Research Article

An Assessment of Challenges Faced by Educators in Online Education for Higher Secondary Classes in Kerala

Ralphy Joseph C J[1] & Nikita Gopal[2]

[1]Research Scholar, Kerala University of Fisheries & Ocean Studies, Panangad, Kochi, Kerala

E-mail: cjralphyjoseph@gmail.com

[2]Principal Scientist, ICAR-Central Institute of Fisheries Technology, Kochi, Kerala

Abstract

The closure of schools with the global pandemic COVID-19 affected the education system across the world. Digital education through the internet emerged as a possible solution to classroom education, including in countries like India. A cross-sectional study was carried out among higher secondary school teachers in Kerala, India. The main objectives of the study were to assess the challenges faced in online education by educators of higher secondary classes in the state. A total of 220 teachers were included in the study by simple random sampling. A self-administered questionnaire was used to measure impediments and challenges faced by the teachers. Among the study population, half of them experienced a high level of impediments and challenges. In general, teachers mostly faced challenges like lack of IT support, continuous technological changes, and unequal internet access due to locality and geographical factors. Language teachers experienced higher levels of impediments and challenges compared to other teachers.

Keywords: Online Education, Digital divide, COVID-19, Connectivity, E-assessment tools.

Introduction

The COVID-19 pandemic has been one of the biggest crises faced by people across the world. Various measures by the authorities to prevent the spread of the pandemic such as social and physical distancing, lockdown of business and commercial establishments and closure of schools and religious institutions deeply interrupted every regular aspect of people's life. The education system has faced a huge challenge for the reason that most governments around the world have temporarily closed educational institutions to arrest the spread of the COVID-19 pandemic (Schleicher, 2020). Digital education emerged as a possible solution to face-to-face regular classroom education.

Education plays an imperative role in the modern, technological world as it is the most dynamic element in its evolution. It brings economic and social prosperity and strengthens the foundation of society. Education stimulates the members of society with extensive knowledge and skills, and a better understanding and perspective of cultural norms and values. Recognising the importance of education for the overall progress of humanity, the United Nations Sustainable Development Goal 4 (SDG-4) aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030 (Boeren, 2019).

In India, the system of education during ancient times was way different from what it is today. In the beginning, Gurukul was the place where a student had to go to learn and gain knowledge, and education was provided by a

Guru (teacher). The students used to stay at the guru's house and the kind of education they received was closely linked to nature and life. As time passed, the system of education has also undergone a transformation. The introduction of Information and Communications Technology (ICT) in education led to better teaching methods and improved student learning. According to UNESCO (2002) "ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters". ICT is similar to Information Technology (IT), but emphasises mostly communication technologies which include the internet, wireless networks, cell phones and other communication mediums (Ratheeswari, 2018). Educational quality can rise with the appropriate use of ICT and it also helps to connect learning to real-life situations (Lowther et.al, 2008; Weert & Tatnall, 2005). Simultaneous interaction with both learner and teacher takes place in the teleconferencing classrooms with ease and convenience (Sánchez & Alemán, 2011). The availability of the internet and the flexibility of online courses have made online education an essential part of higher education (Li & Irby, 2008; Luyt, 2013; Lyons, 2004).

Online education is electronically supported learning that relies on the internet for teacher–student engagement and the delivery of class materials. Research outcomes point out that the efficiency of educational processes can improve through the proper implementation of e-learning in education (Singh, 2016). The absence of physical boundaries, more learning engagement experience than traditional learning and its cost-effectiveness make digital learning a more supportive tool for students to learn in the confines of their comfort zone. On the other hand, digital learning has its own limitations and challenges, as face-to-face interaction is usually perceived as the best form of communication compared to the rather impersonalised nature of remote learning (Seema & Nangia, 2020). It is very difficult to transform the teaching process to online learning since there are many impediments that teachers face in finding suitable approaches to teach learners through online teaching (Xhaferi & Ramadani, 2020). Online teaching can be even thought of as problematic for the reason that the responsibility for making an online course an interactive and exciting experience, both for the students and the instructor, lies on the instructor (Lyons, 2004).

In a study from Jordan, a little more than half of the teachers reported increased difficulties with remote teaching due to intermittent internet connectivity and online fatigue (Tuma et al., 2021). Oyedotun (2020) suggested that the rapid change to online pedagogy due to the pandemic in developing countries has brought to the fore the inequities in the education sector of developing nations, including lack of devices and internet access in rural areas, limited training among teachers to impart teaching on the online platform.

Now that technology has become a building block of the lives of individuals, it becomes imperative for teachers to be comfortable with its handling in the education system as well. The present education system also consists of older-generation teachers. Hence, sufficient orientation needs to be done to make them accustomed to the needs of the technological world and meet the ICT demands (Singh, 2016). The instructor may be faced with strange situations while starting to teach online such as finding students in the class who are not signed in his/her class, and students may act inappropriately during casting the lecture (Hassan, 2021). Educators also face a lot of trouble while working

on the updated online devices in the form of how to start using them, when to use them, how to reduce distractions for students, and how to hone students' skills in the online platform (Dhawan, 2020).

Online learning created new responsibilities and demands thereby increasing the time teachers need to spend preparing classes, ensuring better internet connectivity, and following up with their pupils in various formats. Hence, it requires trained and empowered teachers who are able to make decisions based on the type of resources that can be used and where it is possible, and also have the right information to make decisions about their use (CEPAL, 2020). All these called for the need to ensure digital equity as one of the main factors that should be considered in online learning. The unavailability of proper digital tools, devices and internet or Wi-Fi connections can cause a lot of trouble in online learning. A country like India has marked digital inequalities in terms of access to technology, and the sudden shift to online education led to a major disruption in education for many students and teachers. Hence, online learning can become more effective only by reducing the digital divide (Dhawan, 2020).

Although online education was present in the education system, it became more essential with the onset of the pandemic to facilitate teaching and learning. The present study is based on a cross-sectional study measuring the impediments and challenges faced by higher secondary school teachers in conducting online classes in Kerala, India. The main objectives of the study were to assess the impact of digital devices and internet connectivity in imparting education through the online platform, to assess the need for teacher training in utilising the available digital technology, to evaluate the impact of the teacher's personal and domestic environment on his/her professional conduct in a work from home situation, and to gauge the level of professional satisfaction among educators in the era of online education.

The study has found that among the study population, half of them experienced high levels of impediments and challenges in online education. All of the teachers faced at least some challenges in delivering education digitally, lack of IT support, continuous technological changes, and unequal internet access. Language teachers experienced higher levels of impediments and challenges compared to other teachers.

Methodology

The cross-sectional study was carried out among higher secondary school teachers in Kerala, India. After obtaining informed consent, teachers were selected by simple random sampling out of a population of 20,000, maintaining high confidentiality at all stages of the study. The sample size consisted of a total of 220 teachers aged 40–56 years. A self-administered questionnaire was used as the study tool to measure impediments and challenges faced by higher secondary school teachers. The questionnaire had three parts consisting of the socio-demographic profile, measurement of impediments and challenges faced by the teachers. Socio-demographic details such as gender, subject, school type and residing area were collected. A total of 16 questions each with five options such as strongly agree, agree, neutral, disagree or strongly disagree were asked for estimating the level of impediments and challenges. Each of these options was given a score of 5, 4, 3, 2 and 1, respectively. Out of these 16 questions, one question was negatively stated; therefore, the scores were reversed on this question. Scores were greater

than the mean score (50) for severely affected groups. The data collected were tabulated using MS Excel and analysed using SPSS 20.0. Descriptive statistics such as frequency, percentage and mean were used to summarise the data. Percentages were generated for the qualitative variable and compared by Chi-square test. Variables such as mean and standard deviation (SD) were computed after checking for normal distribution and compared by using a t-test for quantitative analysis. P-value of < 0.05 was taken as statistically significant.

Limitations

The universe of the study conducted was restricted to the higher secondary school teachers following the state syllabus in Kerala. Hence, the teachers who are working in the private sector schools and following the Central Board of Secondary Education (CBSE) and Indian Certificate of Secondary Education (ICSE) were not covered in the study. However, it needs to be mentioned that they are a minority when compared to the teachers following the state syllabus.

Results

The higher secondary education sector in Kerala includes classes 11 and 12, involving students in the age group of 15 to 18 years. Schools in the government, government-aided and private sectors provide higher secondary education in the state. Kindred subjects are categorised into groups of four along with English as the first and second language of the student's choice. The students could opt for any group according to their aptitude and skill sets and pursue their education.

A. Distribution of study population according to socio-demographic variables

The majority of the respondents were female (77.27 per cent) as given in Table 1. While 33.6 per cent of respondents were science subject teachers, 22.7 per cent were language teachers. Most of the respondents (56.4 per cent) were teaching in aided schools. About 55 per cent of respondents were residing in rural areas.

Table-1: Distribution of respondents according to socio-demographic variables (*n* = 220)

Variable	Category	Number	Percentage
Gender	Female	170	77.3
	Male	50	22.7
Designation	Higher Secondary School Teacher (HSST)	163	74.1
	High School Teacher (HSA)	4	1.8
	Post Graduate Teacher (PGT)	7	7
	Principal	6	2.7
	Teacher	34	15.5
	Trained Graduate Teacher (TGT)	6	2.7

Subject	Language	50	22.7
	Science	74	33.6
	Commerce	27	12.3
	Computer Science	55	25
	Social Science	14	6.4
School type	Aided	124	56.4
	Government	48	21.8
	Unaided	48	21.8
Residing area	Rural	121	55
	Urban	99	45

B. Distribution of the study population

Figure-1 shows the factors related to impediments and challenges for educators. Figure-2 shows that scores of impediments and challenges are between 30 and 80. The mean score was 56.74 (7.39); the histogram shows it is normally distributed. Table-2 shows that impediments and challenges are categorised into two by using a mean score. While 51.8 per cent of respondents experienced high levels of impediments and challenges, nearly 60 per cent of the participants reported a lack of professional satisfaction in imparting education through the online medium.

Figure-1: Factors related to impediments and challenges for educators

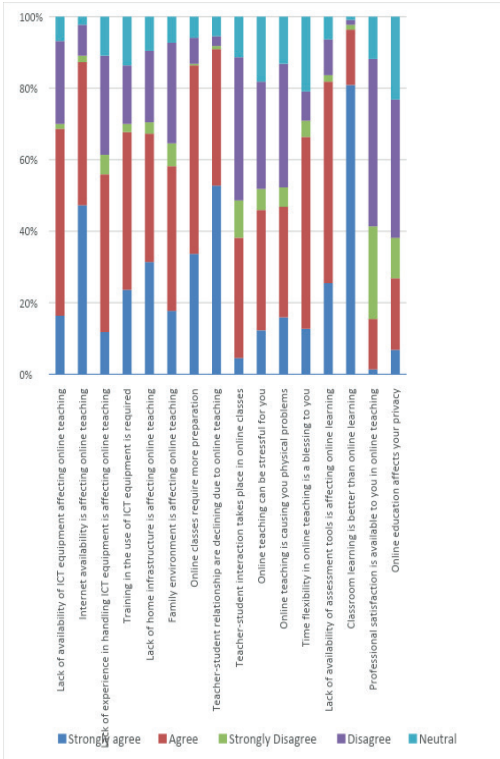

Figure-2: Histogram showing impediments and challenges

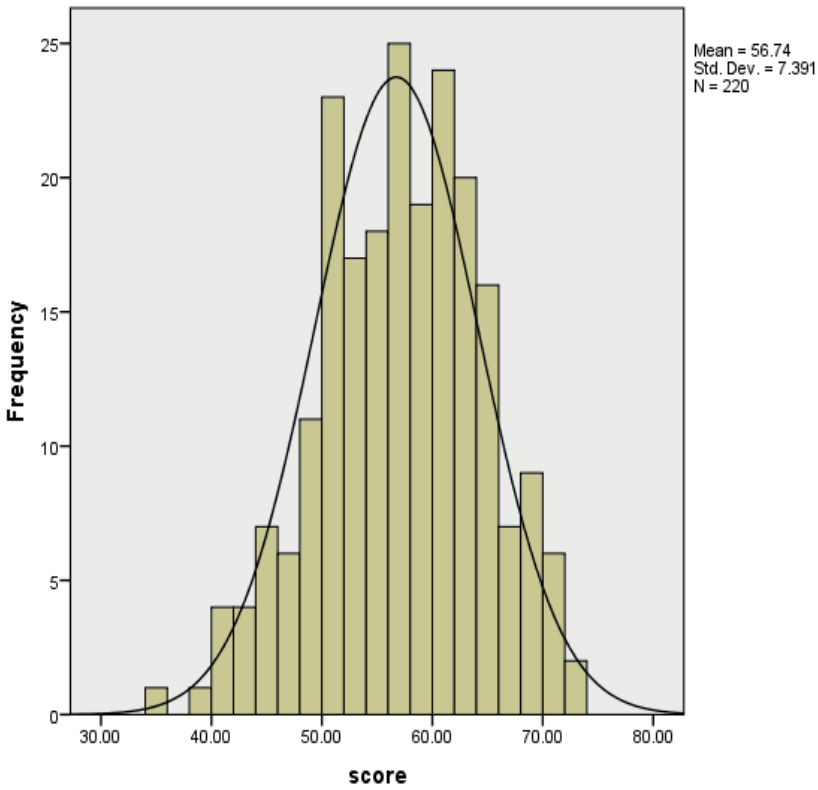

Table-2: Assessment of impediments and challenges

Variables	Frequency	Percentage	95% CI
Impediments and challenges (< 56)	106	48.2	54.41–73.66
Impediments and challenges (> 56)	114	51.8	59.17–78.64

C. Factors associated with impediments and challenges

Table-3 shows the different factors associated with impediments and challenges. They are gender, subject, school type and residing area. Subject and school type are statistically significant with a p-value less than 0.05 for these factors. Language teachers experienced higher levels of impediments and challenges compared to other teachers.

Table-3: Socio-demographic factors associated with impediments and challenges

Variable	Category	Score		Chi-square	*p*- value
		Low	High		
Gender	Female	82 (48.2)	88 (51.8)	0.001	0.977
	Male	24 (48)	26 (52)		
Subject	Language	16 (32)	34 (68)	14.16	0.007
	Science	35 (47.3)	39 (52.7)		
	Commerce	13 (48.1)	14 (51.9)		
	Computer Science	37 (67.3)	18 (32.7)		
	Social Science	5 (35.7)	9 (64.3)		
School type	Aided	77 (62.1)	47 (37.9)	34.01	<0.001
	Government	23 (47.9)	25 (52.1)		
	Unaided	6 (12.5)	42 (87.5)		
Residing area	Rural	58 (47.9)	63 (52.1)	0.007	0.935
	Urban	48 (48.5)	51 (51.5)		

D. Distribution of study population according to variables

Table-4 shows that only 39 per cent of teachers have the availability of online teaching tools. While 60 per cent of teachers don't have availability of online assessment tools, 67.3 per cent did not receive correct guidelines for online teaching. The majority of the teachers are using APPs in online teaching. The data also show that only 4.5 per cent of students dropped out of school due to the non-availability of ICT equipment.

Table- 4: Distribution of respondents according to the availability of e-teaching/learning tools

Variable	Category	Number	Percentage
Availability of online teaching tools	Yes	87	39.5
	No	133	60.5
Availability of online assessment tools	Yes	88	40
	No	132	60
Availability of the right guidelines for online teaching	Yes	72	32.7
	No	148	67.3
Use any APPs in online teaching	Yes	173	78.6
	No	47	21.4
Any dropouts from your school due to lack of availability of ICT equipment	Yes	10	4.5
	No	210	95.5

The study was conducted through 220 school teachers and the required information was sought from them. Statistical analysis of that data yielded some results. Calls were made and interactions were done with the respondents to find out the reasons behind the results. The results are as follows:

Language teachers vs computer teachers: Language teachers were not at ease with using digital platforms and it reflected in the transaction of information. Computer teachers transact through computers even in offline classes. Hence, the shift in medium does not have much of an impact. Language is learnt and taught best through face-to-face communication. Gestures and body language also play a significant role. These elements are lost in online classes.

Government vs aided vs unaided: Unaided school teachers with their meagre remuneration find it difficult to make arrangements for gadgets and internet data packages. The pressure from the school management for better results further added to their difficulty. Aided teachers also often face such pressure tactics from school management. However, their access to gadgets and technology is equal to government school teachers due to parity in remuneration.

Discussion

The COVID-19 pandemic had an immense impact on the education sector all over the world. Schools, colleges and universities discontinued face-to-face teachings and adopted online mode. Both teachers and students faced many issues during online education. Accessibility, affordability and flexibility are the broadly identified challenges with e-learning. There are several studies that have concluded non-availability of technical infrastructure and irregularly interrupted internet connectivity as the biggest challenges for both students and teachers. Many countries have substantial issues with reliable internet connection and access to digital devices (Murgatrotd, 2020). For instance, in the case of India, according to the key indicators of the Household Social Consumption on Education in India report, based on the National Sample Survey (NSS) 75th Round 2017–18, fewer than 15 per cent of rural Indian households have internet access.

Teaching numerical subjects like math, financial accounting, cost accounting, etc. or numerical problems are difficult, and sometimes tedious, in online teaching as compared to classroom teaching. In online teaching methodology, it becomes difficult for teachers to motivate students and they face the problem of keeping records of students' progress, especially in higher education institutions where the number of students is large (Gurung, 2021). Studies by Gurung also revealed that many challenges were faced by teachers during online teaching such as difficulties in teaching numerical subjects, monitoring discipline, reaching students in remote areas, the problem of electricity/internet connectivity, lack of technical/software knowledge, and more time requirement in preparing course content. Further, they also faced other problems like lack of time, lack of confidence, difficulty to assemble all the students for the class, lack of concentration, lack of cooperation from the parents and difficulty to follow up on the learning of students (Seema & Nangia, 2020). The same trends were observed in this study also.

Teachers faced educational institution-based support barriers such as the budget for purchasing advanced technologies, technical difficulties as well as lack of training, limited awareness of online teaching platforms,

security concerns and lack of clarity and direction (Rawal, 2020). Other than the technological issues various other hurdles too were faced during online classes. They included issues of figuring out online class etiquette, parents hovering during online classes, difficulty in maintaining discipline online, etc. The educators experienced a lack of appropriate materials and resources for online teaching as well as service training. Proper training and support have not been provided to instructors who are transitioning course content from face-to-face to online mode (Kyei-Blankson & Keengwe, 2011). Teachers mostly face challenges like lack of IT support, continuous technological changes, unequal access for all students, unoptimised software for mobile devices and security issues. Some other challenges include no clarity in voice due to low internet signal, lack of electricity, sudden electricity shut down and lack of technical and software knowledge. The availability of electricity is a significant challenge to taking advantage of education online. In a survey conducted in 2017–18 by the Ministry of Rural Development, Government of India, found that only 47 per cent of Indian households receive more than 12 hours of electricity and more than 36 per cent of schools in the country operate without electricity (Rawal, 2020).

From a gender perspective, women tend to dominate the teaching profession, especially at the school level in several countries in both public and private sectors (Seema & Nangia, 2020; Aytaç, 2021; UIS, 2018). The same trend seems to be reflected in this study as well.

The current study highlighted that impediments and challenges faced by educators in online education for higher secondary classes in Kerala were high. It showed that half of the respondents experienced high challenges followed by the medium and low categories of challenges during online teaching. The challenges faced by the educators in online teaching in the present study has already been reflected in studies of Rawal, 2020; Seema & Nangia, 2020; Gurung, 2021; Murgatrotd, 2020; Kyei-Blankson & Keengwe, 2011 and Aytaç, 2021.

Conclusion

Impediments and challenges in online education are very high. Among the study population, half of them experienced a high level of impediments and challenges. It has been observed that all of the teachers faced at least some challenges in delivering education digitally. Teachers mostly faced challenges like lack of IT support, continuous technological changes, and unequal internet access. Language and social science teachers are more likely to face a high level of impediments and challenges. Problems were mostly faced by unaided school teachers when compared to another type of school teachers. Online teaching and assessment tools were a big problem in the area of online education. There were no right guidelines available for imparting online education. The majority of the study population reported that their domestic environment affected their professional performance in a work from home situation. Educators also reported a dip in professional satisfaction in imparting online education.

References

Aytaç, T. (2021). *The problems faced by teachers in Turkey during the COVID-19 pandemic and their opinions*. *International Journal of Progressive Education*, 17(1), 404–420. DOI: 10.29329/ijpe.2020.329.26

Boeren, E. (2019). *Understanding Sustainable Development Goal (SDG) 4 on "quality education"*

from micro, meso and macro perspectives. *International Review of Education*, 65(2), 277–294. DOI:10.1007/s11159-019-09772-7

CEPAL-UNESCO, NU. (2020). *Education in the time of COVID-19.* https://www.cepal.org/en/publications/45905-education-time-covid-19

Dhawan, S. (2020). *Online learning: a panacea in the time of COVID-19 crisis*. *Journal of Educational Technology Systems*, 49(1), 5–22. https://doi.org/10.1177/0047239520934018

Gurung, S. (2021). *Challenges faced by teachers in online teaching during COVID-19 pandemic. The Online Journal of Distance Education and e-Learning*, 9(1), 8–18. http://www.tojdel.net/journals/tojdel/articles/v09i01/v09i01-02.pdf

Hassan, M. (2021). *Online teaching challenges during COVID-19 pandemic. International Journal of Information and Education Technology*, 11(1), 41–46.DOI: 10.18178/ijiet.2021.11.1.1487

Kyei-Blankson, L., & Keengwe, J. (2011). *Faculty-faculty interactions in online learning environments. International Journal of Information and Communication Technology Education*, 7(3), 25–33. https://doi.org/10.4018/jicte.2011070103

Li, C., & Irby, B. (2008). *An overview of online education: attractiveness, benefits, challenges, concerns, and recommendations. College Student Journal*, 42(2), 449–458. https://www.learntechlib.org/p/103183/

Lowther, D. L., Inan, F. A., Strahl, J. D., & Ross, S. M., (2008). *Does technology integration work when key barriers are removed?. Educational Media International*, 45(3), 195–213. https://doi.org/10.1080/09523980802284317

Luyt, I. (2013). *Bridging spaces: cross-cultural perspectives on promoting positive online learning experiences. Journal of Educational Technology Systems*, 42(1), 3–20. https://doi.org/10.2190/ET.42.1.b

Lyons, J. F. (2004). *Teaching U.S. history online: problems and prospects. The History Teacher*, 37(4), 447–456. https://doi.org/10.2307/1555549

Murgatrotd, S. (2020). *COVID-19 and online learning, Alberta, Canada*. DOI:10.13140/RG.2.2.31132.85120

Oyedotun, T.D. (2020). *Sudden change of pedagogy in education driven by COVID-19: perspectives and evaluation from a developing country. Research in Globalization*, 2. https://doi.org/10.1016/j.resglo.2020.100029

Ratheeswari, K. (2018). *Information communication technology in education. Journal of Applied and Advanced Research*, 3(S1), 45–47. https://doi.org/10.21839/jaar.2018.v3iS1.169

Rawal, M. (2020). *An analysis of COVID-19 impacts on Indian education system*. *Educational Resurgence Journal*, 2(5), 35–40.

Sánchez, C., & Alemán, C. (2011). *ICT in education: a critical literature review and its implications. International Journal of Education and Development Using Information and Communication Technology*, 9(1), 112–125.

Schleicher, A. (2020). *The impact of COVID-19 on education - insights from education at a glance*. https://www. oecd. org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020. pdf.

Seema, S., & Nangia, A. (2020). *Online teaching during COVID 19: attitude and challenges faced by school teachers. International Journal of Disaster Recovery and Business Continuity*,11(1), 3012–3018. http://sersc.org/journals/index.php/IJDRBC/article/view/29890

Singh, G. (2016). *Challenges for teachers in the era of e-learning in India*. *Scholedge International Journal of Multidisciplinary & Allied Studies*, 3(2), 14–18. https://thescholedge.org/index.php/sijmas/article/view/281

Tuma, F., Nassar, A. K., Kamel, M. K., Knowlton, L. M., & Jawad, N. K. (2021). *Students and faculty perception of distance medical education outcomes in resource-constrained system during COVID-19 pandemic. A cross-sectional study. Annals of Medicine and Surgery*, 62, 377–382. https://doi.org/10.1016/j.amsu.2021.01.073

UNESCO Institute for Statistics (UIS) (2018). *Education: percentage of female teachers by teaching level of education. United Nations Educational, Scientific and Cultural Organization (UNESCO).* http:// data.uis.unesco.org/index.aspx?queryid=178

UNESCO (2002). *Information and communication technology in education–a curriculum for schools and programme for teacher development.* Paris: UNESCO.

Weert, T. V., & Tatnall, A., (2005). *Information and communication technologies and real-life learning: new education for the new knowledge society*, *Springer Science & Business Media*, 182.

Xhaferi, B., & Ramadani, A. (2020*). Teachers' experiences with online teaching using the zoom platform with EFL teachers in high schools in Kumanova*. *Seeu Review*, 15(1), 142–155. https://doi.org/10.2478/seeur-2020-0009