies which is perceived to be an effort of educating and capacitating teachers for the new role they are soon to take – that is to become managers of virtual classes. (p. 1275)

In other words, the use of these tools is forcing teachers and students to cohabit on a new and digital ground that was brought to the table since the lockdown started as soon as 2020 began.

Another example is such as Bravo *et al.* (2011) affirmed that "[o]ur exploratory analysis revealed that participants' general opinion stresses that low-cost videos are innovative teaching tools that have a positive effect on student motivation." (p. 1) Once more confirming that standing alone video as a teaching tool offers a positive effect on students as well as (Doosuur & Mwuese, 2013) "[...]with audio-visual materials, the barrier of communication and distance is broken." (p.20) reinforcing the same idea as this is needed due to lockdown.

E-learning

Goyal (2012) stated that "Elearning is commonly referred to the intentional use of networked information and communications technology in teaching and learning." (p. 240) which is what has been going through since the lockdown started. The mere idea of E-learning by itself represents pros and cons. Lorna *et al* (2007) mentioned that "[t]he digital ecosystems infrastructure is a pervasive digital environment, which is populated by digital components that evolve and adapt to local conditions thanks to the re-combination and evolution of its digital components" (p. 114)

As Fernández-Pampillón (2009) mentioned, the main purpose of an e-learning platform is to give the opportunity in creating and managing teaching and learning spaces to interact in the formation process. This allows create a space for E-learning, and achieves work team, between

students and teachers. To create materials, share slides, or hand homework, all as a response to the need for distance learning or as in this case of study, being far from each other because of the lockdown.

About Privacy

First, it is needed to define *privacy*. There are two types of privacy, common law privacy, and digital privacy. The Oxford Learner's Dictionary defines it as: "the state of being alone and not watched or interrupted by other people" and as: "the state of being free from the attention of the public". According to Friedewald *et al.* (2013) -when talking about digital privacy- individuals have the right to not be watched or observed at any place, and the same applies to their private spaces such as houses, vehicles, workplaces, wherever the human is doing the living and under constant development. When we allow teachers to make it mandatory for students the use of cameras' privacy is jeopardized, many students find it difficult when living in poor houses or they just do not want to show their rooms.

Vice versa Inoue (2018) states that private spaces make individuals autonomous and that being watched interferes with the free development of people behind the screen. Is their right to maintain certain things out of the camera, as the class context is alienated from their personal lives?

Then again Hashemi and Azizinezhad (2011) postulate that software such as Skype offers "complete privacy" but states this in a series of private teaching sessions of foreign languages. This takes us to differences between the public schools and their courses, as the individuals were more confident but -again- according to the same research by Kotula (2016) students and teachers must face obstacles such as performing their lessons in two spaces digital and realworld, on the first one student taking the class but in the second one accessing dictionaries, notebooks and a handful variety of other materials.

In addition, Trepte & Reinecke (2011) pointed out that many adolescents may not be even aware of privacy since their development has gone side-by-side along with the creation of social media and they became accustomed to providing personal data and info to these databases, while adults and older people concern on how invasive these means can be with users. Moreover, Wildemuth (2007), agrees that the way students behave online is not a matter of concern for them in terms of privacy or they could have no idea how they may lose their privacy in online

environments. This statement can indicate that a great majority may not even know that their privacy is being jeopardized or directly ignored at all. This fact brings another question: Do teachers care about the student's right to privacy or are even aware that this right does exist?

According to Aldhafferi *et al.* (2013), the mere idea of defining what privacy is could be a difficult task because the concept of 'privacy' can mean various things in different scenarios, and to define it in just one scenario would not be able to suit the situation. With this detail given, the idea of defending privacy falls in a hole of knowledge for both students and teachers and the meaning and amount of importance that each of them gives to privacy and the right to privacy itself.

Materials and Method

This research is mainly a qualitative inquiry. However, data was obtained with descriptive statistics because objective information was needed to support and crosscheck it with students' perceptions, which were collected also with a semi-structured interview. During the interview, objectiveness always remained. According to Hernández *et al.(*2010), as the data may be collected, any of the variables will not be manipulated since this research is non-experimental. Using and collecting data samples and premeditating, the results thrown may show how these things are directly and co-directly related to students' perceptions, feelings, and concerns about video cameras.

Stating that the quantitative side of the research is a non-experimental method, it is established that variables will not be manipulated and that having no control over these, the research will be instead observational of things happening to education and the students receiving this new way of education. As can be seen in the objectives, this research is qualitative, but an exploratory instrument had a quantitative orientation to crosscheck the information on specific topics. The Likert scale was used to interpret the data with tendency graphics.

Participants

This study was conducted as an open survey for students of a Mexican public university, Universidad Veracruzana, Language Department. According to the objectives, the bachelor's degree in the English Language aims to prepare professionals who can communicate in the English language- in the areas of teaching, translation, and literature. The main subject of this

bachelor's degree is The English language. The College program contains six levels of English language based on the Standards of The Common European Framework for English Reference.

Technique and Instruments

As college is still in lockdown due to the existence of COVID-19, the survey described before was spread among students through the net, using WhatsApp chats, and Instagram chats, and asking students to spread the word and share the survey with their classmates. Ending with a total amount of 43 students that took the survey. Data was collected via Google Forms as the survey is stored there, the results were processed through Microsoft Excel, and graphics were prepared with the use of Microsoft Word.

Procedure

To analyze and collect data samples, using multiple-choice questions as well as rating scales to measure by using numbers and scales to understand students' feelings and concerns. Few open-ended questions should be asked since mixed methodology requires more time to process and interpret and understand the data gathered, a sample of these kinds of questions should be: "Where do you live?", "Do you have easy access to the internet?", in such questions, students could throw a light on the specifications of their social status as well as unveil if the economy of their families were -or not- prepared for this.

The incident graphic can display the tendency of the student's perceptions of Online Classes to be strongly positive or completely negative as well since the use and adaptation of these kinds of scales make it easier for researchers to understand a hand of various questions and answer the concerns from every person taking the survey. "In its final form, the Likert scale is a five (or seven) point scale which is used to allow the individual to express how much they agree or disagree with a particular statement." (McLeod, 2019, p. 1).

After conducting the survey, data will be analyzed and via Google Forms a database will be created using Microsoft Excel within its tools, the results will be graphed as a visual aid to represent all their answers.

The questions and their analysis are aiming to unveil and discover the students' perceptions when taking online classes, how they feel when all of their classmates have sight inside their personal spaces -privacy-if they have easy access to the internet via Internet Service Providers (From now on, ISP) or data carriers on their mobile phone, or even if they do not care

at all or feel anxious, or if any negative or positive effects are on their minds during their elearning sessions.

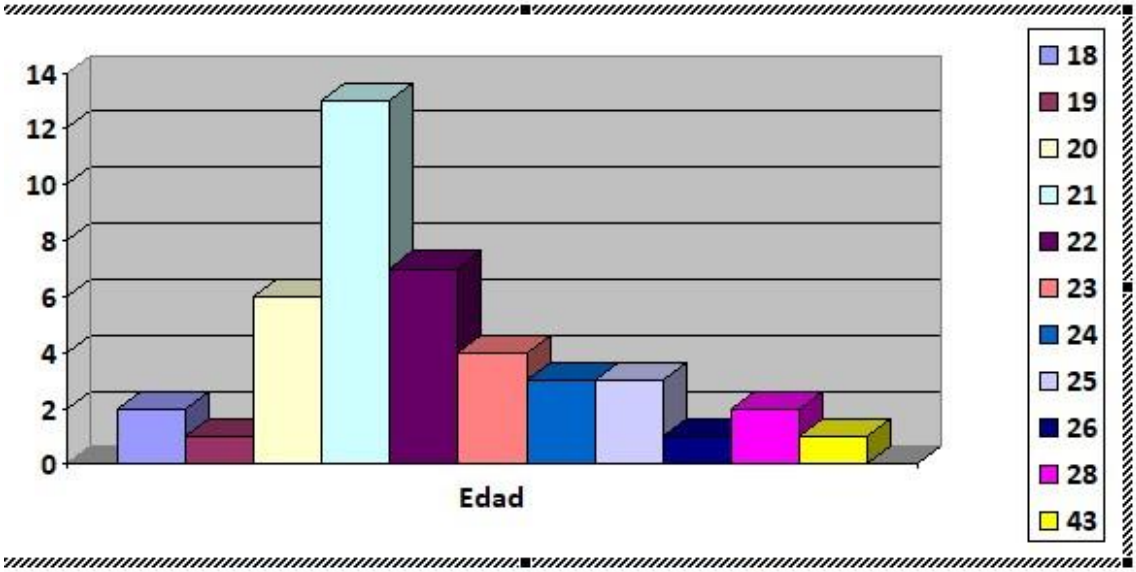
Using a survey is a very fast tool since lockdown barriers make it very difficult to conduct studies at the College facilities and almost impossible to survey the individuals' information in a face-to-face environment. Finally, all the data provided by participants will be used for research purposes only. None of their full names and answers will be sold or shared with third-party organizations or any other kind of companies, colleges, government agencies, etc. The next results were presented through graphics and images. These are depicted using a descriptive methodology where the data is taken aside. Additionally, the images by themselves showed the brute data and a short description of it was displayed as well. In the next pages, an explanation of data was provided to the reader, to unveil and explain the case of the study and any other related situation that the survey was capable to show. Even the opinions of some participants were presented to support their ideas, feelings, and explanations about the phenomena that they were facing every day since the lockdown started.

Results and discussions

As the survey was applied, the results turned tables. Using the Likert scales and charts, the depiction of data has been all the discovery.

Figure 1

The two figures are showing age and the number of people of that age.



Document1 - Datasheet

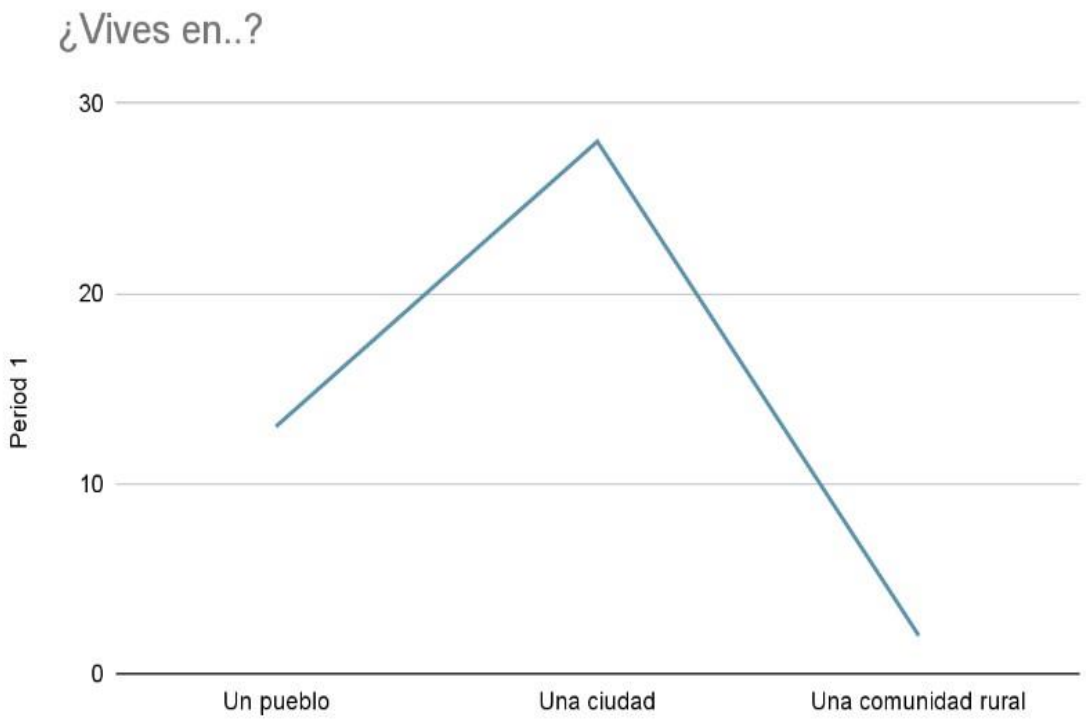
		A	B
	Población	Edad	
1	18	2	
2	19	1	
3	20	6	
4	21	13	
5	22	7	
6	23	4	
7	24	3	
8	25	3	
9	26	1	
10	28	2	
11	43	1	

As you can see in figure 1, the survey took several students from a wider range of ages, even though there is a student that is 43 years old, most of the subjects are between 18 to 28 years old. This is the first sight of the kind of people that have been taking classes online since

the lockdown started. Naturally, young learners are skilled with technology because they grow up with it. So many of them are still taking these classes instead of taking a free semester.

Figure 2.

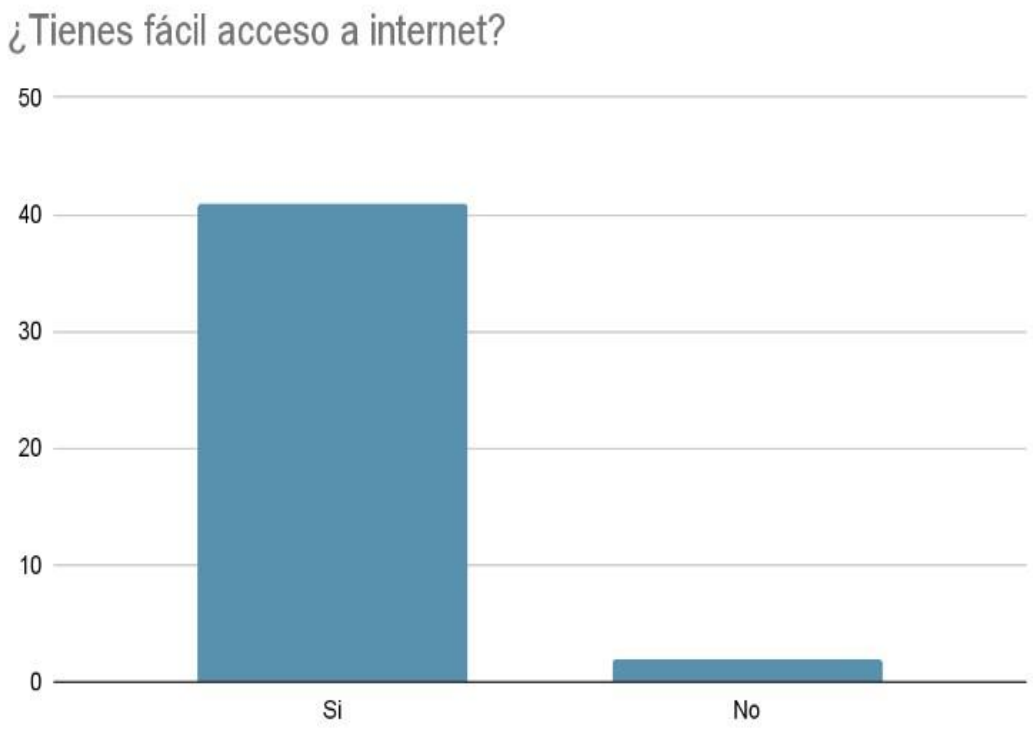
Graphic displaying students living in a town, a city, and a village.



As previously stated, this research aims also at socioeconomics and the internet availability for the places where the students live (See figure 2), since many students are living in a city -and this will have a further impact on the next question. We can deduce that most of the participants will have easier access to a variety of services in contrast to those who are not living in cities.

Figure 3

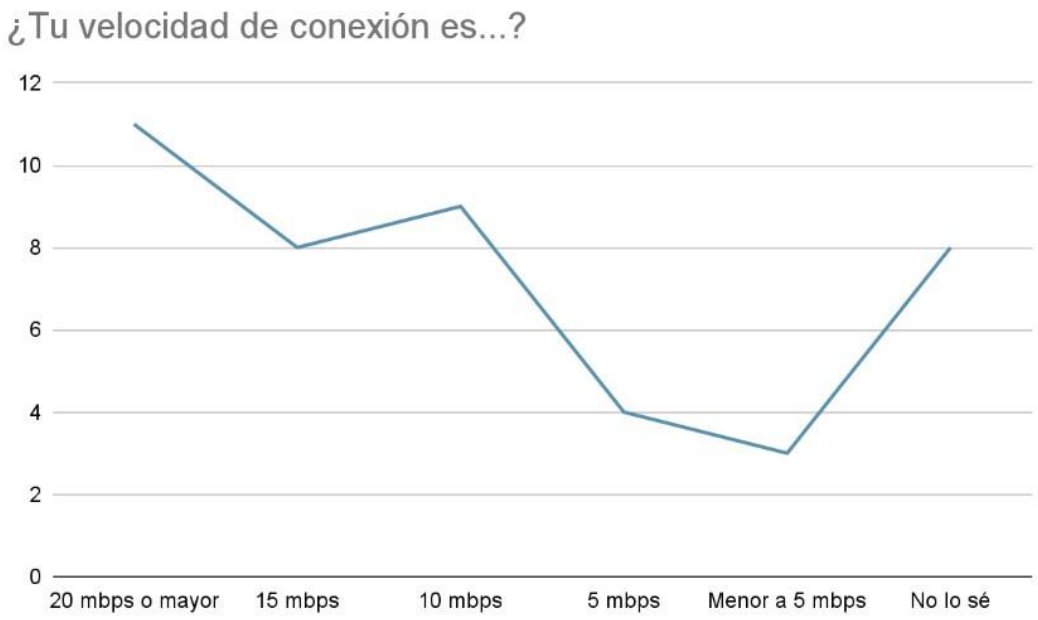
Graphic showing if students have or do not have easy access to the net.



The same two participants that answered the previous question about living in a rural community, are the same quantity that has no easy access to internet services mobile data carriers, and ISP- or has no access at all.

Figure 4

Graphic showing the download speed measured in megabits per second (MBPS)



Even though as previously shown in Figure 4, thirty-three participants met and exceed the required internet speeds by the apps used -Teams, Zoom & Meet- Figure 4 shows that only 7 students did not face any kind of problems during Online sessions. This is a matter of study; it is not the most suitable option to take classes with a camera when only 7 participants are having a good class and a free one of problems. College & students should not be worried about these kinds of facts, as their goal since the lockdown started was to embrace this new distance learning modality that was not very useful. The numbers depict it, and their meaning is not a good one.

Only 8 participants did not know their connection speed (See figure 4). In contrast to the rest of the participants that are aware of this fact about their service. As can be seen in figure 4 the connection speed was a factor to be considered since more than 50% of participants expressed that they have less than 20 Mbps. Only eleven participants had an appropriate connection to share the video.

On the other hand, hardware issues are considered as one of the participants reported that taking classes with his camera was a problem since he had to send his device to technical services several times. Only 7 of the participants had no problems. But the predominant issue was a slow connection. Followed by chopped audio and chopped video.

This leads to the next open question whose answers are supporting facts about the difficulty in sharing and receiving video when connected to the videoconference: "Why does connection have a low speed?" related to the one that figure 4 is showing, one of the participants answered: *"Mis familiares cuentan con Internet en casa y llega hasta la mía."*, (P. A). It is more than obvious that many of these people are living next to each other, and as a cultural fact that most Mexican families are extended families. Another participant answered: *"Porque tengo oportunidad de contratar un servicio de telefonía e internet"*, Participant B, took a second sight on socioeconomics, as her answer is directly related to the ability or the assumption that she has the opportunity to acquire the services, many more reported such things as that their parents are the ones who are paying the bills, and thanks to that, they can access to this kind of services.

Figure 5

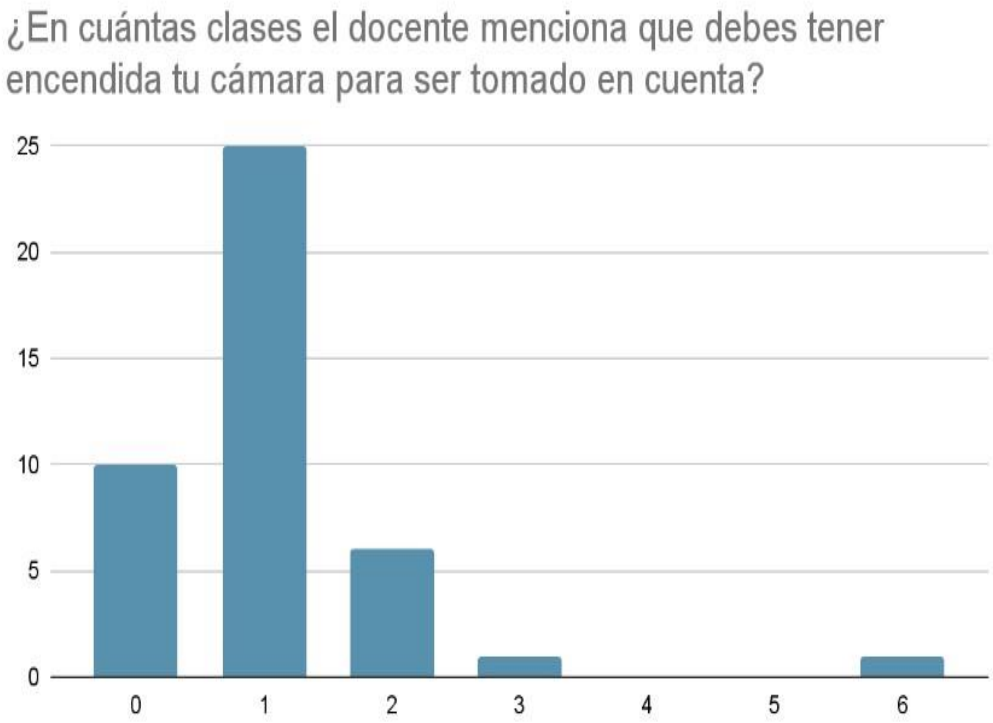
The variety of issues that students faced when receiving classes.

After considering that 34 of the students accepted that they are facing troubleshooting with their online classes, the survey also asked two questions related to the use of video cameras in Online sessions. To throw light here the results, the next one is in how many classes, teachers ask students to turn on their cameras (See figure 6), so the attendance taking & commentaries are

considered. Almost 33 subjects of study from the 43 in total, are asked to turn on their cameras, in contrast with the previous exhibit (See figure 5) supporting the fact that more students with poor connection issues are turning on their cameras and facing problems in those sessions. Furthermore, there was another specific question in this part of the survey that is relevant to consider using the camera in virtual classes (See figure 6). ¿En cuántas clases el docente menciona que debes tener encendida tu cámara para ser tomado en cuenta (participaciones, pase de lista, etc...)? As can be seen in figure 6, very few classes are asking students to use their video cameras. The use of a video camera when videoconference seems not to be explicitly compulsory.

Figure 6

The graphic shows how many classes were mandatory for students to turn on their video cameras.



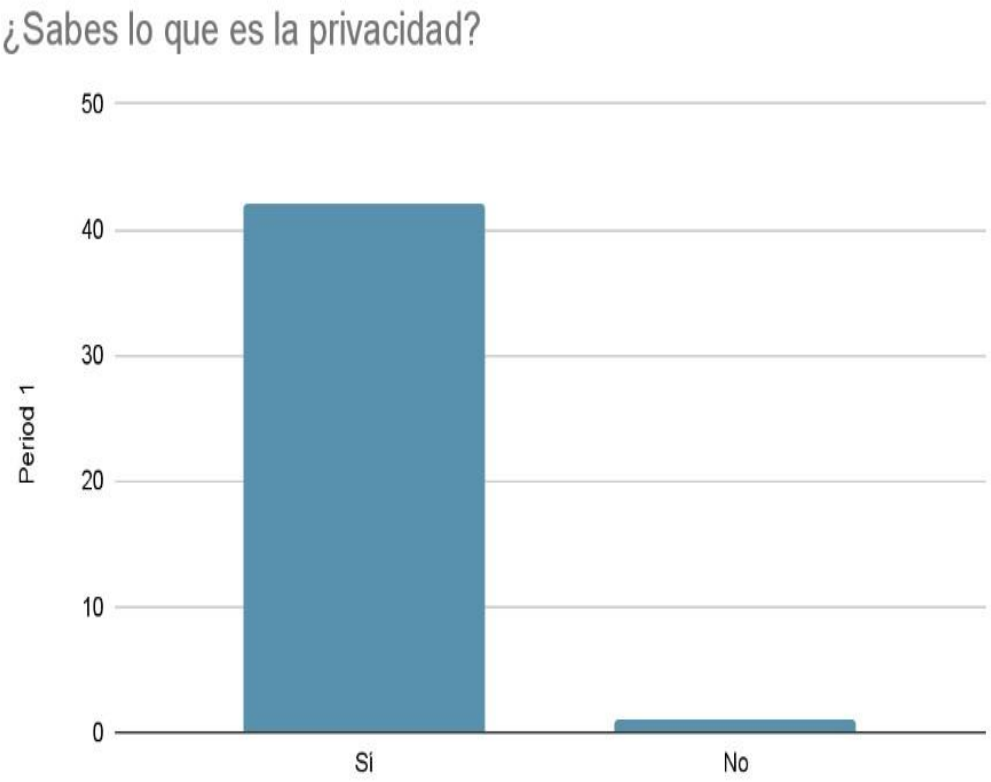
There are only a few students having classes without any problems. The gap is wide open and experiencing technical problems such as those stated before is a clear sign that working with

their cameras may result in not being the best choice to attend the virtual classes using the video camera.

Students were also asked if they knew what privacy is and if they thought that their privacy was threatened when teachers cornered them -making it mandatory to turn on their cameras to have any rights related to the class- the next two graphics show the results (Figures 7 & 8).

Figure 7

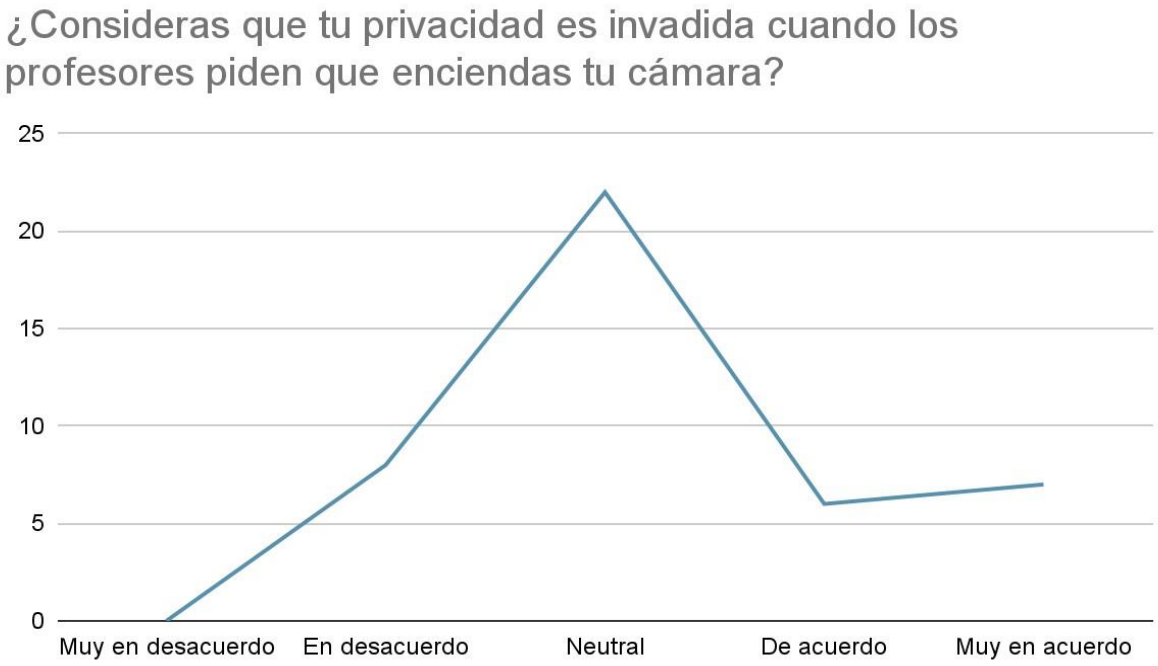
Graphic illustrating if participants are aware of what privacy is.



Both graphics –Figures 7 & 8- showed two statistics, the number of people aware of privacy and their personal feelings on if privacy is jeopardized or not during online sessions with cameras on. Percentages are clear, students think they know what privacy is, but when coming to terms with it and as stated in the About privacy section on this paper it may be, that maybe students are not truly aware of what privacy is.

Figure 8

The Likert scale defines if participants think their privacy is in jeopardy while using the video camera.



As stated, this research aimed to unveil untold facts about distance learning since the CoVid-19 lockdown started more than a year ago. The main axis of this investigation tried to cover what most students think and feel about this -at least in México- the new way to take classes and share opinions instead of a traditional classroom.

Questions asked during the investigation tried to get as much information as possible to create a bigger picture of this peculiar situation. Asking about privacy students, about their feelings, about their subjects. Since this was an exploratory only and non-quantitative analysis most questions are related to the conditions that students must face to participate in their classes and their feelings about it.

Even though first ideas and impressions were mostly negative toward video cameras and privacy, the study has revealed that most of the students do not care that much about being watched, and some others do not even know if their privacy is affected, but most of them will

face connection problems whenever they try to interact with their classmates while using their cameras. Others pledged directly that the existence of ISPs is now something very common in their cities. A very few participants (5) named a company in specific and even less shared a short comment on their experience with that service, and those comments were: *"Totalplay tiene una pésima cobertura",* (P. C), and: other participant expressed*"Pues hay red de TELMEX y tenemos Infinitum, aunque cuando hace viento se interrumpe la señal."* (P. D).

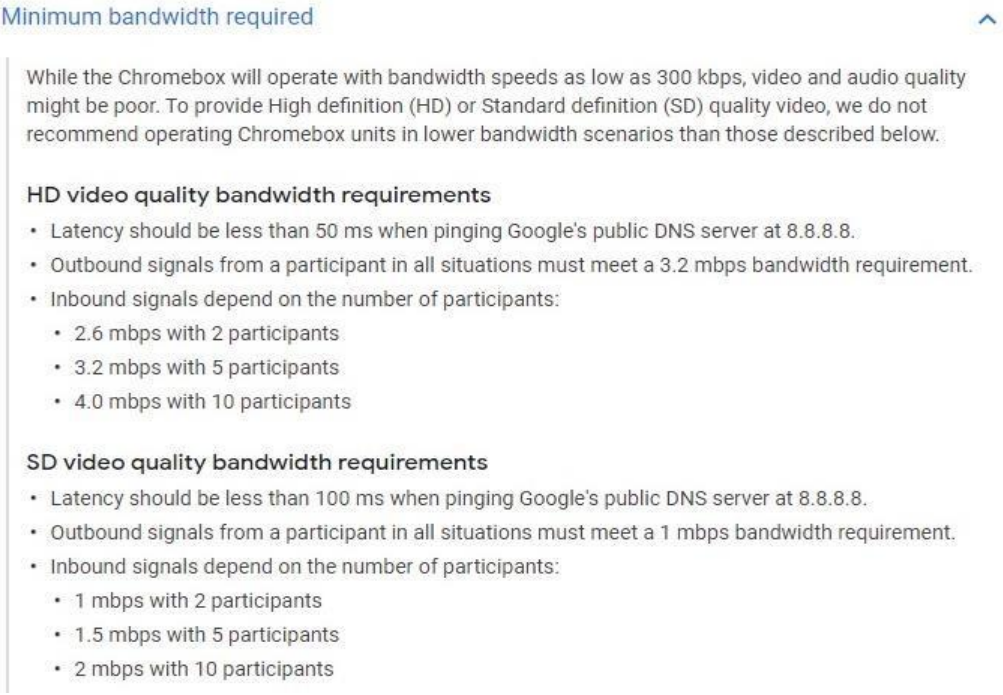
One more time the comments about ISP are not favorable for the companies. It reveals that Mexico's services are not reliable enough for these participants and their education-related needs.

Most common videoconference requirements

The results are shown in (Figure 4), which expressed that the internet speed that participants have access to, must be enough to take part in online sessions according to Zoom, Google Meet, and Microsoft Teams as can be seen in figures 9, 10 & 11.

Figure 9

Zoom requirements

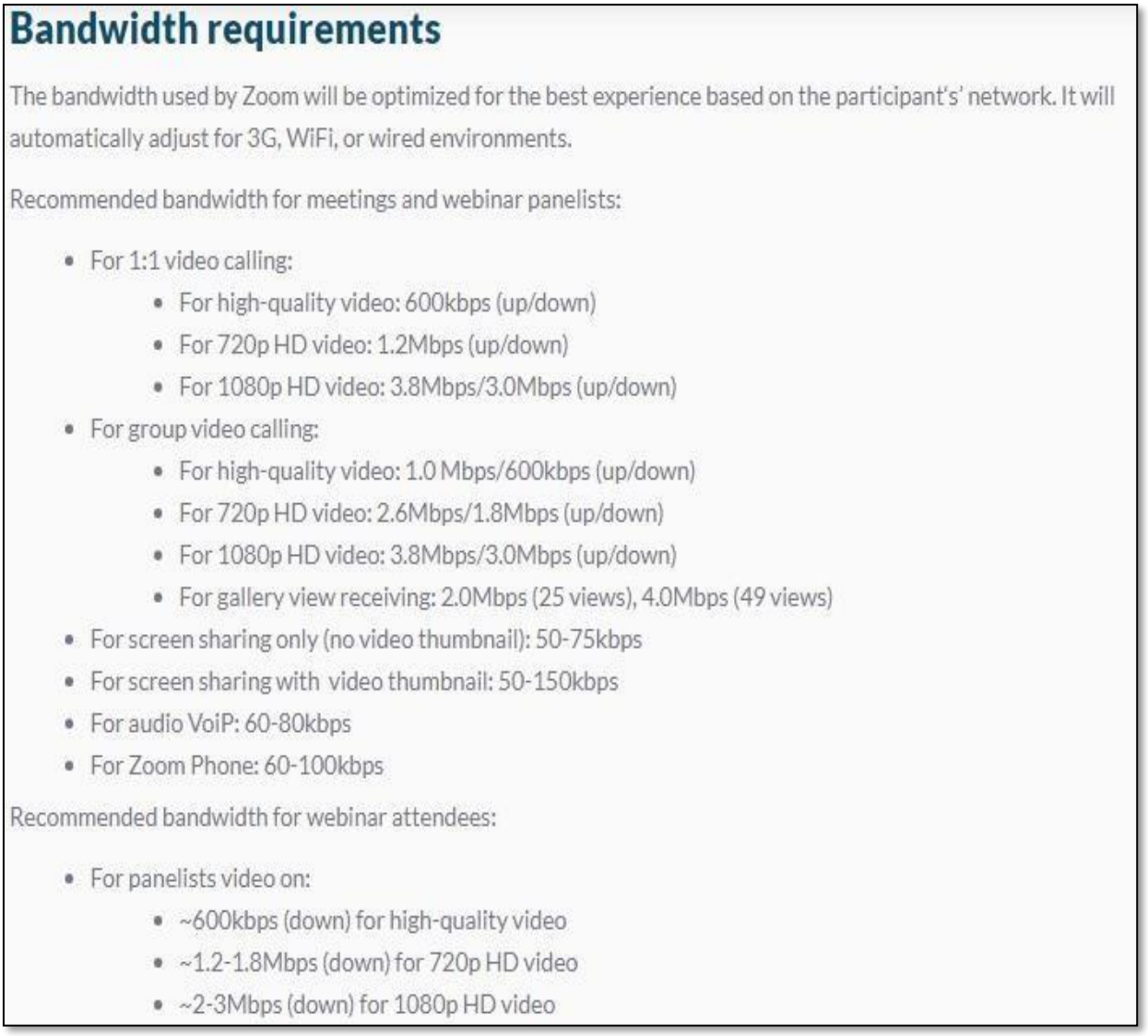


Note. The illustration represents the system requirements for using Zoom, by Zoom Video Communications, [*Zoom system requirements: Windows, macOS, Linux* , by Zoom Support], 2022, (https://support.zoom.us/hc/en-us/articles/201362023-System-requirements-for-Windows-macOS-and-Linux).

Figure

10

Google Meet requirements



Bandwidth requirements

The bandwidth used by Zoom will be optimized for the best experience based on the participant's' network. It will automatically adjust for 3G, WiFi, or wired environments.

Recommended bandwidth for meetings and webinar panelists:

- For 1:1 video calling:
  - For high-quality video: 600kbps (up/down)
  - For 720p HD video: 1.2Mbps (up/down)
  - For 1080p HD video: 3.8Mbps/3.0Mbps (up/down)
- For group video calling:
  - For high-quality video: 1.0 Mbps/600kbps (up/down)
  - For 720p HD video: 2.6Mbps/1.8Mbps (up/down)
  - For 1080p HD video: 3.8Mbps/3.0Mbps (up/down)
  - For gallery view receiving: 2.0Mbps (25 views), 4.0Mbps (49 views)
- For screen sharing only (no video thumbnail): 50-75kbps
- For screen sharing with video thumbnail: 50-150kbps
- For audio VoiP: 60-80kbps
- For Zoom Phone: 60-100kbps

Recommended bandwidth for webinar attendees:

- For panelists video on:
  - ~600kbps (down) for high-quality video
  - ~1.2-1.8Mbps (down) for 720p HD video
  - ~2-3Mbps (down) for 1080p HD video

Note. The illustration represents the system requirements for using Google Meet, [Google Support], by *Google LLC*, 2022, (*https://support.google.com/meethardware/answer/4541234?hl=en#zippy=%2Cgeneral-network-requirements%2Cminimum-bandwidth-required).*

Figure

11

Microsoft Teams requirements

Google Meet hardware requirements

This table describes how Teams uses bandwidth. Teams is always conservative on bandwidth utilization and can deliver HD video quality in under 1.2Mbps. The actual bandwidth consumption in each audio/video call or meeting will vary based on several factors, such as video layout, video resolution, and video frames per second. When more bandwidth is available, quality and usage will increase to deliver the best experience.

Bandwidth(up/down)	Scenarios
30 kbps	Peer-to-peer audio calling
130 kbps	Peer-to-peer audio calling and screen sharing
500 kbps	Peer-to-peer quality video calling 360p at 30fps
1.2 Mbps	Peer-to-peer HD quality video calling with resolution of HD 720p at 30fps
1.5 Mbps	Peer-to-peer HD quality video calling with resolution of HD 1080p at 30fps
500kbps/1Mbps	Group Video calling
1Mbps/2Mbps	HD Group video calling (540p videos on 1080p screen)

Note. The illustration represents the system requirements for using Microsoft Teams, [Prepare your organization's network for Microsoft Teams], by Microsoft Corporation, 2022, (https://docs.microsoft.com/enus/microsoftteams/prepare-network).

Figure 7 shows what people think of being aware of what privacy is with a large amount of 'Yes' as a response to the question: "Do you know what privacy is?". The later results showed that a not small amount of participants -22- did not know if their privacy was taken away while attending Online classes with their cameras on as they choose to stay 'neutral' to this question.

Figure

Moreover, 6 participants selected 'Agree' and 7 chose 'Very agree' to the same question, and only 8 chose the 'Disagree' option.

This final paper aimed to unveil whether or not cameras had any sort of effect on students. The survey has demonstrated deficiencies and data about students' perceptions and issues in a very general way.

As for privacy, is very worrying the fact that some participants believed that they were not hiding anything and with it then their privacy is not jeopardized. Once more, further research could throw light on teachers' perceptions as if they were aware of what privacy was, and if they were taking away privacy from students. Furthermore, the fact that there are students that knew what privacy was but were not sure if theirs was threatened or not. Hence, the suggestion would be to create a code about privacy, and teach both students and teachers about it, all of these in pro of personal rights and liberties.

On the socio-economics topic, the research acknowledged several types of students, now as a great majority stated -for most of them- they were living with their parents, and those parents could pay for ISP. Most of the students were living in the cities, -and in the words of this writer- it was amazing that -now- even small towns had easier internet access, even though the lockdown forced people to live there were answers in the survey such as:

> "*He tenido una experiencia mayormente positiva. Sin embargo, hay compañeros que han encontrado muchas dificultades en esta modalidad. Por empatía hacia mis compañeros y por la dependencia en el internet poco confiable, le doy un 7" (P. F).*

*M*ore and more people were developing empathy and compassion. On the other hand, some students even showed real engagement with their student life and their goals:

> *"Porque de manera voluntaria designo un espacio específico para mis clases, aislado de posibles distractores o situaciones que comprometan mi privacidad." (P. C).*

As part of the bigger picture, it seemed that students were inspired about overcoming this lockdown and kept growing themselves as well as participating to make a better community and finish their degrees.

Some other people had been in close contact with memes all over the net, which took part in some of the participants' answers, as one of them said that "Online classes are not that bad, having its cons and pros, such as being able to take classes from my bed" (P. D). The bigger picture contains lots of different points of view, and as stated before, this research did not take into account teachers' perspectives and feelings. Even though several students continued working hard in this distance learning context.

According to this paper's questions were:

What is the difference between online classes in which students use their video cameras and when they do not?

Is students' privacy threatened when using their cameras?

How do students feel when turning on their cameras?

The results as presented through the previous exhibits and in short phrases are shown as follows.

A great majority of students thought that cameras did not matter or affected their classes. A few thought that was something "good" for interaction as, and quoting: *"Creo que mi privacidad no es invadida porque es feo conectarse a una clase y ver puros cuadros negros." (P. Z).* This idea from a student was stating that the absence of human contact was affecting their feelings. Speaking of *"black windows"* when connecting to a class, the student was willing to share their bedroom, personal space, home, etc… as long as they could interact with their classmates in a digital scenario. Thus, this showed that participants needed to socialize and that is a natural fact, we are sociable beings.

Some others did not think that their privacy was in jeopardy. and for this mere case, here are some quotes directly from the survey's last question -both of them showing both sides of the coin-, Why? "Porque no tengo nada que ocultar" (P. D).

The exploratory analysis of data revealed that many students perceived that the importance of privacy needed to be considered only when they had to hide something, instead of as a right for people to maintain their privacy.

> "Porque de manera voluntaria designo un espacio específico para mis clases, aislado de posibles distractores o situaciones que comprometan mi privacidad" (P. E).

> "En interacciones presenciales yo decido cómo me presento ante el mundo en un entorno destinado a clases, en casa no controlo mi entorno y tampoco el tiempo que podría destinar a arreglo personal" (P. F).

In the previous quotes from Participant E and E, it was possible to look at two different points of view, in one hand one of them was capable and creating a suitable environment for his own at home, but on the other hand, participant F demonstrated that the opportunities at home for one were not the same for others, since he could not have control about his surroundings.

Another note as an exploratory fact of the research was one extract of the comment as it even managed to mention personal care, which was personal but -in the words of the writer- may also explain that some students waited till the last moment before connecting themselves online to appear on their classmates' screens. Demonstrating -also- the commodities of being at home, skipping social conventions -such as hygiene- besides having no contact with humans in the flesh at all.

The most significant results showed that most of the students have different problems dealing with video transmission. Although some students may be keen to put the video camera on, they encountered problems related to the internet-wide band or the low-quality internet service provided by the commercial internet services offered in Mexico. Furthermore, agreeing on turning on the video camera can be a problematic factor that may be uncomfortable for the learning environment, but not a crucial affectation for learning.

Findings summary

1.- A small number of students were facing trouble finding a reliable source of internet to attend classes.

2.- Most college students were –currently- living in a city.
3.- Download speeds from ISPs met and exceeded the same as required for most web conference providers.

4.- Even though the previous speeds were more than –enough- students still faced problems when connecting to these servers.

5.-There are just a few students that did not face any problems at all.

6.- At least in one class, the teachers said that to be taken into account the students had to turn on their cameras.

7.- A great majority of students thought that they knew what privacy was, but according to several authors quoted, not many students knew what privacy was.

8.- Most students stayed neutral as they thought that there was not any privacy abuse related to the use of video cameras, only a few thought that there was an abuse of privacy.

Discussion

As the inquiry was focused essentially on the use of video cameras in videoconferencing and the perceptions of the student of turning on the camera in remote classes, we could observe that they were not refusing to turn their cameras on since the problem is more oriented to the limitations the IPS they had to accomplish the wideband requirements. Furthermore, the results showed that they were not concerned about the use of cameras, as long as the videoconferencing was working properly. Not only did the limitations of IPS appear to be the problem, but the applications for online conferencing were sometimes demanding too many wideband and device technical requirements to run properly. In the psychological aspect, social interaction in videoconferencing could affect the participant's motivation and, even though data from the teachers working in remote teaching was not collected on this issue, there was no doubt that

some teachers felt kind of demotivated when their personality was socially oriented. This concludes that showing faces in videoconferencing provokes better learning and teaching environment, but all the participants can be adapted to create better environments by audioconferencing -if the videoconferencing is suddenly converted into audioconferencing. Quite contrary to this statement, Marchlik, Wichrowska, and Zubala (2021) affirmed that this remote teaching and learning was not a choice, but a forced action to continue delivering education; hence, participants were not prepared or keen to use videoconferencing for being trained.

In advice, further research may be required, on if the lockdown may continue or not, in any other case, due to the nature of distance learning it also may continue to be studied in most cases but only for non-developed countries such as the great majority of Latin America, and maybe even, some poor countries in Southeast Asia.

This research may be helpful to understand the nature of the student's behavior in distance learning environments, which are also dependent on technical issues. Ferrari, Punie, and Redecker (2012) agreed on the communicative digital competence that is required for being integrated into learning environments and highlighted the importance of developing the competence to interact properly in online learning to make the communication interaction effective. On the other hand, eventual studies (especially case studies) could focus the attention on teachers' behavior and how they feel when cameras are on or off in a video conference.

Conclusion

It is more than obvious that the lockdown that started in Mexico in March 2020 is still a major matter in 2022 for students all over the country. The "Secretaria de Educación Pública" was not prepared to face this. The UV wasn't either, a second study may be conducted as well to depict the opinions, feelings, and struggles of teachers. There may exist a lot of different concerns among them, and those -unfortunately- were not taken into account when this study was conducted, but it is almost mandatory to get to know the other side of the coin.

In the words of this writer, the research aimed to unveil what caused most of the opinions on social media such as memes, and funny moments recorded and uploaded on YouTube during

teaching sessions, as well as to understand what most of the lockdown shocked students on their daily life basis.

On the other hand, it is interesting to discover that students are aware of cameras, and their initial thoughts on using video cameras, while most of them blame their internet connections. But further information should be handed to teach them or –at least- make them aware of what privacy is, what teachers are allowed to ask for and what they cannot force students to do.

As privacy is a major important matter in western countries more details should be taken into account. No one has to be perturbed in their own homes or even more, anybody has the right to stay in the finest comfort in their room. Even though some teachers think that classes are going to be conducted the same way as in a normal classroom, it is more than obvious that that is not true.

People need to be aware of their rights, and not think that they have nothing to hide, or that their personal spaces are a matter for participating in classes, *empathy* is the correct word for these cases. Not everybody has the same opportunities as others, meanwhile, someone may be taking classes from their bed, from their dining room, or even as a young participant did from a coffee shop to get internet access. Hence, teachers can take control over a group, but not online. It goes against the most private and personal feelings of everyone.

Students are facing problems, that is a fact, but if schools, teachers, and students themselves can work together to solve these matters and be able to hand solutions as a team.

Further research is required to analyze and keep straight into teachers' perceptions as this paper only considered students. It is really important to get a plain sight of whichever troubles the teacher may have or be facing.

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