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Technology for teaching regional economic relationships based on the updated content of education

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Abstract

The aim of this study is to determine the technology of teaching regional economic relationships based on the updated educational content to university students and to determine it. The research was conducted in the fall semester of 2021–2022; the study with the participation of 274 university students was conducted in a screening model. In the study, 4 weeks of updated education was provided to university students. In order to collect data, the 'Updated Education and Teaching Technologies' measurement tool, developed by the researchers, was used in the study. The scale used in the research was delivered and collected by the online method to university students. The analysis of the data was carried out using the SPSS programme; frequency analysis was carried out using the *t*-test, and the results obtained were added to the study

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accompanied by tables. As a result of the research, it was concluded that the teaching technologies of university students were learned and their updated educational status was good and the values were high.
Keywords: Updated Education, Distance Education, Teaching technologies, University Students

1. Introduction

It is known that the general culture may differ regionally, depending on the material and spiritual way of life of societies, depending on time, the way it is being shaped, the huge rapid developments in information and communication technologies, which are differentiating the way they do business in many educational environments. It is known that depending on the needs of the society, teaching and indirectly teacher education are also affected by this great change (Roemintoyo et al., 2022). Students cannot be prepared according to the needs of society if they are not provided with the necessary equipment and achievements in accordance with the requirements of the updated era in universities and the scope of education to be gained is not provided (Yang et al., 2021). The updated perception of education is seen as the students' beliefs about the level to which they can implement the activities needed for coping in possible situations (Utemissova et al., 2021). The idea that individuals are more resistant to unexpected situations depending on their level of perception of updated education shows how important the updated perception of education is. It has been understood that those with strong perceptions of updated education struggle with more intensive effort and are closer to success when they encounter situations that are not accounted for (Husereau et al., 2022). With the restructuring of the education department and teacher training, programmes are updated and opened at the school, and in turn upper secondary education students in terms of domain knowledge and become better equipped for the teaching of formation for enhanced, revised and accreditation efforts which were initiated in the schools of education, with special teaching methods. The main purpose of all these initiatives is to train more qualified teachers who will meet the needs of the country (El Hassouny et al., 2021). Students who are open to innovation, who are in constant cooperation and learning with their peers, who are aware of legal, ethical and social issues, as well as field and method knowledge, play a more active role in the process of integrating current technologies into teaching environments and become more successful (Pappadà, et al., 2021). From this point of view, the effect of teachers' technology use competencies in education on efficient learning processes and efficient use of technology is revealed.

Due to human nature, humans constantly need to learn something during the process between his coming into the world and his death. It is known that the existence of this learning need throughout life gives rise to the concept of lifelong learning. In this context, information is always updated from birth to death (Djokovic et al., 2022). Lifelong learning, which is usually considered to include only adult education, turns out to be at every moment of life due to the fact that learning can occur throughout human life. It is known that new learning opportunities are filled for people, thanks to knowledge and technology that are developing rapidly (Eynon et al., 2021). In order for individuals to catch up with the information and technology age, the need for continuous self-improvement arises. In order to meet this need, only formal education is not enough. In order for a society to develop, education must last a lifetime, and people must constantly improve themselves throughout life (Irfan et al., 2021). The teachers are actively involved in our education system on the basis of age, after graduating from the school or the relevant faculty, for the life of learning needs to continue this learning and educational technologies used to meet the needs that are needed, raising the need for

lifelong learning and educational technologies (Orhei et al., 2021). At the same time, as mentioned above, in order for societies to develop, it is important that they can develop themselves through update trainings that play an important role in society.

In this context, it is seen that the updated education is at the forefront according to the purpose of the research. In addition, the technology of teaching regional economic relationships based on the updated educational content will be designed with the aim of determining the working pattern among university students.

1.1 *Related Research*

Sailer and Stolze's (2021) article on the entrepreneurial ecosystem of stakeholders addresses their interests and concerns about the future role of higher education institutions, and higher education institutions have attempted to assess the opportunities and risks related to follow the ways of entrepreneurship, and as a result, the higher education institutions involved in entrepreneurship and new technology with the help of updated training makers of potential decision-making provide guidance on the framing of the agenda that they achieved. It is clearly thought that an updated and renewed education will always open up innovative ideas on a student-by-student basis and lead them to a better point.

Qiao et al. (2021) expressed in their work the unified theory of acceptance and use of technology assessment technology based on the theory of e-learning technology acceptance. Based on the theory that COVID-19 pre- and post-evolution of technology and e-learning analyses the changes sought in the adoption of technology and works as a result the COVID-19 pandemic rather than after work activities gives more importance to the efficiency of the technology. The evolution of technology is associated to the lack of financial support they achieve, which will directly undermine the implementation of new technology. Updating every student by reaching every home in the COVID era of technology shows that this situation has become an advantage for students as a chance to prove himself/herself in the field. In this context, such studies can be of benefit and benefit ways of keeping up to date in the field.

Klimuk and Terziev's (2021) article presents the work they have carried out on higher education that emerged in the last few years into a new reality of social development, which was unthinkable even 10 years ago since it was found to be associated with the new location, and as a result, innovations in education is at the appropriate level, and in situations where the motivation is high enough to adapt to new technology and technical, technological hardware, infrastructure, teachers and students brought a change between education they achieved. In this context, it can be said that the geographical segment of the research and the applied audience vary according to the regions.

1.2 Purpose of the study

The aim of this study was to determine the technology for teaching regional economic relationships based on updated educational content to university students. The answers to the following questions were sought for the general purpose of the study:

1. What is the time taken by university students for updated education?
2. What is the teaching technology usage time of university students?
3. What is the purpose of using computers and the Internet by university students?
4. How are the views of university students on education updated according to the gender variable?
5. What are the opinions of university students about updated educational and teaching technologies after the study?

2. Method

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

2.1 Research Model

In the study, the research method was carried out by the screening method, which is a kind of quantitative research method. The scanning model is a research method that aims to describe an action that cannot continue from the past to the present, as well as the expansion of the universe part, with the model that it exists (Piaggi et al., 2021). The survey method in this research is updated based on the content of the training on the implementation of regional economic relationships, college students, teaching technology conditions, the terms of use, smart device and how often using these applications for the determination of the use of the determination of the status of the investigation; gender, age, education and term according to the variables are depicted.

2.2. Working group/participants

The participation groups included in the study consist of 274 voluntary university students who continue their education in various university schools in Kazakhstan. In the research, the measurement tool was applied to the students with the help of an online questionnaire and it was accepted.

Gender

In this section, the differences of university students according to their gender are given in Table 1.

Table 1. Distribution of university students according to the gender variable

Gender	Male		Female	
	F	%	F	%
Variable	140	51.09	134	48.91

When Table 1 is examined, the distributions of the secondary school students participating in the study were determined according to the gender variable and the information was examined. In this context, 51.78% (140 people) were male, while 49.22% (134 people) were female. In the gender section, the findings reflect the actual gender distribution.

Updated training time for university students

In this section, the development of teaching technologies and the updated educational use times for university students in the field are discussed and examined, and the studied values are digitised and added to Table 2.

Table 2. The distribution of university students regarding the updated educational usage times

Updated Tutorial	1-3 hours		4-6 hours		7 or more hours	
	F	%	F	%	F	%
Variable	20	7.30	74	27.00	180	65.70

When Table 2 is examined, the updated and detailed information of the training of college students have been added. In this context, 7.30% (20 people) expressed devoting 1–3 hours to training, 27.00% (74 people) updated their training time in the range of 4–6 hours and 65.70% (180 people) updated their time as over 7 hours. In this context, it is seen that the teaching technologies of university students are in the range of 7 hours and more and prefer to devote time to updated education within the research.

The timing of the process of teaching technologies of university students

In this section, university students were given activity-based applications related to teaching technologies and were expected to devote time to these applications. In this context, detailed information about the teaching technology time periods in the research is given in Table 3.

Table 3. The timing of the process of teaching technologies of university students

Distance Education Usage	1-3 hours		4-6 hours		7 or more hours	
	F	%	F	%	F	%
Variable	27	9.86	32	11.67	215	78.47

When Table 3 is examined, the conditions of use of learning technologies to the timing process of college students are examined and detailed information are given. In this context, 9.86% (27 people) expressed using teaching technologies for 1–3 hours, 11.67% (32 people) expressed using teaching technology for 4–6 hours and 78.47% (215 people) used for 7 hours and more. It is seen that university students prefer the amount of use of teaching technologies within the research as 7 hours and more.

Age status

In this section, the age information of the study group of university students was examined and detailed information is given in Table 4.

Table 4. Distribution of university students according to their age status

Age	18-22		23-24		25 ve üzeri	
	F	%	F	%	F	%
Variable	170	62.05	73	26.64	31	11.31

When Table 4 is examined, the distribution of the study group of university students according to their age status is considered and the relevant information according to the age scale is added to the table. In this regard, 62.05% (170 people) are in the age range of 18–22, 26.64% (73 people) are in the age range of 23–24 and 11.31% (31 people) are 25 and older. In the age distributions section, the findings reflect the actual distribution.

2.3 Data collection tools

In this section, it is seen that the measurement tool was developed by the creators of the problem sentence in the research within the research. The data collection tool was examined by experts in the field of teaching technologies and updated education, and inappropriate items were removed from the study and corrected. A personal information form called the 'updated educational and teaching technologies' measurement tool was used, which was applied to university students and developed by researchers. The validity of the scope of the measurement tool developed was examined by seven professors and three associate professors who conducted studies on teaching technology platforms and sports education, and unnecessary items were removed from the measurement tool and rearrangements were made.

1. Personal information form (demographic data): In the personal information form, information such as gender, updated educational usage times, teaching technology usage times and age is provided.

2. Updated educational and teaching technologies data collection tool: A 5-point Likert-type questionnaire has been prepared to obtain information about the teaching technologies and sports views of university students. 16 items of the measurement tool consisting of a total of 18 items were used and 2 items were removed from the measurement tool, thanks to experts' opinions. The opinions of university students from two factorial dimensions were applied, such as 'teaching technologies' and 'updated education'. The Cronbach alpha reliability coefficient of the measurement tool as a whole was calculated as 0.89. The measurement tool is rated as 'I strongly disagree' (1), 'I disagree' (2), 'I am undecided' (3), 'I agree' (4) and 'I definitely agree' (5). The measurement tool was also collected from university students in the form of an online environment.

2.4 Application

The application part of the study was by researchers in various universities in the region who continue their education in Kazakhstan schools; 274 college student volunteers prepared the live events with the help of the programme planlatilm and Zoom video was updated on training courses in teaching technologies and use time. Zoom was prepared with the application programme and the training event was organised by people who are experts in the field of the environment, showing that the application part of the research is completed. It is planned to show videos and content related to teaching technologies and updated educational dimensions for university students. A 4-week training for university students in the teaching with technology was merged with updated training conditions. The terms of use and use of various learning technologies and teaching techniques in the process of determining how often the applications are updated in the live lessons of the training course, 'learning technologies', 'updated' training, etc., are given about this subject in the form of teaching technologies in the activity of university students and college students to attend weekly training beklenmistir 3 each week after the online survey with the help of college students in the form of the measurement instruments were applied in the form of tables of data and knowledge and the findings are presented in the section. Parents of the students were asked to help with the online survey. In Section 3, the application programme used by most universities was distributed through Zoom up to 80 next week and so each chapter will be limited to designated and handed out to college students. Each 55-minute training programme was in the form of questions and answers with a time frame of 15 minutes, and in total 70 minutes. College student in online training that has been processed from a smartphone, tablet, and laptop image by using devices such as computers were expected to attend training with microphone. The measurement tool applied to university students was collected through an online questionnaire and transferred to the SPSS programme by coding them in the environment of calculation programmes.

2.5 Analysis of data

Statistical data obtained from university students were analysed in the statistics programme using frequency (f), percentage (%), mean (M), standard deviation (SS) and *t*-test, with irai. The data obtained from the programme are given in tables accompanied by numerical values, findings and comments.

3. Findings

In this section, the findings related to the learning status of sports lessons of university students with the updated educational teaching method are given. The data of the research are given in the form of tables and presented in this section accompanied by comments.

3.1 Computer and Internet usage purposes of university students

Computer and Internet usage purposes related to the problem situation of university students have been investigated and detailed information has been given in Table 5.

Table 5. The purposes of computer and internet use of university students

Department	Updated Training	Teaching Technologies	Other

	F	%	F	%	F	%
Variable	218	79.57	47	17.15	9	3.28

When Table 5 is examined, the computer and Internet usage goals of university students for problem situations were investigated according to the problem of the study and it can be seen that the relevant information was added to the table. In this context, 79.57% (218 people) chose updated education, 17.15% (47 people) chose teacher technologies and 3.28% (9 people) chose another field. In this context, it can be said, based on Table 5, that according to the problem situation of the research, most of the sections turn to updated education according to the problem situation.

3.2 Updated educational status of university students according to the gender variable

In this section, an updated educational comparison of university students with the data obtained from the study was made according to the gender variable, and detailed information is given in Table 6.

Table 6. Updated Educational Status of University Students According to Gender Variable

	Gender	**N**	***M***	**SD**	**Df**	**t**	**p**
Updated Training	Male	140	4.47	0.15	274	0.284	.639
	Female	134	4.42	0.12			

When Table 6 is examined, the education status of university students is updated according to the gender variable and examined. It was found that there was no significant difference according to the gender criterion [t(274)=0.284, p<.05]. When the updated educational status of university students is examined, it is seen that male students have an average score (M=4.47) in this area, while female students have an average score (M=4.42) in relation to their updated educational status. In this context, it can be said that there is no difference between the updated education scores of male students and female students in this study, and that the findings of the study are high.

3.3 Updated views of university students on educational teaching technologies after the study

In this section, the opinions of university students about the updated educational and teaching technologies at the end of the education were taken by means of an online questionnaire and examined. Detailed information about the opinions is presented in Table 7.

Table 7. Updated views of university students on educational teaching technologies after the study

No	Updated opinions of university students about teaching technologies	***M***	**S**
1	It is easy to access information with updated training	4.68	0.42
2	I always see quality information with teaching technologies	4.82	0.29
3	I can easily learn regional economic relations with updated education	4.74	0.32
4	I can use updated training whenever I want	4.69	0.48
5	Using Teaching Technologies gives me pleasure	4.85	0.49

6	My updated educational feelings gain meaning with educational technologies	4.79	0.52
7	Thanks to the updated training, my knowledge base has improved	4.81	0.48
8	I can easily explain and understand any subject with teaching technologies	4.77	0.77
9	I also look at the applications of teaching technologies when I'm empty	4.68	0.53
10	It gives me pleasure to spend time at events with updated training	4.72	0.58
11	I use teaching technologies more easily with updated training	4.74	0.67
12	Thanks to teaching technologies, I can easily learn the economics bulletin	4.81	0.51
13	With the updated training, I can easily transfer something to my friends	4.76	0.48
14	I know who to consult when I have problems with updated education and training technologies	4.71	0.62
15	I would have liked to have discovered the updated tutorial earlier	4.69	0.52
16	I would also like to see these activities and applications shown to me in my other live classes	4.70	0.47
	Overall Average	4.75	0.50

In Table 7, the technologies updated study of college students when examining the opinions of teaching and training are noted after each answer, with each carrying a different meaning, although updated training after training and teaching college students about their opinions on the basis of high technology. It can be said of the research, from the most obvious expression, 'it gives me joy to use teaching technologies' (M=4.85), that the finding was reached. In addition, one of the most obvious statements of the research was 'I always see quality information with teaching technologies' with M=4.82. While the values about the opinions of university students about the field were found to be quite high, another finding was 'I use teaching technologies more easily with updated education', with M= 4.74. Another finding of the research was 'I can easily learn the economics bulletin thanks to teaching technologies', with M= 4.81 and 'My knowledge base has improved thanks to updated education', with M=4.81. In addition, another value of the research was found to be M=4.79, 'My updated educational feelings gain meaning with educational technologies', and finally, when the overall average is considered, it is seen that M = 4.75 was reached.

When Table 7 was examined, it was found that university students expressed that their updated educational and teaching technologies were good, which benefited them; they also wanted to see this application in their field courses as well as in their other courses, and they responded very positively. In this context, it can be said based on the findings that the updated state of education and teaching technologies of university students is good and positive, since all the values in Table 7 have a positive meaning.

4. Discussion

Ronzhina et al.'s (2021) study carried out in the year of the modern global economy and the digital society is due to the transition to digital conversion and digital thinking, and as a result has investigated the effects on college students, the college and its students due to the digitisation of the

updated training, which increased their cognitive ability better with the conclusion reached. In this context, it has been concluded that the updated education provides benefits and benefits to university students. When the results of the research and this value are combined, it can be said that the updated education in the research always benefits the people in the university portfolio.

In the study conducted by Kraus et al. (2021), they aimed to address the main measures aimed at creating the information and digital development of the Institute of Education in the conditions of innovation of the Ukrainian economy, and as a result, the delay of scientific developments due to the needs of the economy, the fragmentation of the use of distance learning technologies in economic specialties and the discrepancy of the laboratory base of universities with a technical profile are at the level of modern technologies, and they have come to the conclusion that this technology benefits people. When this value was combined with the results of the research, it was concluded that teaching technologies that address geographical areas benefit university students.

In the work of Abduvakhidov et al. (2021), the main aspects of the impact of digital technology on education are considered. The aim of the research is to collect and analyse most of the digital technologies recently applied to Uzbekistan's education system and to examine how they affect the development of modern educational methods. As a result, updated for the training, the participants' preparation of practical activities based on the results, the management system that will enable one to be assessed within the framework of the criteria on the basis of performance indicators have reached the conclusion that the quality of education. In this context, as can be seen in studies in the discussion section, the technology, training and learning methods are updated at all times to persons who have training in this area and are a benefit to university students.

It is believed that the updated education, in a way, goes to the same door as preparing university students for the future. It is recommended that university students continue their studies one step ahead in all respects for education. Considering that the updated education will always be one step ahead, such studies are important and meaningful for research and field writing.

5. Results

When the results are considered, it is seen that the university students who participated in the study came; the number of people in the research constitutes the universe and the problem situation; in this context, it is seen that a total of 274 university students participated in the research. This number is considered suitable in the quantitative research method. Another value research in the college students' use of the research problem, also updated according to the status of training, was examined and detailed results of the allocation of research of university students in learning technologies showed training time up to 7 hours and above, which was the preferred outcome achieved. This value is quite important in research, showing that educational usage is proportional to succeed in the study of time college students. It is important to take time to study this platform as skipping a value will change the result. Another value of research is examining the use of digital technologies with the university teaching according to time periods. This value will bring one closer to the problem state of college students and university students and to the process of learning technologies of importance. In this context, time up to 7 hours or more of use cases is preferred as college students concluded. The results of the survey support the updated training.

In order for each desired value to be fulfilled, it is expected that students will adapt to this application. It is important for this situation that their age status is young so that university students can adapt to these values. In this context, the distribution of university students according to their age status was investigated, and as a result, it was found that the highest value was in the 18–22 age group. It is thought that this value will make the students' predispositions to technology obvious as it carries them to Generation Z, and it is thought that their predisposition to an event will take them

one step further in education. Another value of the study is the computer and Internet usage goals of university students for problem situations that were investigated according to the problem of the study, and according to the relevant results, it was concluded that 218 people preferred updated education and used the computer and Internet.

According to the values of the study, the education status of university students was updated according to the gender variable and was examined. It was concluded that there was no difference between the updated education scores of male students and female students in the study, and the opinions of university students were also high. The final value of the research is the opinions of university students on educational teaching technologies that were updated after the study were examined, and as a result, it was concluded that their opinions on educational and teaching technologies that were updated after the study were high. In addition, teaching with technology, always able to see the quality information, more easily updated with training that they can use for instructional technology, teaching technology and economics bulletin. They can learn easily through the study expanding their wealth of knowledge, gaining their feelings with meaning and updated training instructional technologies. This situation provides benefits to them in field courses as well as in other classes of this application they want to see the results they gave a positive response and a lot more have been achieved. In this context, it can be said based on the findings that the updated state of education and teaching technologies of university students is good and positive, since all the results make a positive sense.

References

Abduvakhidov, A. M., Mannapova, E. T., & Akhmetshin, E. M. (2021). Digital Development of Education and Universities: Global Challenges of the Digital Economy. *International Journal of Instruction*, *14*(1), 743-760. https://eric.ed.gov/?id=EJ1282222

Djokovic, R., Janinovic, J., Pekovic, S., Vuckovic, D., & Blecic, M. (2022). Relying on Technology for Countering Academic Dishonesty: The Impact of Online Tutorial on Students' Perception of Academic Misconduct. *Sustainability*, *14*(3), 1756. https://doi.org/10.3390/su14031756

El Hassouny, E. H., Janati-Idrissi, R., Mostakim, M., Laafou, M., Madrane, M., & Kaddari, F. (2021). The diagnosis methods for the obstacles and difficulties in computer sciences of nursing students. *International Journal of Innovative Research in Education*, *8*(1), 01–11. https://doi.org/10.18844/ijire.v8i1.5410

Eynon, R., & Malmberg, L. E. (2021). Lifelong learning and the Internet: Who benefits most from learning online?. *British Journal of Educational Technology*, *52*(2), 569-583. https://doi.org/10.1111/bjet.13041

Husereau, D., Drummond, M., Augustovski, F., de Bekker-Grob, E., Briggs, A. H., Carswell, C., ... & Staniszewska, S. (2022). Consolidated Health Economic Evaluation Reporting Standards 2022 (CHEERS 2022) statement: updated reporting guidance for health economic evaluations. *International Journal of Technology Assessment in Health Care*, *38*(1). DOI: https://doi.org/10.1017/S0266462321001732

Irfan, M., Jiangbin, Z., Iqbal, M., & Arif, M. H. (2021). A novel lifelong learning model based on cross domain knowledge extraction and transfer to classify underwater images. *Information Sciences*, *552*, 80-101. https://www.sciencedirect.com/science/article/abs/pii/S0020025520311464

Kraus, K., Kraus, N., Nikiforov P, P., Pochenchuk G, G., & Babukh, I. L. O. N. A. (2021). Information and digital development of higher education in the conditions of innovatyzation economy of Ukraine. *WSEAS Transactions on Environment and Development*, *17*(64), 659-671. https://elibrary.kubg.edu.ua/id/eprint/36991

Orhei, C., Vert, S., Mocofan, M., & Vasiu, R. (2021). End-to-end computer vision framework: An open-source platform for research and education. *Sensors*, *21*(11), 3691. https://doi.org/10.3390/s21113691

Pappadà, A., Chattat, R., Chirico, I., Valente, M., & Ottoboni, G. (2021). Assistive technologies in dementia care: an updated analysis of the literature. *Frontiers in Psychology*, *12*, 833. https://doi.org/10.3389/fpsyg.2021.644587

Piaggi, P. M., Panagiotopoulos, A. Z., Debenedetti, P. G., & Car, R. (2021). Phase equilibrium of water with hexagonal and cubic ice using the scan functional. *Journal of Chemical Theory and Computation*, *17*(5), 3065-3077. https://pubs.acs.org/doi/abs/10.1021/acs.jctc.1c00041

Qiao, P., Zhu, X., Guo, Y., Sun, Y., & Qin, C. (2021). The development and adoption of online learning in pre-and post-COVID-19: Combination of technological system evolution theory and unified theory of acceptance and use of technology. *Journal of Risk and Financial Management*, *14*(4), 162. https://doi.org/10.3390/jrfm14040162

Roemintoyo, R. ., Miyono, N. ., Murniati, N. A. N., & Budiarto, M. K. (2022). Optimising the utilisation of computer-based technology through interactive multimedia for entrepreneurship learning. *Cypriot Journal of Educational Sciences*, *17*(1), 105–119. https://doi.org/10.18844/cjes.v17i1.6686

Ronzhina, N., Kondyurina, I., Voronina, A., Igishev, K. & Loginova, N. (2021). Digitalization of Modern Education: Problems and Solutions. *International Journal of Emerging Technologies in Learning (iJET), 16*(4), 122-135. Kassel, Germany: International Journal of Emerging Technology in Learning. Retrieved February 12, 2022 from https://www.learntechlib.org/p/220004/.

Stolze, A., & Sailer, K. (2021). An international foresight reflection on entrepreneurial pathways for higher education institutions. *Industry and Higher Education*, *35*(6), 700-712. https://doi.org/10.1177/0950422220981814

Terziev, V., & Klimuk, V. (2021). Modelling the forms of international scientific and educational cooperation. *Available at SSRN 3791196*. http://dx.doi.org/10.2139/ssrn.3791196

Utemissova, G. U., Danna, S. ., & Nikolaevna, V. N. (2021). Cyberbullying during the COVID-19 pandemic. *Global Journal of Guidance and Counseling in Schools: Current Perspectives*, *11*(2), 77–87. https://doi.org/10.18844/gjgc.v11i2.5471

Yang, M., Li, B., & Yan, Z. (2021). MAC Technology of IEEE 802.11 ax: Progress and Tutorial. *Mobile Networks and Applications*, *26*(3), 1122-1136. https://link.springer.com/article/10.1007/s11036-020-01622-3