Communication barriers in emergency remote education

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ABSTRACT. Despite the abundance of methods, materials, pedagogical philosophies, and a variety of teacher training programs, many educators still do not have the skills and self-efficacy to effectively navigate the new combinations of distance, blended, and in-classroom learning. The review of literature signals the disrupted nature of teacher-student communication caused by the coronavirus pandemic. This is a literature review focused on the findings of 206 published open-access journal articles on teacher-student educational interaction during the COVID-19 pandemic. The primary goal of the current research is to provide an initial indication of the potential size and nature of the extant communication barriers in emergency remote learning. Furthermore, authors attempt to draw overall conclusions about the merits of existing propositions or methods aimed at overcoming the existing barriers. The complaints reported in the surveys include technical, psychological, personal, emotional, and health issues, lack of feedback, and poor student engagement. The latter prompts us to search for good practices that solve the aforementioned teacher-student interaction barriers or reduce the scope of these barriers. The outcomes of this study can help theorize about the many forms of barriers that exist in teacher-student interactions in emergency remote learning.

Keywords: COVID-19, emergency remote teaching, pandemic learning, educational interaction, teacher-student interaction.

Barreras de comunicación en la educación a distancia de emergencia

RESUMEN. A pesar de la abundancia de métodos, materiales y filosofías pedagógicas, una variedad de programas de formación de profesores, muchos educadores aún no tienen las habilidades requeridas para navegar efectivamente en los nuevos espacios educativos. Sin embargo, una revisión de la literatura señala la naturaleza interrumpida de la comunicación entre docentes y alumnus, causada por la pandemia del coronavirus (COVID-19). Esta es una revisión de la literatura centrada en los hallazgos de 206 artículos publicados en revistas de acceso abierto sobre la interacción educativa entre maestros y estudiantes durante la pandemia de COVID-19. El objetivo principal de la investigación actual es proporcionar una indicación inicial del tamaño potencial y la naturaleza de las barreras de comunicación existentes en el aprendizaje remoto de emergencia. Además, los autores intentan sacar conclusiones generales sobre los méritos de las proposiciones o métodos existentes destinados a superar las barreras existentes. Las quejas reportadas en las encuestas incluyen técnicas, psicológico, personal, emocional, problemas de salud, falta de retroalimentación, poca participación de los estudiantes. Este último incita a buscar buenas prácticas que resuelvan las barreras de interacción profesor-alumno señaladas o reduzcan el alcance de estas barreras. Los hallazgos de este estudio pueden ofrecer una contribución teórica para comprender los diferentes tipos de barreras en las interacciones docente-alumno en el aprendizaje remoto de emergencia.

Palabras clave: COVID-19, enseñanza remota de emergencia, aprendizaje pandémico, interacción educativa, interacción maestro-alumno.

Barreiras de comunicação no ensino remoto emergencial

RESUMO. Apesar da abundância de métodos pedagógicos, materiais e filosofias, e de uma variedade de programas de formação de professores, muitos educadores ainda carecem de habilidades e autoeficácia necessárias para navegar efetivamente nas novas combinações educacionais de ensino a distância, semipresencial e presencial. Uma revisão da literatura sinaliza a natureza perturbada da comunicação professor-aluno. Este artigo aborda uma revisão de literatura focada nas descobertas de 206 artigos publicados em periódicos de acesso aberto sobre a interação educacional professor-aluno durante a pandemia. O objetivo principal da pesquisa atual é fornecer uma indicação inicial do tamanho potencial e da natureza das barreiras de comunicação existentes no aprendizado remoto de emergência. Além disso, os autores tentam tirar conclusões gerais sobre os méritos das proposições ou métodos existentes destinados a superar as barreiras existentes. As reclamações relatadas nas pesquisas incluem barreiras técnicas, psicológicas, pessoais, emocionais, problemas de saúde, falta de *feedback*, baixo engajamento dos alunos. Este último leva à busca de boas práticas que solucionem as barreiras de interação professor-aluno delineadas, ou reduzir o alcance dessas barreiras. Os achados deste estudo podem oferecer uma contribuição teórica para a compreensão dos diferentes tipos de barreiras nas interações professor-aluno no ensino a distância emergencial.

Palavras-chave: COVID-19, ensino remoto de emergência, aprendizagem pandêmica, interação educacional, interação professor-aluno.

Introduction

At the end of 2019–beginning of 2020, the world faced an extreme situation – the COVID-19 pandemic, which affected all categories of the population worldwide. It destroyed the habitual lives of people, altered social interactions and limited basic human needs, like the possibility of obtaining various incentives from the external environment, the possibility of direct communication with significant people, and increased the flow of disturbing information from the media. All these factors cause psychogenic reactions in the population and social stress.

The recurring responses from queries and probes pertaining to these research questions strongly suggest that the education sector is the most prone area for this dangerous disease. Its impact is highly relevant to the university student population (Cao et al., 2020) and the entire academic population (Casacchia et al., 2021). This new scenario tests the adaptability, willingness to change, and flexibility of academia all over the world.

With the level of synchronicity now available to virtually anyone with access to a telephone and a computer, one would expect that the technologies that revolutionized the ways we communicate would also find their way into distance education programs. While trying to manage an array of issues, such as personal health and basic needs, faculty and students scrambled to find ways to connect and reconnect to the best of their abilities to accomplish course delivery goals without compromising individual safety. Reports and studies conducted globally show that when the pandemic hit the countries, higher education institutions operated with no unified approach country-wise until the fall semester 2020–2021. Given that the emergency remote teaching came as a surprise, educators had no choice but to comply with the existing platforms, tools, and applications in completing their teaching responsibilities. Various platforms (Google Class, Tencent Classroom, Courseware, Moodle, Blackboard, Rain Classroom) and means of communication were implied; most frequently live-streaming lectures and uploading materials to learning platforms or social media groups. Students were exposed to a variety of formats, replacing on-site lectures, like, for instance, synchronous video lectures, involving tools such as Microsoft Teams, Zoom, Tencent Meeting and similar. The real-time video conferences were followed by asynchronous forms such as sending presentations to students, video recording, and written communication using forums and chats. Confusion and chaos caused by the lack of clear organization have been reported.

We reviewed open-access empirical studies (206 total) to assess the quality of teacher-student interaction during the pandemic teaching-learning process. Academics' and students' experiences and perceptions of online distance learning have been studied qualitatively and quantitatively before and during the COVID-19 pandemic. However, the previous studies that have been conducted mostly focus on problems related to hardware, software, and internet connectivity, insufficient computer literacy of higher education students and staff, time, work overload and technical support during the COVID-19 period. Studies on teacher-student interaction issues within the unprecedented online distance education context, which was imposed by the emerging nationwide lockdown due to COVID-19, are not adequate in number. Despite the abundance of new research, professional opinions, and suggestions, communication barriers (deformations of the communication process) during emergency remote education have not been explored in sufficient detail to become influential and relevant for policy-makers. The latter prompted the researchers to conduct this study.

Our findings reveal contradictions between the high level of professional knowledge, skills, and abilities of university teachers and the inability to transfer them to students, poor ability to involve students in online educational activities, establish and maintain psychological and pedagogical contact with them, and manage emotional states. Many lecturers are technology illiterate, so they cannot combine specific knowledge about technology with existing pedagogical content knowledge. Institutions turned out to be unprepared for the rapid transition to virtual learning. Reports show that management of many higher education institutions took actions to close the digital education gap, which included providing resources and training. Obviously, it is important to consider whether and how online education affects communication between students and teachers.

Purpose

The primary goal of the current research is to provide an initial indication of the potential size and nature of the extant communication barriers in emergency remote learning. Furthermore, authors attempt to draw overall conclusions about the merits of existing propositions or methods aimed at overcoming the existing barriers.

Research Questions

1.   What are the main problems in teacher-student educational interaction in an online and/or blended learning environment?

2.	What are the good practices and strategies for overcoming barriers in teacher-student educational interaction?

Methodology

A systematic literature review has been conducted in order to provide the first insights into the rapidly emerging field of emergency remote education. This approach is congruent with the aim of this study and provides an overview of the research that has been undertaken during May 2020–January 2022. The data source was Open Access Journals. Publication type search: journal articles.

436 items were screened on title and abstract by the authors, applying the search terms: "COVID-19" or "pandemic" or "coronavirus" and "distance education" or "online education" or "distance learning" or "pandemic education", and narrowing the search further to education and science and humanities fields. As the author team is trilingual, studies that were written in English or Ukrainian were targeted for potential inclusion, and studies that were found in Russian during the search were also considered. Studies were included if they were empirical, written in English, Ukrainian, or Russian, and explored teaching and learning in higher education during the COVID-19 pandemic.

The current study encompasses a review of 206 heterogeneous articles. Of these, 68 were conducted at the beginning of the pandemic, capturing the first reactions and thoughts. 42 studies captured the beginning of the 2020/2021 academic year, while the remaining did not provide information about the data collection period. From the selected studies, the authors synthesized and summarized data on communicative difficulties during emergency remote learning, as well as practices and techniques that may be encountered in future online education.

Findings

Concerns about communication barriers can be found in the literature regarding distance education for as long as scholars have written about the field (Berge, 2013). This concern has become more prominent due to the change from an in-person, classroom venue to online communication.

According to the relevant literature, technological infrastructure and monetary issues are not the singular factors that entangle adaptation of pandemic online learning procedures. Apart from the technical challenges that have developed, the negative aspects of online

education are mostly related to a lack of communication and cooperation, as well as a general restriction of social contact in the academic context (Zagkos et al., 2022).

The distance education literature speaks of the degradation in interactions between students and teachers and among students (compared to in-person classrooms) (Berge, 2013). Communication, and more concretely, the absence of interaction between teaching staff and students, seems to be one of the main problems.

In light of related research, it is obvious that communication barriers exist in any communication process. They are greater in distance education due to physical distance between members, insufficient technology skills, difficulties using media, a need for more human interaction, time constraints and restrictions, and a lack of experience with distance education. Furthermore, people's personal, social, and economic needs are also affecting communication. These problems make it hard to establish a distance education process and develop effective communication between members. The findings of previous studies show that most issues are shared across countries. However, the degree of these barriers differs from institution to institution and from one country to another.

Professional and experienced teachers understand teacher-student interaction and communication importance. Most studies prove that academicians find many disadvantages of distance education with regard to the relationship with students. The survey on Italian university teachers by Casacchia et al. (2021) found that 64.7% of teachers (sample of 97 teachers) complained about the "discomfort of speaking" in the void "through a camera, without face-to-face contact with the students".

An exhaustive review of literature regarding communication barriers to distance education implemented in response to the COVID-19 pandemic summarizes technical, personal, psychological, and emotional barriers, as well as lack of feedback, poor student engagement, and health problems.

Technical barriers

The technical barrier associated with computer skills deficiency was the most frequently reported barrier in the survey. The COVID-19 pandemic forced teachers and students into a sudden transition to emergency online education without prior preparation or guidelines. Teachers' expertise in online learning varies (Manar Nabolsi et al., 2021); many still do not have the necessary training and skills to take advantage of technological resources (Kilinc, 2021), and this lack of experience creates major barriers that inhibit synchronous interactions

and learners' engagement in emergency distance education. Some teachers claimed that preparing and conducting online classes was tough due to a lack of IT expertise.

It has been reported that teachers fear that something technically may go wrong with computer software and record their lectures instead of conducting synchronous live sessions with their students, where they could interact with them. This led to students "being bombarded with lectures... while sitting in front of a webcam" (Bozkurt & Sharma, 2020). Students listen monotonously to the one-way traffic mode of communication since the teacher's main focus usually remains on the successful completion of the required number of lectures (Kakepoto et al., 2021). Concordantly, a large cohort of students dropped out of the education process, giving preference to two-way communication in synchronous discussions and independent internet searching.

Many students could not continue their education online as they were not accustomed or trained to using new educational applications. As some preliminary research shows, the variety of methods used in the teaching process was problematic not only for the students but for the teachers as well.

Online teaching relies heavily on infrastructure, and if infrastructure and training are available, online education becomes more efficient. However, the infrastructure for online teaching in most countries is either missing or insufficient. The latter impedes successful implementation of the e-learning system in many countries (Kakepoto et al., 2021). One of the most difficult issues teachers have is reaching out to students who do not have access to the digital environment (Frohn, 2021).

The rapid closures of educational institutions have affected all the students. However, students from rural backgrounds were negatively impacted on a larger scale as compared to the urban areas (Bao, 2020). The pandemic has exposed and deepened pre-existing education inequalities. Students from low and lower-middle-income countries were not able to purchase the books, notebooks and other study materials. Moreover, many families were not able to facilitate the online learning materials (efficient Android phone, computer, internet expenses and separate space for each student) due to the lack of financial scarcity in the pandemic. Students are also challenged with the storage capacity of their available digital devices. According to the United Nations, nearly one-third of students around the world are unable to participate in remote learning because they lack the necessary technology to connect from home (UNESCO Institute for Statistic Data, 2020).

Many teachers and students from rural areas were not able to use educational apps like Google Meet, Zoom, Teams, etc. or attend live online classes.

There were other factors that disrupted the online teaching-learning process, like electricity interruptions, sudden weather changes in mountainous areas, network failures, etc. Technical problems are other issues, wherein the screen shared by faculties during online sessions is not clearly visible on smartphones. Students report "Zoom glitches" (Gan & Sun, 2022), acoustic interference, distracting environments, or problems with video or audio that are hindering engagement in online learning communication and making both students and educators anxious. This has happened while taking exams or doing assignments.

Good practice. As teaching by means of modern educational technologies requires a variety of digital teaching methods, tools, and skills that many educators are not familiar with, educators need to be trained on how to use these new devices and how to integrate them into their own implementations. Obviously, ongoing training and professional development for teachers is obligatory, since instructors should improve their technological literacy. After the first wave of COVID-19, higher education institutions or campuses have taken numerous steps towards solving platform problems, improving internet connection, setting new online exam procedures and standards, and offering training workshops. Many have started providing training to use Moodle or other e-learning apps such as Google Classroom or G Suite.

Good practices for educators include but are not limited to: attendance of workshops and completion of self-taught training sessions; learning from scratch on platforms and specific software for teaching in the related subject areas; improvement in PowerPoint lecture presentations (e.g., animations, video file insertion, transformation into mp4 files). Though perceived as punishment by many educators, ongoing and explicit professional development (Williams et al., 2021) is crucial for teachers. Not paying attention to teachers and their difficulties could influence the quality of their didactics and the learning and future success of their students (Georgoulias et al., 2021).

It is highly recommended to provide better communication facilites to distance learners through digital support by student support services (Anjum & Iqbal, 2020). Finally, building teachers' competencies and skills for all aspects of distance education, starting from the initial education of teachers, is essential (Mićić et al., 2021).

Academicians currently report better opportunities for exchanges and conversation with colleagues during the first semester of the academic year 2021-2022, and they value better

collaboration with other faculty members (Casacchia et al., 2021). Educators reported assisting their colleagues mostly with the practical aspects of conducting classes on the e-platform.

Personal barrier

Negative dimensions are created by personal barriers, which hinder the effectiveness of the communication process, and the productivity of all facilities and opportunities is, therefore, decreased. Due to resistance to change and anxiety while engaged in remote distance education, students and teachers suffer from various psychological problems. Personal barriers are caused by the lack of flexibility in personal beliefs of an educator and/or a student, inability to restructure perceptions, motives, and emotional responses in accordance with the changing situation. Inertia, backwardness from the realities of life, are characteristic of those experienced teachers who are not engaged in self-education, professional self-improvement, and critical rethinking of their scientific and pedagogical achievements.

Many "technology stutterers" prefer the traditional way of teaching and do not agree to change the usual patterns of educational interaction. Mikušková and Verešová (2020) draw attention to the fact that more experienced teachers may perceive distance learning as threatening, since they may lack the knowledge of tools and have fewer skills in the use of modern technologies necessary for remote interaction between teachers and students.

Worthy of attention is that distance education is negatively perceived by elderly academicians and is often regarded as an intrusion on the teachers' privacy. Many educators are highly stressed by the "contact at any time of the day, irrespective of private personal time" students. As reported by Casacchia et al. (2021), the teacher's closer and continuous contact with the students outside the lesson time, which was unthinkable before the lockdown, was a positive aspect of distance education for more than a third of the Italian teachers, presumably appreciating the less formal relationship teacher-student created by the COVID-19 climate, stimulating a "sense of team" to cope with a traumatic event affecting the whole community.

Nonetheless, subsequently, the sense of responsibility toward teaching gradually facilitated accepting the situation and managing anxiety, stress, confusion, frustration, and helplessness toward this crisis, a sense of mental and physical insecurity to be able to fulfill teaching duties and responsibilities, as reported by Casacchia et al. (2021) and Manar Nabolsi et al. (2021).

Psychological barriers

As regards psychological barriers, our study found that they constitute the most apparent type of barrier. Although the situation differed for academia across the world, studies looking at the impact of the pandemic equally reported that both educators and students experienced insufferable psychological pressure that negatively impacted their educational interaction. Depressive symptoms with different severity levels caused by COVID-19 are reported in all the related literature (Akour et al., 2020; Casacchia et al., 2021; Manar Nabolsi et al., 2021).

Wang et al. (2020) investigated the psychogenic reactions of the population during an epidemic by analogy with the symptoms of post-traumatic stress disorder. In 53% of cases, respondents report moderate or severe psychological impact from the pandemic. Most often, pronounced symptoms of stress were observed in women and students.

Studying the impact of the COVID-19 pandemic and emergency distance teaching on the psychological well-being of university teachers in Jordan, Akour et al. (2020) reported various levels of psychological distress among approximately 70% of academic staff, who were highly concerned about social isolation, the increased likelihood of cheating among students during online examinations, the effort and time needed to prepare online examinations and fair evaluation assignments, the intrusion of privacy, and reduced interaction with students.

Students switching to online learning during COVID-19 experience a high level of psychological stress (Ozüdoğru, 2021). Numerous restrictions prescribed by measures to combat the pandemic, reducing daily mobility, inability to pursue hobbies, reduced sports, denial of access to cultural institutions, ban on the public organization of musical events, as well as an almost complete absence of gatherings, put students in a position of inability to choose activities, ergo their mechanisms of coping with everyday life were compromised (Antonovic, 2021). Apathy, despair, giving up, rejection, sadness, lack of faith in one's own talents, nihilistic thinking, utter surrender, and an a priori acceptance of the situation as hopeless were all symptoms of psychological stress.

Scholars all over the world have recognized the presence of a psychological barrier. A descriptive study conducted by Chaitra et al. (2021) on first year students from various medical colleges in Karnataka, India, investigating their feelings during the COVID shutdown shows more than 50% of students' daily activities are affected by stress; more than 75% of

respondents are stressed thinking about their future due to the absence of practical and clinical exposure. Many feel stressed and miss college and friends.

Other studies on the barriers to participating in distance learning also revealed concerns about excessive stress and anxiety that are disrupting the ability to concentrate on educational activities; both students and teachers become more vulnerable to depression. A suicide rate increment has also been reported throughout the world (Cao et al., 2020).

Information and communication technologies also pose psychological issues for educators and have an impact on their job performance, resulting in lower productivity and even "technostress" (La Torre et al., 2019).

Good practices. According to the relevant literature, active coping behavior reduces negative psychological symptoms (Main et al., 2011). Further analysis by Gan and Sun (2022) revealed three coping behaviors, including improvising, building technical and social assets.

Present-day literature also gives prominence to the teachers' most frequent coping strategies: acceptance, advanced planning, re-framing, and being proactive about the situation (Macintyre et al., 2020).

The survey data by Chaitra et al. (2021) has shown that to cope with the feelings of stress, students try relaxation methods. Many have opted for exercise groups, spirituality and music, have approached family members or friends for remedy. Some have opted for counselling from psychiatrists. However, none of the surveyed students opted for college counseling or college mentors for their stress related issues.

Furthermore, successful academic performance needs a positive outlook, dedication, and motivation from all the stakeholders. When giving constructive feedback, the lecturer as a supporter can find a way to promote affirmative messages to students. Students should be informed about college counselors or mentors on a regular basis so that they can seek help when needed.

In parallel, Mićić et al. (2021) put the spotlight on the change and dynamic shift in the way teachers have positioned themselves across the COVID-19 pandemic time in Serbia: from preoccupation with health, duties, workload, and coping issues at the onset of the pandemic, to the new awareness of the learning-process-and-outcomes-related issues and a clear focus on learning and outcomes, coupled with teaching-related coping strategies.

Emotional barriers

Another significant communication challenge addressed in the distance education literature involves emotional barriers evoked by the feeling of isolation felt by students. With the prolonged closure of educational institutions, many students feel isolated. Academicians raise the issue of peers' interaction and discussions during virtual classes as being a disadvantage in online distant education. Isolation of students from peer groups and lack of instant eye-to-eye verbal and non-verbal communication affects learning and leads to the loss of learning interest among the students.

From the studies, we can conclude that students worldwide experienced negative emotions such as boredom, anxiety, frustration, anger, hopelessness, feelings of isolation and alienation, disconnection, and shame, as well as mild to severe depressive symptoms. Students' preferences for face-to-face learning have been established in recent studies (Atwa et al., 2021).

It is believed that educational institutions are responsible for compensating for communication barriers in order to reduce student dropout rates and help students integrate their academic and social experiences into their education (Berge, 2013). The surveys (Whittle et al., 2020; Williams et al., 2021) highlight the social role of the teacher to support the students and maintain a regular personal connection with them, as well as counsel stressed or vulnerable students, since this is their first experience with distance learning. As researchers stated, teachers had to change their ways of communicating with students in order to advise and guide them, which was particularly observable in academic tutoring.

During the pandemic, teachers experience increased anxiety and helplessness in the same way as people from other professional backgrounds (Mikušková & Verešová, 2020). Faculty members in many universities were overwhelmed with providing emotional support for their students to alleviate their fear of the pandemic and the abrupt shift to online distance teaching. It was an essential step in alleviating students' negative attitudes regarding online learning, according to Manar Nabolsi et al. (2021).

This can be challenging and add a huge amount of uncompensated time and energy to teachers' workloads. Many instructors were frustrated by students' unrealistic expectations of their teachers' capacity to solve their online educational problems. Nonetheless, it is important and beneficial for teachers to create shared spaces for students so that their emotional needs can be met along with their educational needs (Lynch, 2020). University students consider the courses recorded to cause difficulties in interaction.

Ozüdoğru (2021) stated that teachers in a state university in Turkey mainly reported individual problems pertaining to students, such as being unable to establish communication with friends and not feeling the classroom atmosphere.

Students who are limited to online learning have a better experience when they have opportunities to interact with other students (Whittle et al., 2020). The use of digital media allows a greater opportunity for contact outside of class hours (via e-mail or WhatsApp) (Casacchia et al., 2021). Using technology to maintain social relationships has a substantial impact on students' mental well-being, making social networks an important source of support during the pandemic.

Good practices. Instructors and course designers still need to focus attention on designing an online/distance learning environment for student engagement, where all students and instructors can share their opinions, ask questions, and generally create a sense of belonging to a group (Berge, 2013).

Social interaction can be enhanced through arranging online school gaming clubs to provide students with a means to socialize (Williams et al., 2021), to stimulate and involve the students, even from a distance. Online group work can be used to facilitate learners in establishing a community.

Lack of Feedback

The lack of feedback that affected the quality of interaction was an additional challenge discussed in the literature (Atwa et al., 2021; Manar Nabolsi et al., 2021). Student-teacher interaction plays an essential role in online learning and has been perceived by students as the most important type of interaction to keep them engaged. At the point of the implementation of distance education, students have reported that the processes of feedback, interaction, and question-answer were incomplete in terms of addressing their emotional needs amid the circumstances created due to the Coronavirus.

Important issues also include the lack of personal contact with teaching staff, which cannot be fully recreated in the distance learning environment. Although the amount of contact the student has with the instructor determines the success of an online learning program, collaboration did not appear on the agenda of the emergency remote teaching in spite of the affordability of online platforms, as reported by Bao (2020). Many students were demotivated, not enthusiastic, uninterested in online learning, in doing assignments, and often refused to turn on their cameras, switch on the microphones, give oral presentations, and

answer questions only when prompted. Having more than 30 students in one session makes eye contact impossible, as well as the teacher's ability to track students' presence. The teachers felt as though they were talking to their laptops without obtaining any clues from their students or following up to ensure that they understood (Manar Nabolsi et al., 2021).

Additionally, lack of feedback or contact with participants and not having face-to-face contact with them creates difficulty in evaluating participants. Many students frequently encountered problems related to the instructor, such as being unable to establish communication with the instructor to get feedback related to the course or to report problems until the time of synchronous courses came (Ozüdoğru, 2021).

Often, students reported feeling confused, anxious, or frustrated and wanting quicker feedback from the teacher regarding course content, assignments, or management of the online class (Berge, 2013). As Workneh and Lin (2021) aptly note, faculty and students experienced a sense of loss of connection and the trust traditionally built through in-person learning.

Good practices. As Anjum et al. (2020) point out in their study, it is recommended to provide timely feedback to the distance learners, which enhances the teaching-learning process. Many teachers report that they have learned the importance of providing feedback to students in various ways. Nonetheless, most of the faculty members believe that responding to questions by students is easier during face-to-face teaching. Direct feedback on examinations and procedures can only be given face-to-face in front of the tutors (Atwa et al., 2021).

Therefore, purposefully fostering all the potential for cooperation (Mićić et al., 2021) between all the stakeholders and within each academic group is highly desirable.

As one of the distinguishing features of progressive education, interactional and collaborative communication should be considered when designing activities. Some relevant studies to the focus of this study show that instructors have started to use online activities to increase students' engagement, such as integrating participation goals, using task-based, project-based, and problem-solving tasks, debates, inviting specialized guest speakers, and integrating apps such as Kahoot, Wakelet, Wordwall, Padlet, Quizlet, LearningApps, Mentimenter, Nearpod, and ConnectYard. By participating in real-life-related tasks involving cooperation among peers, students will benefit from this quality, contributing to their personal development and teamwork in future careers (Bao, 2020).

Furthermore, having access to resources and services such as tutors, academic planners, and technological assistance can help distant learners succeed.

Student engagement

With the start of online classes, teachers worldwide saw an overall decrease in student engagement during classes provided during the COVID-19 pandemic and a significant decline in student learning motivation and interest. Remote education stimulated the weakening of the affective bond between academicians and students. The difficulty of assessing students' attention was a complaint among the teachers.

Our data analysis, in line with Zagkos et al. (2022), indicates the lack of feedback and educational cooperation, and poor student engagement during online education, as well as the general restriction of social contact in the academic context, as major communication barriers. Many students have been lost from the educational system because of closures and lack of a reliable way to communicate with educators. The transition from face-to-face teaching methods to more indirect methods caused specific difficulties in distance education implemented in the COVID-19 pandemic, such as poor students' participation in education, unwillingness to learn and/or attend classes, inability to learn online and limited comprehension of the material, and low focus and concentration.

Bozkurt and Sharma (2020) imply that the hitherto focus on students' engagement has become an afterthought. Even when students adapt efficiently to online learning, and participate actively in the new educational environments, research data shows a lack of enthusiasm and a strongly negative emotional status (Agung et al., 2020). Students' self-management abilities were poorer in online classes than in traditional classes (Bao, 2020).

In Italy, merely a quarter of teachers perceived good student involvement, as reported by Casacchia et al. (2021). The hardest challenge facing the educators in Jordan was their students' inability to engage in online learning as they were not prepared technically, logistically, and mostly psychologically (Manar Nabolsi et al., 2021).

As a result of this feeling of disconnection, students displayed behaviors of losing interest in the class, finding it hard to concentrate, feeling disengaged, and finally evaluating themselves as less productive (Yang, 2021).

In the Italian sample, the most distressing psychological aspect was represented by the burden of speaking "to the void" in front of a screen (Cassachia et al., 2021). Most of the teachers complained about the difficulty of judging student engagement and understanding because of the absence of direct "face-to-face" eye contact and calling on students while screen sharing. Finally, student engagement even affects the teacher's motivation to teach.

The situation is similar in most countries: complaints about reduced interaction with students during lessons, delays in graduation, a sudden rise in dropouts, and learning losses were reported in the majority of studies. In particular, first year students were found to be at a high risk of attrition during their freshman year.

Good practice. Studies have shown that to get students present and engaged, educators make use of different platforms, combining learning formats (both synchronous and asynchronous). We found that faculty members develop assignments to meet manifold preferences and encourage student input, use different tools like virtual whiteboards, breakout rooms, anonymous quizzes, arrows or markers, or alternative software, and provide individual feedback to students. Additionally, they implement ungraded quizzes to gauge understanding and increase engagement. The provision of more group interaction, alternative class formats with segmented lectures, timed case-based discussion in breakout rooms, or multiple, smaller class sessions may enhance the distance learner's performance. Most faculty members agree on the need to avoid fatigue by scheduling lectures prior to more interactive sessions.

In addition, according to Boon (2015), educators' presence in an online learning and teaching environment is important in engaging students. Despite the options offered that educators may choose to have a smaller or zero presence online, Boon proposed several facilitation strategies that can make students more motivated and interested in their learning: synchronous online office hours to support student learning and knowledge development by means of telephone consultations, online audio/video, Google Hangouts, etc.; provision of recorded assignment explanations (by means of audio and video); provision of direct (synchronous) instruction; regular interaction with students (individually or in groups; by means of chat sessions, Google Hangouts, Google Meet, etc., setting up group work space); creation of a positive learning environment to stimulate learning, showing respect for students by appropriate conversational tone and word choice (Boon, 2015).

The sequential mixed-methods study by Abou Khalil et al. (2021) identified the engagement strategies that higher education students, engaged in emergency online learning in low-resource settings, perceive to be effective. They include screen sharing, summaries, and class recordings; collaboration on projects and case studies; discussion of educational content in groups; regular response to students' emails, calls, and messages by the instructor; allocating time for questions and answers during the online class; posting announcements, and emailing reminders; sending explanatory videos to students; checking students' understanding after disconnection; calling students by name and their encouragement to participate; the

implications of multimedia when explaining; online office hours; communication with students through a unified platform; keeping cameras on, etc. Finally, instructors can encourage student collaborations and personal student contacts for educational interactions.

These obviously require an active and large presence of educators online. However, it is evident that, regardless of whether educators have a small or big presence online, students need to know that they are not alone in virtual classrooms.

Health problems

There is a general concern about the negative health implications of a prolonged stay at home, like physical inactivity and sedentary behavior, changes in eating habits, increased alcohol consumption, mental health problems, reduced quality of sleep, etc.

Bertrand et al. (2021) discovered increased sedentary behavior and alcohol use, a loss in physical activity, and a drop in the quality of the Canadian students' food when they investigated how the rapid adjustments and limits influenced students' health behaviors and habits.

The vast majority of students admit that with the introduction of emergency remote learning, their nutrition has changed. Thus, most started consuming more food and violated the established diet. Many students began to eat at night, which also had a negative impact on their lifestyle and health. Ultimately, all of these aspects affected the increase in body weight.

Recent studies on the influence of increased time in front of a visual display terminal on the ocular complaints of students during the pandemic report that online learning and screen entertainment time were extended on average by 4 hours and 40 minutes, respectively. Data collected by Sterczewska et al. (2022) from 368 students reveals that only 8% of students admitted to having no ocular symptoms and 77% reported the exacerbation of previous ocular complaints. Reported symptoms included pain or discomfort in the eyes, itchiness, dryness, red eyes, feeling gritty particles under the eyelids, and blurred vision. During the COVID-19 pandemic, 41% of individuals reported that their visual acuity had deteriorated.

The highest rates of complaints were found with respect to nervousness, feeling of irritation, sleep disturbances, headaches, dizziness, and backaches, as reported by Antonovic (2021). Dry mouth, breathing and sleeping difficulties, quick heartbeat, minor tremors, and an occasional feeling of fear are all psychosomatic manifestations. Also, due to all these intensified manifestations, it was very difficult for the students to motivate, organize, focus, plan, relax, and rest. The study of Webster University students shows that during the

entire period of the COVID-19 pandemic, many students had a feeling of complete loss of energy and were unable to launch into action and spent time alone, in silence, sleeping, watching TV, playing games, as well as in anticipation of a quick end to the pandemic (Antonovic, 2021).

Researchers mentioned the negative and harmful effects of misinformation overload and "infodemic" on the mental health of individuals. Evidently, mental health problems among students in higher academia caused by university closings, quarantine, and isolation are undoubtedly aggravated. Suicidal ideation, deterioration of sleep quality, headaches during the night or early in the morning, and depression disorder among university students are declared by global studies and should be considered alarming since sleep problems are associated with a worse quality of life, higher occurrence of hypertension, physical inactivity, and increased demand for health services. Consequently, students reported feeling lazy and less energized during the pandemic.

A study from the United Kingdom found a shift in sleep behavior between pre-COVID (Fall 2019) and COVID (April–May 2020) data; participants reported staying up later but not sleeping longer (Savage et al., 2020).

Both students and educators also mentioned a significant increase in difficulty concentrating, remembering, or making decisions. Many other negative aspects were seen during the pandemic, such as increased alcohol and marijuana consumption, a decrease in the frequency of smoking and vaping, use of psychotropic medications, and a decline in the physical activity of students (Savage et al., 2020).

Good practices. According to Sterczewska et al. (2022), students involved in e-learning should monitor their time spent in front of electronic devices. Actions such as cutting down the entertainment time, using eye drops, having breaks from studying to have distant vision, consultation with an ophthalmologist, and using warm and cold compresses on the eyes are recommended (Sterszewska et al., 2022).

The results of the current study complemented the findings of previous studies by Ahammed et al. (2021), who strongly advocate planning and implementing programs aimed at strengthening the mental health of university students during the pandemic. The scholars also suggest establishing a psychological counseling unit in universities that would allow students to get connected with professional psychiatrists through the internet or via cell phone for a direct interview and mental health assessment. Following the pandemic of COVID-19, efforts

were made to combat homestay-followed mental health problems; of such services, psychological counseling through telephone hotlines was commonly provided.

Going to health or psychological counseling and learning other coping techniques might help people develop healthier habits and reduce or prevent future ailments.

Conclusions

This study is significant in gaining insight into the experiences of teacher-student interaction during remote, abrupt, and unprecedented distance learning implemented due to the COVID-19 pandemic and adds support to the current research on the impacts of COVID-19 on education.

As a conclusion from the above presented findings of the literature review, it has become evident that diverse obstacles were raised in the academic environment by the uncertain situation that the pandemic crisis created. The closure of university institutions, changes in daily routine schedules, lack of face-to-face or reduced teacher-student educational interaction disrupt the academic functioning of students and educators. Perpetuated lockdowns, isolation, and social distance have affected the overall physical, social, mental, and moral well-being of academicians and students.

Technical barriers (such as a lack of technical skills and facilities, financial constraints, a distracting environment, an erroneous choice of specialized methods, and a lack of training and assistance) are the most frequently mentioned concerns in all distance education literature.

Psychological barriers manifested in stress and anxiety, personal barriers caused by resistance to change and fear of technology, and emotional barriers promoting feelings of isolation and boredom raise concerns that some students may be left behind in educational interaction.

Sedentary behavior, alcohol use, ocular complaints, sleep difficulties, headaches, backaches, mental health issues, and other health problems were discovered among higher education institution teachers and students.

Existing evidence on students' online learning experiences during the COVID-19 pandemic suggests attention to several other concerns, including problems with poor student engagement and lack of feedback. Compared to the traditional classroom environment, online learning during the COVID-19 pandemic promoted students' reduced interaction, a rise in dropouts, a delay in graduation, and reduced personal contact in all parts of the world.

The findings from the present study fill a knowledge gap by providing good practices or strategies that solve the outlined teacher-student interaction barriers or reduce the scope of these barriers. Minimizing barriers in distance education is needed to create an effective distance education system.

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References

Abou Khalil, V., Helou, S., Khalife, E., Chen, M., Majumdar, R., & Ogata, H. (2021). Emergency Online Learning in Low-Resource Settings: Effective Student Engagement Strategies. *Education Sciences,* 11, 24. https://doi.org/10.3390/educsci11010024

Agung, A. S. N., Surtikanti, M. W., & Quinones, C. A. (2020). Students' perception of online learning during COVID-19 pandemic: A case study on the English students of STKIP Pamane Talino. *Soshum: Journal of Social Sciences and Humanities, 10*(2), 225–235. https://doi.org/10.31940/soshum.v10i2.1316

Ahammed, B., Jahan, N., Seddeque, A., Hossain, M., Shovo, T., Khan, B., & Islam, N. (2021). Exploring the association between mental health and subjective sleep quality during the COVID-19 pandemic among Bangladeshi university students. *Heliyon*, e07082. https://doi.org/10.1016/j.heliyon.2021.e07082.

Akour. A., al-Tammemi, A'B., Barakat, M., Kanj, R., Fakhouri, H. N., Malkawi, A., & et al. (2020). The impact of the COVID-19 pandemic and emergency distance teaching on the psychological status of university teachers: a cross-sectional study in Jordan. *American Journal of Tropical Medicine and Hygiene, 103*(6), 2391–9. https://doi.org/10.4269/ajtmh.20-087

Anjum, S., Bhatti, R., & Iqbal, M. J. (2020). A Study of Communication Barriers in Open Distance Learning System of Education. *Pakistan Journal of Distance and Online Learning, 6*(1), 247-261

Antonovic, M. (2021). The wellbeing of Webster University students during Covid-19. https://doi.org/10.13140/RG.2.2.21477.32488

Atwa, H., Shehata, M., Al Ansari, A., Kumar, A., Jaradat, A., Ahmed, J., & Salem, A. H. (2021). Online, face-to-face, or blended learning? Faculty and medical students' perception during the COVID-19 pandemic: A mixed-method study. *Frontiers in Medicine,* https://doi.org/10.21203/rs.3.rs-951471/v1

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies, 2*(2), 113–115. https://doi.org/10.1002/hbe2.191

Berge, Z. (2013). Barriers to communication in distance education. *Turkish Online Journal of Distance Education,* 14, 374-388

Bertrand, L., Shaw, K. A., Ko, J., Deprez, D., Chilibeck, P. D., & Zello, G. A. (2021). The impact of the coronavirus disease 2019 (COVID-19) pandemic on university students' dietary intake, physical activity, and sedentary behaviour. *Applied Physiology, Nutrition, and Metabolism, 46*(3), 265–272 https://doi.org/10.1139/apnm-2020-0990

Boon, B. (2015). Active Online Teaching Strategies – Sharing Best Practices. Retrieved from: https://www.researchgate.net/publication/272680707_Active_Online_Teaching_Strategies-Sharing_Best_Practices

Bozkurt, A., & Sharma, R. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education,* 15, 1-6. https://doi.org/10.5281/zenodo.3778083

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & et al. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *PsychiatryRes,* 287, 112934. https://doi.org/10.1016/j.psychres.2020.112934

Casacchia, M., Cifone, M. G.,, Giusti, L., Fabiani, L., Gatto, R., Lancia, L., Cinque, B., Petrucci, C., Giannoni, M., Ippoliti, R., Frattaroli, A., Macchiarelli, G., & Roncone, R. (2021). Distance education during COVID 19: an Italian survey on the university teachers' perspectives and their emotional conditions. *BMC Medical Education,* 21. https://doi.org/10.1186/s12909-021-02780-y

Chaitra, S., Shruthi, K., Pushpa, G., & Chaitra, D. (2021). Study of stress in medical student during COVID pandemic. *Indian Journal of Clinical Anatomy and Physiology,* 8, 7-10. https://doi.org/10.18231/j.ijcap.2021.002

Frohn, J. (2021). Troubled schools in troubled times: How COVID-19 affects educational inequalities and what measures can be taken. *European Educational Research Journal, 20*(5), 667–683. https://doi.org/10.1177/14749041211020974

Gan, I., & Sun, R. (2022). Digital Barriers and Individual Coping Behaviors in Distance Education During COVID-19. *International Journal of Knowledge Management,* 18, 1–15. https://doi.org/10.4018/IJKM.290023

Georgoulias, P., Angelidis, G., Valotassiou, V., & Tsougos, I. (2021). COVID-19 crisis: Will on-line learning have negative consequences to our students? *Cardiology in the Young,* 31, 1-3. https://doi.org/10.1017/S104795112000493X

Kakepoto, I., Talpur, Q., Memon, I., Halepoto, I., & Bux Jalbani, K. (2021). Pedagogical Shift: Faculty Insights about E-Teaching Barriers during COVID Pandemic. International Journal of Innovation, *Creativity and Change, 15*(6), 1147-1160

Kilinc, H. (2021). Challenges Experienced in Distance Education and Solution Suggestions During the COVID-19 Pandemic Period. *Handbook of Research on Managing and Designing Online Courses in Synchronous and Asynchronous Environments.* Chapter: 21. Publisher: IGI Global. https://doi.org/10.4018/978-1-7998-8701-0.ch021

La Torre, G., Esposito, A., Sciarra, I., & Chiappetta, M. (2019). Definition, symptoms and risk of techno-stress: a systematic review. *International Archives of Occupational and Environmental Health, 92*(1), 13–35. https://doi.org/10.1007/s00420-018-1352-1

Lynch, M. (2020). E-learning during a global pandemic. *Asian Journal of Distance Education, 15*(1), 189-195. https://doi.org/10.1177/1540796916683710

MacIntyre, P. D., Gregersen, T., & Mercer, S. (2020). Language teachers' coping strategies during the Covid-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System,* 94. https://doi.org/10.1016/j.system.2020.102352

Main, A., Zhou, Q., Ma, Y., Luecken, L. J., & Liu, X. (2011). Relations of SARS-related stressors and coping to Chinese college students' psychological adjustment during the 2003 Beijing SARS epidemic. *Journal of Counseling Psychology, 58*(3), 410–423. https://doi.org/10.1037/a0023632

Mićić, K., Kovács-Cerović, T., & Vračar, S. (2021). Trends in primary school teachers' experience over the first year of the COVID-19 pandemic in Serbia: A narrative analysis. *Psiholoska istrazivanja,* 24, 163–182. https://doi.org/10.5937/PSISTRA24-32799

Mikušková, E., & Verešová, M. (2020). Distance Education During COVID-19: the Perspective of Slovak Teachers. *Problems of Education in the 21st Century,* 78, 884–906. https://doi.org/10.33225/pec/20.78.884

Nabolsi, M., Abu-Moghli, F., Khalaf, I., Zumot, A., & Suliman, W. (2021). Nursing Faculty Experience with Online Distance Education During COVID-19 Crisis: A Qualitative Study. *Journal of Professional Nursing, 37*(5), 828–835, https://doi.org/10.1016/j.profnurs.2021.06.002

Ozüdoğru, G. (2021). Problems faced in distance education during Covid-19 Pandemic. *Participatory Educational Research,* 8, 321–333. https://doi.org/10.17275/per.21.92.8.4

Savage, M. J., James, R., Magistro, D., Donaldson, J., Healy, L. C., Nevill, M., & Hennis, P. J. (2020). Mental health and movement behaviour during the COVID-19 pandemic in UK university students: prospective cohort study. *Mental Health and Physical Activity,* 19, 100357. https://doi.org/10.1016/j.mhpa.2020.100357

Sterczewska, A., Wojtyniak, A., & Mrukwa-Kominek, E. (2022). Ocular Complaints from Students during COVID-19 Pandemic. *Advances in Clinical and Experimental Medicine: Official Organ Wroclaw Medical University.* Advance online publication. Retrieved from: https://doi.org/10.17219/acem/144199

UNESCO Institute for Statistics Data. (2020). COVID-19 impact on education. Retrieved from: https://en.unesco.org/covid19

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *International Journal of Environmental Research and Public Health, 17*(5), 1729. https://doi.org/10.3390/ijerph17051729

Whittle, C., Tiwari, S., Yan, S., & Williams, J. (2020). Emergency Remote Teaching Environment: A Conceptual Framework for Responsive Online Teaching in Crises. *Information and Learning Sciences, 121*(5), 311–319. https://doi.org/10.1108/ILS-04-2020-0099/full/html

Williams, T., McIntosh, R., & Russell, W. (2021). Equity in Distance Education During COVID-19. *Research in Social Sciences and Technology,* 6, 1–24. https://doi.org/10.46303/ressat.2021.1

Workneh, T. W., & Lin, M. C. (2021). Teaching Global Communication During COVID-19: Challenges, Mitigation, and Lessons Learned. *Journalism & Mass Communication Educator, 76*(4), 489–502. https://doi.org/10.1177/10776958211026176

Yang, L. H. (2021). Online learning experiences of Irish university students during the COVID-19 pandemic. *All Ireland Journal of Higher Education*, *13*(1).

Zagkos, C., Kyridis, A., Kamarianos, I., Dragouni, K. E., Katsanou, A., Kouroumichaki, E., Papastergiou, N., & Stergianopoulos, E. (2022). Emergency Remote Teaching and Learning in Greek Universities During the COVID-19 Pandemic: The Attitudes of University Students. *European Journal of Interactive Multimedia and Education, 3*(1), e02207. https://doi.org/10.30935/ejimed/11494