Interaction and collaboration in Lithuanian schools during COVID-19 pandemic distance learning

Irmantas Adomaitis1*, Estela Dauksiene1, Elena Trepule1

1Vytautas Magnus University, Kaunas, Lithuania

Abstract: Interaction and collaboration are essential pillars of successful learning. The study aimed to find out how school communities collaborated during the COVID-19 pandemic and to assess the importance of collaboration in addressing the challenges faced. The selection of eight schools was made in a targeted way, considering that the participating schools would have chosen different virtual learning environments or technologies used for distance learning; and that schools would be of different types and sizes, and from different regions of Lithuania. Three methods were used in this qualitative study: analysis of scientific literature, expert interviews, and focus group discussions. The results of our study confirmed that the focus of distance learning is on technological solutions, but not on the methodologies and strategies used to organise learning in virtual learning environments. Moving ‘traditional’ teaching to virtual space has become a key strategy for organising learning in virtual learning environments. The transfer of ‘traditional’ teaching strategies to distance learning not only limits the impactful interaction in virtual learning environments but also encourages ‘academic dishonesty’ among students. The success of distance learning strongly depends on students’ motivation, as well as their ability to organise their learning, solve problems in teams and critically evaluate the information provided.

Keywords: COVID-19; Distance learning; Collaboration in the learning process; Model of E-Learning; Interaction; Experiences of schools

Introduction

Information and communication technologies (ICT) in Lithuania as well as all over the world have developed rapidly for more than a decade. With the emergence of new forms of distance learning, the availability of learning has increased, offering new learning content design, and learning activities as well as new principles of autonomous individualised learning (Teresevičienė et al., 2008, 2015). During the last 2 decades, the number of educational institutions offering distance learning programmes and courses in Lithuania has increased (Vaičiūnaitė, 2012), but distance education in Lithuanian schools before the COVID-19 pandemic was limited to the implementation of technological solutions (Makarevičienė et al., 2018).

In the context of the COVID-19 pandemic, distance learning has become, no longer a suggestion but a necessity. Distance learning, teleworking and collaboration in digital space became commonplace during the COVID-19 pandemic (Favale et al., 2020). Internet accessibility (Anderson, 2008), teacher preparation and digital skills are crucial for distance learning (Rovai & Downey, 2010), whereas well-designed curricula and continuous improvement are essential for successful teaching and learning online (Dhawan, 2020). Although students’ digital skills in many cases exceed teachers’ digital skills, distance learning requires much more: to be motivated, to be able to organise your learning, to solve problems collaboratively and to critically evaluate the information provided (Osman, 2020).

According to Shete (2020), a variety of teaching strategies used in traditional teaching (lectures, experimentation, discussions, experiential learning, brainstorming, interactive games, etc.) can be used to engage students in teaching and learning activities in virtual learning environments. Case studies in Lithuania have shown that one of the most important learning aims in the COVID-19 pandemic period is to organise learning in such a way that develops students’ problem-solving and creativity skills (Petkevičiūtė & Balčiūnaitienė, 2021). However, educationalists point out that teachers lack not only the knowledge of how to...
work with virtual learning platforms but also the skills to apply IT in distance education (Bilbokaitė-Skiauterienė, 2021). Students accept these distance learning opportunities, but in many cases, face-to-face teaching is still preferable to distance learning alone (Shete, 2020), mainly due to their willingness to communicate and collaborate.

According to John et al. (2020), there was a lack of interaction and communication between teachers and students during the pandemic. Therefore, teachers claimed that limited physical interaction hampered good communication between teachers and students. Educators reveal that interaction and collaboration are crucial factors in any effective learning process, including distance learning in virtual environments (Chen & Kuo, 2019; Rossi, 2010). Lithuania case studies reveal that the problem of interaction and collaboration (communication with parents, colleagues, and administration) was particularly acute in learning online during the COVID-19 pandemic. Teachers lacked information on how to work in distance education, there was a lack of cooperation and there was a lack of consensus – learning turned into chaos (Bilbokaitė-Skiauterienė, 2021).

A deeper understanding of different interactions and how they occur in the learning process as well as their impact on learning is one of the very common challenges for educators (Yang et al., 2020). The crucial question is: how should distance learning be organised to increase interaction and collaboration?

### Anderson’s Model of E-Learning to Explain and Assess Types of Interaction

Anderson (2004, p.49) presents a Model of E-Learning in which interaction is seen as an essential link between learners, teachers and teaching content (Anderson, 2004). With the use of ICT in digital learning environments, interaction becomes a deep and multimedia medium, which is combined with the components of communication and collaboration and self-directed learning (Anderson, 2008).

While there are claims that the Model of E-Learning provides too little advice on how to implement all this in distance learning, it is worth noting that the Anderson Model of E-Learning offers much broader possibilities not only for a deeper understanding of interactions but also for creating new theories based on the interactions of this model (Picciano, 2017; Roberts, 2019).

Based on Anderson’s Model of E-Learning, interactions are defined as follows:

- **Teacher–teacher interaction** is defined as a multifaceted mutual assistance in organising the teaching process (teacher training, sharing of experience, teacher support from school administration). It is a reciprocal interaction that motivates and encourages teachers to take on challenges and grow together in a learning community.

- **Teacher–content interaction** is defined as the process of creating and/or updating teaching content (teaching materials/resources, teaching objects, interactive tasks) and teaching activities related to the implementation of the content (research, creative tasks, etc.).

- **Student–teacher interaction** is defined as learning (provision of targeted learning support, rapid feedback and orientation towards further learning).

- **Student–student interaction** is defined as the process in which learning content interacts with various sources of information, synchronises, and updates the latest information on the learning topic. In other words, it can be described as one of the functions of artificial intelligence ‘content within content’. This interaction also includes other ‘live’ interactions, that is to say interaction in social networks, where constantly changing information becomes not only the creation of new knowledge but also the development of skills, for example the ability to extract and identify relevant information. This interaction offers an opportunity not only to significantly facilitate the use of learner and teacher content but also to bring it closer to real-time everyday life practice, and to perform data analysis and encourage learners to engage in solving...
problems in the modern world.

We can find even more about the uniqueness and potential of Anderson’s Model of E-Learning in his speech at the Next Generation Learning Conference 2012 (NGL 2012) «...try to be even more fearless than your students, seek out and create opportunities to collaborate with and learn from your global peers, create a personal learning environment that really works for you and explore experiment and have fun...» (Keynote Speech by Professor Terry Anderson: NGL 2012: Free Download, Borrow, and Streaming: Internet Archive, 2012, 41:29). We can say that the freedom to act creatively is one of the important principles of Anderson’s E-Learning model in finding the best or new solutions in distance learning.

So, this study aims to find out how school communities interacted and collaborated during the COVID-19 pandemic and to assess the importance of collaboration in addressing the challenges faced.

In this study, three research questions were put forward:
• What interaction types were implemented in Lithuanian schools during the COVID-19 pandemic in distance learning?
• What culture of collaborative learning prevailed in Lithuanian school communities during distance learning?
• What synergy of interaction elements appeared in schools during the COVID-19 pandemic?

Methodology

This qualitative study was used to understand the virtual social world and the importance of interaction in distance learning during the COVID-19 pandemic in Lithuania. The study focuses on social interaction, as well as its expressions, challenges and changes. Three methods were used in this qualitative study: analysis of scientific literature, expert interviews and focus group discussions with the target groups. The interviews with school administration and focus groups with students, teachers and parents were chosen to reveal the experiences, interactions and collaboration in virtual learning environments during distance learning.

The data used in the paper were collected in June–October 2020 and pertain to the period of lockdown in Lithuania from March to June, as well as partly to the September–October period of blended learning, or face-to-face learning that was accompanied by an anticipation of a possible new lockdown. Thus, the study was conducted in three phases.

During the first stage, an analysis of the scientific literature was carried out to identify quality criteria for school activities when traditional schools started implementing distance learning. Interview and focus group questions were formulated according to the selected criteria.

During the second stage, eight Lithuanian schools were selected to participate in the study. The selection of schools was made in a targeted way, considering that the participating schools would have chosen different virtual learning environments or technologies used for distance learning; and that schools would be of different types and sizes as well as from different regions of Lithuania.

The expert semi-structured interviews were organised with representatives of schools’ administration who were directly responsible for the implementation of distance learning during the COVID-19 pandemic in the spring of 2020. Focus group discussions were organised in four focus groups of teachers (36 teachers), two focus groups of senior students (18 students) and two focus groups of parents (18 parents) of younger students.

The information collected during the data collection phase was immediately transcribed, coded and analysed, with a constant return to survey questions and data saturation. The data of the interviewees were coded according to the scheme described in Figure 1.

Data coding scheme

![Figure 1: Data coding](image)
To answer the main research questions, coding was done by focussing on the interactions presented in Anderson’s Online Learning Model: student-student, student-teacher, student-content, teacher-teacher, teacher-content and content-content, using MAXQDA2020 software (VERBI Software, 2019).

During the third stage, data analysis was performed, the synergy of interoperability elements in schools during the pandemic was described and thematic analysis maps were drawn.

Findings

Teacher–teacher interaction
That goodwill from the team
The results of the study showed that after the introduction of distance learning during the pandemic, the interaction between teachers was exceptionally active. How this interaction corresponds to the interaction described in the theoretical Model of E-Learning is given in Figure 2.

«...That goodwill from the team... Whether you need it, or someone asks you, everybody is ready to help... Almost like in wartime...» F5T3. It looks very strong from the point of teacher–teacher interaction. How was it achieved? The creation of virtual ‘Teachers’ Rooms’, as well as frequent virtual methodological group meetings, allowed not only the quick sharing of information but also the sharing of insights into the means of effectively organising distance learning, and collaboration on lesson planning. Teachers point out that very often they received a lot of help from ICT teachers who were their colleagues, who advised them on technical issues even after working hours: «...The school’s ICT teachers and specialists were very eager to help... You could ask and they would help to solve technological problems...» F1T7. Most of the teaching community was happy to help one another. Teachers became innovators in their field and became an active learning community.

Emotion, digital technology or methodology?
During the urgent introduction of distance education, many courses on distance learning topics were organised for teachers. In multiple virtual meetings with the administration, teachers shared their best experiences. However, research has revealed that most of these events were aimed at improving the emotional state: «...but it was more of an emotional support...» (A4); «...I am just very pleased with our psychologist’s initiative, which has helped teachers to stabilise all situations on their own, in an emotional sense...» (A8). The other important topic of the meetings was related to mere technological solutions, but not to the methodology of organising teaching in virtual learning environments: «...training on how to work, how to connect to virtual environments was very important, ... and IT specialists have done all the work there...» (A8); «...now there will still be this training ‘reflects’, ..., it is an innovative tool...» (A6).

Teacher–content interaction
What is the interaction between the teacher and teaching content in the context of the learning community?
How this interaction corresponds to the interaction described in the theoretical Model of E-Learning is given in Figure 3.

During distance learning, teachers used digital textbooks, various online resources, scanned tasks and interactive learning objects, but the research data revealed that the main source of learning remained the traditional textbooks: «...I wanted to fully digitalise the teaching content; however, the main source of learning still remained the traditional textbook and its tasks...» F4P8. This can be attributed to the high time consumption when searching for teaching content, and the lack of competencies in digital task creation.

Figure 2: ‘Teacher–teacher’ interaction comparison in the Model of E-Learning in Lithuanian schools during the COVID-19 pandemic.
Teachers believe that learning content should be developed at the national level, and then, in addition to the national content («...I agree with all colleagues that digital teaching content and tasks need to be developed nationally...» F2T3), it would be possible to create one’s own content, where the needs of the students, content presentation and methods used were considered so that the presented teaching content is well understood by the students: «...using national digital learning content, the teacher will be able to adapt it to each topic according to the level of students...» F2T7.

From providing video to music creation
During the pandemic, a large proportion of teachers used YouTube videos to provide teaching content or created their own videos for lessons. For example, dance teachers filmed the lessons themselves and presented the pre-prepared material to the students on their YouTube channel, where the students learned the dance steps: «...all lessons were pre-filmed and material was prepared for students, all videos were uploaded to YouTube...» F3T7. Physical education teachers not only pre-filmed the exercises but provided students with useful programmes for active sports, depending on the age and capabilities of the students. Music teachers also provided students with programmes that could be used to create music: «...we have created many pieces of music with the students using a variety of music creation apps...» F3T4.

Experiential learning and creativity versus testing and control mechanism
The situation was more complicated in the development of content for the exact and natural sciences. Since the elements of equipment available at homes are typically simple and not really conducive for enabling the performance of sophisticated scientific experiments, the major challenge lay in securing an effective means for facilitating students to actually carry out the required scientific experiments at their homes, by teaching them to use rudimentary tools that would nevertheless result in imparting of the needed scientific knowledge, at the same time encouraging them to take up an active involvement in the learning process. A proven approach is integrated lessons: «...In the natural sciences, we tried to integrate more than two subjects: biology, chemistry, physics and geography...» F3T6. It is expected of teachers that, using integrated lessons, they formulate their online teaching content in a way that would be relevant to students’ life experiences. Activities to find answers to real-life questions encourage students to think critically and creatively to combine knowledge of different subjects. Such a process transforms into an active interaction among students, curriculum and teachers. However, the study showed that research-based activities and creative tasks were applied only in very few lessons. As the pandemic broke out, teachers tended to focus more on various student examinations, tests and template tasks. Learning content creation transformed into the development of a testing and control mechanism. Testing has become one of the most used activities during distance learning: «...Yes, we used enough additional tools to control, test and monitor the progress of students...» F1T4. Here, however, teachers have faced the most common and very difficult problem – students’ academic dishonesty.

Student–teacher interaction
Interactions and relationships between students and teachers have a significant impact on students’ social,
academic and emotional development. How this interaction corresponds to the interaction described in the theoretical Model of E-Learning is given in Figure 4.

**The cooperation and mutual trust**
The study found that there were schools where new relationships based on collaboration and mutual trust were developed: «…those students who previously never dared to ask during distance learning they finally dared to approach the teacher…» (F3T3). The emotional climate created by such relationships demonstrated not only the trust between the students and the teacher but also the satisfaction of the teacher in creating such relationships that helped get to know the students better: «…I really liked that. Because it’s a completely different relationship, a new relationship is formed with students with whom that relationship didn’t exist before…» (F3T3).

When using the traditional teaching method in virtual learning environments, students do not have the opportunity to engage in effective learning or to develop self-employment skills (Chyr et al., 2017). Thus, teacher–student interaction inevitably contributes to the transformation of the teaching and learning process in virtual learning environments. There were schools where teachers became facilitators and moderators: «…we mainly talked, communicated, held discussions…» (F4T5); on the other hand, the learning centre was dominated by a student rather than a teacher: «…And the interesting thing is that in the real classroom, I dominated and in the distance learning, the student dominated…» (F5T7).

**From trust to ‘Speaking into the void’**
Positive aspects could include self-directed learning, and the promotion of independence: «…it could be said that during distance learning students were still given more opportunities for independent work, information search and experimentation… They did experiments at home. Sent what they filmed…» (F5T3). However, such communication and collaboration took place only in individual schools, mostly only with motivated, more gifted students with a positive attitude to learning: «…and communication took place mostly with, as they say, more gifted students…» (F5T2). Students with difficulties or lack of motivation who often needed help with learning were often forgotten, unnoticed: «…Those students who joined, ..., who really need special help seem to be forgotten overboard, to connect with them sometimes is impossible, they turn off the cameras and are usually sleeping, bored or doing nothing at all…» (F5T2).

Communication with such students was only fragmentary: «…Speaking in Silence…» (F2T8). The question is, why was it so difficult for these students to engage in distance learning?

**Communication and collaboration in distance learning**
The study found that many teachers chose traditional methods for distance learning, emphasising that there are few teaching methods in distance education that would allow students to engage in active activities: «…I think that there are almost no active teaching methods in distance learning…» (F1T9).

Analysis of the study data also revealed that teachers used not only a synchronous teaching method during distance learning to recreate a traditional lesson in digital space using video conferencing tools but also an asynchronous teaching method. However, this method of teaching was mostly used for presenting tasks to students: «…you load the task for students and give a certain period to turn in…» (F1T4); «…I create a task and
Lithuanian schools’ functioning during COVID-19

ask everyone to upload it...» (F1T9). Communication and collaboration with students in asynchronous learning usually took the form of email correspondence, electronic blogging or social networking groups: «...presentations were not presented during lessons or during video lessons, but they were emailed to me...» (F3T8); «...students sent me their works to google classroom or just to my mail, ... consultations were usually done in the form of correspondence...» (F3T3).

Academic dishonesty – where does it lead?
During the discussions teachers identified a sensitive problem of academic dishonesty in distance education: «...there are really many phenomena of dishonesty...» (F2T3). The fact that students not only cheated using books during tests or through discussions with each other on chats, but parents also did the tasks for them, thus further encouraging academic dishonesty: «...academic dishonesty was one of the biggest problems (parents did the tasks for the children; students were cheating en masse)...» (F3T1). Perhaps this is why the mechanism of control, discipline and ‘power’ criticised by Foucault (1977) has become even more apparent in schools. Attempts by teachers to solve the problems that have arisen have transformed the role of the teacher in the teaching process into a ‘controller-guardsman’ of the students: «...we used enough additional tools to control, test and see progress...» (F1T4); and the ‘executioner’: «...you can set the test time very clearly – how much the student is able to do, that’s how much he will get...» (F4T8)

The role of the teacher – ‘to control and discipline’ students
According to the study data, it can be argued that the teacher in distance learning can be seen as taking the role of the guard who encourages students to turn on cameras and microphones: «...I say – turn on your microphones, you won’t hear anything, but I’ll hear whether you’re talking to each other or not...» (F1T9). In this case, a teacher is not aiming to get as close as possible to real collaboration, to collaborate and create a culture of distance communication, but to be able to control the students: «...but the good thing is that they (students) are really controlled, say, they can do something not at any time, but at a specific time...» (F5T1). Teachers are observing what students are doing, whether they are cheating or doing the task themselves: «...it was like controlling students’ work...» (F2T6). It can be concluded that teachers paid a lot of attention to discipline, control and policing.

Student–student interaction
What was the interaction between the students? What learning strategies did the students follow? How this interaction corresponds to the interaction described in the theoretical Model of E-Learning is given in Figure 5.

Interviews with students revealed that during distance learning, students felt a lack of communication and socialisation: «...we are sitting down at the computer for so long without communicating, without live contact – it was a challenge... We are people who care about socialisation with other people...» (F1S8). It is likely that this is partly related to the organisation of distance learning and activities during distance learning. During the discussion, students questioned their personality development, arguing that such lessons using tasks and tests to control students greatly inhibit learning motivation in distance learning: «...other teachers destroyed all motivation, and at the last minute, you can just write a quick message in messenger to the friends who did the task, copy it and then send it because there is absolutely no desire to complete the task yourself...» (F2S5).

Figure 5: ‘Student–student’ interaction comparison in the Model of E-Learning in Lithuanian schools.
‘Academic dishonesty’ in the context of cooperation

According to students, without motivation to remain ‘academically honest’ is very difficult: «...There was everything, and I tried to work honestly, but sometimes, when I remembered to do some kind of work, that I had to complete, at the last minute, and the motivation to do it was completely gone, then I just took another student’s work, read it, and I would be able to do it, I adjust it and I send...» (F2S2).

‘Academic dishonesty’ is unjustifiable, but let’s look at this phenomenon from the perspective of student–student interaction and try to see the strengths of this phenomenon. Students’ independent activities and cooperation often outperformed teacher-organised activities in distance learning. Students worked closely together to help one another with tasks: «...We connect through Zoom, through Messenger, through something, and instead of all of us getting fives, we discuss the questions, delve into the topic better than we could during the lesson, and we all get tens...» (F2S5); they looked for information together and held discussions with each other, with better learning students teaching others, helping to solve problems and correcting grammatical errors: «...I helped my class a lot, and there was even a case where we agreed that we would call after school, and I explained what they didn’t understand and helped them...» (F2S1). There have been cases when students have trusted their classmates more than the teachers themselves: «...you can go deeper, you can also ask, and you can get a lot of help from someone else, for me it is very important that you can get a lot of help, not from teachers but from friends...» (F2S8).

Turning ‘academic dishonesty’ into ‘collaborative learning’: reality or utopia?

During the interviews with teachers, it was emphasised that during distance learning it is difficult or impossible to implement active teaching methods, in addition to the difficulty involved in implementing research activities: «...I think that in distance learning there are almost no active teaching methods...» (F1T9). However, the conversations with the students showed that they can cooperate and overcome difficulties: «...We connect through Zoom, through Messenger, through something, and instead of all of us getting fives, we discuss the questions, delve into the topic better than we could during the lesson, and we all get ten...» (F2S5). Students admit that ‘academic dishonesty’ was present, but exclusively during reporting and control work: «...My academic honesty was certainly not great, but I don’t see a downside to that because at least during the test I liked the fact that I was getting calls from classmates...» (F2S5); however, students see this as an opportunity to collaborate and overcome tasks presented by the teacher. In other words, ‘academic dishonesty’ transformed into an active collaborative activity – the student’s assistance to the student.

Student–content interaction

Cooperation of teachers, mutual assistance and participation in various training programmes: «...There was a lot of training. I also participated in maybe six or seven training programmes...» (F3T3); sharing of good practices was exceptional: «...We very frequently had methodological meetings where we shared good practices and searched for solutions...» (F1T4). However, to what extent has this contributed to providing productive teaching content to students? What learning content and tools dominated at schools in distance learning?

How this interaction corresponds to the interaction described in the theoretical Model of E-Learning is given in Figure 6.

Figure 6: ‘Student–content’ interaction comparison in the Model of E-Learning in Lithuanian schools.
‘Traditional’ classroom for distance learning

Discussions in the focus groups of the students revealed that the distance learning lessons did not differ from the lessons that took place in the traditional classrooms. Teachers used the same slides that they used in traditional classrooms, and a board in the classroom where the teacher wrote was replaced by a virtual whiteboard: «...this, I think, was not much different because most teachers tried to present all the information on the slides, teachers solved everything on the computer and showed everything to us on the screen... it’s the same as the task being solved on the regular board in the classroom...» (F1S3). In other words, teachers tried to move the traditional lesson into a virtual space.

A ‘traditional’ textbook for a ‘traditional’ lesson

The research data revealed that distance learning lessons were dominated by traditional textbooks and exercises: «...lower classes used only textbooks and exercises because they had all the learning material needed with them...» (F2T6), «...mainly textbooks, exercises were used...» (F4T5). A few weeks after the introduction of distance learning, in addition to traditional textbooks, teachers began to use digital tools more often to present teaching content: «...I started making slides for teaching... at the same time, I was also using textbooks...» (F2T3). Students also stated that the main teaching tool during distance learning was the traditional textbook: «...We used simple textbooks at home, most often to complete tasks...» (F1S2); however, they also appreciated the teachers’ efforts to find other ways to present the teaching content: «...What I find very useful, I think, is when teachers show slides and comment on them because you see the image itself on the screen right away. This was very useful...» (F1S2). There were teachers who also provided students with digital textbooks, usually scanned: «...In fact, we used both methods digital and traditional, often the teacher sends, say a link to the textbook, and we learned from it...» (F2S2). Teachers feel that they have overcome this challenge and do not see a big problem with the presentation of digital textbooks: «...This is not really a problem with textbooks. And I agree that it may be possible to scan textbooks or find them in other ways...» (F2T2). However, there is a huge risk associated with textbook copyright here. It is likely that copyright disregard and irresponsible behaviour by teachers may also encourage students to behave irresponsibly.

From a ‘traditional’ textbook to ‘pointless’ tasks

Discussions in the focus groups of the students revealed that there were schools where the ‘send-receive’ or ‘ping-pong’ distance learning model to present the learning content prevailed using one of the most primitive methods – email: ‘Teacher sends assignments’ ⇒ ‘student solves and sends to teacher’ ⇒ ‘Teacher evaluates and sends new assignments’: «...some teachers were not taking at all, they were just sending assignments, you send it back to them, and they send you other assignments anew...» (F2S5); «...the teacher had such a system that we send all the task to her in the mail and she sends us assignments in the mail, and so it repeats...» (F2S7). During the interviews with the students, some of them mentioned another problem during distance learning: meaningless and non-life-related learning activities and learning content are just a waste of precious and highly scarce time: «...usually you get a task to make some slides on a topic which is not interesting to you. Well, you are just given a topic, and you are literally wasting time just putting information from Google into slides when you really don’t need it. This results in such a waste of time...» (F1S7). During such distance learning, the students with nostalgia remember even ‘live’ lessons that were permeated by the teacher’s monologue: «...when it was live you sit down, listen, write down what the teacher is saying, and then you already understand it...» (F2S5). Summarising the thoughts expressed by the students, it can be said that the students lacked such teaching in the virtual space, where they could create the teaching content by researching and collaborating with both the teacher and classmates: «...throughout the lesson we usually explained something, but did not do any practical tasks...» (F2S4); and avoid the teacher’s monologue or uninteresting stories: «...it was like getting up and listening sincerely for two hours and talking about nothing but just being there for two hours...» (F2S5). The ‘overloaded’ curriculum, the constant looking at the computer screen and the excessive learning load make students very tired: «...I really like to sit at the computer, but even then, my brain was fried in the true sense of the word...» (F2S2). Given these insights, it would be worthwhile to look for more diverse forms of asynchronous education in distance learning environments during distance learning.

Content–content interaction

Teacher leadership in content development leads to a lack of interaction between teaching content and external sources of information

The study revealed that the ‘content–content’ interaction in the distance learning model was practically non-existent. This can be linked to the leadership chosen by teachers in delivering curricula and teaching strategies, which usually focuses on the ‘all-knowing’ teacher and
standardised, knowledge-oriented teaching content: «...but the day is coming when they will be assessed and then they will have to know everything, so there is a need for knowledge...» (F4T6). Undoubtedly, this strategy requires very large time resources: «...it really takes a lot of time to prepare a lesson..., and the time is still 24 hours a day, 7 days a week. It's impossible to stretch it...» (F1T8). Therefore, the choice of such a strategy helps implement only the lowest level of any teaching taxonomy – ‘knowledge’.

**Students’ independence and self-regulation – a precondition for constructing teaching content using external sources of information relevant to students**

The study found that students with high motivation and attitudes to learning were much more successful in overcoming distance learning. Often it was those students who were able to choose different learning content and select the sources of information that are relevant to them today: «...My perhaps good practice was that through selective selection, I deepened my knowledge in the fields that I am taking exams, that I am interested in, that I need...» (F2S5). In other words, students not only acquired knowledge but also improved their ability to select useful, reliable information, analyse the differences in the content presented in different sources, evaluate them and make decisions. The students also revealed another important fact – that some things are much easier for them to learn on their own: «...I agree that it depends on the subject, for me some things were also easier to learn on my own...» (F2S4).

**Discussion**

Distance learning, teleworking and collaboration in digital space became commonplace during the COVID-19 pandemic (Favale et al., 2020). However, it remains unclear whether these practices are truly commonplace in the digital space. We can address this using Anderson’s (2004) Model of E-Learning, in which interaction is seen as an essential link between learners, teachers and teaching content.

Rovai and Downey (2010) a decade ago found that active interaction between teachers (emotional support, sharing of good practice, helping each other), teacher preparation and digital skills are crucial for distance learning and are very important for successful distance learning implementation. According to Bilbokaitė-Skiautenienė and Bilbokaitė (2021), teachers’ lack of IT competencies and knowledge of how to work in virtual learning environments during the pandemic has led to big problems in teaching students remotely. We would like to counter this idea, as our research has shown that teachers have discovered many new ideas and new technologies in collaboration with one another and that their peer support has enabled them to work in virtual learning environments quickly enough. So, we pose the discussion question: is it the lack of IT competencies or the lack of peer-to-peer collaboration in schools that has led to the current problematic situation in education? Of course, if we talk about cooperation with higher state institutions (heads of education departments, representatives of the ministry), we have to agree with the results obtained by the researchers that there was very little help in this area, and the help itself was based on shifting the responsibility to schools and teachers, noting that the management recommends that the teachers should agree with the parents on the ways of educating their children that are acceptable to them (Bilbokaitė-Skiautenienė & Bilbokaitė, 2021). This trend may also be due to a lack of preparation.

The research of Makarevičienė et al. (2018) reveals that distance education in Lithuanian schools is usually limited to the implementation of technological solutions. This phenomenon is likely to be a consequence of convenient, low-challenge activities in traditional classrooms and a desire to move the traditional teaching model into a virtual environment. The results of our research confirm this, and we can argue that ‘Teacher–teacher’ interaction requires more attention not only to technological solutions but also to the methodology and strategies of organising learning in virtual learning environments.

This is confirmed by one of the most frequently highlighted problems – the lack of live streaming and the lack of interaction with students. It is pointed out that nothing can replace live, natural communication and contact with a child (Bilbokaitė-Skiautenienė & Bilbokaitė, 2021). The results of our study confirm this statement, but it is worth raising another question to the discussion: what have we done to make the interaction different? Can a live streaming ‘talking head’ stimulate students to discuss, solve problems collaboratively, to act as a team? This question is also raised by other researchers who argue that problem-solving and creativity skills are necessary activities to be developed both during pandemic times as well as times characterised by any other crisis (Petkevičiūtė & Balčiūnaitienė, 2021). It is a good idea to implement Dewey’s concept of learning in virtual learning environments (Dewey, 2018). However, our research reveals that teachers are more guided by the manifestations of control, punishment and discipline criticised by Foucault (1977) – the all-knowing teacher, drills, checklists, standardised tests, achievement
checks, diagnostic exams and the ‘local’ punishments of grades and notes. This is confirmed by the problem of distance education, which is identified as ‘the lack of streaming of training’ (Petkevičiūtė & Balčiūnaitienė, 2021). Our study shows that students’ desire just to listen and watch is not the only problem with distance education. Another important aspect is the use of testing tools and the ‘punishment mechanism’ created by teachers, which are very prominent in distance education. Punishment in distance education has itself become ‘forced interest’, while the problem of teachers’ ‘forced’ use of video cameras in distance education has become more akin to a panopticon. The results of our study showed that these factors were the ones that contributed to the ‘academic dishonesty’ of students.

We agree with Petkevičiūtė and Balčiūnaitienė (2021) that unless we change our approach, virtual learning environments will continue to face challenges in creatively implementing new ideas and enabling students’ self-expression, which includes creative and critical thinking, flexibility, and self-discipline as well as problem-solving skills in coming up with original solutions. Based on the results of our study, we can extend this idea and say that collaboration, interaction, and creative and critical thinking as well as deep understanding are essential for successful teaching and learning online. Distance learning requires much more: to be motivated, to be able to organise your learning, to solve problems collaboratively and to critically evaluate the information provided (Osman, 2020).

So, the question is, which elearning model to choose? Picciano (2017) and Roberts (2019) emphasise that the Anderson (2004) Model of E-Learning offers broad possibilities. And we strongly agree that this elearning model allows for a deeper understanding of interactions and encourages the creation of new theories based on the interactions described in this model. Our study showed that these factors are very important for successful elearning implementation. According to the inferences drawn in the study of Yang et al. (2020), a deep understanding of different interactions and how they occur in the learning process as well as their impact on learning is one of the biggest challenges that educators face. And the challenge for scientists is to find new ways, to create or adapt elearning models so that a variety of interactions can be visible, effective and inclusive in the learning process.

**Conclusions**

Based on the results of the study, we can say that the use of Anderson’s E-Learning model to assess interaction and collaboration in virtual learning environments is one of the proven strategies to provide a deep insight into interaction from different perspectives.

The findings of the study revealed that to become innovators in their field and an active learning community capable of acting and solving problems in crisis situations, exceptional teacher–teacher, teacher–student and student–student interactions are essential. New relationships built on cooperation and mutual trust have a positive impact on the emotional microclimate, which not only fosters trust between students and a teacher but also the teacher’s satisfaction in building relationships that help get to know the students better. Only in an emotionally ‘healthy’ environment can individuals who support each other and share a variety of information achieve maximum results. Team learning and collaborative decision-making within the school community help solve even the most complex problems.

To achieve educationally impactful teacher–content, student–content and student–student interactions, we must move from a teaching paradigm to a learning paradigm – from the direct ‘transfer of knowledge’ to the ‘construction and creation of knowledge through collaboration’. If project-based, research-based and creative tasks are very rare in distance education, and if teachers tend to focus more on the various exams, tests and template assignments and the successful completion of these by students, all the most important elements of learning will be overshadowed by the control mechanism, and will become a major global problem – ‘academic dishonesty’ of students.

The application of ‘traditional’ teaching strategies in virtual learning environments and the combination of the teacher’s role of ‘controlling and disciplining’ the students are destroying students’ motivation and freezing critical and creative thinking. Thus, meaningless learning activities and content that are not relevant to life, lack of communication and socialisation, and absence of opportunities for collaborative learning, exploration and knowledge creation in virtual learning environments are a waste of precious and already scarce time.

**Implications and Limitations**

This study was carried out in Lithuanian schools, and while the results are broadly in line with those of other researchers, it would be biased to draw universal conclusions about the general state of education during a pandemic. This is primarily due to the countries’ different technological capabilities, the digital literacy of teachers and students, and their different approaches to learning paradigms. To objectively assess the state of education, the methodology used in the study should be replicated in other countries. A common understanding of the interactions is necessary to maximise objectivity.
In any case, the application of Anderson’s E-Learning model is an excellent strategy not only for assessing interaction and collaboration in distance learning but also for planning the learning process in virtual learning environments. Anderson’s E-Learning model offers teachers the opportunity to rethink their philosophical approach to learning in the 21st century and the skills needed by modern people. For educationalists, the elearning model can provide new ideas for developing new tools, new learning theories, and their implementation in virtual learning environments. The reflections presented in the study can be an incentive to prepare now for the next unknown crisis.

References


