



## Motives and importance of using webcams in online higher education

Motywy i znaczenie korzystania z kamer internetowych w trakcie zajęć zdalnych<sup>1</sup>  
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**Abstract:** The pandemic continues to affect teaching and learning in higher education. Universities prefer the synchronous format of lectures and classes based on video-conferencing. The present research was inspired by the observation that university students often do not use webcams during classes. The research presented in this article is part of the broader discussion that organises different methods to improve the educational process. The aim of this research is to identify the motives behind students' use of webcams in remote learning as well as the meanings attached by lecturers and students to such use. The present study involved a web survey with open-ended questions, answered by 119 education (pedagogy) and psychology students and their 19 academic teachers. The sampling was non-probabilistic. The study has found that the majority of students express positive opinions on the use of webcams, saying that this fosters greater engagement during classes, improves communication and helps to build relationships between students and lecturers. However, while some students believe that the use of webcams supports concentration, others report effects such as distraction and believe that webcams hinder knowledge acquisition and competence development. When commenting on the negative aspects, students list the following: violation of privacy, fear of having their appearance and surroundings judged, feeling exposed to having their actions photographed/recorded by other participants, who may then share such content further. Students also point to difficulties arising from technical issues as well as problems in demarcating personal space that would be conducive to participation on online classes. On the other hand, lecturers believe that students' use of webcams helps to: make the contact real, increase student engagement, establish positive relations, improve communication and create a good atmosphere in an online classroom. However, they realise that compulsory use of webcams may cause embarrassment and trigger resistance among students.

**Keywords:** higher education, webcams, online learning, synchronous communication, online classes

**Abstrakt:** Sytuacja pandemiczna nadal wpływa na nauczanie i uczenie się w szkolnictwie wyższym. Akademie preferują synchroniczną formę zajęć z wykorzystaniem wideokonferencji. Zainicjowane badania wynikają z obserwacji, że studenci często korzystają z kamer internetowych w trakcie zajęć. Przedstawione w niniejszym artykule badania stanowią część szerszej dyskusji porządkującej sposoby doskonalenia procesu edukacyjnego. Celem badania jest identyfikacja motywów używania kamer internetowych przez studentów w nauczaniu na odległość oraz znaczeń, jakie wykładowcy i studenci przypisują ich włączaniu. Badania przeprowadzono za pomocą ankiety internetowej z pytaniami otwartymi przesłanymi przez 119 studentów pedagogiki i psychologii oraz ich 19 nauczycieli akademickich. Dobór próby był nieprobabilistyczny. Okazuje się, że większość studentów pozytywnie ocenia korzystanie z kamer internetowych, mówiąc, że sprzyja to większemu zaangażowaniu w zajęcia, lepszemu komunikacji i budowaniu relacji między studentami a wykładowcami. Podczas gdy niektórzy uczniowie doświadczają korzystania z kamer internetowych jako sprzyjających skupieniu uwagi, inni zgłaszają skutki rozpraszania uwagi oraz utrudniania procesu zdobywania wiedzy i rozwijania kompetencji. Komentując negatywne aspekty, uczniowie wskazują: naruszenie prywatności, lęk przed oceną swojego wyglądu i otoczenia, poczucie narażenia na robienie zdjęć / rejestrowanie ich działań przez innych uczestników, którzy mogą następnie udostępnić treści. Uczniowie zwracają również uwagę na trudności wynikające z problemów technicznych oraz problemy z wydzieleniem przestrzeni osobistej sprzyjającej uczestnictwu w zajęciach. Z kolei dla wykładowców włączanie przez studentów kamerki sprzyja: urzeczywistnieniu kontaktu, zwiększaniu zaangażowania uczniów, nawiązywaniu pozytywnych relacji, poprawie komunikacji i tworzeniu dobrej atmosfery na zajęciach online. Zdają sobie jednak sprawę, że nakaz włączania kamerki, może wywoływać u studentów zakłopotanie i opór.

**Słowa kluczowe:** edukacja w szkole wyższej, kamerki internetowe, nauka online, synchroniczna komunikacja, zajęcia online

1 Artykuł w języku polskim: <https://www.stowarzyszeniefidesetratio.pl/fer/2022-2Franko.pdf>

## **Introduction**

The COVID19 pandemic entailed changes in almost every aspect of our lives. One such aspect is the operation of higher education institutions (HEI). We witnessed a rapid transition from the traditional management model to one that enables universities to successfully cope with new challenges. These steps provided an opportunity to adapt to the new situation, especially in terms of pursuing the educational process. Since social distancing was considered to be the most effective preventive strategy that would slow the spread of COVID19 (Rose, 2020), universities decided to undertake online education. University lecturers and teachers had to adapt their teaching methods to the new conditions almost overnight.

As a result, new challenges emerged, especially in the context of the efforts to pursue education in the synchronous mode. They mostly involved the necessity to counteract digital exclusion and to adapt the curricula to the educational process based on online platforms in a way enabling verification of learning outcomes. All this occurred in an atmosphere of insecurity, increased prevalence of anxiety and symptoms of depression (Fruehwirth, Biswas, Pereira, 2021) as well as incidence of illnesses preventing many students and academic teachers from taking an active part in classes.

An urgent challenge emerged to define a framework for the educational process carried out with the use of various video-conferencing tools. Many questions arose as to how to improve the process by adding tools efficiency-enhancing strategies. These questions remain valid since synchronous online education has become an integral part of the education process in HEI.

This article presents research results that fit well into this discussion. The main intention was to explore students' motives for using webcams in remote learning and the meanings they attribute to their use. A decision was made to explore the perspectives of both students and lecturers by inviting both groups to express opinions on the topic. The time of the COVID19 pandemic delineates a specific context, referred to as 'emergency remote teaching' in response to a crisis (Hodges, More, Lockee, Trust, Bond, 2020).

An analysis of the experiences of this period, leading to lessons learnt can foster the construction of a more balanced online learning system in the future.

## **1. Literature review**

For many years, researchers have asked how to make an effective use of online resources in the educational process (Kopp, Gröbinger, Adams, 2019; Leszczyński, Charuta, Laziuk, Galazkowski, Wejnarski, Roszak, Kolodziejczak, 2018). This is certainly facilitated by synchronous online education, which provides opportunities for real-time collaborative learning, greater interactivity and engagement among students, as well as the provision of immediate feedback (Racheva, 2018). Additionally, it helps to satisfy psychological needs (Fabriz, Mendzheritskaya, Stehle, 2021) and to build a sense of community (Lin, Gao, 2020).

Remote education also fosters a sense of belonging, which is linked to the notion of social presence, defined as students' ability to engage in an online learning community (Joksimović, Gasević, Koranović, Riecke, Hatala, 2015), the way they perceive and build a sense of connection with teachers and peers in a virtual environment (Alenezi, 2022). Social presence influences satisfaction and perception of learning (Swan, Shih, 2005).

In this context, one of the most important aspects that fosters interpersonal contact is active participation in video conferences with the use of webcams. It enhances social presence and communication, and increases the sense of belonging and social bonding among participants (Olson, Grinnell, McAllister, Appunn, Waters, 2012). Research confirms that the simultaneous use of multiple tools to supporting social interactions online (webcams, audio, chat) as well as feedback, boosts engagement in the process and autonomous motivation, which in turn is related to the final grades (Giesbers et al., 2013).

Moreover, teachers have the possibility to observe non-verbal responses and tailor the message better on this basis. Finally, synchronous communication

with webcams may counteract the negative effects of social distancing during a pandemic, such as the sense of loneliness, low mood and depression (Huckins, DaSilva, Wang, Hedlund, Rogers, Nepal, Wu, Obuchi, Murphy, Meyer, Wagner, Holtzheimer, Campbell, 2020). On the other hand, the requirement to use a webcam may exacerbate malaise, particularly given that young adults are disproportionately affected by pandemic-induced stress (McGinty et al., 2020). Additionally, researchers emphasise that Internet-mediated communication is more conducive to the transfer of knowledge but less conducive to the acquisition of practical skills (Czeczayński, Kunikowska, 2020).

A decision not to use webcams may be caused by technical barriers. Other reasons may include the lack of comfortable space to participate in classes without hindrances, shyness and embarrassment about one's home environment (Gherheş, Şimon, Para, 2021) or fears related to one's appearance (Castelli, Sarvary, 2021). The non-use of webcams may be related to the nature of the activities, group cohesion, as well as gender and the desire to maintain privacy (Bedenlier, Wunder, Gläser-Zikuda, Kammerl, Kopp, Ziegler, Händel, 2021). Additionally, researchers emphasise that participation in video conferences entails an experience that was hitherto reserved for close relationships, such as looking at each other for long periods of time and seeing other people's faces in a close-up (Bailenson, 2021). Another reason may be that the brain associates prolonged participation in video conferences with fatigue. There is even a recent coinage, namely 'Zoom fatigue', which describes the stress, fatigue, anxiety and concerns that arise from such meetings (Bonanomi, Barello, Villani, 2021). Researchers argue that this phenomenon mainly stems from the complexity of human interactions and high complexity of the processes occurring during video-conferencing (Nadler, 2020). It is related to the need for greater focus and engagement as there is no possibility to read body language, except for signals coming from cropped pictures of faces.

The scarcity of research into the reasons for not using webcams during online classes perpetuates uncertainty as to how academic teachers should behave, and what kinds of rules they should set for online encounters.

## **2. Methodology**

The aim of the present research was to explore university students' motives for using webcams in remote learning and the meanings attributed to their use by academic teachers and students. The research work was centred around the following research questions:

1. What are students' general attitudes towards the use of webcams in remote classes?
2. What are lecturers' general attitudes towards the use of webcams in remote classes?
3. What are the positive aspects of using webcams in class, as identified by students?
4. What are the negative aspects of using webcams in class, as identified by students?
5. What are the positive aspects of using webcams in class, as identified by lecturers?
6. What are the negative aspects of using webcams in class, as identified by lecturers?
7. What are the research participants' suggestions/postulates for the future regarding the use of webcams in class?

The study was based on semi-structured interviews conducted with a questionnaire containing open-ended questions. The use of open-ended questions, unlimited time and uncontrolled expression were intended to enable unrestricted opinions that would help to identify the motives and meanings attributed to students' use of webcams in remote classes. Links to the questionnaires (in the version for students or lecturers, respectively) were provided to 119 education (pedagogy) and psychology students and lecturers at three Polish universities: the University of Warmia and Mazury in Olsztyn, the Pontifical Faculty of Theology in Wrocław and the University of Lower Silesia in Wrocław.

Table 1. Characteristics of the studied group: Students

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1S	M	14.06.21	Ps	II	31S	K	14.06.21	Ps	I	61S	K	5.11.21	Ped	II	91S	K	8.11.21	Ped	V
2S	K	14.06.21	Ps	I	32S	K	14.06.21	Ps	I	62S	M	5.11.21	Ps	II	92S	K	8.11.21	Ped	V
3S	K	14.06.21	Ps	I	33S	K	14.06.21	Ps	I	63S	K	5.11.21	Ps	II	93S	K	8.11.21	Ped	II
4S	K	14.06.21	Ps	II	34S	M	14.06.21	Ps	V	64S	K	5.11.21	Ped	II	94S	K	8.11.21	Ped	V
5S	K	14.06.21	Ps	I	35S	K	14.06.21	Ps	V	65S	K	5.11.21	Ped	II	95S	K	8.11.21	Ped	V
6S	K	14.06.21	Ps	I	36S	K	15.06.21	Ps	V	66S	K	5.11.21	Ped	II	96S	K	8.11.21	Ped	V
7S	K	14.06.21	Ps	I	37S	M	15.06.21	Ps	V	67S	K	5.11.21	Ped	II	97S	K	8.11.21	Ped	V
8S	K	14.06.21	Ps	I	38S	K	15.06.21	Ps	I	68S	K	5.11.21	Ps	II	98S	K	8.11.21	Ped	V
9S	K	14.06.21	Ps	I	39S	K	15.06.21	Ps	II	69S	M	5.11.21	Ped	II	99S	K	8.11.21	Ped	V
10S	K	14.06.21	Ps	I	40S	K	15.06.21	Ps	I	70S	K	5.11.21	Ped	II	100S	K	8.11.21	Ped	V
11S	K	14.06.21	Ps	I	41S	M	16.06.21	Ps	I	71S	K	5.11.21	Ped	II	101S	K	8.11.21	Ped	V
12S	K	14.06.21	Ps	I	42S	M	17.06.21	Ps	V	72S	K	5.11.21	Ps	II	102S	K	8.11.21	Ped	V
13S	K	14.06.21	Ps	I	43S	K	17.06.21	Ped	IV	73S	K	5.11.21	Ped	II	103S	K	8.11.21	Ped	V
14S	K	14.06.21	Ps	I	44S	K	17.06.21	Ps	I	74S	M	5.11.21	Ps	II	104S	M	8.11.21	Ped	V
15S	K	14.06.21	Ps	V	45S	M	17.06.21	Ps	I	75S	M	6.11.21	Ps	II	105S	M	8.11.21	Ped	V
16S	K	14.06.21	Ps	I	46S	K	17.06.21	Ped	III	76S	K	6.11.21	Ps	II	106S	K	8.11.21	Ped	V
17S	K	14.06.21	Ps	I	47S	K	17.06.21	Ped	III	77S	K	6.11.21	Ps	II	107S	K	8.11.21	Ped	V
18S	K	14.06.21	Ps	II	48S	M	18.06.21	Ped	IV	78S	K	6.11.21	Ps	II	108S	K	8.11.21	Ped	V
19S	K	14.06.21	Ps	I	49S	K	19.06.21	Ped	V	79S	K	6.11.21	Ps	II	109S	K	8.11.21	Ped	V
20S	K	14.06.21	Ps	I	50S	K	22.06.21	Ps	I	80S	K	7.11.21	Ps	II	110S	K	8.11.21	Ped	II
21S	K	14.06.21	Ps	I	51S	K	25.06.21	Ps	V	81S	K	7.11.21	Ped	II	111S	K	8.11.21	Ps	II
22S	K	14.06.21	Ps	I	52S	K	29.06.21	Ped	II	82S	M	8.11.21	Ped	II	112S	K	8.11.21	Ped	V
23S	K	14.06.21	Ps	I	53S	K	22.07.21	Ps	I	83S	K	8.11.21	Ped	II	113S	K	9.11.21	Ped	III
24S	K	14.06.21	Ps	I	54S	K	1.11.21	Ped	III	84S	K	8.11.21	Ped	III	114S	K	9.11.21	Ped	II
25S	K	14.06.21	Ps	I	55S	M	1.11.21	Ped	III	85S	K	8.11.21	Ped	V	115S	K	11.11.21	Ped	III
26S	K	14.06.21	Ps	I	56S	K	2.11.21	Ped	III	86S	K	8.11.21	Ped	V	116S	K	11.11.21	Ped	V
27S	K	14.06.21	Ps	I	57S	K	2.11.21	Ped	III	87S	K	8.11.21	Ped	V	117S	K	14.11.21	Ps	II
28S	K	14.06.21	Ps	I	58S	K	5.11.21	Ped	II	88S	M	8.11.21	Ped	II	118S	M	16.11.21	Ped	III
29S	K	14.06.21	Ps	I	59S	K	5.11.21	Ped	II	89S	K	8.11.21	Ped	V	119S	K	16.11.21	Ped	III
30S	K	14.06.21	Ps	I	60S	K	5.11.21	Ped	II	90S	K	8.11.21	Ped	V					

1 - Respondent identifier;  
 2 - Gender (F - female, M - male);  
 3 - Date surveyed (dd.mm.yy);  
 4 - Field of study (Ps - Psychology; Ed - Education (Pedagogy));  
 5 - Year of study (I, II, III - respectively: 1st, 2nd or 3rd year at a first-cycle / long-cycle degree programme; IV, V - respectively: 1st or 2nd year at a second-cycle degree programme / 4th or 5th year at a long-cycle degree programme.

Source: Author's own research.

A total of 19 education (pedagogy) and psychology lecturers participated in the study.

The sampling was non-probabilistic, and availability-based. The research was conducted towards the end of the 2020/2021 summer term and the beginning of the 2021/2022 winter term.

Table 2. Characteristics of the studied group: Lecturers

Respondent identifier	Gender (M or F)	Date surveyed (dd.mm.yy)	Teaching experience, in years
1L	M	27.05.21	6-10
2L	F	07.06.21	6-10
3L	F	17.06.21	16-20
4L	F	17.06.21	Over 20
5L	F	18.06.21	Over 20
6L	M	18.06.21	Over 20
7L	F	30.10.21	16-20
8L	F	30.10.21	1-5
9L	F	30.10.21	1-5
10L	M	31.10.21	Over 20
11L	F	31.10.21	6-10
12L	F	31.10.21	Over 20
13L	F	01.11.21	16-20
14L	M	02.11.21	16-20
15L	F	03.11.21	Over 20
16L	F	05.11.21	11-15
17L	M	05.11.21	Over 20
18L	F	05.11.21	6-10
19L	M	07.11.21	Over 20

Source: Author's own research.

### 3. Students' motivations for using webcams in remote learning and the meanings attributed to the use of webcams by students and lecturers

#### 3.1. Students' attitudes towards the use of webcams in remote classes

Participants do notice positive aspects of the use of webcams in the conduct of classes (71 people; 59,7%). They consider such use useful or necessary, or even essential. Even if they had some difficulties using a webcam, became accustomed to it and appreciate positive effects.

Participants (37 students; 31,1%) have a negative attitude towards the use of web cameras, which they express in the following responses: "I don't turn it on, I don't like it, I don't want to" (1S), "it's uncomfortable" (9S), "it stresses me out" (3S), "cumbersome and inconvenient" (84S). These students claim that webcams are "not needed at all" (29S) in the remote learning process and create "an artificial atmosphere" (76S). Others, despite being reluctant, also notice positive aspects and effects of webcam use.

Also, 9,2% students (11 people) indicate that the use of web cameras is not relevant for the quality of their education, e.g. "as an auditory learner, I am a listener in class anyway, with my eyesight controlling the note-writing" (48S).

#### 3.2. Lecturers' attitudes towards students' use of webcams in remote classes

Lecturers point to the necessity or positive aspects of webcam use (16 people). One lecturer believes that "this is not the most important aspect in remote teaching" (3L) and adds "I do not require webcams to be turned on because I believe that students are grown-up people, able to decide for themselves whether they want to participate in the classes and to what extent." Another one states that "turning webcams on in large groups makes no sense" (18L). Another one draws attention to personal image protection and does not recommend the use of web cameras (10L). Four lecturers also demonstrate an under-

standing for non-use of webcams by students, while emphasising the importance of lecturers having their webcam on (1L, 8L, 10L, 16L).

However, there are also other voices: *“At first, I set a requirement that students should turn on their cameras. Later on, I realised that they sometimes fail to do it because of barriers, and circumstances beyond their control. However, I still think it should be a requirement. If, for some reason, a student cannot meet this requirement, they should contact the teacher and explain the situation”* (7L).

### 3.3. Positive aspects of using webcams, as identified by students

The following aspects were most commonly identified by students as conducive to the use of webcams:

- increased focus and engagement in activities (62,2%, 74 people), i.e. attention sustained for longer, increased activity: *“they discipline us and motivate us to take an active part in classes”* (6S); *“in small groups (...), this improves the atmosphere and engagement”* (68S), *“it mobilises people to act, to be active”* (69S), improved remembering and understanding of content, better quality of classes (24S, 87S, 89S), enhanced attractiveness of classes (32S, 82S);
- empathy for the teachers (42,9%; 51 people): *“to make the lecturers feel better”* (21S), *“to offer encouragement to lecturers”* (22S), *“it’s easier to conduct classes when you see faces rather than icons/avatars”* (45S), *“the lecturer also does a better job when they see interest from the audience”* (38S), *“I feel sorry for the lecturers, I get the impression that it makes them feel that no one is listening to them”* (40S), *“I turn it on when I see that the lecturer’s happiness is higher than my discomfort of having it on”* (45S), *“it is easier for the lecturer to verify whether the knowledge they’re conveying is understandable”* (38S);
- better communication (39,5%; 47 people): *“[without a camera] you can’t see people’s reactions”* (7S), *“[when cameras are on] it promotes discussion”* (38S);
- building personal relationships with other students (34,4%; 41 people): *“to know, at least to a small extent, what my fellow students look like”* (6S), *“a way for the group to integrate”* (104S), *“people feel a little closer to one another”* (33S), *“this is necessary for us not to feel like computers, but to feel like humans”* (87S);
- a guarantee of students’ actual participation in class / exams or tests (16,8%; 20 people): *“it verifies the speaker, it’s for identification”* (34S);
- better organisation (10,9%; 13 people): *“through your clothes, tidying up your desk/bedroom etc.”* (47S), *“it forces you to get ready in the morning and get out of bed”* (18S);
- preparation for working with people (5,9%; 7 people): *“it overcomes our fears, fear of public speaking”* (54S), *“I think it’s the first step towards overcoming our own weaknesses, embarrassment in vulnerability”* (18S), *“how is a psychology student going to talk to a patient in the future if they are afraid to show up??”* (13S).

### 3.4. Negative aspects of using webcams in remote classes, as identified by students

Students indicated the following negative aspects of using webcams during remote classes:

- unpleasant feelings (66,4%; 79 people): stress, tension, nervousness: *“they are too stressful in some situations”* (20S), *“it’s embarrassing”* (18S), feeling ashamed: *“we’re ashamed of how we look, afraid of being judged by people”* (9S), *“at first, I was ashamed when doing this”* (19S, 103S);
- technical difficulties (52,9%; 63 people): deteriorating connection quality *“greater technical glitches (the video freezes, the video doesn’t keep up)”* (15S), *“the Internet connection is jammed”* (23S), *“difficulties with keeping the class smooth”* (105S), *“when many people turn their cameras on, this makes it difficult for the teacher because the network is overloaded”* (12 S), *“I decided to change my Internet connection after a year”* (48S); having no camera *“not everyone has a camera in*

*their laptop or computer, and using your phone is neither convenient nor practical, and it can be embarrassing*" (71S);

- uncomfortable conditions at home (45,4%, 54 people): *"what definitely makes it difficult is some hard situation at home, like noisy younger siblings or the fact that they share a room with them, for example"* (12S), *"family members don't care, they walk in and out as they please"* (33S), *"everyone kind of knows they're supposed not to disturb, but my physical presence at home means they think they can interrupt my classes for a while"* (38S);
- fear of one's appearance being judged (42%; 50 people): *"we are ashamed of our appearance and afraid of being judged by people"* (9S);
- invasion of privacy – one's own and household members (27,7%; 33 people): *"I treat my flat as something very private and feel bad when I have to show it to others"* (15S), *"we don't live alone, there might be a roommate (or worse, my dad father) accidentally coming in the background in his underpants, this is already a good enough reason to become a laughing stock"* (45S);
- lack of concentration on the content of classes (12,6%; 15 people): *"instead of focusing on lectures or tutorials, you get distracted by seeing familiar faces on the screen (...), it's easier for us to participate actively in classes when others can't see us"* (25S), *"it's hard to focus on things other than your own image on the screen"* (39S);
- the sense of being watched (12,6%; 15 people): *"when someone is looking at us in a real-life situation, we will notice it, but it's impossible to spot it online, and other people are certainly looking at us"* (68S);
- fear of having one's image captured/recorded (7,6%; 9 people): *"anyone can take a screenshot (...), use the photos for things like memes, especially when the camera freezes and you are stuck with a funny face for a longer while"* (76S);
- fatigue (3,4%; 4 people): *"fatigue from being constantly active, constantly paying attention"* (38S).

### 3.5. Positive aspects of using webcams in remote classes, as identified by lecturers

The surveyed lecturers identified the following positive aspects of using webcams during remote classes: confirmation of contact *"I know that someone is out there at the other end"* (1L), stimulating student engagement *"mobilisation to act, mobilisation to look good, to take care of the space around them"* (12L), improved quality of classes *"when we conduct workshops, absence of cameras makes it virtually impossible to conduct them in a way to achieve the learning goals"* (16L), establishing *"personal relations"* (5L), avoiding anonymity (5L, 7L, 9L, 15L), improving communication *"showing emotions, non-verbal messages"* (10L), *"taking care of non-verbal elements in communication (...), better atmosphere in the class, and better communication"* (12L), *"improved communication, possibility to observe mutual reactions"* (13L).

### 3.6. Negative aspects of using webcams in remote classes, as identified by lecturers

The surveyed lecturers identified the following negative aspects of using webcams during remote classes: deteriorated quality of signal at both ends *"the app freezes, the Internet crashes"* (14L), students' embarrassment *"they are ashamed of their appearance and/or their surroundings, they have no good conditions at home for remote learning"* (12L), *"a sense of being constantly watched"* (13L), *"reluctance about being exposed"* (18S), as well as students' resistance and fatigue: *"if cameras are on for a long time, and constantly switched on, this can lead to fatigue"* (5L).

### 3.7. Respondents' suggestions/postulates for the future regarding the use of webcams in class

Students (56,3%; 67 persons) suggest that the use of webcams during classes should be voluntary: *"I am in favour of webcams not being forced on us, but lecturers can ENCOURAGE us, without pressurising us to do it"* (45S), *"without forcing us but with gratitude :)"* (24S), *"only when someone feels like it"* (2S), *"I think there should be a free choice in this matter"* (25S), *"not*

*forcing people to do it, and accepting that not everyone wants to turn their camera on” (51S), “teachers should be more understanding” (5S), “I’d suggest that lecturers encourage us to turn the cameras on, but not in a pushy, coercive way, and they should also turn them on, as this can be an incentive for students to switch their webcams on” (72S), “they can ask for it at the beginning of the class but they shouldn’t force us” (36S), “this should be voluntary, or the lecturer should tell us at least one day in advance that webcams would be required” (20S).*

Lecturers who understand this expectation express the following opinions: *“I really want the cameras to be on, but I do realise that they are switched off for various reasons. That’s why it is difficult to introduce any rules for their use. Sometimes people may simply have no such camera” (8L), “a flexible approach, but with a preference for having webcams on. It’s very important to have contact with people, also visually” (5L).*

Students suggest that webcams should not be used by people who are not speaking at the moment, and accept the need to use a camera when they are presenting, during an exam, consultation with a lecturer or when attendance is being checked (47,9%; 57 persons).

A group of 21 students (17,6%) favour mandatory, constant use of webcams: *“everyone should have their webcams on” (16S), “it should be compulsory; then we wouldn’t have splits and conformism anymore; coercion means that everyone must conform; and they would grumble and find ways out at the beginning, but then everyone would accept it, and it would be easier for everyone” (33S), “everyone must turn their webcam on during a classes, not only, say, five people in the group” (9S).* These respondents also suggest the following consequences: *“having your webcam on, and if you fail to turn it on a few times, you’ll have to, say, write an essay” (49S, 66S), “[keeping the webcam off] should mean that people get lower final grades” (68S) or “get no credit for the class” (70S), “in order to change the situation with webcams, pressure from the teacher would be needed, and everyone would get used to it over time” (14S).*

Like-minded lecturers expressed the following views: *“everyone has their camera on” (4L), “they should be always on for classes to be effective” (9L), “introducing some top-down regulations that students must attend classes with their cameras on” (11L), “asking, instructing people to do so, making them bear negative consequences as a last resort” (17L).* However, other lecturers demonstrate a different perspective on such requirements: *“I think that asking for cameras to be on will be difficult to enforce. Perhaps talking to students at the beginning of the class, and presenting your opinion about it might get through to them” (6L), “If the university provided students with equipment and access to a fast Internet connection, then students could indeed be required to use webcams, but there are still inequalities in this regard. Even some teachers experience technical problems:)” (1L).*

Furthermore, students themselves called for an understanding in the case of hardware problems: *“if the software didn’t jam with more cameras on, then anyone who feels comfortable about it could have it on” (23S).* They also pointed to a negative effect of compulsory use of webcams, namely resistance: *“if it’s compulsory, I notice that the atmosphere is sour and people are unwilling to take part” (50S).*

The following demands were also expressed by the surveyed students: *“it’s best if either everyone has a webcam or nobody turns them on” (7S), “the imposed rules should also be respected by lecturers; either we all have cameras on, or nobody has. (I had one class where the lecturer asked us to switch on the cameras but he remained invisible, this was very uncomfortable and unfair)” (47S), “voting, the majority wins” (60S), “a teacher without their camera on is pathetic, in my view:)” (116S), “it’s not pleasant when the teacher has their camera off” (9S).* As if in response to these expectations, one lecturer called for *“respecting the decisions of both the teacher and the students who want their personal image to be protected” (10L).*

Both students and lecturers declare the need for individual policies and discussions on the subject. They also suggest training and related preparation for both students and lecturers alike:

- individually, tailored to the subject, activity and group (27 students, 3 lecturers): *“the rules would need to be selected for each specific group, there shouldn’t be any general rules”* (46S), *“I’d expect students to turn on their cameras when speaking but also when performing group tasks”* (79S), *“setting some rules”* (1L), *“these issues are to be decided between the course instructor and the specific student group”* (16L), *“This has to be worked out/agreed on in each group. With our technical potential, rigid adherence to a fixed pattern can only lead to tensions and stress”* (15L);
- training for students and lecturers (2 students, 3 lecturers): *“preparing students to work with webcams on”* (37S), *“training/educating the teaching staff about the use [of webcams] and the possibilities offered by remote teaching”* (48S), *“I’d encourage the university to take up the topic, e.g. by developing some kind of campaign. Additionally, it would be good for the lecturers to discuss good practices in this regard”* (7L), *“to teach and inform people about the consequences of learning with or without eye contact, without a substitute of face-to-face encounters”* (11L).

The primary motive for using a webcam, as revealed by 85,7% (102) surveyed students and 89,5% (17) lecturers, is an explicit request or instruction by the lecturer to do so. Students are not proactive in this respect. Both students and lecturers observe such motives for using webcams as enhanced concentration and engagement in activities, improved communication, building personal relationships or confirming class attendance. Particularly noteworthy is the motive mentioned by students, i.e. understanding, empathy and respect for the lecturer.

Students and lecturers differ in terms of the meanings they ascribe to the very fact of switching the camera on, as reflected in the research findings presented above. Lecturers and some students consider this to be a natural and essential element of the educational process. Students also pointed out that webcam use may play a disruptive role and diminish the quality of their education.

## Discussion and conclusions

The COVID19 pandemic temporarily deprived students of face-to-face learning opportunities, leading to reduced social interaction, which is an important part of the learning process. Although higher education temporarily returned to the on-site mode, in the future universities will integrate online courses as part of education system.

Many studies, including the present one, confirm that remote education can be effective in certain areas. Research has revealed a number of reasons, other than laziness or cheating, why students refrain from using webcams, and this can provide valuable insights for academic teachers. Respondents’ statements also show the advantages of using webcams and how this can be applied in remote teaching. However, it is worth undertaking systemic measures to support academic teachers and students to make sure that the process of education which is partially carried out remotely can proceed without compromising the quality of education and standards required by curricula (UNESCO, 2021). Multiple efforts are needed to this end, such as steps to ensure interactive education. It is recommended that systems should be designed to monitor the needs and required changes in higher education and that research in this area is undertaken (UNESCO, 2021).

A mandatory use of webcams by students is not a recommended strategy, for instance because non-use may stem from extremely sensitive reasons, such as, for example, fear of being judged on the basis of the setting where they pursue their remote learning (Castelli et al., 2021). It seems beneficial to employ multiple methods to encourage students’ participation in the communication process, such as forums, chat or collaborative document editing (Castelli et al., 2021). One useful practice would be to define norms at the start of a course. These conclusions are also supported by the present study. When asked about negative aspects of using webcams during remote classes, students most commonly mentioned the following: fear of their appearance being judged, insecurity, risk of being recorded/having an unfavourable photo taken and shared

further, sense of being observed, unpleasant feelings undermining their sense of comfort, lack of concentration on the content of classes, fatigue caused by continuous activity and constant attentiveness, uncomfortable conditions at home, violation of privacy (their own and their household members'), technical difficulties (unavailability of a webcam or deteriorated connection quality for both sides with the cameras on), and students' resistance. In turn, lecturers identified the following negative aspects: deteriorated connection quality at both ends, and students feeling embarrassed. This study has also confirmed some reasons for not using webcams that have been identified in parallel by other studies, such as technical reasons (lack of a reliable Internet connection or a computer with a working webcam and microphone), lack of a comfortable space for unrestrained participation in classes, shyness and embarrassment about the appearance of one's home (Gherheş, Şimon, Para, 2021), concerns about one's looks (Castelli, Sarvary, 2021), as well as the desire to maintain privacy (Bedenlier et al, 2021) and the phenomenon of "Zoom fatigue" (Bonanomi, Barello, Villani, 2021).

Students do notice positive aspects of running classes with webcams on: it fosters their engagement in activities, enhances communication and relationship-building with other students and lecturers. Lecturers have also indicated positive aspects of webcams being used by both students and lecturers. They also demonstrate an under-

standing for students not using webcams while emphasising the importance of webcam use by lecturers. What seems particularly noteworthy is that many of the surveyed students and lecturers want to build mutual relationships, and students are empathetic and concerned about the well-being of their lecturers. Thus, this research has confirmed that synchronous online education provides opportunities for greater interactivity and engagement among students, constructive feedback as well as real-time collaborative learning (Racheva, 2018), it helps to satisfy psychological needs (Fabrız, Mendzheritskaya, Stehle, 2021), and builds a sense of community (Lin, Gao, 2020).

The research presented in this paper was exploratory in nature: while it sheds light on this new phenomenon, it is certainly not exhaustive. What is definitely an important and new aspect of this study is to show the problem from two perspectives and to find, for example, an insight that was previously undetected, namely that students expect the use of webcams during remote classes to be voluntary, while lecturers understand this expectation. Moreover, both students and lecturers declare the need for introducing individual policies and discussing them, as well as the need for training and related preparation for both students and academic teachers. Thus, the need to develop training in this sphere is a valuable conclusion of the present study.

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