

# *University Lecturers' Distance Learning Experiences Gained during the COVID-19 Pandemic Period*

Viktória Gősi  
Kövecses  
Apáczai Csere János  
Faculty, Széchenyi István  
University,  
Liszt F. u. 42. H-9022  
Győr, Hungary  
E-mail:  
[gosi.viktoria@sze.hu](mailto:gosi.viktoria@sze.hu)

Bálint Lampert  
Apáczai Csere János  
Faculty, Széchenyi István  
University,  
Liszt F. u. 42. H-9022  
Győr, Hungary  
E-mail:  
[lampert.balint@sze.hu](mailto:lampert.balint@sze.hu)

Attila Pongrácz  
Apáczai Csere János  
Faculty, Széchenyi István  
University,  
Liszt F. u. 42. H-9022  
Győr, Hungary  
E-mail:  
[pongrazc.attila@sze.hu](mailto:pongrazc.attila@sze.hu)

Ildikó Lőrincz  
Apáczai Csere János  
Faculty, Széchenyi István  
University,  
Liszt F. u. 42. H-9022  
Győr, Hungary  
E-mail:  
[lorincz.ildiko@sze.hu](mailto:lorincz.ildiko@sze.hu)

**Abstract** — Semester 2 of the academic year 2019/2020 has brought along a special situation and a variety of new solutions in education throughout the world. The emerging pandemic situation changed the system considerably by impeding both lecturers and students from working and meeting personally. Transition to online, distance education has also presented new challenges to educators, parents, teachers, university lecturers and students, as well as a new path of development. During our research, the experiences and difficulties gained by the members of Apáczai Csere János Faculty at Széchenyi István University in the past semester were examined with the help of an online questionnaire. Preliminary results show that the semester of distance learning, despite its difficulties, brought several positive results that enhanced teachers' creativity, pedagogical competencies as well as methodological culture of how the different tools and programs were used.

**Keywords**— *COVID-19, distance learning, online education, mobile applications, Moodle, MaxWhere 3D VR*

## *Introduction*

In the past few decades, info-communication technologies, mobile applications as well as learning support digital instruments have been filtering into both the Hungarian education and everyday life with a varied intensity. We believe, this process was extremely accelerated by the events of the last semester. The pandemic situation caused by COVID-19 as well as teaching from home have necessarily opened new dimensions within the methodology

of distance and online teaching. Naturally, 21<sup>st</sup>-century skills or capabilities (such as co-operation, knowledge-building, ICT application, real problem solving, innovation as well as self-regulatory learning) should not be disregarded – their development and improvement are educational priorities. [1,2,4,5] As part of this process, it is important to apply the latest technological solutions to get to know the related methodical procedures as well as to incorporate them into the educational practice. [3,16,17]

At our university, distance teaching during the COVID-19 pandemic period was realized through Moodle Learning Management System which, on the one hand, has been a platform of distance education for several decades and, on the other hand, being a form of blended learning, also provides a platform for various courses realized personally. During their university studies, students can find the courses they have taken on the platform and can see the content uploaded by their lecturers upon entry. The Moodle interface has several advantages, and it has a lot of additional programs. We have the opportunity to upload different documents and files, create discussion forums, evaluate and review written assignments uploaded by students, send Moodle instant messages, run an online calendar, create Online News and Announcements as well as online quizzes, and examine. It can be easily operated by both the lecturers and the students.

Thus, the application of online platforms has had significant precedents at the university, building on which the directives enhancing distance education were elaborated in March 2020. Within its frameworks, individual solutions could be chosen for each educational and/or scientific area.

During the past few semesters, a project of curriculum development has also been realized thanks to the research

group of SZE VR Centre, in which a great number of curricula were produced in the 3D VR space. In our view, this process has considerably contributed to the effective performance of this semester of distance education brought along by the emergency. MaxWhere system ([www.maxwhere.com](http://www.maxwhere.com)) is a presentation tool that displays specific content (e.g. images, videos, active websites, static texts like pdf or ppt) in 3D virtual spaces. MaxWhere spaces allow users to instantly review content placed in 3D space by placing it in a structure, a kind of logical system, thus facilitating and accelerating the processing of information. Users freely create specific routes based on which they explore the space and view the knowledge placed in the 3D viewer (i.e. in the space formed according to the positions and views of the cameras). The route they have explored is called a story. Once a story has happened, the user can move with animated jumps in the predefined space or spaces (between spaces). [20]

The advantage of MaxWhere system is that it can integrate any element of the Internet in each 2D window (web table = web library) with an active online connection, thus any element of any website can be included in the presentation. [20]

The efficiency of MaxWhere 3D virtual spaces has been recently proved by various pieces of research. Based upon these results, experts conducting research on this topic concluded that as an educational platform MaxWhere offered numerous possibilities to its users to perform tasks requiring rather complicated digital workflows within the traditional 2D-environment. [8,10,11,12,13] Based on the tests, results show that users were at least 50% faster in performing the necessary workflows within MaxWhere 3D environment than they were in case of any other content-sharing programs. [8,10,11,12,13]

As far as digital workflow sharing and interpretation are concerned, experiments also show that 3D environments can provide users with a much higher level of understanding. [6,7,8,9,10,11,12,13,14]

Cyberspaces may support or complement learning processes based upon co-operation and may also provide an excellent background support for educational or other project works [15,18,19]

## I. METHODOLOGICAL BASIS OF THE RESEARCH

In the course of the research, our online questionnaire was sent out to colleagues working at the same faculty. The 38 open- and close-ended questions touched upon teaching competences, individual assessment as well as experiences gained during the semester of distance teaching, such as supplies of equipment, comprehensive summary impressions, difficulties, as well as the practice, tools and methods applied during distance education.

In the first part of the questionnaire, our questions referred to more subjective impressions about the distance learning semester (e.g. *How would you describe your own distance learning work in three words? Describe the students' work in three words. What caused the greatest difficulty in*

*distance learning?*). In this part we examined the feelings of the colleagues and their experiences related to their students' learning activities. In the second part of the questionnaire we formulated more objective questions which referred to the pedagogical methodological practice the colleagues applied (e.g. *What options did you use to communicate with students? You can mark several answers. What procedure, method, application would you bring back to the traditional form of classroom education out of the procedures used in online work? What applications did you use in your semester work? You can mark several answers.*)

The last six questions of the questionnaire focused on the self-reflective investigation of the competence of the lecturers (e.g. *To what extent do you think you developed in the following area – the students' developmental assessment – during the distance learning semester? (1: not developed, 5: totally developed)*). The colleagues had to indicate the values they consider relevant on certain aspects – digital competence, problem-solving thinking, creative thinking, supporting the individual learning pathways of students, etc. – on a 5-point Likert-scale.

Our hypotheses were as follows:

H1: Distance learning period was experienced by university lecturers in a positive way, that is, as a kind of development.

H2: Challenges of the COVID-19 pandemic period mobilized lecturers' preliminary ICT knowledge and resulted in both creative solutions and diverse teaching methods.

H3: Lecturers consider that it is mostly their digital competence that improved considerably during the semester of distance learning.

Our questionnaire was filled out by 49 people out of the 70 full-time and 40 part-time lecturers. 69.4 % of the lecturers answering the questions had earlier participated in a Moodle training.

## II. SUMMARY OF RESEARCH RESULTS

As far as the equipment of distance learning is concerned, colleagues' answers reveal a positive image: some 83.7% of our colleagues questioned considered that they were in possession of appropriate equipment and tools to perform smooth education. Those providing negative answers (16.3%) pointed out the lack of good-quality laptops and raised quality-related questions of internet accessibility.

75.5% of lecturers felt that those responsible for distance learning had provided them with appropriate help and support, whereas some 22.4% of respondents believed they did not need any help as they were able to solve everything by themselves, whereas some 2.1% considered help provided as insufficient.

In the first part of our questionnaire lecturers were asked to give three-word-descriptions of i.) *their own performance of distance learning* and ii.) *that of their students*.

When reflecting on their own work, lecturers picked 23 negative concepts out of nearly 150. The rest of the characteristics listed were either positive or neutral. Increased

*working hours, lack of personal contacts*, as well as adjectives like *exhaustive, tiresome, and monotonous* showed up several times among the negative concepts. The rest of the phrases were linked with positive associations. Words like *creativity, development, exciting, novel, challenge, learning, innovative, efficiency, useful, effective, inspiring* were repeated various times, but *diligence, patience, gaining experience, precise, smooth, successful, empathy, student-friendly* also formed part of the answers provided.

Lecturers had to use 3 concepts to describe their students' behavior, and answers show that lecturers considered that online education had had much rather a positive impact on students' activities than a negative one.

Of all the concepts, 22 were of specifically negative character. In this case colleagues highlighted *uncertainty, inability to learn independently, increased burdens, feeling lost, slow reactions, confusion*, as well as *extremes in students' motivation and activities*. The expressions most frequently listed by lecturers were *co-operation, activity, creativity, responsibility, interest, diligence, adaptation, perseverance, conscientiousness, flexibility, and students' efforts*.

As far as lecturers' own attitude and performance as well as those of their students are concerned, the summary of the answers given reveal lecturers' essentially positive opinion.

In our questionnaire we sought answers to the question *what caused the greatest difficulty in distance learning*.

Problems such as *lack of personal contacts* that is the basis of pedagogy and education, *increased workload*, as well as *necessarily quick and flexible switchover from one system to another* were the expressions most often mentioned. Some lecturers also pointed out the *inadequate quality of internet data roaming or transmission, deficiency of both their own technical background and that of the students' equipment*. Furthermore, some of the answers revealed that it had been difficult to organize optimal load, that is to optimize the quality and quantity of the tasks prepared for the students.

Others found that task descriptions and explanations during distance learning required much more circumspect of thinking, more precise guidance, and assistance.

Several colleagues of ours mentioned psychological aspects like *uncertainty caused by the pandemic situation, difficulties of timing and scheduling*, that is the alignment or *harmonization of teaching from home with family life and with their own children's learning*.

Both lecturers' and students' insufficient ICT knowledge and/or superficial knowledge of the operation of the Moodle platform were also mentioned as difficulties. Though some two-thirds of the respondents had already participated in various Moodle courses in the last few years, one-third of respondents met the system for the first time during the past semester.

By means of the questionnaires we wanted to get information on our colleagues' distance teaching practice as well as on the methods and equipment applied.

79.6% of lecturers gave positive answers to the question *whether they had recorded their lectures and/or practical trainings or sessions and shared them with their audiences*.

Most of the students indicated they were greatly interested in this type of lectures. It was mainly our students with auditive learning style who found this educational tool particularly useful. Other professional materials such as audio materials, voice recordings – a collection of folklore and/or children songs, expliciations, articles, etc. – were prepared and shared with students by 89.8% of the lecturers.

The ways lecturers most frequently used to keep in touch are illustrated by Figure 1. Apart from e-mails, Google Meet and Messenger are the most often used, however, several other options appeared among the answers provided.

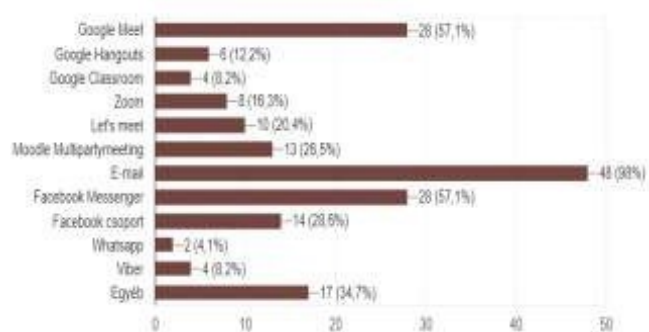


Fig. 1. Contacting forms used by lecturers

As Figure 2 indicates, various mobile applications were also used during the courses, which was highly appreciated by the students.

When providing courses for lecturers at our faculty, it is also a very important task of ours to give teachers-to-be diversified examples through our methods and tools on how primary school teaching and learning processes can be supported in a creative way, by using various possibilities.

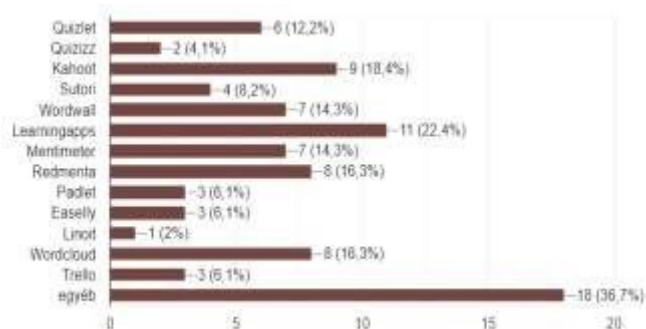


Fig. 2. Applications used by lecturers

Furthermore, we wished to examine how 3D VR program was applied. 59.2% of the lecturers questioned had previously participated in trainings related to the usage of VR spaces, and 57.1% of them have recently elaborated teaching materials in 3D VR spaces.

In the semester of distance learning, this platform was used by 14.3% of the respondents – many of them highlighting



that students lacked appropriate hardware background to operate the program or did not even know it.

In several cases, materials placed in Moodle platform were used directly, and participants did not move on to the 3D program connected to Moodle. Though this program can be learnt within the frameworks of a freely chosen subject at our faculty, students would prefer to use MaxWhere independently if they performed more 3D activities during their personal courses, too.

Answers given to the question *what students/lecturers learnt, what they were enriched by during distance learning* can be divided into several groups. Some of them focused on personal characteristics such as *empathy, creativity, flexibility, patience, trust, confidence, insight into human nature and self-reflexivity*. Another large group of answers concerns a thorough knowledge of the Moodle system, the study of various applications, their incorporation into distance learning practices as well as the employment of new methods, procedures, knowledge, and test(s) of diversified communication platforms.

The growing importance of personal presence was also outlined in various answers: *"I learnt that direct human interaction is an integral part of both teaching and learning processes that is needed by everyone and without which this process would be much less effective or enjoyable."*

*"It has become clear that the motivating power of personal presence cannot be replaced by anything."*

The importance of lecturers' co-operation was stressed in several answers: *"I also learnt that those participating in the education can count on each other."*

The answers given to the question *what procedure and/or method would the lecturers bring back to the traditional form of classroom education out of the procedures used in online work* can also be divided into various groups. Most of the answers were related to listing different applications known or learnt during the semester. According to another group of answers, equipment or tools of correspondence courses should be enriched by incorporating online exercises (e.g. *"PowerPoint slides with digital voice explanations, live access of lectures to the students being unable to participate personally in the classes."*)

Many of those meeting Moodle for the first time in their work stated that they would upload the course materials of the coming semesters to the system.

Finally, we also wanted to know how colleagues had perceived their own development, what competence areas they thought had been best supported by the semester of distance learning.

|                                        | develo-<br>per<br>evaluati-<br>on | professio-<br>nal<br>subject<br>knowledge | creative<br>thinking | problem-<br>solving<br>thinking | supporting<br>students'<br>individual<br>learning<br>pathways | digital<br>compe-<br>tences |
|----------------------------------------|-----------------------------------|-------------------------------------------|----------------------|---------------------------------|---------------------------------------------------------------|-----------------------------|
| i didn't<br>develop                    | 0%                                | 6,1%                                      | 2%                   | 2%                              | 0%                                                            | 0%                          |
| i developed<br>a little                | 8,2%                              | 10,2%                                     | 4,1%                 | 2%                              | 10,2%                                                         | 8,2%                        |
| i developed<br>in a<br>medium<br>level | 36,7%                             | 49%                                       | 22,4%                | 20,4%                           | 32,7%                                                         | 24,5%                       |
| i developed<br>a lot                   | 38,8%                             | 18,4%                                     | 44,9%                | 49%                             | 34,7%                                                         | 46,9%                       |
| i totally<br>developed                 | 16,3%                             | 16,3%                                     | 26,5%                | 26,5%                           | 22,4%                                                         | 20,4%                       |

Fig.3. Summary of the answers given to the question "to what extent do you think you developed in these areas?"

Lecturers' answers concerning six competence areas are summarized in Figure 3. Lecturers believed that it was their problem solving (50%) and creative thinking (46%) that had developed the most during the semester of distance learning. It was followed by the support of students' individual learning pathways and last by the improvement of their digital competences.

The so-called "I developed a lot" category was chosen mostly in connection with problem-solving and creative thinking as well as digital competences, whereas intermediate development was marked when evaluating professional knowledge and students' development.

## CONCLUSIONS

During the research we sought answers for the question how university lecturers had perceived or experienced challenges brought along with distance learning, what practice(s) they had applied in their work, what difficulties they had had to fight and what they had learnt from the experiences gained during the semester.

Based upon their answers it can be concluded that our first hypothesis is proved to be true, despite the difficulties detected, the period of distance learning was perceived in a positive way as a kind of development or improvement – lecturers adapted to the situation caused by the pandemic in a flexible and creative way. This was clearly evident from the concepts which emerged as quick reflections on their own and their students' activities. Our second hypothesis was also confirmed, according to which the challenges of COVID-19 mobilized the lecturers' ICT knowledge and resulted in creative, varied solutions and methods. It can be seen from their answers that they used various programs and mobile applications creatively and courageously. As an institution dealing also with teacher training, it is also our important task to set an example for our students how they can implement online education effectively.

It can also be seen that during the COVID-19 period distance learning practice was realized through diversified methods and creative solutions, thanks to the lecturers' flexible adaptation. Our assumption according to which lecturers believed their digital competences had improved the best was not confirmed, since, in their opinion, the areas that had progressed the most

were problem-solving and creative thinking as well as supporting students' individual learning pathways which was followed by the improvement of digital competences.

It is also encouraging to see that lecturers were ready to incorporate some exceptionally good practices into next semesters' work, and this way complementing personal development and education built upon personal presence. Feedbacks give guidance on where to direct lecturers' trainings and equipment development in the coming semesters.

#### ACKNOWLEDGEMENTS

The study was supported by: EFOP-3.4.3-16-2016-00016 Higher education institutional development, a common improvement of the quality and accessibility of the programmes at Széchenyi University.

#### REFERENCES

- [1] E. Gogh, A. Kovari, "Experiences of Self-regulated Learning in a Vocational Secondary School", *Journal of Applied Technical and Educational Sciences*, vol. 9, no. 2, pp. 72-86, 2019.
- [2] A. Kővári, "Adult education 4.0 and Industry 4.0 challenges in lifelong learning," *PEDACTA*, vol. 9, no. 1, pp. 9-16, 2019.
- [3] T. Ujbányi, G. Sziladi, J. Katona, A. Kovari, "Ict Based Interactive and Smart Technologies in Education - Teaching Difficulties," *Proceedings of the 229th International Conference on Education and E-learning (ICEEL)*, 2017, pp. 39–44.
- [4] Prievara T., *The 21 st century teacher*, Neteducatio Kft., 2015. Bp.,
- [5] *Innovation in Education*, (Polonyi Tünde, Abari Kálmán, Szabó Fruzsina) Oriold és Társa, Budapest, 2019.,
- [6] G. Bujdosó, E. Jász, Z.M. Császár, A. Farsang, J. Kapusi, E. Molnár, K. Teperics Virtual Reality in teaching geography *Proceedings of ICERI2019 Conference 11th-13th November 2019, Seville, Spain* 659-665
- [7] P. Baranyi, A. Csapo, Gy. Sallai, (Eds.), *Cognitive Infocommunications (CogInfoCom)*. Springer, 2015.
- [8] B. Lampert, A. Pongracz, J. Sipos, A. Vehrér, I. Horvath, "MaxWhere VR-learning improves effectiveness over classical tools of e-learning," *Acta Polytechnica Hungarica*, vol. 15, no. 3, pp. 125-147, 2018.
- [9] Gy. Molnar, "Challenges and Opportunities in Virtual and Electronic Learning Environments," *IEEE 11th International Symposium on Intelligent Systems and Informatics*, 2013. pp. 397-401.
- [10] I. Horváth, The education of disruptive technologies in the innovative engineering training, *Australian Journal of Intelligent Information Processing System*, Vol.14, No.4 pp.31-60. (2016).
- [11] I. Horváth, Digital Life Gap between students and lecturers, 7th IEEE Conference on Cognitive Infocommunications (CogInfoCom 2016), 16-18 October, 2016, Wrocław, Poland, pp. 000353 - 000358, doi: 10.1109/CogInfoCom.2016.7804575
- [12] I. Horváth, Innovative engineering education in the cooperative VR environment, 7th IEEE Conference on Cognitive Infocommunications (CogInfoCom 2016), 16-18 October, Wrocław, Poland, pp. 000359 - 000364, doi: 10.1109/CogInfoCom.2016.7804576
- [13] I. Horváth, Experiences and guidelines for developing 3D VR curricula, *Advanced Methods and Applications in Computational Intelligence*, Springer book chapter 2020, in print
- [14] J. Ollé (2012). Virtual environment, virtual education. ELTE, Bp. 107. [http://www.eltereader.hu/media/2013/11/Oll%C3%A9\\_1\\_kotet\\_READER.pdf](http://www.eltereader.hu/media/2013/11/Oll%C3%A9_1_kotet_READER.pdf) Downloaded: 15 May 2019
- [15] T. Budai, and M. Kuczmann, "Towards a modern, integrated virtual laboratory system" *Acta Polytechnica Hungarica*, vol. 15, no. 3, pp. 191-204, 2018.
- [16] Szűcs A., Zarka D. (2006) : A távoktatás módszertanának fejlesztése, Nemzeti Felnőttképzési intézet, Bp.,
- [17] Demeter R.-Kővári A.: (2020) Digitális szimuláció jelentősége a jövő társadalmát meghatározó mérnökök kompetenciafejlesztésében In.: *Civil Szemle*, 2020/2. 89-101.
- [18] V. Kövecses-Gösi, The pedagogical Project of Education for Sustainable Development in 3D virtual space, 10th IEEE International Conference on Cognitive Infocommunications – CogInfoCom 2019 • October 23-25, 2019 • Naples, Italy, konferenciakötet, 978-1-7281-4793-2/19/\$31.00 ©2019 IEEE, 539-544.
- [19] V. Kövecses-Gösi, "Cooperative Learning in VR Environment" *Acta Polytechnica Hungarica*, vol. 15, no. 3, pp. 205-224, 2018.
- [20] ERUDITIO: Az e-tanulás módszerei és eszközkészlete, Budapest 2017. EFOP-3.4.3-16-2016-00016, 36-39.

