

Investigation of Mechanical Engineering Academicians' Use of Distance Education Technologies

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Abstract—The aim of this study is to determine the use of distance education technologies, conditions of use and how often they use various computer applications, and also to investigate the use of these applications by academicians who teach in the Department of Mechanical Engineering. In the research carried out with the scanning model, there were 370 volunteers from various universities in Russia, consisting of academicians who teach in the field of mechanical engineering. The research was carried out in the spring term of 2020–2021; before the research, a 6-week online training was given to mechanical engineer academicians. In the study, the 'distance education technologies' measurement tool developed by the researchers and compiled by experts in the field was used. The measurement tool was delivered to the academicians via the online method and collected. The analysis of the data was carried out by using the SPSS programme, frequency analysis, t-test and ANOVA test, and the results were added to the research with tables. According to the results obtained from the research, although the distance education technologies of the academicians who teach in the field of mechanical engineering are satisfactory, the rate of academicians never using new technologies in the teaching process is quite low and the rate of using them very often is quite high.

Keywords—mechanical engineer, academician, distance education, technology

1 Introduction

It is seen that the need for continuous education and developing technology has revealed the concept of university-taught distance education; it is defined as an educational institution where basic activities, such as distance education and research that should be found in a university, are carried out on the Internet to a large extent [13]. With this interpretation, it is thought that a well-designed distance education project

can help develop the competencies required by the information society, provide a standardised education that will spread to all educational institutions, create employment, increase the quality and success of distance education, create standard and high-quality education materials and enable international competition [12]. It is known that careful examination and application of each learner in this project is very important for the success of distance education and Internet-based education [16]. It is known that distance education, which offers global education, is an interdisciplinary field that aims to eliminate the limitations between learning, teaching and learning resources, while using existing technologies with a pragmatist approach [11]. It is known that within the researches, distance education is defined as teaching activities carried out by using various teaching materials, where students and teachers are in different places. It is also stated that distance education goes beyond the traditional education approach and offers a quality education opportunity to the participants in a more flexible, rich and interaction-based education environment [10]. The teacher who needs to develop an online course in the Internet-based distance education process should change the teaching method and pay more attention to interacting with students, visual materials and independent study activities. However, teacher education or field experience generally does not allow them to be effective educators in Internet-based education or to successfully use technology in their own lessons [9]. In the Internet-based distance education process, some important roles are to be played by teachers. Teachers should be able to organise interrelated information and resources correctly and present them to students; organise the tools to be used for communication effectively; and also support students in a way that facilitates their learning by working as a guide during the education process [7]. In addition, teachers should be attentive to possible problems that may occur in the Internet-based distance education process, be able to offer solutions when faced with a problem and provide technical support to students when necessary [2]. Determining the stage of the teacher dimension, which is one of them, is seen as a priority for the success of the educational projects that are considered to be implemented. In relation to the literature mentioned above, in this research, it is aimed to learn the views of the faculty members who are educators on education over the Internet, to determine their current situation regarding the use of technology in their lessons and to reveal their online course development experiences.

As it can be understood from the definitions, it is not possible to consider distance education and technology separately from each other. Therefore, it can be said that the improvement in technology is the most important factor in the spread of distance education. In fact, it is seen that technology has a decisive role in the classifications made in distance education. The technologies used give the opportunity to examine distance education in periods. When the distance education field is examined, it is seen that widely used information and communication technologies are decisive. When we look at the historical development process of distance education, it is seen that it started with letter teaching and continued as one-way radio and television period, two-way radio and television period and satellite and modern technologies period [8]. In addition, the fact that today's technologies allow to create synchronous or asynchronous learning networks can be seen as an important advantage that technology adds to distance education, such as social networks, content management systems, learning management

systems, massive open online courses (MOOCs) and many other models or platforms. Thus, it has become an important field of study to search for ways to conduct distance education, which is becoming increasingly widespread, in different models and platforms. That is, what is critical in distance education is not only advanced technological opportunities, but also the appropriate use of these technologies and to increase the quality of education by using it in a planned way.

1.1 Related studies

Altunisik (2013) aimed to examine the factors affecting student satisfaction in distance education platforms by emphasising the role of distance education factors on satisfaction; as a result, when lecturers use the factors related to distance education correctly, university students found it beneficial; it was also seen that the efficiency of academicians when they use distance education tools correctly was high [3].

Al Ghamdi (2017), in his study, investigated the effect of instructor proximity (verbal and non-verbal) on distance education, investigating the affective and cognitive dimensions of distance education and learning [1]. They stated that education provides an advantage to lecturers; in this context, it can be seen that this research mentioned that distance education studies benefit academicians.

In the study conducted by Ginting et al. (2021), they stated that the policy of maintaining physical distance during the pandemic ensured that every lecturer carried out e-learning for the continuation of learning, and they also emphasised that this situation definitely forced lecturers to develop their competencies [5]. In their research, in order to determine the success of the distance education learning system, they aimed to evaluate the qualifications of the instructors in the distance application process; as a result, they came to the conclusion that academicians achieved success in this process.

When these studies are taken into account, it can be seen that studies on distance education benefit both academicians and students over time. It is known that it is an advantage to continue to provide education to university academics with new technology, and that this situation is directly proportional to university students getting better education. The research will continue with the use of distance education technologies by the academicians in the mechanical engineering department.

1.2 Purpose of research

The aim of this study is to determine the use of distance education technologies, the conditions of use and the frequency of use of various computer applications by the academicians who continue their studies in the mechanical engineering department and to investigate the use of these applications. Answers were sought to the following questions regarding the general purpose determined:

1. What is the technological time used by academicians for lesson preparation?
2. What is the daily distance education usage time of academicians?
3. What are the views of academicians on distance education?
4. What are the opinions of the academicians about the Adobe Connect application?

5. Is there a difference between the statuses of Adobe Connect according to the gender criteria of academicians?
6. What is the distance education situation of the academicians according to their ages?

2 Method

In this section, information about which method was used in the study, which student groups participated in the study, the type and source of the data in the research, the data collection tool and the statistics used in the research are included and arranged.

2.1 Research model

In the study, the scanning study method was chosen from the research methods. The screening method, which is under the quantitative research methods, is a research method that aims to describe an action that can continue from the past to the present, with its existing model [4]. In this research, based on the determination of the use of distance education technologies, the conditions of use and the frequency of use of various computer applications by academicians, and the determination of their use of these applications are described according to the variables of gender, age and education period.

2.2 Working group/participants

Participation groups included in the research consist of 370 volunteer academicians who continue their studies at various universities in the Russian region. Academicians continue their studies in the mechanical engineering department of the universities. The measurement tool used in the research was applied to 370 academicians with the help of an online questionnaire and was accepted.

Gender. In this section, the distribution of academics according to their gender is provided in Table 1.

Table 1. Distribution of academicians by gender

Gender	Male		Female	
	<i>F</i>	%	<i>F</i>	%
Variable	187	50.54	183	49.46

When Table 1 is examined, the distributions according to the gender variable of the academicians participating in the study are determined. In this context, it can be seen that 50.54% (187 people) are male academicians, while 49.46% (183 people) are female academicians. In the gender section, the findings reflect the actual gender distribution.

Technology time used by academicians in lesson preparation. In this section, the situations related to the preparation of the courses given by the academicians in distance

education environments during the pandemic process, according to the technology usage timeframes, have been researched and examined. Detailed information is provided in Table 2.

Table 2. Distribution of academicians regarding technology time used in lesson preparation

Technology Times	1–3 Time		4–7 Time		8 or more hours	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
Variable	27	7.30	212	57.30	131	35.40

When Table 2 is examined, the technology usage time of the academicians regarding the lesson preparation process was examined. While 27 people stated that they use it for 1–3 hours, 57.30% (212 people) stated that they use technology for 4–7 hours and 35.40% (131 people) stated that they use technology for 8 hours or more. In this context, it can be seen that the technology usage time of the academicians regarding the course preparation process is mostly in the range of 4–7 hours and this is preferred by the academicians.

Distance education usage process time of academicians. In this section, the situations regarding the distance education environments in the online course process of the academicians according to the daily usage time periods have been researched and examined. Detailed information is provided in Table 3.

Table 3. Distance education usage process time of academicians

Distance Education Usage	1–3 Time		4–7 Time		8 or more hours	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
Variable	15	4.05	245	66.22	110	29.73

When Table 3 is examined, the usage situations of the academicians during the distance education process are examined. In this context, when Table 3 is examined, 4.05% (15 people) stated that the time period they use for distance education is 1–3 hours, while 66.22% (245 people) stated that they use distance education for 4–7 hours and 29.73% (110 people) stated that they use it 8 hours or more.

Age status. In this section, information on the age of the academicians in the study group was examined and detailed information is provided in Table 4.

Table 4. Distribution of academicians by age

Department	28–35		36–45		46 and above	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
Variable	58	15.68	275	74.32	37	10.00

When Table 4 is examined, the distribution of the academicians in the study group according to their age was taken into consideration. In this context, it is seen that

15.68% (58 people) are between the ages of 28 and 35, 74.32% (275 people) are between the ages of 36 and 45 and 10.00% (37 people) are 46 years and above. In the age status section, the findings reflect the actual distribution.

2.3 Data collection tools

When the data collection tool is considered, it is seen that it is a measurement tool developed by the authors of the research. The data collection tool, on the other hand, was examined by experts in the field of distance education, and unsuitable items were removed from the research and corrected. A personal information form called 'distance education technologies' measurement tool, which was applied to university students and developed by the researchers, was used. The content validity of the developed measurement tool was examined by experts, eight professors and four associate professors working on distance education platforms and distance education, and unnecessary items were removed from the measurement tool and rearranged.

Personal information form (demographic data). In the personal information form, information such as age, gender, technology usage times and distance education usage times are included.

Distance education technologies data collection tool. A 5-point Likert-type questionnaire was prepared to obtain information about distance education and Adobe Connect. 22 items out of the measuring tool consisting of a total of 24 items were used, and 2 items were excluded from the measuring tool, thanks to experts' opinions. Academicians' opinions were sought from two factorial dimensions: 'distance education use' and 'Adobe Connect'. Cronbach's alpha reliability coefficient of the measurement tool as a whole was calculated as 0.95. The measuring points were 'strongly disagree' (1), 'disagree' (2), 'undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was also collected from university students in the form of an online environment.

2.4 Application

A total of 370 volunteers from various universities in the Russian region who continue their studies in engineering faculties were determined by the researchers and it was planned to prepare live events with the help of the Adobe Connect video programme. The event was organised by showing the training environment to experts in the field, and when the activity part of the research was completed, they planned to show the videos and content for the use of distance education and Adobe Connect application dimensions for academicians. During the 4-week training, the use of distance education technologies, conditions of use, how often they use various computer applications, the live lessons related to the field courses in the distance education process, 'use of distance education', 'Adobe Connect' etc. were determined. Information such as distance education was given to academicians in the form of distance education and academicians were expected to participate in the activity on this subject every week. After the 4-week training, the online measurement tool and information form were applied to the academicians and the data are given in the tables in the findings section. The training was distributed into three sections over the Adobe Connect application

programme used by most universities and each determined section was distributed over weeks to be limited to a maximum of 130 academicians; each training programme was processed for a total of 60 minutes, with 45 minutes of training and 15 minutes of question and answer, online. In case of education, academicians were expected to participate in the training with images and microphones using devices such as tablets, phones and computers.

2.5 Analysis of data

With regard to the analysis, statistical data obtained from university students were analysed in the Statistics programme using frequency (f), percentage (%), mean (M), standard deviation (SD), *t*-test and one-way ANOVA, respectively. The numerical values of the data obtained from the programme are given in tables, accompanied by comments in the findings section.

3 Results

In this section, the numerical findings obtained as a result of the analysis of the statistical data obtained in the research have been added to the tables, and various interpretations have been included in the direction of the findings.

3.1 Distance education opinions of academicians

The findings of academicians regarding distance education are provided in Table 5.

Table 5. Opinions of academicians about distance education

No	Distance Education Opinions		
		M	S
1	I can enter the distance education system very easily	4.52	0.50
2	I can easily open the editing panel in the distance education system.	4.70	0.48
3	I easily add a resource to the distance education system	4.58	0.52
4	It is very easy to create an assignment in the distance education system.	4.71	0.51
5	I can connect to the distance education system whenever and wherever I want.	4.59	0.59
6	Creating an e-exam on the distance education system is simple and easy.	4.67	0.48
7	I can see the statistics of the e-exam I have done in distance education	4.63	0.51
8	The window allocated to me on the distance education system makes it easier for me to do the lesson.	4.72	0.48
9	All materials are available in the classroom environment in the distance education system.	4.58	0.52
10	Distance education system increased my motivation to teach	4.59	0.50
11	Teaching in the distance education system made me happy	4.52	0.51
General Average		4.61	0.50

When Table 5 is taken into consideration, the distance education views of the academicians who teach in the mechanical engineering department have been investigated

and it is seen that there are statistical findings regarding these views. It was found that one of the most obvious expressions, 'The window allocated to me on the distance education system makes it easier for me to do the lesson' had a mean of $M=4.65$. In addition, 'I could access the distance education system from any device I wanted' had a mean of $M=4.72$. While it is seen that the opinions of the academicians about distance education are quite high, another finding is that 'It is very easy to create an assignment for the distance education system', with a mean of $M=4.70$. Another finding of the research is that 'I can see the statistics of the e-exam I have taken in distance education' had a mean of $M=4.63$ and 'It is very easy to create a homework for the Distance Education system' had a mean of $M=4.71$. In addition, another value of the research is 'The distance education system increased my enthusiasm for teaching' with a mean of $M=4.59$. Finally, it is seen that the general average is $M= 4.61$.

When Table 5 is examined, it can be seen that the opinions of the academicians on distance education systems are quite high; they also stated that they can easily create homework in distance education systems; distance education always makes them happy; they can easily download their data on the e-exam; and they find distance education systems simple and useful. In this context, based on the findings, it can be said that the distance education of the academicians is positive, since all the values in Table 5 have a positive meaning.

3.2 Academicians' opinions on Adobe Connect application

Findings regarding the Adobe Connect application are provided in Table 6.

Table 6. University students' opinions on the Adobe Connect application

No	Opinions on Adobe Connect Application		
		M	S
1	I can easily do my live lesson in Adobe Connect environments.	4.65	0.50
2	I am happy to teach live in Adobe Connect environments.	4.75	0.64
3	I can easily see my students in the Adobe Connect environment.	4.62	0.52
4	I can easily hear my students in the Adobe Connect environment.	4.58	0.58
5	With the Adobe Connect application, I can easily show the images in my field courses.	4.79	0.49
6	In the live lesson environment, I do not experience any disconnection while teaching with my students.	4.80	0.63
7	I can conduct a survey during the live lesson in Adobe Connect environment	4.62	0.53
8	I can divide my students into groups during the live lesson in Adobe Connect environment.	4.82	0.62
9	I ideally use the time given in the Adobe Connect environment	4.63	0.52
10	I can access the live lecture recordings of the lectures held in the Adobe Connect environment whenever I want.	4.59	0.52
11	I would be happy to see Adobe Connect system in my other events and lessons.	4.70	0.53
	Overall Average	4.68	0.55

When Table 6 is examined, it is seen that there are statistical findings regarding the views of academicians on the Adobe Connect application. Although it is seen that each answer has a different meaning, it can be said based on Table 6 that the opinions of

academicians about distance education after the activity are high. 'I do not experience any disconnection while teaching with my students' had a mean of $M=4.80$. In addition, 'Can divide my students into groups during the live lesson in Adobe Connect environment' had a mean of $M=4.82$. While it is seen that the opinions of the academicians about the Adobe Connect application are quite high, another finding is that 'I can easily show the visuals in my field courses with the Adobe Connect application' with a mean of $M=4.79$. Another finding of the research is that 'I am happy to give live lessons in Adobe Connect environments' with a mean of $M=4.75$ and 'I can apply a survey in Adobe Connect environment during live lessons' with a mean of $M=4.62$. In addition, 'I use the given time ideally in the Adobe Connect environment' had a mean of $M=4.63$. Finally, it is seen that the general average is $M= 4.68$.

When Table 6 is examined, it is seen that their opinions about Adobe Connect application are high. They stated that they can attend live classes from wherever and whenever they want with Adobe Connect and they can form groups with their students within the Adobe Connect application. In this context, it can be said based on the findings that the academicians are positive about Adobe Connect, since all the values in Table 6 have a positive meaning.

3.3 Adobe Connect status of academicians by gender

In this section, the Adobe Connect status of the academicians according to the gender variable is examined and the information on whether there is a significant difference is provided in Table 7.

Table 7. Adobe Connect Situations by gender

Adobe Connect Status	Gender	N	M	SD	Df	t	p
	Male	187	4.52	0.24			
	Female	183	4.49	0.22			

When Table 7 is examined, the Adobe Connect status of the academicians according to the gender variable is determined; it was checked whether there was a significant difference regarding the Adobe Connect application programme and it was seen that there was no significant difference according to the gender criterion [$t(370)= -487$, $p<.05$]. When the Adobe Connect status of the academicians is examined, it is seen that male academicians have an average score in this area ($M=4.52$), while female academics have an average score on the Adobe Connect application ($M=4.49$). In this context, it can be said that there is no difference between the Adobe Connect scores of male academicians when compared to female academicians in this study.

3.4 Distance education situations by age criteria

In this section, the use of distance education by academics according to age criteria has been examined and detailed findings are provided in Table 8.

Table 8. Distance education status by age criteria

Age	N	Rank Average	SD	X2	P
28-35	424	15.68	3	1.690	.140
36-45	82	74.32			
46 and above	14	10.00			

When Table 8 is examined, it was found that there was no significant difference between the results of the comparison of the distance education status of the academicians according to the age criteria ($\chi^2 (3) = 1.690; P=.140; P>0.05$). When the distance education results are considered according to the age criteria of the academicians, it is seen that the 36–45 age range is the highest; the second highest value is seen to be in the 28–35 age group; and the age group of 46 and above had low score. It can be said that academicians do not show a significant difference between their distance education statuses for the age criterion.

4 Discussion

Whittet (2021), in his study, aimed to design and investigate the experience of lecturers' health and well-being during distance education by considering multiple dimensions of health during the pandemic period; as a result, by ensuring the health of lecturers, autonomy, freedom, quality and best practice through distance education and students, it can be concluded that it is developed when interacting with colleagues [15]. In this context, when this value is combined with the results of the research, it can be seen that the opinions of academicians about distance education are high. It can also be said that this type of research is beneficial to academicians.

Göksu et al. (2021), in their study, aimed to investigate the role of psycho-demographic variables in the motivation and participation of higher education students who continue distance education; as a result, it was concluded that university students have values such as anxiety, stress, anxiety and demoralisation. When combined with the result of the research, it is seen how significant and high the impact of academicians on students is [6]. It is known that the effective and efficient teaching of academicians in the research is an indispensable treasure and source of information for university students. In addition, it is thought that such applications contribute positively to the students in the language used and addressed by the academicians.

In the study of Uzunboylu et al. (2021), they investigated the studies on distance education in the 'Web of Science' database for the period of 2014–2018; as a result, they concluded that 262 studies were conducted, and they also stated that distance education studies always benefit the field [14]. In this context, from the results of the research, it can be said that while this study provides benefits to the literature, it brings positive behavioural changes to academicians for their education. Supporting students with the right model and method while continuing their studies will contribute and benefit the development of the future generation. There is always a need for such studies in the field for university students and academicians. Finally, while it is seen that there

are positive values regarding the use of distance education and technologies by academicians, it should be brought to the agenda that the application used is also important.

5 Conclusion

When the results of the research are considered, it is seen that the participant groups are involved first; participation is of great importance in determining the right problem situation in the research; and reaching the appropriate audience for an opinion on a subject is always combined with the right result. It can be concluded that all the academicians participated. Today, every event is shaped with the help of technology and it is seen that it gains its dimensions in this context; the technology that benefits almost every field is now at our disposal at a minimal level. In this context, among the results of the research, the technology usage times of the academicians regarding the course preparation process were examined and it was concluded that they received 4–7 hours of technology assistance. It is very important that they prepare their education with the help of technology. These prepared technological materials will be used online, i.e., in the distance education environment; when considering another result for the academicians who provide training to students on this platform, the use cases of the time during the distance education process were examined and it was concluded that they spent 4–7 hours at the most in distance education.

It is known to contribute and benefit both academics and research in the field; in this context, the results of the research among the academicians who participated in the study and their views on distance education systems was quite high; they easily created assignments as well as remote training systems for distance education; they were always happy with them; e-tests could be downloaded easily; it has been concluded that distance education systems are simple and convenient. In this context, based on the results, it can be said that distance education for academicians is positive because all values have a positive meaning. When the opinions about the Adobe Connect application used in the research concerning the determination of the value are investigated, it can be concluded that the opinions of the academicians are high, i.e., they do not face any problem in the Adobe Connect environment; they have not had a disconnection during live classes with Adobe Connect from the time and place of their choice; and they can participate in live classes. Positive values were achieved as a result of creating groups with students in the Adobe Connect application. In this context, it can be said based on the results that academics are positive about Adobe Connect because all the values have a positive meaning. Another outcome of the research when examined according to the gender variable of academicians with regard to Adobe Connect application is that there is a significant difference in relation to status, regardless of whether it is concluded that there is a significant difference according to the criteria and gender. In this context, based on the results, it can be said that Adobe Connect cases are high for academicians. As a final result of the research, it was concluded that there is no significant difference between the results comparing distance education status of academicians according to the age criterion; in this case, the age is el decemdir; Generation

Y and Generation X academicians should use technology well to catch up with Generation Z students; as a result, it seems that their technology status is good.

Finally, according to the results obtained from the research, it can be seen that the rate of academicians who teach in the field of mechanical engineering in terms of distance education technologies is satisfactory, but the rate of not using new technologies in the teaching process is quite low; the rate of using them very often is quite high; and distance education systems' use within the course are very high. It can be concluded that the reflection was used.

6 References

- [1] Al Ghamdi, A. (2017). Influence of lecturer immediacy on students' learning outcomes: Evidence from a distance education program at a university in Saudi Arabia. *International Journal of Information and Education Technology*, 7(1), 35. <https://doi.org/10.18178/ijiet.2017.7.1.838>
- [2] Alshaboul, Y., Hamaidi, D., Arouri, Y., & Alshaboul, A. (2021). COVID-19 Enforced Shift to Distance Education: Readiness and Challenges. *Journal of Education and E-Learning Research*, 8(3), 349-359. <https://doi.org/10.20448/journal.509.2021.83.349.359>
- [3] Altunisik, R. (2013). The role of lecturer related factors in students' perceptions and satisfaction in distance education. *Procedia-social and behavioral sciences*, 106, 3075-3083. <https://doi.org/10.1016/j.sbspro.2013.12.355>
- [4] Caliskan, S., Korzhuev, A. V., Ikrennikova, Y. B., Efimushkina, S. V., Karavanova, L. Z., & Masalimova, A. R. (2021). Computer's Place in Teaching and Learning for University Students in the Web of Science Database. *International Journal of Emerging Technologies in Learning (iJET)*, 16(19), pp. 166–179. <https://doi.org/10.3991/ijet.v16i19.26057>
- [5] Ginting, R. L., Sirait, A. P., & Nainggolan, E. (2021). Validation of Lecturer Competency Model on E-Learning in Medan State University. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 4(4), 1331-1338.
- [6] Göksu, İ., Ergün, N., Özkan, Z., & Sakız, H. (2021). Distance education amid a pandemic: Which psycho-demographic variables affect students in higher education?. *Journal of Computer Assisted Learning*. <https://doi.org/10.1111/jcal.12544>
- [7] He, L., Yang, N., Xu, L., Ping, F., Li, W., Sun, Q., ... & Zhang, H. (2021). Synchronous distance education vs traditional education for health science students: A systematic review and meta-analysis. *Medical Education*, 55(3), 293-308. <https://doi.org/10.1111/medu.14364>
- [8] Liang, J., & Compan, P. (2021). Barriers Perceived by Teachers Regarding the Use of Distance Education Technologies for Adult Higher Education. *Science, Technology, and Social Sciences Procedia*, 2021(1), acm015-acm015. <https://wjst.wu.ac.th/index.php/stssp/article/view/25637>.
- [9] Mahasneh, O. M., Al-kreimeen, R. A. ., Alrammana, A. A. ., & Murad, O. S. . (2021). Distance Education amid the COVID-19 Pandemic from the Students' point of view. *World Journal on Educational Technology: Current Issues*, 13(4), 589–601. <https://doi.org/10.18844/wjet.v13i4.6229>
- [10] Öz, R., & Kayalar, M. T. (2021). A Comparative Analysis on the Effects of Formal and Distance Education Students' Course Attendance upon Exam Success. *Journal of Education and Learning*, 10(3), 122-131. <https://doi.org/10.5539/jel.v10n3p122>

- [11] Rizzetto, L., Ricci, S., & Marinov, M. (2019). MScs in railway transport and logistics: State of the art and perspectives for a new programme. *International Journal of Innovative Research in Education*, 6(2), 62–67. <https://doi.org/10.18844/ijire.v6i2.4407>
- [12] Sandu, N., & Gide, E. (2019). The economic benefits of cloud-based E-commerce in Indian service small to medium businesses (SMBs). *Global Journal of Computer Sciences: Theory and Research*, 9(1), 21–31. <https://doi.org/10.18844/gjcs.v9i1.4141>
- [13] Uaidullakzy, E. (2021). Formation of information and professional competence of primary school teachers with Online Education. *World Journal on Educational Technology: Current Issues*, 13(4), 838–850. <https://doi.org/10.18844/wjet.v13i4.6269>
- [14] Uzunboyly, H., Prevalle Ethem, B. ., & Hamidi, M. (2021). Análisis de contenido de trabajos de investigación sobre aprendizaje invertido. *Revista de Educación a Distancia (RED)*, 21(66). <https://doi.org/10.6018/red.451551>
- [15] Whittet, F. A. (2021). Health and wellbeing of the online lecturer: a phenomenological study. *International Journal of Health Promotion and Education*, 59(1), 50-64. <https://doi.org/10.1080/14635240.2020.1713189>
- [16] Yehya, F. M. (2020). Promoting Technology- Implementation Learning paradigm for online learning in secondary Education. *Global Journal of Information Technology: Emerging Technologies*, 10(1), 12–21. <https://doi.org/10.18844/gjit.v10i1.4620>

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