An Analysis of Teachers' Perceptions Concerning Issues and Challenges with Online Teaching during Covid-19 in the Universities of Malakand Division

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Abstract

The outbreak of Covid-19 pandemic unexpectedly forced the educational institutions worldwide to switch over to online mode of teaching and learning to avoid traditional face to face teaching. In this critical situation, one of the challenges was to ensure quality of teaching and learning in universities. This study aimed to examine the perceptions of university teachers about the challenges and factors influencing implementation of online teaching in universities. A four factor structure model instrument was used to collect data from 242 university teachers. Descriptive statistical calculations were carried out based on Mean Score, Standard Deviation to find out the perceptions of teachers about the strongest and least strong factors influencing online teaching during Covid-19 pandemic. The results revealed that lack of access to learning content was one of the strongest factors affecting online teaching and challenge faced by teachers followed by poor internet connectivity being the second and students' lack of readiness along with incompetence of teaching faculty while dealing with technological skills to implement the online teaching. The study showed a mixed results based on gender comparison related to the issues and challenges of online teaching. It is suggested that the university teachers may be provided relevant need training online instruction. There is a need to improve internet connectivity problem in universities. The students may also be provided access to internet connectivity to access online educational materials and resources. Further research is suggested to test the findings in other contexts using more robust methods.

Keywords: *Covid-19, Technology Tools, Online Teaching, Internet Connection, Learning Content*

Introduction

The outbreak of covid-19 pandemic has changed the face of the world in all spheres of life including higher education (Naciri, Baba, Achbani & Kharbach, 2020). The pandemic was caused by SARS-COV-2 or simply Corona. It originated from Wuhan, China and travelled fast to each nook and

corner of the world killing millions of people in the world (Toquero, 2020). While following the directions by WHO, government of Pakistan also had to take serious measures. In this regard, all educational institutions were closed in Pakistan in the wake of the pandemic and online teaching and learning strategies were devised and implemented in the whole of the country from pre-primary to higher education from April 2020 onward (Waris, Khan, Ali, Ali, & Baset, 2020; Adnan, & Anwar, 2020).Since then, the number of positive cases has increased to more than 4 million with over 7000 deaths. The government decided to close the educational institutions again on 26 November due to second wave of the pandemic, 2020 for the second phase (Shoaib & Abdullah, 2020). The educational institutions all over the world were compelled to observe the instructions of government regarding the spread of the virus such as maintaining social distancing, allowing 50 percent attendance of staff in duty, using mask regularly in offices and classrooms and avoiding exposure to more populated public places (Sintema, 2020; Basilaia & Kvavadze, 2020). As a result, the educational practices were massively shifted from face-to-face mode of instruction to online mode in universities. During this time, serious issues were reported by students and parents regarding the online learning and teaching (Shahid & Zeb, 2020).

In higher education, teachers, students and management of higher education encountered many challenges due to the above-mentioned scenario of Covid-19 (Marinoni, Van't Land & Jensen, 2020). However, research has explained that online instruction is advantageous for students in many ways (Hebebci, Bertiz & Alan, 2020; Li & Irby, 2008). Online teaching and learning positively contributes towards students' development. For example, in online mode of instruction, students get wider opportunities of interaction with new technologies and its application as well as people from different context (Teymori & Fardin, 2020). This helps enhance their social, creative, self-paced which cannot be expected in a close lectured based classroom environment (Mulenga & Marbán, 2020). Teachers can also find more space to engage students in various learning activities and create and use innovative ways of instructions by using numerous new technology tools, social media and other learning applications for approaching students. This can also be applied as alternative media in the teaching and learning process in a situation where learning activities cannot be conducted through face-to-face interaction (Toquero, 2020).

Research has shown that in an online learning situation, students find better chances of academic and social growth as they have greater access to different alternative sources of learning through websites worldwide (Dhawan, 2020). Results and findings of various studies have revealed that majority of students had long lasting effects of on-line learning environment as compared to conventional classroom teaching. They learned faster while in on-line learning environment as virtual environments consume less time even transfer knowledge in 40-60 % less time (Adnan & Anwar,2020). Virtual environment gives students individualized instruction while welcoming self-paced learning which give them chance of drill of learned content. Such virtual environment enable them to prepare the material as per their own needs in which they can even skip any concept and further can opt a fast-track learning to accelerate their performance (Deming, Goldin, Katz & Yuchtman, 2015).

Covid-19 and Online Teaching
Digital instruction or online teaching and learning emerged as the sole choice for the implementation of online education during the Covid-19 crisis. In Pakistan, adoption of

technology-based instruction is a not a new exercise for teachers and students (Ahmed, Hussain & Farid, 2018). Before the current pandemic situation, the educational institutions used technology integrated approach for instruction and blended learning (Hebebci, Bertiz & Alan, 2020). However, since the closure of the educational institutions due to the pandemic crisis, the teaching and learning processes have been entirely performed through online system. Despite the numerous benefits associated with digital or online education, academic circles have already reported numerous obstacles facing students and teachers in an online teaching and learning situation (Assareh & Bidokht, 2011). The spread of Covid-19 placed all the higher education institutions in a challenging position. Various steps were adopted by the respective governments to ensure the continuation of the academic activities as well as maximum learning despite the tough situation such as social distancing, use of mask and vaccination (Marabelli, Vaast & Li, 2021).

The government of Pakistan, in March 2020 directed the educational institutions to shift to online mode. As a result, all academic activities were shifted from face to face to online mode. Teachers were instructed to conduct classes online by using technological tools such as mobile, laptops and computers (Akram, Adeel, Tabassum, Jiang, Chandio & Yasmin, 2020). However, in different places students and teachers faced problems such as internet availability and signals issues. However, in many cases teachers could not provide help as was required due to their poor knowledge of handling technology and application of technological tools. In the meantime, the pandemic further prolonged for more months which put the academic activities in precarious condition affecting the learning of students (Irshad, Umar, Rehmani, Khokhar, Anwar, Qaiser & Naveed, 2021).

Several issues were reported regarding online teaching and learning during the pandemic. There was lack of support for the online learning activities for students and teachers. Majority of the teachers reported in various surveys that adequate infrastructure, availability of internet network and even skills for using technological resources for teaching and learning were inaccessible to them (Chan, 2020). Studies found that lack of home education sources, space availability, parental digital literacy, parental education and language of school instruction and poor parental school involvement also affected the learning of students (Arora & Srinivasan, 2020). It was further observed that in the pandemic related online teaching and learning situations, children coming from low socio-economic backgrounds have remained disadvantaged due to non-availability of digital learning resources at their homes and therefore they performed poorly (Cesco, Zara, De Toni, Lugli, Betta, Evans & Orzes, 2021).

In some places, different demographic conditions, geographical and social background of students affected their learning performance during the pandemic situation. The students of lower grades with working parents having no guidance have received major setbacks (Kumar, 2020). Such children of low economic background especially remain deprived of proper guidance and support from parents for online learning. When parents go to work no one is available to guide them through the online learning activity. Hence, teachers and students both found it challenging to connect to internet and other digital learning facilities in rural areas or village (Nayak, Dubey & Pandey,2022). In higher education context, still more explorations are needed to understand the different dimensions and repercussion of the pandemic so that better mechanisms could be devised to face it and cope with it in future.

Research Objectives

1. To explore perceptions of university teachers towards issues and challenges to online teaching during convid-19 pandemic.
2. To compare perceptions of male versus female university teachers on issues and challenges in online teaching during covid-19 pandemic.

Method and Design

A descriptive quantitative survey approach was applied in the current study. This approach helped to describe the existing situation and events in the current setting without manipulating it and assessing the attitudes of the respondents (Guetterman, Fetters & Creswell, 2015). Survey is easier to administer and collect data from larger number of respondents through different ways in a shorter time. Furthermore, by using the descriptive quantitative survey method, the study examined and defined the stated situation related to issues and challenges in online teaching in universities of Malakand division during the Covid-19 pandemic.

Population and sample

The population of the study consisted of total teaching faculty of all the 5 public sector universities (University of Malakand, University of Swat, University of Buner, University of Chitral and Shahid Benazir Bhutto University (SBBU), Sheringal in Malakand division. Out of all the 5 public sector universities 3 universities were chosen based on random sampling technique using fish bowl method. Thus, Arikunto (2002), as mentioned in Sipayung (2019), states that if the research subject is less than 100, it is better to take all and if the research subjects are more than 100, then 10%- 15%, 20%-25% and 50% can be taken as sample. Using this formula, a total of 50 percent of the teachers out of the total population of teaching staff in the selected universities were chosen as shown in Table 1.

Table No: 1. *Population and Sample*

Name of University	Total Lecturer	Total Assistant Professor	Total Associate Professor	Total Professor	Overall Total
University of Malakand	129	96	20	11	256
University of Swat	44	49	3	3	99
SBBU- Sheringal	73	53	3	0	129
Total Population	246	198	26	14	484
Extracted 50% Sample	123	99	13	7	242

Sources: *Official Website of Universities*

Data Collection

For data collection, a survey scale was used. The scale was adapted from the work of Aserah and Bidokht (2011). The scale indicated six major issues during online teaching in the pandemic. These include (1) availability of learning content, (2) availability of technological tools, (3) ability to apply technology, (4) ability to purchase internet, (5) availability of internet signals (6) students' readiness for online learning. Permission was obtained from the original researchers for using the scale in the current. The survey instrument consisted of two parts: demographic profile of respondents which covered gender, experience, qualification, and institution. The second part consisted of statements representing issues and problems on six indicators as mentioned above.

Pilot testing

Pilot study was conducted to ascertain reliability and validity of the survey before data collection. For this purpose, three experts were consulted for face validity and Cronbach's alpha coefficient was tested for reliability of the instrument as shown in Table 2.

Table No: 2. *Reliability of the Instrument*

S. No	Sub-Scale	Total items	Reliability alpha
1.	Availability of learning content	4	.89
2.	Availability of technological tools	3	.88
3.	Ability to apply technology	4	.93
4.	Ability to purchase internet data	4	.92
	Availability of internet signals	3	.84
	Students' readiness for online learning	3	.87
	Overall alpha	21	.91

The questionnaires were distributed to the teachers personally by visiting the campuses of the universities. Before data collection, the participants were asked for their willingness to participate in the research study. A consent letter was handed over to them to get their consent as ethical consideration. All the distributed questionnaires were returned by the participants. The collected questionnaires were entered into the SPSS version 20 with the help of research assistant for analysis.

Data Analysis

The quantitative data were analyzed by using simple Mean Score and Standard Deviation. The Skewness and Kurtosis were tested to examine the range of responses of respondents for all items and for examining the significant differences across the categories such as gender and institutions wise based on the collected responses of the participants.

Results

The perspectives of university teachers towards issues and challenges in online teaching during Covid-19 pandemic were evaluated based on a survey tool consisting of six indicators adopted from Asserah and Bidokht (2011). The result of measurement is described below.

Table No: 3. *Perceptions on Issues and Challenges in Online Teaching during Covid-19*

#	Variables	Mean	SD	Skewness		Kurtosis	
1	Availability of learning content	20.120	3.803	.162	.198	-.870	.394
2	Availability of technological tools	20.153	3.315	.256	.198	-.692	.394
3	Ability to apply technology	19.353	2.487	-.117	.198	.359	.394
4	Ability to purchase internet packages,	18.653	3.219	.300	.198	-.244	.394
5	Availability of internet signals	59.626	7.885	.240	.198	-.890	.394
6	Students' readiness for online learning	20.680	4.845	.133	.198	-1.273	.394

Table 1 indicates the higher mean scores and standard deviations of perceptions of university teachers revealed that the teachers strongly agreed that they faced issues and challenges of availability of learning content (M=20.120 and SD=3.803), availability of technological tools (Mean= 20.153 and SD=3.315), ability to apply technology (M=19.353 and 2.487), ability to purchase internet packages (M=18.653 and SD= 3.219), availability of internet signals (M=59.626 and SD7.885), and student readiness for online learning (M= 20.680 and SD= 4.845). The values of skewness and kurtosis are within the range of ($\pm$ 2) providing evidence for data normality.

Table No: 4. *Gender based Comparison of Teachers' Perceptions*

#	Variable	Gender	Mean	SD
1	Availability of learning content	Male	19.784	3.414
		Female	20.563	3.174
2	Availability of technological tools	Male	19.265	2.458
		Female	19.450	2.534
3	Ability to apply technology	Male	18.607	3.413
		Female	18.704	3.011
4	Ability to purchase internet packages	Male	58.531	7.877
		Female	60.845	7.769
5	Availability of internet signals	Male	20.594	4.897
		Female	20.774	4.820
6	Students' readiness for online learning	Male	19.481	4.005
		Female	20.831	3.455

Table 4 indicated that the mean score of females (M=20.563 and SD=3.414) is higher than the male (M= 19.784 and SD= 3.414) counterpart in the data which shows that female strongly agreed that they faced more problems of availability of learning content. The mean score of male and female being (M=19.265 and =2.458) and (M=19.450 and SD= 2.534) respectively showed that both the gender equally faced the problem of availability of technological tools. The mean score of teachers of both gender (M= 18.607 and SD= 3.413) and (M= 18.704 and SD= 3.011) respectively showed that both the gender strongly agreed that they faced issues regarding the ability to apply technology. The mean score of male teachers (M= 58.531 and SD= 7.877) is higher than the female teachers (M= 60.845 and SD= 7.769) which provides evidence that the female teachers strongly agreed that they faced more problem of ability to purchase internet packages. The mean score of male teachers (M= 20.594 and SD= 4.897) and female teachers (M= 20.774 and SD= 4.820) indicated that both the gender equally faced the problem of availability of internet signals during Covid-19 pandemic. The mean score of male teachers (M= 19.481 and SD= 4.005) and female teachers (= 20.831and SD= 3.455) indicated that as compared to male teachers the female teachers faced more problem in terms of student readiness for online learning during the pandemic.

Table No: 5. *University wise Teachers' Perceptions*

#	Variables	Mean	SD	Skewness		Kurtosis	
1	University of Swat	20.142	4.288	-1.101	.086	1.250	.171
2	University of Malakand, Chakdara	16.031	3.536	-.975	.086	1.003	.171
3	Sheringal University, Upper Dir	16.188	3.400	-1.054	.086	.963	.171

Table 5 shows that the mean score of university of Swat (M= 20.142 and SD = 4.288) is higher than Sheringal university (M= 16.188 and SD= 3.400) and Malakand university (M= 16.031 and SD= 3.536) shows that university of Swat faced more problems in terms of all the six indicators representing the issues and challenges regarding online teaching during the Covid-19 pandemic.

Discussion

The main aim of this study was to explore the perspectives of university teachers on issues and challenges in online learning during Covid-19 pandemic. The study found that availability of learning content was one of the essential components of teaching and learning. To most of the respondents the learning content was not easily available. Previous studies also noted that course content was not based on students' requirement and thus could not attract their attention and motivation (Almazova, Krylova, Rubtsova & Odinokaya, 2020). Another study found that the available content did not properly meet the essentials related to the course and was not prepared based on students learning needs. Moreover, the material provided online was unsatisfactory to satisfy students' examination needs. The content was also poorly related to the course outlines which was a major concern for students. According to Dhawan (2020) in online teaching teachers usually face issues related to content selection and students' readiness is at low level when they come across less interesting content.

Similarly, in view of Adnan and Anwar (2020), use of technology is increasing among teachers, and it further intensified after during the convid-19 pandemic. In this study, the mean score 20.153 suggested that majority of the teachers also faced issues and challenges in terms of availability of technological tools. This finding of the study supports the results of previous studies. Inciso (2021) discovered that teachers did not want to accept the online teaching services. They reported that they faced problems of proper internet connectivity and availability of technology tools such as tablets, laptops and other devices. This situation created problems as they could not conduct teaching online efficiently. The study further revealed that majority of the teachers lacked the ability to apply technology in online teaching. The mean score 19.353 showed that they did not have relevant ability to apply different technological tools. Previous research stated that faculty members having poor command of technology or use of technology related tools failed to deliver effectively online sessions during the pandemic (O'Shea, Koshy & Drane, 2021).

This current study revealed that majority of the teachers lacked the ability to purchase internet packages. In this regard, the collective mean score of 18.653 suggested that they faced issues and challenges while purchasing internet packages. Hebebci et al. (2020) also reported that teachers lacked the relevant information about technology and in economically low developed areas, it was a challenge for majority of the teachers to purchase internet packages on higher rates. The management did not pay any extra benefits for them and hence, they had purchased it from their own pocket. This situation was alienating for the teachers and affected their motivation to work during this testing time. Some of the teachers lacked proper resources and expertise to conduct online teaching and lack of technological tools further exacerbated the situation for them.

This study based the highest mean score 59.626 suggested that availability of internet signals was another major challenge for teachers in online teaching. Other studies have found that poor internet speed, signals and heavy internet traffic also affected the online teaching (Myronets, Danyliuk, Dembytska, Frantsuz-Yakovets & Dei, 2020). Based on the mean score of 20.680, this study discovered that student readiness for online learning as one the major challenges in universities during the pandemic. Previous research has reported about lack of punctuality among students in online sessions, inconsistencies in teachers' attendance and time for online sessions. The problem further increased due to poor course presentations, lack of discipline in timing of the sessions, low level delivery of lessons, lack of variety in course content and poor teacher and student interaction (Treve, 2021).

A comparison of analysis based on gender showed that female teachers faced more problems regarding availability of learning content as the mean score of female teachers was 20.536 as compared to male with a mean score of 19.784. In terms of availability of technological tools, the mean score of male teachers was slightly higher 20.563 as compared to female teachers with a mean score of 19.265 meaning that male faced more issues and challenges during the pandemic. In terms of ability to apply technology, the mean score of male teachers was slightly higher than the female teachers being 19.450 and 18.607 respectively meaning that male teachers had more issues and challenges in terms of abilities to apply technology during the Covid-19 pandemic.
In the area of ability to purchase internet packages, the mean score of female teachers was higher than the male teachers being 60.845 and 58.531 respectively meaning that female staff faced more problems and issues in purchasing the internet packages. In terms of availability of internet signals,

the mean score of female teachers was slightly higher than the male teachers being 20.574 and 20.494 respectively meaning that both the gender faced equal issues and challenges while dealing with online teaching during Covid-19 pandemic. In terms of students' readiness for online learning, the mean score of female teachers was higher than male teachers being 20.831 and 19.481 respectively meaning that female teachers had to face more issues regarding students' readiness for online learning during the Covi-19 pandemic. A comparison of universities based on the six indicators in terms of the issues and challenges in online teaching during the Covid-19 pandemic revealed university of Swat had a higher mean score 20.142 as compared to university of Malakand having a mean score of 16.031 and university of Sheringal having a mean score of 16.188 respectively. This shows that with regard to the six challenges and issues, teachers at university of Swat faced more problems followed by University of Sheringal, Dir Upper and University of Malakand.

Conclusion

This study confirmed that unavailability of learning material and technological tools along with teachers' lack of competence in using technology, unavailability of resources for purchasing internet data packages, unavailability of internet signals and non-serious attitude towards online learning were the major challenges faced by teachers in online teaching during the covid-19 pandemic. Based on the results of this study it is suggested that Covid-19 is an emerging phenomenon and it may reoccur in the near future. Therefore, a proper policy about improving the online teaching and learning processes be adopted by the universities. There is a need to train the teachers in technology applications and provide them with active internet facilities in the campuses. There is a need to focus and ensure the availability of technological tools to the teaching faculty along with creating a supportive online learning environment for the students to increase their level of satisfaction and readiness. The management and administration may apply the findings of this study in policy making regarding improved online instructional practices in universities.

References

Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 Pandemic: Students' Perspectives. *Online Submission*, *2*(1), 45-51.

Almazova, N., Krylova, E., Rubtsova, A., & Odinokaya, M. (2020). Challenges and opportunities for Russian higher education amid COVID-19: Teachers' perspective. *Education Sciences*, *10*(12),1-11.

Akram, W., Adeel, S., Tabassum, M., Jiang, Y., Chandio, A., & Yasmin, I. (2020). Scenario analysis and proposed plan for Pakistan Universities–COVID–19: Application of design thinking model.1-22

Ahmed, M. U., Hussain, S., & Farid, S. (2018). Factors influencing the adoption of e-learning in an open and distance learning institution of Pakistan. *Electronic Journal of e-Learning*, *16*(2), 148-158.

Arora, A. K., & Srinivasan, R. (2020). Impact of pandemic COVID-19 on the teaching–learning process: A study of higher education teachers. *Prabandhan: Indian journal of management*, *13*(4), 43-56.

Assareh, A., & Bidokht, M. (2011). Barriers to E-Learning. Procedia Computer Science, 791. https://doi.org/10.1016/j.procs.2010.12.129

Cesco, S., Zara, V., De Toni, A. F., Lugli, P., Betta, G., Evans, A. C., & Orzes, G. (2021). Higher education in the first year of COVID-19: Thoughts and perspectives for the future. *International Journal of Higher Education*, *10*(3), 285-294.

Chan, R. Y. (2020). Studying coronavirus (COVID-19) and global higher education: Evidence for future research and practice. *Available at SSRN 3622751*.

Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*, *5*(4).

Deming, D. J., Goldin, C., Katz, L. F., & Yuchtman, N. (2015). Can online learning bend the higher education cost curve?. *American Economic Review*, *105*(5), 496-501.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of educational technology systems*, *49*(1), 5-22.

Hebebci, M. T., Bertiz, Y., & Alan, S. (2020). Investigation of views of students and teachers on distance education practices during the Coronavirus (COVID-19) Pandemic. *International Journal of Technology in Education and Science*, *4*(4), 267-282.

Irshad, H., Umar, K. M., Rehmani, M., Khokhar, M. N., Anwar, N., Qaiser, A., & Naveed, R. T. (2021). Impact of work-from-home human resource practices on the performance of online teaching faculty during coronavirus disease 2019. *Frontiers in Psychology*, *12*,1-10**.**

Inciso, A. A. C. (2021). Higher education during COVID-19 pandemic: Distance education and online learning. *International Journal of Research Publications*, *70*(1), 60-65.

Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *The Annals of Family Medicine*, *13*(6), 554-561.

Kumar, R. (2020). Assessing higher education in the COVID-19 era. *Brock Education: A Journal of Educational Research and Practice*, *29*(2), 37-41.

Li, C. S., & Irby, B. (2008). An overview of online education: Attractiveness, benefits, challenges, concerns and recommendations. *College Student Journal*, *42*(2), 449-459.

Marabelli, M., Vaast, E., & Li, J. L. (2021). Preventing the digital scars of COVID-19. *European Journal of Information Systems*, *30*(2), 176-192.

Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. *IAU global survey report*, *23*, 1-17

Myronets, O. M., Danyliuk, I. V., Dembytska, N. M., Frantsuz-Yakovets, T. A., & Dei, M. O. (2020). Current issues and prospects of modern higher legal education in conditions of the fight against COVID-19. *Cuestiones Políticas*, *37*(65),438-455.

Mulenga, E. M., & Marbán, J. M. (2020). Is COVID-19 the gateway for digital learning in mathematics education?. *Contemporary Educational Technology*, *12*(2), 1-11.

Naciri, A., Baba, M. A., Achbani, A., &Kharbach, A. (2020). *Mobile learning in higher education: Unavoidable alternative during COVID-19*. *Aquademia*, 4(1),1-10 https://doi.org/10.29333/aquademia/8227

Nayak, A., Dubey, A., & Pandey, M. (2022). Work from home issues due to COVID-19 lockdown in Indian higher education sector and its impact on employee productivity. *Information Technology & People*, (ahead-of-print).

O'Shea, S., Koshy, P., & Drane, C. (2021). The implications of COVID-19 for student equity in Australian higher education. *Journal of Higher Education Policy and Management*, *43*(6), 576-591.

Teymori, A. N., & Fardin, M. A. (2020). COVID-19 and educational challenges: A review of the benefits of online education. *Annals of Military and Health Sciences Research*, *18*(3)1-4.

Treve, M. (2021). What COVID-19 has introduced into education: Challenges facing higher education institutions (HEIs). *Higher Education Pedagogies*, *6*(1), 212-227.

Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4), 1-5. https://doi.org/10.29333/pr/7947

Sintema, E. J. (2020). Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education. *Eurasia Journal of Mathematics, Science and Technology Education*, *16*(7),1-6.

Shahid, R., & Zeb, S. (2020). Second Wave of COVID-19 Pandemic: Its deleterious and mortal repercussion in Pakistan. *Journal of Rawalpindi Medical College*, *24*(4), 288-289.

Shoaib, M., & Abdullah, F. (2020). Risk reduction of COVID-19 pandemic in Pakistan. *Social work in public health*, *35*(7), 557-568.

Sipayung, R. W. (2019). Improving the Students' Ability in Reading Comprehension by Using Cooperative Integrated Reading Composition. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, *2*(2), 247-253.

Waris, A., Ali, M., Khan, A. U., Ali, A., & Baset, A. (2020). A comprehensive study of sars-cov 2: From 2019-ncov to covid-19 outbreak. *Microbiology and Biotechnology Letters*, *48*(3), 252-266.