Hybrid Education in the Context of the Covid-19 Pandemic: Peculiarities of Training Humanitarian Specialists

Nadiia Marynets[1,*], Hanna Marynchenko[2], Renata Vynnychuk[3], Halyna Voloshchuk[4], Tatiana Voropayeva[5] & Anzhela Olkhovska[6]

[1]Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education, Transcarpathia, Ukraine

[2]V.O. Sukhomlynskyi National University of Mykolaiv, Mykolaiv, Ukraine

[3]Poltava V.G. Korolenko National Pedagogical University, Poltava, Ukraine

[4]Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk, Ukraine

[5]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

[6]Interregional Academy of Personnel Management, Kyiv, Ukraine

*Correspondence: Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education, Transcarpathia, Ukraine. E-mail: marynets2020.@gmail.com

Abstract

The global Covid-19 pandemic has changed the established approaches and methods of the educational space. The education system was forced to obey the requirements and regulations implemented by the authorities to prevent spreading infectious diseases. Therefore, the evaluation of the training of humanitarian specialists requires thorough study and analysis. The study aims to consider the components of hybrid education within humanitarian education; to establish students' assessment of hybrid education. The research methodology is based on an integrated approach—the method of pedagogical experiment, statistical methods, and descriptive methods allowed to form an empirical basis. The hypothesis of the study lies in the fact that adaptation to hybrid learning involves the use of digital technologies. They include software, educational platforms, social networks, and tools for non-formal humanitarian education. However, education still requires full-time education and practical experience, which is challenging to obtain virtually. The result of the study determines the effectiveness of hybrid forms of learning using the capabilities of digital technologies for the training of a specialist in the humanities. The study involves: conducting experiments to solve the problem of training humanitarian specialists in the era of the pandemic and researching the right balance between studying at university and home. The primary purpose of such training is to maintain readiness for professional activities, reduce stress among students and teachers, and avoid professional combustion, which has become a fundamental problem of training during a pandemic. The study results made it possible to note that the majority of surveyed students have a positive attitude to the new conditions and methods of organizing the educational process. At the same time, students recognized the advantage of non-formal education. The article proved that the main problem of the implemented education systems for students was the lack of possibility of personal communication "student-student" and "student-teacher". A comparative description of forms of education (classical and hybrid) is provided. The main problem that is not solved by the introduction of hybrid education is the ineffective use of academic support, which is basic for humanitarian specialties. Based on the survey, a decreasing-increasing trend in the attendance of classes according to the mixed form of education was revealed, and the intensity of attendance increases before the final control of knowledge.

Keywords: COVID-19, health maintenance, mental health, pandemic, special education, videoconferencing, virtual learning

1. Introduction

Today, in the context of the pandemic, there is an active reorganization of modern educational reality. It is also relevant for humanitarian and other educational institutions. Preserving the quality training of specialists in such

conditions is to find a harmonious combination of distance and traditional learning. This problem is also interesting and relevant for research, even without considering the current pandemic. However, today issues of this kind have become especially relevant, with different focuses depending on the development of the pandemic and society (Riva et al., 2021).

The study highlights the main benefits of online learning, which is most common in higher education due to the coronavirus pandemic. Researchers Cortese et al. (2020) identify the main factor that has positively influenced the digitalization of education. They are economy (saving money on travel and housing), accessibility (open access to online learning platforms, reducing the cost of educational services), and safety (lack of crowds in public places prevents morbidity).

However, the conditions of distance education, along with the advantages, have several risks and difficulties. Many studies point out the problem of increasing stress among people, anxiety, and emotional burnout. Students note the problem of a lack of communication, group cooperation, and weak motivation to work independently (Singh et al., 2020). In addition, it is worth mentioning the problem of technological literacy for the older generation, which negatively affects the work of teachers. The lack of necessary technical support and Internet connection negatively affects the work of all participants in the educational process (Al Azzam et al., 2021). A separate problem is time management, which plays a vital role in the organization of self-education (Gallagher & Schleyer, 2020; Mukhtar et al., 2022). It forms scientific issues in a certain way and activates the need for an in-depth study of the distance learning phenomenon, teaching methodology, educational innovations, and forms of human cognitive activity. The results of the higher education institutions' development in service quality and efficiency of interaction with students and other participants deserve special attention (Kliuchnyk et al., 2021).

Transitioning from traditional education to online learning causes a particular educational and ideological crisis. Educational processes in such conditions require fundamental innovations that should be implemented in any form: distance or hybrid education. Unpreparedness for such a transition is due to cultural, social, and educational traditions and established rules of university education. The solution to the crisis that arises in reorganizing processes involves acquiring new forms and methods. They allow realizing the professional needs of future specialists in any field of activity under quarantine conditions. The same is true for specialists in the humanitarian field.

Research in this area takes place in the context of the study of improving the educational process, which takes into account the effectiveness of learning, the student's level of attendance, and their psychological state (Palmer et al., 2006; Mattison et al., 2002; Powers et al., 2012).

The purpose of this study is to consider the components of hybrid and full-time forms of education for students of humanitarian specialties. The study has the following objectives to achieve this goal:

1. To establish the attendance rate of full-time and hybrid learning;

2. To compare the potential of different learning methods and forms in hybrid and traditional education;

3. To investigate students' attitudes to the organization of the educational process in hybrid learning.

2. Literature Review

Many researchers and scholars have worked on a series of studies on improving higher education quality in Europe. All of them follow the strategy developed by the European Commission (European Commission, 2019; The Future of Jobs Report WEF, 2020). This organization has identified one of the crucial characteristics of learning during the COVID-19 pandemic - distance learning, implemented in crisis and stressful conditions (Dzvinchuk et al., 2020), the primary purpose of which is to reduce the level of morbidity among the population. The impact of investment projects on environmental expertise was studied by Shvets, V. Y., Rozdobudko, E. V., & Solomina, G. V. (Shvets, et al, 2013). This topic was also studied by Gnatyuk, V. A. and Soroca, V., Bogutska, K., Ritter, U. (Gnatyuk, 2001; Nozdrenko, et al., 2021).

One of the authors' opinions is that university education should maintain an active motivational approach to students (Bayram-Jacobs, 2015). It should be such measures that, despite the quarantine restrictions, allow to preserve the willingness to learn. It is about hybrid learning, which requires a change in the information perception of all participants in the educational process. All participants in the educational process should work under the following conditions:

- readiness for change;

- awareness of innovative teaching methods and technical means;

- social and administrative support (Hoofman & Secord, 2021; Widana et al., 2021).

Such reforms of the educational paradigm require changes in the learning modes and methodologies of teaching and educational institution management (Cuaton, 2020; Zhernova, 2018). Separately, a wide range of educational problems during the pandemic was analyzed within medical education, which had to be restructured to maintain a practice-oriented approach to training the next generation of doctors (Rose, 2020). The study of foreign languages has also become a problem. In addition, student performance worsened against the background of changes in teaching methodology (Kostikova et al., 2019). Many articles also consider the impact of distance education on students' mental health (Van de Groep et al., 2020).

The changes in higher education caused by the COVID-19 pandemic are seen as an experience with positive and negative features (Cortese et al., 2020). The positive effects of distance learning include improved self-organization, free choice of learning pace (Attardi et al., 2021), and the spread of interactive learning methods and virtual technologies (Anghel, 2020). In addition, funding for new projects, educational platforms, and courses aimed at educational implementation in quarantine has improved (Lee et al., 2001; Al-Azzam et al., 2020).

In our opinion, hybrid education from the point of view of the organization of education is a combination of stationary and distance education. That is, the student partially studies in the classroom of the educational institution, and the other part of the classes is conducted online. It is conducted by the teacher according to the schedule approved by the educational institution classes. From the communication flow approach, hybrid education is gaining an understanding of the subject both in direct teacher-student communication and through an intermediary, namely technological software that implements communication in learning at a significant distance between a student and a teacher in real time.

3. Materials and Methods

The study provides an integrated approach to methodology and is consistent with similar experimental studies in the field (Boghian, 2019; Synorub & Medynska, 2019). The methods of pedagogical experiment, questionnaire and observation, and statistical methods are used to collect information. In addition, the descriptive method, methods of analysis, and synthesis are used to describe the theoretical and methodological foundations of the study.

The pedagogical experiment is the primary method of data collection. Questionnaires (as a way to monitor students' opinions on changes) made it possible to find out the attitude of the humanitarian profile to distance learning in the context of the COVID-19 pandemic. It also allows us to determine the value of hybrid learning, a unique learning characteristic of today's world (Kaparounaki et al., 2020; Cao et al., 2020).

The experiment was implemented during the 2020-2021 academic year (September 2020 - June 2021) for two educational institutions:

- Kharkiv State Academy of Culture (Ukraine) - for students of the Department of Cultural Studies (1 group - 28 people)

- Kamianets-Podilskyi Ivan Ohienko National University (Ukraine) - for students of the Faculties of History (1 group - 30 people) and Foreign Philology (1 group - 32 people).

The sample consisted of 60 second-year students of the first (bachelor's) educational level. All respondents were divided into three groups to systematize the information. These groups had several similar disciplines ("History of Ukraine", "Cultural Studies", "History of European Culture", and "Foreign Language"). Therefore, it allowed generalizations about the students' attitudes to distance and hybrid education.

Google Drive became the primary tool for organizing the survey. The survey process was conducted at the final stage of the study. During the study, the student's attendance rate was constantly monitored (during the academic year). In addition, the formation of curricula and teaching methods of various disciplines were adjusted, considering the students' and teachers' opinions.

Preliminary questionnaires were filled in with the permission of respondents who voluntarily agreed to participate. In the process of collecting information, the authors adhered to ethical principles of research throughout the study.

The questionnaire survey results provided respect for the dignity and confidentiality of the participants of the experiment. The survey has a survey nature. It does not contain provocative measures: there were no actions that affected the respondents' frankness and honesty or violated their interests.

The content of the questionnaires was previously agreed with the list of new program competencies set for the New

European University Education (European Commission, 2019). The questionnaires included questions regarding assessing specific aspects of online education, namely:

1. How video conferences are evaluated and their level of acceptance

2. The level of perception and understanding of the performance of creative tasks by students.

3. Perception and final control through online modes.

4. Student assessment of the possibility of group work during online seminars.

5. Evaluation of the mechanism of "student-student", "student-teacher" communication in the process of conducting online classes.

6. The role and significance of independent processing of educational material in the absence of stationary forms of education and attending consultations.

7. Objectivity of assessment in the process of conducting online classes of practical content.

The study was conducted in 3 stages.

Stage 1: Preliminary preparation of the educational process participants and technical base of the university for the survey. The study of educational and methodological materials is carried out within the framework of implementing measures to introduce a mixed form of education. Based on the research results, control questions are formed as tests for the final exam. There is also a selection of innovative approaches in the online educational environment that can be used in lectures, seminars, and individual student work.

Stage II. Period: the end of the first semester during the experiment, the middle of the experiment. Monitoring of attendance of students who have changes in the conditions of quarantine and changes in full-time and hybrid learning attendance.

Stage III. Determining final positions on new methods and forms of assessment of hybrid learning was formed during a pandemic. The results identified the shortcomings and difficulties observed during the experiment. These include time costs (during the 2nd semesters), change of opinion of respondents, and inability to conduct large-scale qualitative research.
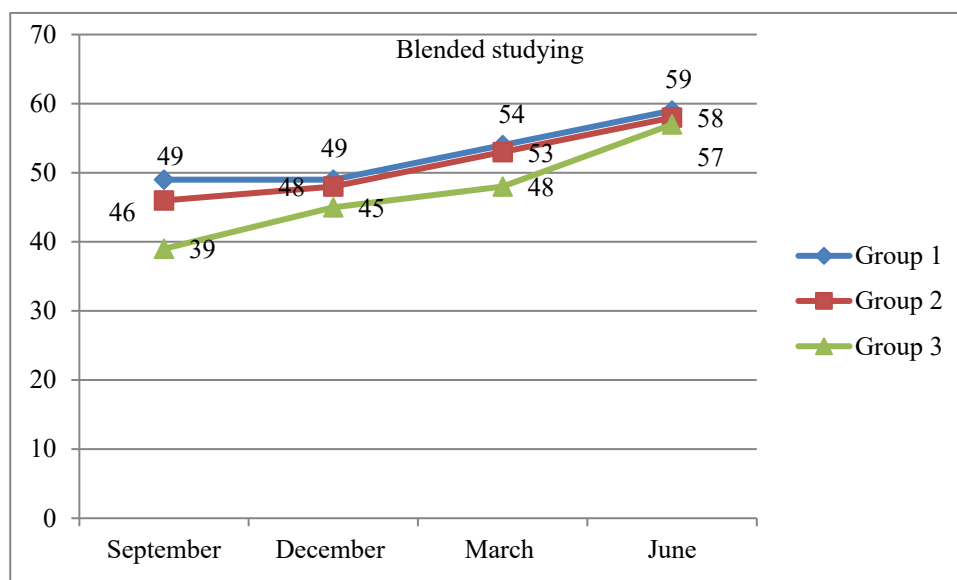
4. Results and Discussion

4.1 Results

Figure 1. Attendance of Mixed Classes by Students

Source: author's development

In the first stage of the study, the research team identified the main characteristics that needed to be investigated to determine the impact of blended learning on education (Slipchuk et al., 2021). First, the changes in curricula that were implemented for the study of humanities disciplines were investigated. Further, the study of teaching and learning materials used to organize training was conducted. These included several pieces of training provided by technical specialists for students who switched to distance learning methods. These techniques and tools involve using various digital technologies, including educational environments, messengers, and various software shells used in the learning process (Candarli & Yuksel, 2012; Viswanathan et al., 2020). The administration of educational institutions has developed standards and rules for assessing students with the possibility of taking online exams, which involve writing tests based on the results of the material studied.

In the 1st and second stages of the experiment, class attendance, conducted in a mixed form, was constantly monitored. In addition, some of the lectures were held in person and some remotely. The monitoring results show that the overall level of attendance in mixed classes has an increasing trend for each group (fig. 1).

The lowest attendance rate was observed in September. The overall attendance rate was characterized by the fact that each group had different values. This is because students were not yet familiar with the features of blended learning, and therefore there was no clear attitude to such classes. The highest level of attendance is observed in June, with all three groups showing a high rate.

During the same period, students' attendance level in online classes was investigated (fig. 2).
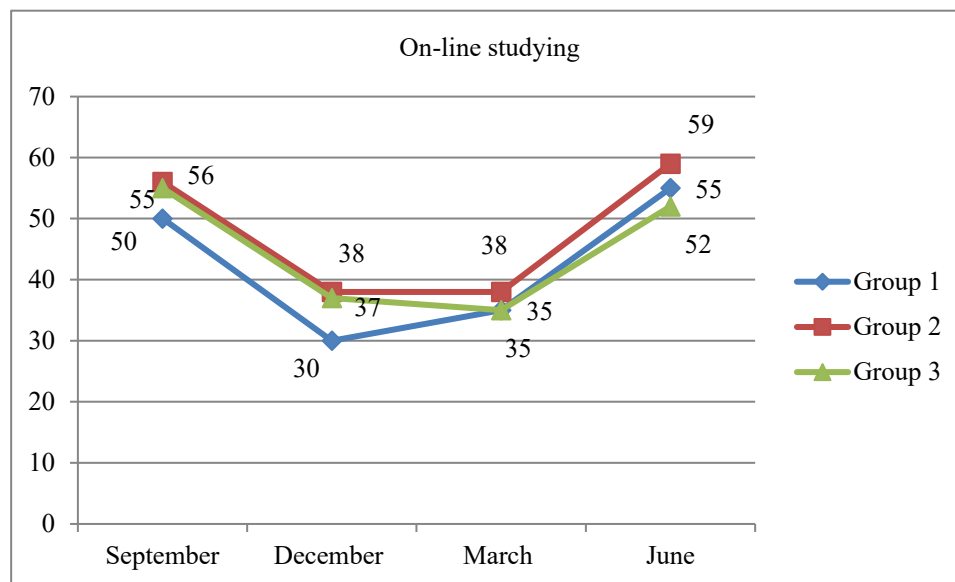

Figure 2. Attendance of Online Classes by Students

Source: author's development

The study shows that students started online classes with a reasonably high level of attendance in September, which significantly decreased by December. The lowest attendance rate was in the second group, at 30% of students. However, it should be noted that the same group improved its attendance rate by September, raising it to 35%. By June, the attendance rates for the three groups increased significantly to 52-57%.

A comparison of blended and distance learning attendance showed that students are more optimistic about blended learning. At the same time, the attitude towards blended learning is characterized by unity and a growing level of interest.

In the 3rd stage, a survey of students was conducted on the quality of learning, particularly the use of approaches, tools, and methods that are inherent in the methodology of education during the COVID-19 pandemic. Students were asked to evaluate the most successful (of those proposed in the questionnaire) forms, methods, and components of blended learning.

Table 1. Students' Assessment of the Components of the Educational Process in Blended Learning (in %)

№	Preferences	Yes	No	Not sure
1	Organization of video conferences	44	50	6
2	Non-formal learning	57	15	28
3	Communications in the classroom	68	22	10
4	Creative projects	50	34	16
5	Group work	45	35	20
6	Objective assessments	48	25	27
7	Online exams	36	36	28

Source: author's development

According to the study results, it can be seen that students appreciate various informal activities that are practiced within the higher education institution. The possibility of personal communication is also essential for students. It is worth noting that modern students have an excellent attitude to the organization of creative projects that allow them to show their own potential. It is also worth highlighting that about 28% of students did not use the opportunity of non-formal education, and 25% said that the assessment in the distance or blended classes are inadequate. It indicates that teaching and assessment methodologies need to be improved, and students need additional adaptation to education conditions under quarantine restrictions.

According to the analysis of the questionnaire, we formed a comparison of the traditional and hybrid education system (fig. 3)
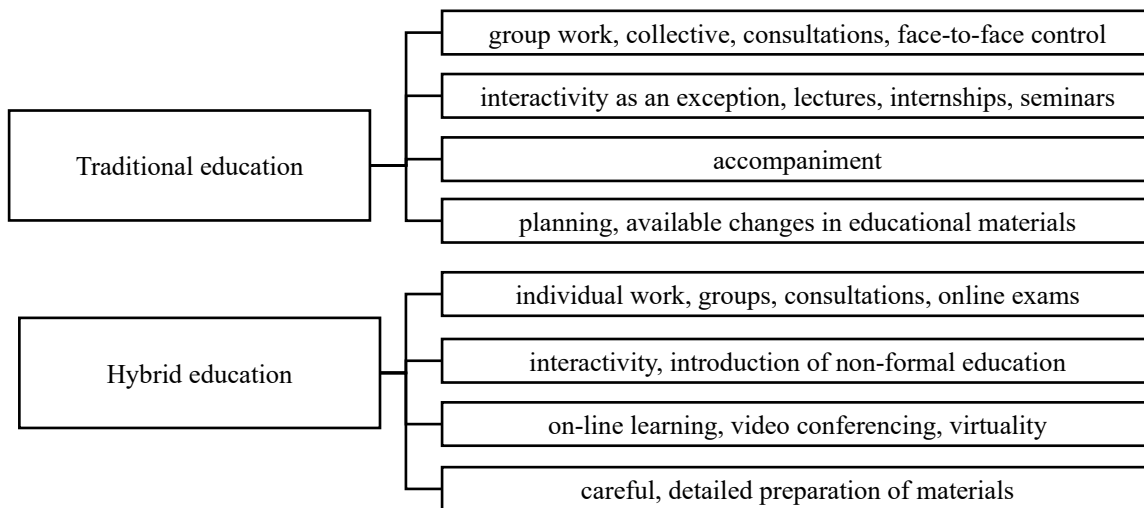

Figure 3. Comparison of Methods of Teaching Humanities Disciplines as a Result of Distance Learning

Source: author's development

The general characteristic notes their similarity in terms of mandatory lectures, seminars and practical classes, while the difference is only in the form of conducting. The aspect of academic support remains a problem for hybrid education for humanities majors.

4.2 Discussions

Recent research in the field of distance learning is characterized by its complexity. Among many studies, many papers have appeared to highlight differences in learning modes among Americans (Oster et al., 2021). Analyses from September 2020 to April 2021 showed that different students perceive such studies differently, as well as changes in the learning environment. For example, there is a problem in providing full-time education for Hispanic students (from 35.9% to 58.9%) and non-Hispanic African American students (from 32.3% to 63.4%). These figures do not allow higher education institutions fully to switch to distance learning, as one-third to one-half of students need traditional education. Therefore, the authors propose recommendations to increase community access to

education, which should include finding optimal forms of education for the safety of the health and life of the population (Diachenko et al., 2021).

In our study, hybrid learning is presented as one way to improve student access to educational resources during the pandemic. According to the study, this type of learning allows 44/60 (73%) to 56/60 (92%) students to attend classes, but 34/60 (51%) students were able to attend full-time classes from December to March. This is due to changes in quarantine restrictions due to the changes in the incidence rate for some cities. In addition, hybrid forms of education allow higher education institutions to respond quickly to changes in the incidence of the population and implement appropriate models as needed.

Several studies in the field of pedagogy assign a decisive role to students' motivation for new forms of learning (Chatterton & Goddard, 2000). Motivation for self-education has become a significant problem noted by students worldwide. Due to the physical lack of access to the place of learning, students do not understand the need for continuous learning. It is reflected in the low attendance of educational resources. In such conditions, the use of distance learning needs to be implemented along with the parallel implementation of psychological and pedagogical training of students (Synorub & Medynska, 2019). According to our study, among the possibilities of changes in modern university education, respondents positively evaluate the use of videoconferencing. Students also approve of the use of social networks and learning platforms. A positive result was obtained by non-formal education (57%) and the organization of creative projects (50%) of respondents in a hybrid learning format. Success in this context depends on the readiness of students to use innovations in the educational process. The main ones are the organization of two-way communication between teacher and student (Bui et al., 2020; Ernawati et al., 2022).

Given the significant changes in the training of humanities professionals caused by the pandemic and the digitalization of education, university leaders should constantly monitor student satisfaction with the quality of knowledge and the teaching process. The collected opinions should influence the development of teaching strategies in higher education institutions (Kuzmina, 2020; Rababah, 2020). This study also presents the results of a survey of humanities students. In their answers, they showed a positive attitude toward the forms and methods of hybrid learning. Thus, 50% of respondents have a positive attitude towards such education. In the context of the pandemic and increased interest in the introduction of distance learning, in our opinion, higher education institutions should become a unique educational environment that allows future specialists in the humanities to use innovative approaches to learning and fully realize their potential.

5. Conclusion

Thus, in the context of the unpredictable development of the pandemic, we can be sure that humanitarian education changed forever. The previous forms and methods of teaching and administration of educational institutions should be radically changed to ensure that the educational problems in the new world will never be repeated. Both bachelor's and master's levels require distance learning from students and teachers, which allows for preserving the population's health. At the same time, the desire for quality education and training, communication, and social realization does not allow for exclusively distance learning conditions.

A new educational culture is currently being formed. The COVID-19 pandemic has become a catalyst that has launched the transformation process in full force. It has contributed to changing teaching approaches and introducing innovative education models based on digital technologies.

However, many problems arise in humanitarian education due to the uncertainty, stress, and psychophysical stress of students, teachers, and administration. Such problems can be solved by optimal use of the potential of hybrid learning in quarantine: virtual tools, practical studios, project activities, and independent work, where all participants in the educational process are involved.

According to the attitudes toward hybrid education study, 53% of respondents approved of it and its components. The most acceptable was non-formal education (57%) and the importance of personal communication in the classroom (68%), which students identified. It indicates the success of implementing hybrid learning activities in the humanitarian sphere and provides an opportunity to develop this area of education.

The main task of training specialists in the humanities is to provide effective and high-quality humanitarian education to train a new generation of professionals.

References

AL Azzam, M., Abuhammad, S., Abdalrahim, A., & Hamdan-Mansour, A. M. (2021). Predictors of Depression and Anxiety Among Senior High School Students During COVID-19 Pandemic: The Context of Home Quarantine and Online Education. *The Journal of school nursing: the official publication of the National Association of School Nurses, 37*(4), 241-248. https://doi.org/10.1177/1059840520988548

Al-Azzam, N., Elsalem, L., & Gombedza, F. (2020). A cross-sectional study to determine factors affecting dental and medical students' preference for virtual learning during the COVID-19 outbreak. *Heliyon, 6*(12), e05704. https://doi.org/10.1016/j.heliyon.2020.e05704

Anghel, D. (2020). Challenges of Homeschooling in Romania during Pandemic Times. *Revista Romaneasca pentru Educatie Multidimensionala*, *12*(2Sup1), 01-11. https://doi.org/10.18662/rrem/12.2Sup1/284

Attardi, S. M., Harmon, D. J., Barremkala, M., Bentley, D. C., Brown, K. M., Dennis, J. F., ... & Farkas, G. J. (2021). An Analysis of Anatomy Education Before and During Covid-19. *Anatomical Sciences Education, 15*(1), 5-26. https://doi.org/10.1002/ase.2152

Bayram-Jacobs, D. (2015). RRI: What is it? How to integrate in Science Education. Retrieved from https://www.researchgate.net/publication/279204567

Boghian, I. (2019). Empowering Teachers to Deal with Classroom Diversity. *Revista Romaneasca Pentru Educatie Multidimensionala*, *11*(3), 1-10. https://doi.org/10.18662/rrem/134

Bui, T. H., Luong, D. H., Nguyen, X. A., Nguyen, H. L., & Ngo, T. T. (2020). Impact of female students' perceptions on behavioral intention to use video conferencing tools in COVID-19: *Data of Vietnam. Data in Brief*, *32*, 106142. https://doi.org/10.1016/j.dib.2020.106142

Candarli, D., & Yuksel, H. G. (2012). Students' perceptions of video-conferencing in the classrooms in highereducation. *Procedia-Social and Behavioral Sciences*, *47*, 357-361. https://doi.org/10.1016/j.sbspro.2012.06.663

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

Chatterton, P., & Goddard, J. (2000). The Response of Higher Education Institutions to Regional Needs. *European Journal of Education*, *35*(4), 475-496. https://doi.org/10.1111/1467-3435.00041.

Cortese, S., Asherson, P., Sonuga-Barke, E., Banaschewski, T., Brandeis, D., Buitelaar, J., ... & Simonoff, E. (2020). ADHD management during the COVID-19 pandemic: guidance from the European ADHD Guidelines Group. *The Lancet Child & Adolescent Health*, *4*(6), 412-414. https://doi.org/10.1016/S2352-4642(20)30110-3

Cuaton, G. P. (2020). Philippine Higher Education Institutions in the Time of COVID-19 Pandemic. *Revista Romaneasca pentru Educatie Multidimensionala, 12*(1Sup2), 61-70. https://doi.org/10.18662/rrem/12.1sup1/247

Diachenko, A., Vusyk, H., Bielova, Y., Shurdenko, M., & Titenko, O. (2021). The educational role in COVID-19 terms of ethnodesign graphic function in higher education practical activities. *International Journal of Health Sciences, 5*(3), 584-593. https://doi.org/10.53730/ijhs.v5n3.2540

Dzvinchuk, D., Radchenko, O., Kachmar, O., Myskiv, I., & Dolinska, N. (2020). Analysis of Platforms and Tools of Open Study in the Conditions of Postmodern Education. *Revista Romaneasca Pentru Educatie Multidimensionala*, *12*(3), 125-143. https://doi.org/10.18662/rrem/12.3/313

Ernawati, E., Baso, Y. S., Hidayanty, H., Syarif, S., Aminuddin, A., & Bahar, B. (2022). The effects of anemia education using web-based she smart to improve knowledge, attitudes, and practice in adolescent girls. *International Journal of Health & Medical Sciences*, *5*(1), 44-49. https://doi.org/10.21744/ijhms.v5n1.1831

European Commission. (2019). European Commission Country Report Romania. Retrieved from: https://ec.europa.eu/info/sites/info/files/file_import/2019-european-semester-country-report-romania_en.pdf

Gallagher, T. H., & Schleyer, A. M. (2020). "We signed up for this!"—student and trainee responses to the Covid-19 pandemic. *New England Journal of Medicine*, *382*(25), e96. https://doi.org/10.1056/NEJMp2005234

Gnatyuk, V. A. (2001). Mechanism of laser damage of transparent semiconductors. *Physica B: Condensed Matter*, *308-310*, 935-938. https://doi.org/10.1016/S0921-4526(01)00865-1

Hoofman, J., & Secord, E. (2021). The Effect of COVID-19 on Education. *Pediatric clinics of North America*, *68*(5), 1071-1079. https://doi.org/10.1016/j.pcl.2021.05.009

Kaparounaki, C. K., Patsali, M. E., Mousa, D. P. V., Papadopoulou, E. V., Papadopoulou, K. K., & Fountoulakis, K. N. (2020). University students' mental health amidst the COVID-19 quarantine in Greece. *Psychiatry research*, *290*, 113111. https://doi.org/10.1016/j.psychres.2020.113111

Kliuchnyk, A., Shebanin, V., Shebanina, O., Kormyshkin, Y., Rybachuk, V., & Buryk, Z. (2021). Strategic Factors Quality Of Public Administration In Regional Development: The Experience Of Eu Countries. *International Journal for Quality Research*, *15*(4), 1317.

Kostikova, I., Miasoiedova, S., Razumenko, T., Chernenko, A., & Pochuieva, O. (2019). Teaching English speaking for FCE: Using Facebook as a tool of instructional practice. *Amazonia Investiga, 8*(22), 719-727.

Kuzmina, M. O., Protas, O. L., Fartushok, T. V., Raievska, Y. M., & Ivanova, I. B. (2020). Formation of students' competence of tertiary educational institutions by practical training aids. *International Journal of Higher Education, 9*(7), 279-288.

Kuzmina, M., Protas, O., Fartushok, T., Raievska, Y., & Ivanova, I. (2020) Formation of Students' Competence of Tertiary Educational Institutions by Practical Training Aids. *International Journal of Higher Education*, *9*(7), 279-288. https://doi.org/10.5430/ijhe.v9n7p279

Lee, J., Hong, N. L., & Ling, N. L. (2001). An analysis of students' preparation for the virtual learning environment. *The Internet and Higher Education*, *4*(3-4), 231-242. https://doi.org/10.1016/S1096-7516(01)00063-X

Mattison, R. E., Hooper, S. R., & Glassberg, L. A. (2002). Three-year course of learning disorders in special education students classified as behavioral disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *41*(12), 1454-1461. https://doi.org/10.1097/00004583-200212000-00017

Mukhtar, A. U. S., Budu, B., Sanusi B, Y., Mappawere, N. A., & Azniah, A. (2022). The effect of reproductive health education with multimedia video learning on the improvement of fluor albus prevention behavior young woman pathologist. *International Journal of Health & Medical Sciences*, *5*(1), 75-79. https://doi.org/10.21744/ijhms.v5n1.1841953

Nozdrenko, D., Abramchuk, O., Prylutska, S., Vygovska, O., Soroca, V., Bogutska, K., & Ritter, U. (2021). Analysis of biomechanical parameters of muscle soleus contraction and blood biochemical parameters in rat with chronic glyphosate intoxication and therapeutic use of C60 fullerene. *International Journal of Molecular Sciences*, *22*(9), 4977. https://doi.org/10.3390/ijms22094977

Oster, E., Jack, R., Halloran, C., Schoof, J., McLeod, D., Yang, H., & Roche, D. (2021). Disparities in learning mode access among K–12 students during the COVID-19 pandemic, by race/ethnicity, geography, and grade level—United States. *Morbidity and Mortality Weekly Report*, *70*(26), 953-958. https://doi.org/10.15585/mmwr.mm7026e2

Palmer, R. F., Blanchard, S., Stein, Z., Mandell, D., & Miller, C. (2006). Environmental mercury release, specialeducation rates, and autism disorder: an ecological study of Texas. *Health & Place*, *12*(2), 203-209. https://doi.org/10.1016/j.healthplace.2004.11.005

Powers, L. E., Geenen, S., Powers, J., Pommier-Satya, S., Turner, A., Dalton, L. D., & Swank, P. (2012). My Life: Effects of a longitudinal, randomized study of self-determination enhancement on the transition outcomes of youth in foster care and special education. *Children and Youth Services Review*, *34*(11), 2179-2187. https://doi.org/10.1016/j.childyouth.2012.07.018

Rababah, I. H. M. (2020). The reality of using modern teaching methods in teaching Arabic for speakers of other languages from teachers' perspective. *Journal of Social Sciences (COES&RJ-JSS)*, *9*(1), 58-94. https://doi.org/10.25255/jss.2020.9.1.58.94

Riva, G., Wiederhold, B. K., & Mantovani, F. (2021). Surviving COVID-19: the neuroscience of smart working and distance learning. *Cyberpsychology, Behavior, and Social Networking*, *24*(2), 79-85. https://doi.org/10.1089/cyber.2021.0009

Rose, S. (2020). Medical student education in the time of COVID-19. *Jama, 323*(21), 2131-2132.

Shvets, V. Y., Rozdobudko, E. V., & Solomina, G. V. (2013). Aggregated methodology of multicriterion economic and ecological examination of the ecologically oriented investment projects. *Scientific Bulletin of the National Mining University*, *3*, 139-144. Retrieved from: http://nbuv.gov.ua/UJRN/Nvngu_2013_3_44

Singh, S., Roy, D., Sinha, K., Parveen, S., Sharma, G., & Joshi, G. (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry research*, *293*, 113429. https://doi.org/10.1016/j.psychres.2020.113429

Slipchuk, V., Yuzkiv, H., Batechko, N., Pisotska, M., & Klymenko, L. (2021). Academic mobility development among university students during COVID-19 pandemic. *International Journal of Health Sciences*, *5*(3), 573-583. https://doi.org/10.53730/ijhs.v5n3.2490

Synorub, H., & Medynska, O. (2019) Development of information culture of students of humanitarian specialities. *Information Technologies and Learning Tools*, *72*(4), 152-167. https://doi.org/10.33407/itlt.v72i4.2922

Van de Groep, S., Zanolie, K., Green, K. H., Sweijen, S. W., & Crone, E. A. (2020). A daily diary study on adolescents' mood, empathy, and prosocial behavior during the COVID-19 pandemic. *PloS one*, *15*(10), e0240349. https://doi.org/10.1371/journal.pone.0240349

Viswanathan, R., Myers, M. F., & Fanous, A. H. (2020). Support groups and individual mental health care via video conferencing for frontline clinicians during the COVID-19 pandemic. *Psychosomatics*, *61*(5), 538-543. https://doi.org/10.1016/j.psym.2020.06.014

Widana, I. K., Sumetri, N. W., Sutapa, I. K., & Suryasa, W. (2021). Anthropometric measures for better cardiovascular and musculoskeletal health. *Computer Applications in Engineering Education*, *29*(3), 550-561. https://doi.org/10.1002/cae.22202

Zhernova, A. (2018). Information and communication technologies in higher education: toward the preparedness of the subjects of education for innovation. *Scientific Research in Social and Political Psychology*, *33*, 172-179. https://doi.org/10.2139/ssrn.3771966