

ONLINE LEARNING AS A PANACEA IN PANDEMIC: PERCEPTION OF STUDENT-TEACHERS

Soumen Saha

Assistant Teacher, Kareya Karuichandi High School, Kareya, Birbhum, West Bengal, India

Email: soumensaha1720@gmail.com

Postal Address: Flat B, Block – C, Indira Apartment, Santiniketan, West Bengal, PIN- 731235, India.

Manjira Bagchi

Research Scholar, Department of Education, Vinaya Bhavana, Visva Bharati, West Bengal, India

Email: manjirabagchi@gmail.com

Postal Address: Flat B, Block – C, Indira Apartment, Santiniketan, West Bengal, PIN- 731235, India.

Dr. Shyamsundar Bairagya

Associate Professor, Department of Education, Vinaya Bhavana, Visva Bharati, West Bengal, India

Email: listsnsb.ugb@gmail.com

Postal Address: Department of Education, Vinaya Bhavana, Visva Bharati, West Bengal, PIN-731235, India

ABSTRACT

The outbreak of the new virus called as Covid-19 in the beginning of the year 2019 has completely changed the human lives of the entire world. Education system along with many other sectors was severely affected. The normal traditional education system had stopped because of this pandemic and most of the institutions rapidly shifted to online mode to continue teaching, training and evaluation. The present study examined the perception of the student-teachers towards e-learning across gender, residential locality and type of teacher education programme. The survey was conducted through a self-constructed online questionnaire. One fifty student-teachers of B.Ed. and M.Ed. programme of Visva-Bharati university participated in the study. Results revealed significant difference between the perception of student-teachers across their residential locality. No significant difference was found across gender and type of teacher education programme. Also, a significant interaction was found between gender and residential locality of student-teachers.

Keywords: COVID-19, Digital competency, Online learning, Perception, Student-teacher

INTRODUCTION

E-learning and online classes are rapidly increasing its contribution to become a part of the whole education system worldwide. India is considered as one of the largest sectors in the world in higher education system. Online classes were introduced just few years back in Indian colleges and universities, before which, traditional physical classrooms were so common and was a regular practice to continue the teaching-learning process. There were so many reasons behind not adopting the online classes as a teaching-learning approach. Such as, lack of technological advancement, ease of offline classes etc. However, the crisis of COVID-19 pandemic forced the higher authorities to make the online classes mandatory in all colleges and universities to continue the process of education system.

Online learning is an approach where teaching-learning is performed from a distance on digital platforms without any physical contact between the students and the teachers. This has changed the entire scenario of the education system. Moreover, due to the vast responses and demand for the online classes, many online learning platforms are offering free online courses to the students. This new learning approach has helped all the educational institutions confront many problems. Students could memorize only 8-10% of the study material in the traditional classrooms whereas they can memorize 25-60% of the study material in case of online learning (Li & Lalani, 2020), which indicates that online learning helps the students learn faster than the traditional classrooms.

On the other hand, educators have the most critical role to play in one's life to assure his/her long path of success. Students generally get inspired and influenced by their teachers. Teachers mould their students perfectly for bright future. Teachers are seen to have a significant influence on the young children through their teaching. They reshape the behaviour of their pupils by disseminating relevant knowledge to them. Moreover, a wide range of different skills are taught by the teachers to their students, which are necessary to succeed in their life. The quality of education of the future generation depends on the quality of education provided to the student-teachers today. Student-teachers are those, who are presently pursuing a teacher education programme (B.Ed. and M.Ed. in the present study) for being prepared as a future teacher and to complete the formal qualification for teaching. So, educating student-teachers through effective teacher education programme is one of the greatest concerns of the entire education system, as they are to be prepared to teach the next generation successfully. A number of important recommendations were made and policies were formed in this context including the current NEP, 2020.

In this pandemic situation, most of the teacher education institutes started imparting Education through online mode like other educational institutions. The rapid shift from the traditional classroom approach to the new online approach associated with digital technology did not provide any scope for proper planning regarding class delivery, technical arrangement, digital skill training for both students and teachers. Hence, they are going through a number of challenges to continue the teaching-learning process through this online platform. In this context, it is essential to assess student-teachers' perception towards online teaching-learning. Perception is the mechanism of individuals to organise, identify and interpret their sensory feeling in order to recognise the fact or the surroundings. So, perception of student teachers towards online learning needs to be examined and evaluated.

Moreover, there may exist difference between the perception of rural and urban student-teachers due to digital divide and between male and female student-teachers due to their social position. So, the investigation of perception of student-teachers towards online learning across their gender and residential locality is important. The difference between perception of B.Ed. and M.Ed. students also needs to be investigated as they are expected to differ in experience in the field of Education.

Review of Related Literature

Several studies were carried out to investigate how online learning has influenced students' learning and about the problems associated with sudden implementation of online learning. Most of the studies were conducted in developing countries like India, Indonesia, Jordan and many more. To determine the research gap, the present researchers have reviewed the following literatures carefully.

Kanrar and Ray (2021) conducted a research study to investigate the perception of the students of different educational levels of West Bengal regarding online learning during Covid-19 pandemic in terms of feasibility. The researchers collected the data from 402 respondents through google form questionnaire. Results revealed that significant differences were found in infrastructural problems and lack of technical skills across demographic areas and in level of satisfaction across different educational levels. Moreover, most of the students preferred face-to-face learning, but interestingly, several students preferred blended mode of learning. Obeidat (2021) conducted a case study on the perspective of undergraduate students in the context of suddenly emerged online learning due to COVID-19 in Hashemite University of Jordan. Target of the study was to examine that how the students were influenced by online learning in terms of their psychological state, interaction level, skill acquisition and financial status. Here, the researcher adopted mixed method research design and used questionnaire along with questionnaire interview. The study showed that the level of interaction stood last and psychological state of students stood first in ranking in case of online learning. However, there was no significant difference in the responses of the students across gender, residential area and type of institute. But significant difference was found between the responses of Arts and Information Technology students. A study was conducted by Nachimuthu (2020) to analyse the attitude of the student-teachers' regarding online class in the emergency of COVID – 19. A modified online scale was used as data collection tool. The scale was taken from Voorveld et al. (2018) and Roy et al. (2016). One hundred thirty students were randomly chosen for the study. Finally, the study revealed that the student-teachers showed positive attitude towards online learning and no significant difference was found across gender, type of institute (government, private) and study stream (science and arts) of the student-teachers. Allo (2020) conducted a qualitative study to know the perception of university students of English study programme towards online learning. The research work was done through an online semi-structured interview in Toraja, Indonesia. The results of the study not only revealed good perception of students towards online learning, but also threw light on the accessibility of internet, implementation of online mode of class and related financial issues. Yunita and Maisarah (2020) examined graduate students' perception towards e-learning process that was implemented during COVID-19 pandemic. The study was executed on the students of graduate programme of English education at the university of Bengkulu. A 5-point Likert questionnaire along with semi structured interview were used for the study. Students showed positive perception towards the e-learning process implemented during the pandemic. Moreover, students responded positively in the interview towards online learning conducted for the graduate programme. Nambiar (2020) conducted a survey work to study and explore the perception and interest of college students as well as teachers towards online learning during the crisis of COVID-19 pandemic. 407 students and 70 teachers participated in this study from different colleges and universities of Bangalore. Researcher used two online survey questionnaires about the perception of students and teachers for collecting the data. Findings of the study identified some important aspects regarding successful online class for both students and teachers. These aspects are: quality interaction between students and teachers with proper timing, proper technical support, standard online module and conduction of online practical classes. Blizak, Blizak, Bouchenak, Yahiaoui (2020) conducted a research study to investigate the perception of 380 students of Algerian university about the sudden shift to online teaching-learning system due to COVID-19 pandemic. A questionnaire was distributed online to the students of Chemistry and Hydrocarbon for the purpose of investigation. Findings from the data analysis showed that the students did not accept the online learning with positive perception. In other words, they were not comfortable with digital

learning and preferred face to face classroom learning. Students' perception regarding online learning was examined by Agung, Surtikanti and Quinones (2020) during the crisis of COVID-19 pandemic. 66 students from Pamane Talino College of Education took part in this study, who were engaged in English Language Education Study Programme. Mainly three obstacles for using online learning were identified from the study. Those are namely, availability and continuity of internet connection, ease of accessing teaching media for students' participation and appropriate tools for accessing the media. Relationship between attitude of the undergraduate students towards Technology Acceptance Model, particularly with online learning was investigated by Ullah, Khan and Khan (2017) in Peshawar district of Pakistan. For the purpose of data collection, the researchers used a self-developed questionnaire with 5-point Likert scale. No significant relationship was found between the interest of the students towards computer and benefits of computer with acquisition of knowledge in case of online learning. Attitude of university students towards online learning was studied in Saudi Arab by Zabadi and Al-Alawi (2016). Researchers adopted random sampling for selecting students from the university of Business and Technology. Researchers developed a questionnaire about e-learning to complete their study. Attitude of the students was found to be positive towards online learning and significant differences were found in their attitude towards e-learning across gender and skills of technology usage.

Emergence of the Study

The suddenly emerged online approach of teaching-learning due to COVID-19 pandemic has brought so many challenges for the entire education system. In this context, several research studies were carried out, which examined the attitude or perception of students of different educational levels towards online learning. But, based on a detailed review of the above studies, it was found that very few research works (Nachimuthu, 2020; Mohalik and Sahoo, n.d.) were executed on the perception of student-teachers towards online learning, although evaluating the status of their training and learning through online mode is of prime importance. Moreover, no research has been done on student-teachers' perception regarding online learning in West Bengal, where several teacher training institutions are situated. So, the scenario of West Bengal in this context needs to be examined. Most importantly, the present study will reflect the image of a central university in the context of online learning. Although few studies were conducted, which examined the perception or attitude of student-teachers across their gender, but no study has been found examining the same across residential location and type of teacher education programme for student-teachers. Hence, the present study will investigate the perception of student-teachers across their residential locality (urban, rural) and type of teacher education programme (B.Ed., M.Ed.) along with their gender (male, female). Also, as per the literature review, no researcher aimed to examine the possible interaction effect between the gender and residential locality on the perception of student-teachers towards online learning. Hence, the present study will examine the above-mentioned interaction effect. Moreover, the present researchers want to throw some light on some specific dimensions related to the online learning. These are namely, availability and accessibility of online learning resources, digital competency and e-readiness, psychological state of the student-teachers, curriculum transaction and skill acquisition and scope of interaction.

Objectives

1. To investigate the availability and accessibility of online learning resources for B.Ed. and M.Ed. students.
2. To examine the digital competency and e-readiness of B.Ed. and M.Ed. students.
3. To critically analyse the psychological state of B.Ed. and M.Ed. students in the context of online learning.
4. To investigate the status of curriculum transaction and skill acquisition through online learning for B.Ed. and M.Ed. students.
5. To know the scope of interaction facilitated by online learning for B.Ed. and M.Ed. students.
6. To examine whether there exists any significant main effect and interaction effect between gender of student-teachers and locality of their residents on their perception towards online learning.
7. To find out the difference between perception of male and female student-teachers towards online learning.
8. To find out the difference between perception of urban and rural student-teachers towards online learning.
9. To find out the difference between perception of B.Ed. and M.Ed. students towards online learning.

Research Questions

1. How far the online learning resources are available and accessible for B.Ed. and M.Ed. students?
2. What is the status of digital competency and e-readiness for B.Ed. and M.Ed. students?
3. How does the online learning influence the psychological state of B.Ed. and M.Ed. students?
4. How successfully curriculum transaction and skill acquisition take place through online learning for B.Ed. and M.Ed. students?
5. How far the B.Ed. and M.Ed. students get the facility to interact with others in case of online learning?

Null Hypotheses

H₀₁: There exists no significant main effect and interaction effect of gender of student-teachers and locality of their residents on their perception towards online learning.

H₀₂: There exists no significant difference between the perception of male and female student-teachers towards online learning.

H₀₃: There exists no significant difference between perception of urban and rural student- teachers towards online learning.

H₀₄: B.Ed. and M.Ed. students do not differ significantly from each other with respect to their perception towards online learning.

Methodology

A descriptive survey method was employed in the present study. The survey includes an assessment of perception of student-teachers as a whole towards online learning. The study was also conducted across three independent variables, namely, gender, residential locality and teacher education programme.

The tool used in this survey to collect data was a mailed questionnaire using google form. A 5-point Likert questionnaire for the perception of student-teachers towards online learning was constructed, which consisted of 28 items and was divided into five main domains regarding availability and accessibility of online learning resources; psychological state of the students-teachers; status of curriculum transaction and skill acquisition; digital competency and e-readiness of the student-teachers; and scope of interaction. The present researchers distributed the above items randomly throughout the questionnaire. Items 1, 3, 4, 5, 23, 24 are related to the availability and accessibility; items 2, 6, 8, 9, 10, 11 are regarding digital competency and e-readiness; items 7, 18, 19, 20, 21, 27, 28 are linked to the psychological state of the student-teachers; 15,16,17, 22, 25, and related to the curriculum transaction and skill acquisition and items 12, 13, 14, 26 are connected to the scope of interaction.

The questionnaire was sent to 200 student-teachers, who were pursuing B.Ed. and M.Ed. programme and attending classes in online mode in Visva-Bharati, which is a central university, located in Bolpur Santiniketan of Birbhum district of West Bengal. One hundred fifty student-teachers responded to the questionnaire, out of which 57 were pursuing B.Ed. programme and 93 were pursuing M.Ed. programme.

Some experts validated the questionnaire, who were requested to make any modifications and give suggestions relating to the relevance and clarity of the items. Their valuable suggestions were immediately considered for the modification of the questionnaire. In order to check the reliability of the questionnaire, it was mailed to 20 student-teachers including B.Ed. and M.Ed. students of other universities, who were not the part of the present study. The Cronbach Alpha test to determine the reliability coefficient was conducted to determine the internal consistency of the items under each domain and for all items in the questionnaire. After execution of the test, Cronbach Alpha coefficient was found to be 0.81, which implies good internal consistency of the items. So, no item was deleted and all the 28 items remained in the final questionnaire.

Consequently, the questionnaire was sent to the 200 student-teachers and after getting the responses of 150 participants, their answers were recorded and preserved for data analysis. Percentage, mean, standard deviation, t-test and two-way ANOVA were used for data analysis.

Results and Discussion

Demographic Details of the Respondents

Table-1: Demographic Details of the Respondents

Gender	Male (36%)	Female (64%)
Residential Locality	Urban (69%)	Rural (31%)
Teacher Education Programme	B.Ed. (57%)	M.Ed. (43%)

To analyse the perception of student-teachers towards online learning, their responses were recorded on a five-point Likert type scale, where score given to strongly disagree (SDA), disagree (DA), neutral (N), agree (A) and strongly agree (SA) were 1, 2, 3, 4, 5 respectively in case of items which were in favour of online learning and 5, 4, 3, 2, 1 respectively in case of items which were against online learning. First of all, to examine the mean response for each item, we set a range of score for each item by calculating $(\text{high score} - \text{low score}) / (\text{no. of possible responses}) = (5-1) / 5 = 0.8$ and then considering this value as the width of the range. The range for each response is shown in Table-2.

Table-2: Range for Possible Responses

Responses	Range	
	Items in favour	Items against
Strongly disagree (SDA)	1-1.8	4.3 -5
Disagree (DA)	1.9-2.6	3.5-4.2
Neutral (N)	2.7-3.4	2.7-3.4
Agree (A)	3.5-4.2	1.9-2.6
Strongly Agree (SA)	4.3 -5	1-1.8

Data Analysis and Results of the First Research Question:

To analyse the results related to first research question, ‘How far the online learning resources are available and accessible for B.Ed. and M.Ed. students?’, we calculated the percentage of respondent for each possible response for each item under the domain, ‘availability and accessibility of online learning resources.’ The percentage of responses are depicted in Table-3. Moreover, the mean response for each item was calculated by using the range given in Table-2.

Table-3: Availability and Accessibility of Online Learning Resources

Questions	Percentage of Respondents					Mean value of 150 responses	Overall response according to table-1
	SDA	DA	N	A	SA		
I have my own device.	2	4.1	2	59.2	32.7	4	Agree
I have high-speed internet in my home	12.2	26.5	20.4	26.5	14.3	2.9	Neutral
Our effective learning depends on strength of internet connection	4.1	4.1	22.4	44.9	24.5	3.7	Agree
Online classes are expensive due to internet charges	4.1	12.2	10.2	38.8	34.7	2.1	Agree
We can easily access the study materials after each class	0	16.3	20.4	55.1	8.2	3.4	Neutral
I face difficulty to find out effective study materials from the enormous no. of e-resources	2	32.7	16.3	36.7	12.2	2.7	Neutral

It can be seen from Table-3 that although most of the student-teachers have their own gadgets to attend the online classes, but almost half of them do not have access to high speed internet connection, which may create problem for them to continue the online learning. Mohalik and Sahoo(n.d.) conducted a study on e-readiness and perception of student-teachers across various states of India and reported that the percentage of student-teachers who had high-speed internet connection was even lesser and came out to be 25% only. In the present study, 69.4% respondents have agreed that their effective learning depends on the strength of internet connection to some extent. Also, maximum student-teachers (73.5%) have felt that internet charges are expensive for them to continue online classes. Moreover, some student-teachers can successfully search and access the online study material, while others are facing problems in this regard. In the study of Mohalik et al. (n.d.), 65% of student-teachers were found to access e-learning materials easily.

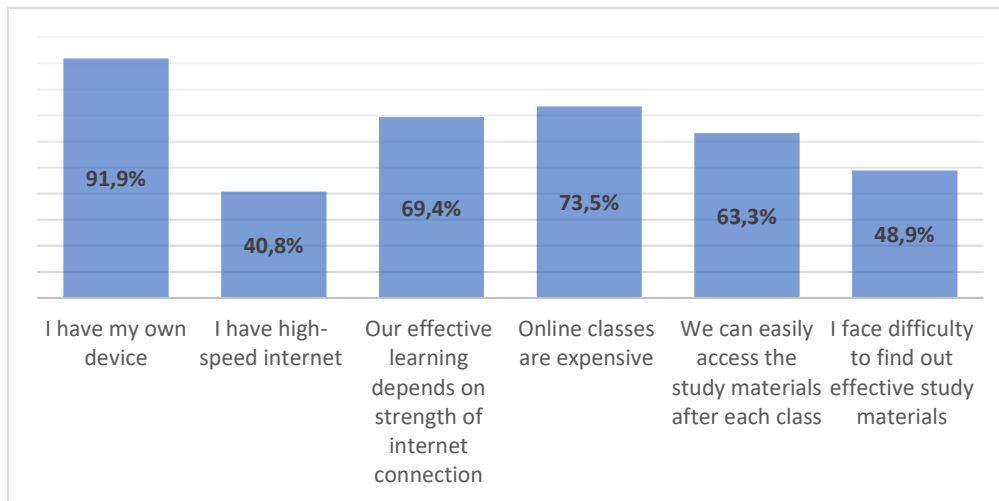


Figure 1: Graphical Representation of the Perception of Student-teachers Who Have Agreed with the Items under The Domain ‘Availability and Accessibility Of Online Learning Resources’.

Data Analysis and Results of the Second Research Question:

To analyse the results related to second research question, ‘What is the status of digital competency and e-readiness for B.Ed. and M.Ed. students??’, we calculated the percentage of respondent for each possible response for each item under the domain, ‘digital competency and e-readiness.’ The percentage of responses are depicted in Table-4. Moreover, the mean response for each item was calculated by using the range given in Table-2.

Table-4: Digital Competency and E-Readiness

Questions	Percentage of Respondents					Mean value of 150 responses	Overall response according to table-1
	SDA	DA	N	A	SA		
Online classes are easy to attend	0	8.2	12.2	57.1	22.4	3.9	Agree
It is troublesome for me to switch from tradition classroom to e-learning	6.1	22.4	20.4	40.8	10.2	2.6	Agree
Some special skills are required to be comfortable with online learning	2	10.2	8.2	49	30.6	1.9	Agree
I do not have enough digital competency to handle e- learning tools properly	16.3	36.7	24.5	18.4	4.1	3.3	Neutral
I do not require any technical support to participate in online learning activities	8.2	26.5	22.4	34.7	8.2	2.9	Neutral
Lack of training also creates problems for the teachers to teach in online platform.	4.1	26.5	28.6	34.7	6.1	2.9	Neutral

Table-4 shows that most of the student-teachers (79.5%) do not have any problem to attend online classes. But, 51% student-teachers have agreed that it is troublesome for them to switch from traditional classroom to e-learning. 80% of them believe that some special sets of skills are required to continue online learning. 53% student-teachers feel that they have enough digital competency to handle the e-learning tools. 22.5% feel that they do not have enough digital competency for this purpose. Although mean response in this item is neutral. Mohalik et al. (n.d.) reported that 99% student-teachers have the proficiency to use digital tools for e-learning. In the present study, almost 43% student-teachers are able to perform e-learning activities without any technical support and 34.7% need technical support in this regard. Mohalik et al. (n.d.) found the percentage of student-teachers who were familiar with e-learning activities was 83%. Moreover, in the present study, some student-teachers (40% of the respondents) believe that their teachers also need prior training to teach successfully in online platform. But mean response in this item is again neutral.

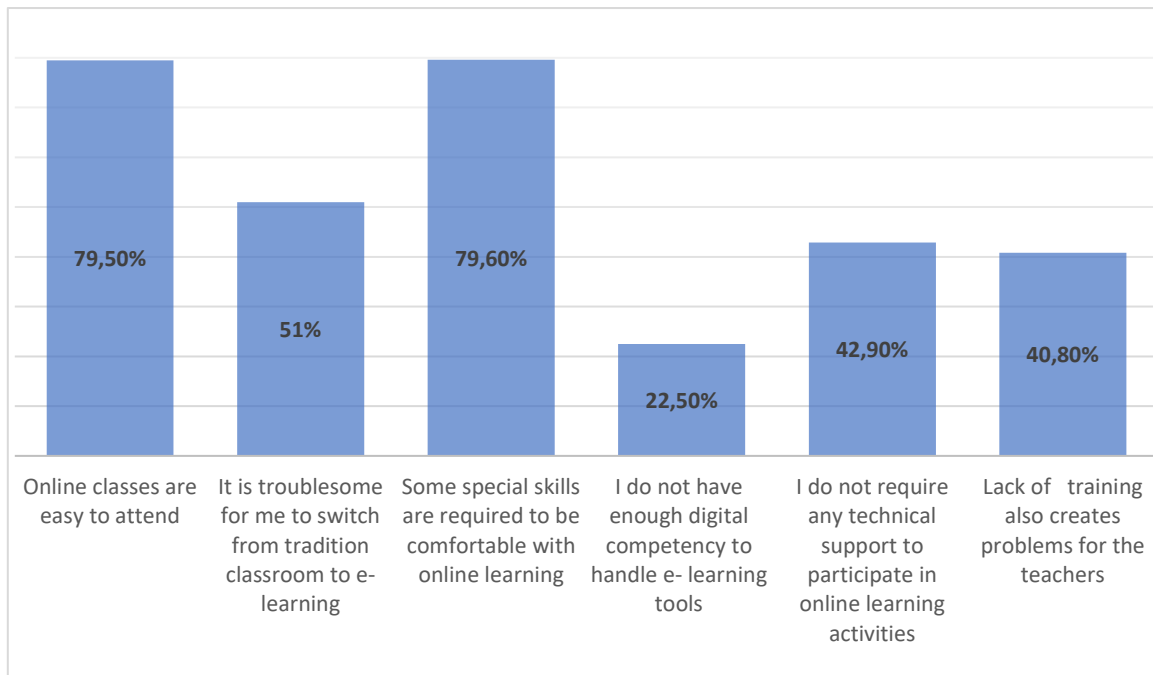


Figure 2: Graphical Representation of the Perception of Student-teachers Who Have Agreed with the Items under The Domain ‘Digital competency and E-readiness’.

Data Analysis and Results of the third Research Question:

To analyse the results related to third research question, ‘How does the online learning influence the psychological state of B.Ed. and M.Ed. students?’, we calculated the percentage of respondent for each possible response for each item under the domain, ‘psychological state of student-teachers’. The percentage of responses are shown in Table-5. Moreover, the mean response for each item was calculated by using the range given in Table-2.

Table-5: Psychological State of Student-teachers

Questions	Percentage of Respondents					Mean value of 150 responses	Overall response according to table-1
	SDA	D	N	A	SA		
I cannot concentrate in online classes due to the disturbance around me.	0	12.2	18.4	53.1	16.3	2.2	Agree
Online learning gives the opportunity to study at my own pace	6.1	14.3	14.3	44.9	20.4	3.6	Agree
I feel exhausted to attend series of online classes without enough time gap	0	12.2	6.1	28.6	53.1	1.8	Strongly Agree
Absence of Physical interaction makes me feel isolated during online learning	4.1	10.2	4.1	40.8	40.8	2	Agree
I often feel I may be eliminated if I am unable to be accustomed to online learning	4.1	16.3	32.7	40.8	6.1	2.7	Neutral
Online Examination creates more anxiety than traditional form of examination	8.2	26.5	28.6	26.5	10.2	3	Neutral
I would prefer online learning even after overcoming the pandemic situation	22.4	32.7	14.3	18.4	12.2	2.6	Disagree

It can be observed from Table-5 that a large percentage (69.4%) of student-teachers face difficulty to concentrate in online classes ignoring what happens around them in their home, whereas 12.2% do not have any problem in this regard. On the other hand, 65.3% student-teachers have agreed that online learning provides them the opportunity to study at their own pace, although 20.4% disagreed in this regard. Moreover, most of the (81.7%)

student-teachers have reported that they become tired and exhausted to attend a no. of consecutive online classes. Most of them (81/6%) also reported that they feel isolated due to absence of physical interaction with their classmates. Some students are worried that they may be left out if they fail to be accustomed to online learning, although overall response to this item is neutral. While some student-teachers feel more anxiety to appear in online examination, other student-teachers have not reported about this kind of anxiety. Mean response to this item is neutral. While half of the student-teachers are against the continuation of online learning after this pandemic situation, 30.6% like to continue e-learning even after the pandemic is over. Although mean response to this item is disagree.

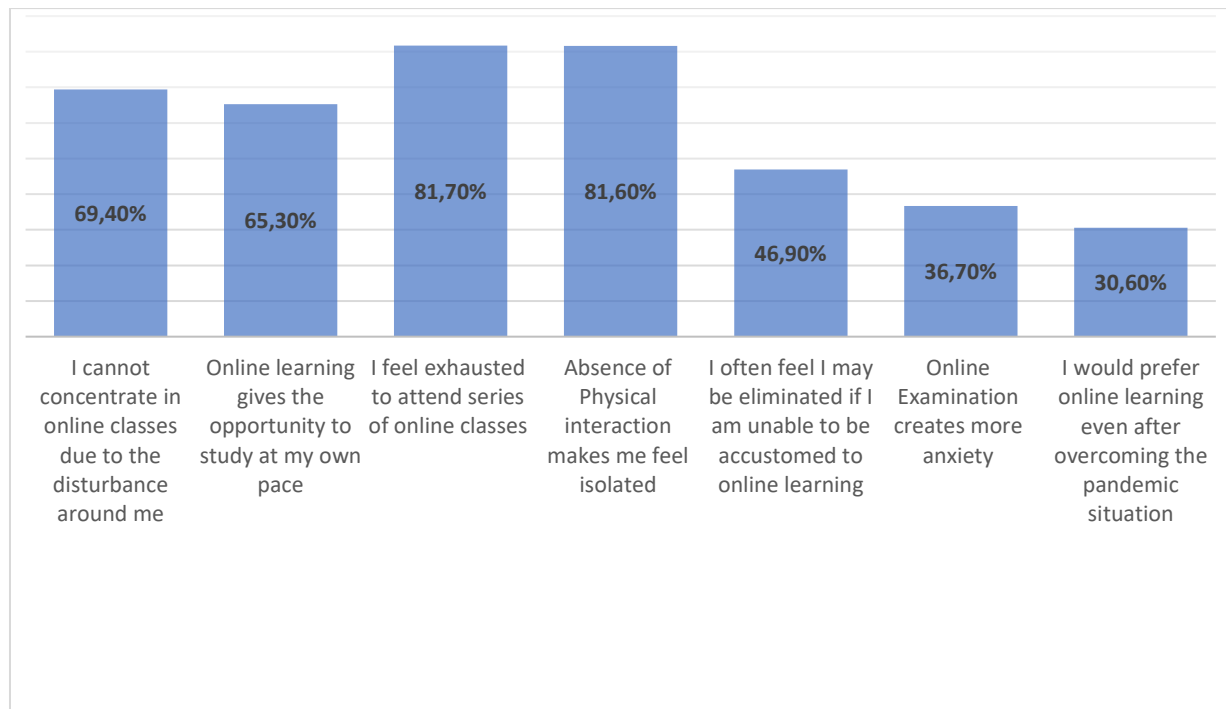


Figure 3: Graphical Representation of the Perception of Student-teachers Who Have Agreed with the Items under the Domain ‘Psychological State of the Student-teachers’.

Data Analysis and Results of the fourth Research Question:

To analyse the results related to fourth research question, ‘How successfully curriculum transaction and skill acquisition take place through online learning for B.Ed. and M.Ed. students?’, we calculated the percentage of respondent for each possible response for each item under the domain, ‘curriculum transaction and skill acquisition.’ The percentage of responses are shown in Table-6. Moreover, the mean response for each item was calculated by using the range given in Table-2.

Table-6: Curriculum Transaction and Skill Acquisition

Questions	Percentage of Respondents					Mean value of 150 responses	Overall response according to table-1
	SDA	DA	N	A	SA		
It is easier to comprehend the subject matter in face-to-face learning than online learning	4.1	18.4	22.4	42.9	12.2	2.6	Agree
Often some doubts remain unclarified in online mode of learning	4.1	16.3	10.2	55.1	14.3	2.4	Agree
Both online learning and face-to-face learning have same effectiveness	8.2	40.8	22.4	24.5	4.1	2.7	Neutral
There is no problem regarding completion of syllabus in case of online learning.	8.2	12.2	24.5	49	6.1	3.3	Neutral
In case of practicum portion of the syllabus, there is no scope for in hand experience in case of online learning	2	6.1	8.2	46.9	36.7	1.9	Agree

More than half of the student-teachers agreed that it is easier to comprehend the subject matter in face-to-face learning than online learning, whereas 22.5% disagreed and 22.4% remain neutral in this regard. A large percentage (69.4%) of student-teachers reported that often some doubts remain unclarified in online mode of learning, while 20.4% disagreed in this context. Comparatively more no. of students think that online learning and traditional learning do not have the same effectiveness, while 28.6% think that these two ways of learning have same effectiveness. Overall mean response to this item is neutral. 55.1% student-teachers feel that there is no problem regarding the completion of syllabus whereas 20.4% are having some problem in this regard. 24.5% gave neutral response to this item. Maximum (83.6%) no. of respondents agreed that there is no scope for in hand experience in case of practicum portion of the syllabus during online learning.

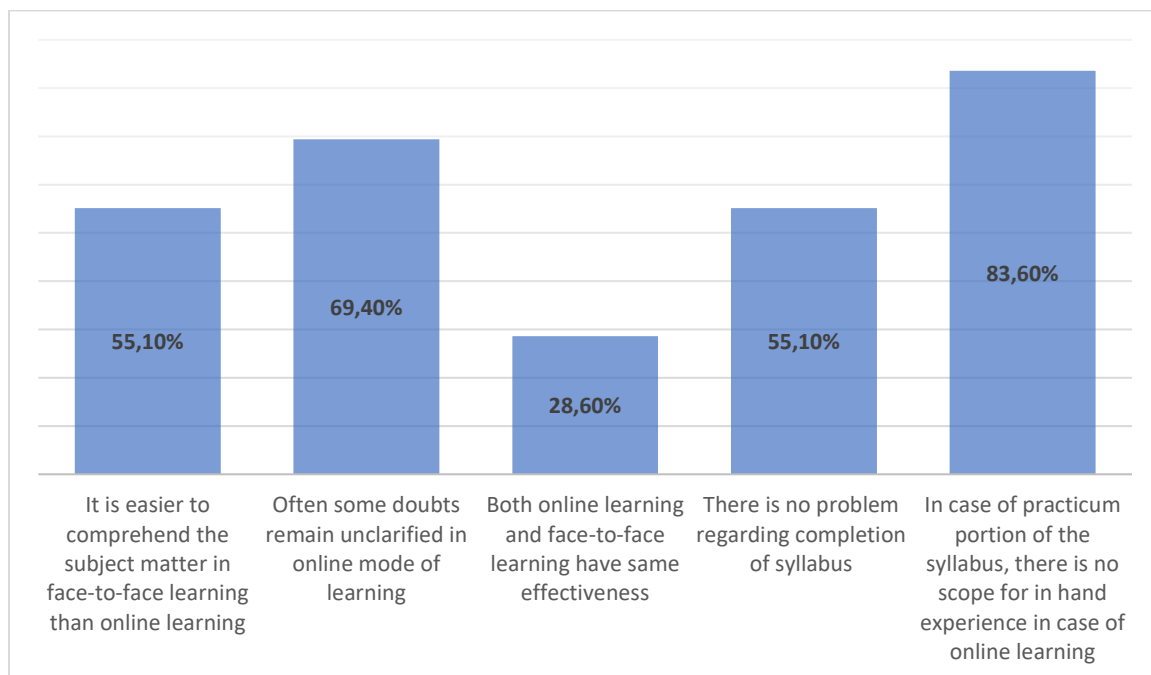


Figure 4: Graphical Representation of the Perception of Student-teachers Who Have Agreed with the Items under the Domain ‘Curriculum Transaction and Skill Acquisition.’

Data Analysis and Results of the fifth Research Question:

To analyse the results related to fifth research question, ‘How far the B.Ed. and M.Ed. students get the facility to interact with others in case of online learning?’, we calculated the percentage of respondent for each possible response for each item under the domain, ‘scope of interaction.’ The percentage of responses are shown in Table-7. Moreover, the mean response for each item was calculated by using the range given in Table-2.

Table-7: Scope of Interaction

Questions	Percentage of Respondents					Mean value of 150 responses	Overall response according to table-1
	SDA	DA	N	A	SA		
Teachers give quicker response in online classes.	2	20.4	22.4	51	4.1	3.4	Neutral
Online classes provide enough scope to interact with my classmates and teachers	8.2	26.5	30.6	24.5	10.2	3	Neutral
I can easily contact with the concerned personnel of my department through different social media	6.1	6.1	12.2	61.2	14.3	3.7	Agree
Teachers get very much limited scope to ask questions to every student for evaluating our learning	2	20.4	10.2	51	16.3	2.4	Agree

Table-7 indicates that more than half (55.1%) of the student-teachers feel that teachers have shorter response time in case of online learning, while 20.6% disagreed in this regard. The overall mean response to this item is neutral. 30.6% student-teachers have given neutral response to the item ‘Online classes provide enough scope to interact with my classmates and teachers’, where equal percentage of student-teachers (34.7%) agreed and disagreed. In this context, Mohalik and Sahoo (n.d.) reported that majority of students teachers agreed that proper interaction between students and teachers cannot take place in online classes. Moreover, in the present study, most of the student-teachers (75.5%) agreed that they can easily contact with the concerned personnel of the department through various social media. 67.3% of them feel that teachers get very much limited scope to ask questions to every student for evaluating their learning, while 22.4 disagreed in this regard.

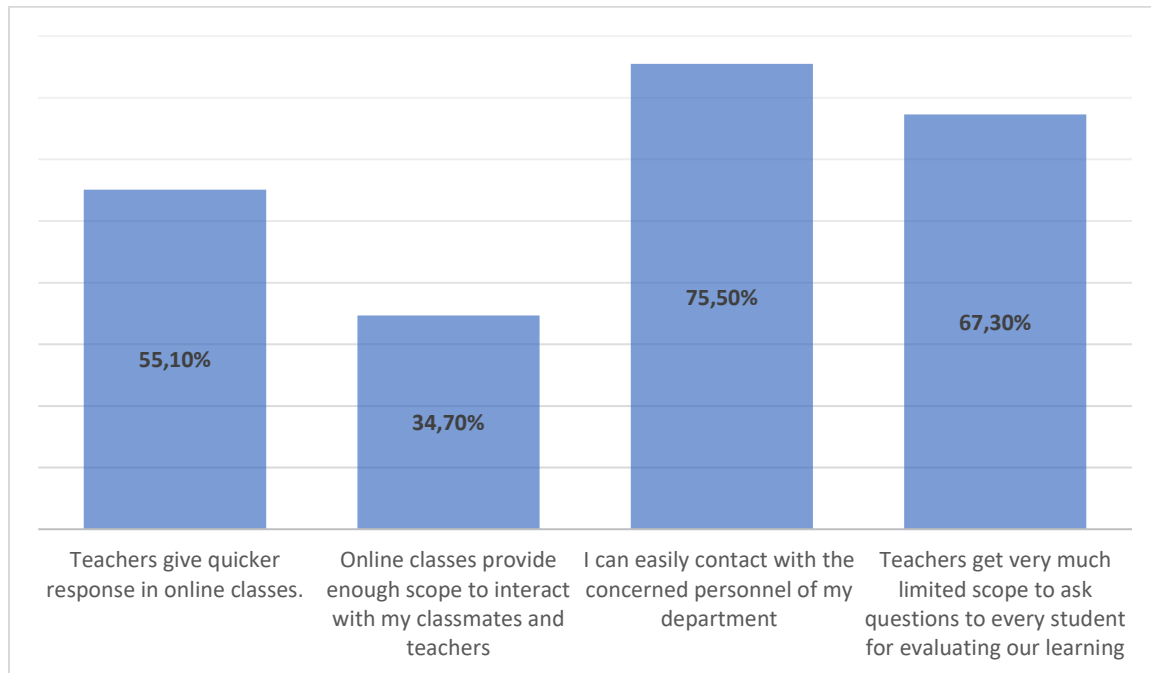


Figure 5: Graphical Representation of the Perception of Student-teachers Who Have Agreed with the Items under the Domain ‘Scope of Interaction.’

Data Analysis and Results Related to Hypotheses:

H₀₁: There exists no significant main effect and interaction effect of gender of student-teachers and locality of their residents on their perception towards online learning.

H_{01.1}: Male and Female student-teachers have significantly equal perception.

H_{01.2}: Urban and Rural student-teachers have significantly equal perception.

H_{01.3}: There exists no significant interaction between gender and residential locality.

Table-8: Summary of 2 x 2 Analysis of Variance on Perception of Student-teachers towards online learning in relation to gender and residential locality

Source of Variation		SS	df	MS	Computed F-ratio	Critical value of ‘F’	
						$\alpha = 0.05$	$\alpha = 0.01$
Main Effect	Gender	0.289	1	0.289	1.22	4.00	7.09
	Locality	5.575	1	5.575	23.62	4.00	7.09
Interaction Effect	Gender × Locality	1.99	1	1.99	8.43	4.00	7.99
Within Group Error		13.906	59	0.236			
Total		21.76	62				

Note – To make the groups equal in sample size, 15 respondents (as 15 is the lowest no. of respondents that was found in one of the four groups, namely urban males) are randomly selected for each group from the entire data set maintaining the particular criteria of the concerned group.

Main Effect of Gender on Perception of Student-teachers:

Table-8 reveals that the F-ratio for the difference between perception of male and female student-teachers came out to be 1.22 which is less than the critical F-ratios both at 0.05 and 0.01 level of significance with (1, 59) degrees

of freedom. So, the computed F-ratio is not significant at both the level of significance. Hence, we have to retain the null hypothesis related to the main effect of gender. Hence, there exists **no significant main effect of gender** on the perception of student-teachers towards online learning.

Main Effect of Residential Locality on Perception of Student-teachers:

Table-8 reveals that the F-ratio for the difference between perception of urban and rural student-teachers came out to be 23.62 which is greater than the critical F-ratios both at 0.05 and 0.01 level of significance with (1, 59) degrees of freedom. So, the computed F-ratio is found to be significant at both the level of significance. Hence, we reject the null hypothesis related to the main effect of residential locality. Hence, there exists **significant main effect of residential locality** on the perception of student-teachers towards online learning.

Interaction Effect for Gender × Residential Locality:

Table-8 reveals that the F-ratio for the interaction effect between gender and residential locality on perception student-teachers was found to be 8.43 which is greater than the critical F-ratios both at 0.05 and 0.01 level of significance with (1, 59) degrees of freedom. So, the computed F-ratio for the interaction effect is found to be significant at both the level of significance. Hence, we reject the null hypothesis related to the interaction effect of gender and residential locality, which implies that there exists **significant interaction effect of gender and residential locality** on the perception of student-teachers towards online learning.

For further investigation, we have to carry out t-test. The hypotheses are as follows:

H₀₂: There exists no significant difference between perception of male and female student- teachers towards online learning.

H₀₃: There exists no significant difference between perception of urban and rural student- teachers towards online learning.

H₀₄: B.Ed. and M.Ed. students do not differ significantly from each other with respect to their perception towards online learning.

The t-ratios for the difference in means have been computed for different pairs of variables and recorded in Table-9.

Table-9: t-ratios for the Difference in Means

Variables		N	Mean	SD	Computed value of 't'	Critical value of 't'		df
						$\alpha = 0.05$	$\alpha = 0.01$	
Gender	Male	54	2.82	0.49	0.70	1.976	2.609	148
	Female	96	2.88	0.52				
Locality	Urban	69	3.06	0.46	4.76	1.976	2.609	148
	Rural	81	2.69	0.49				
Teacher Education Programme	B.Ed.	57	2.85	0.52	0.12	1.976	2.609	148
	M.Ed.	93	2.86	0.50				

It can be observed from table-9 that t-ratio for the difference in means of perception for **male and female** student-teachers came out to be 0.70 which is less than the critical values of t-ratios both at 0.05 and 0.01 level of significance with 148 degrees of freedom. So, the computed t-ratio is not significant at both the level of significance. Hence, we have to retain the null hypothesis **H₀₂**, which implies that there exists **no significant difference** between the perception of **male and female** student-teachers towards online learning. The result is in agreement with the study of Nachimuthu (2020), conducted in Tamil Nadu, Obeidat (2021) in Jordan on undergraduate students. But, on the contrary, Zabadi and Al-Alawi (2016) in Arab found significant difference in the attitude of university student towards e-learning across gender.

t-ratio for the difference in means of perception for **urban and rural** student-teachers came out to be 4.76 which is greater than the critical values of t-ratios both at 0.05 and 0.01 level of significance with 148 degrees of freedom. So, the computed t-ratio is significant at both the level of significance. Hence, we reject the null hypothesis **H₀₃**, which implies that there exists **significant difference** between the perception of **urban and rural** student-teachers towards online learning. The result is in agreement with the study of Kanrar and Ray (2021), conducted in West Bengal on students of different educational levels. On the other hand, Obeidat (2021) found no significant difference in the perspective of undergraduate students across residential area.

Moreover, t-ratio for the difference in means of perception for **B.Ed. and M.Ed.** students was determined and it came out to be 0.12 which is less than the critical values of t-ratios both at 0.05 and 0.01 level of significance with

148 degrees of freedom. So, the computed t-ratio is not significant at both the level of significance. Hence, we have to retain the null hypothesis H_{04} , which implies that there exists **no significant difference** between the perception of **B.Ed. and M.Ed.** students towards online learning. But in the contrary, Kanrar and Ray (2021) found difference in the level of satisfaction across different educational levels.

Conclusion

The current pandemic situation which was started in the beginning of 2019, forced numerous educational institutions to set foot in the online platforms to continue their curriculum transaction. However, the context of digital divide has become a serious apprehension all over the world for successful execution of the online teaching-learning. This issue is reflected once again in the results of the present study, as the present investigators got significant difference between the perception of urban and rural student-teachers towards online learning. Although no such significant difference was found across gender, which implies that the equity with respect to social position of males and females has been achieved to some extent. But gender was found to interact significantly with the residential locality of student teachers (urban, rural) to influence their perception towards online learning. Moreover, despite of having more experience in the field of Education, M.Ed. students showed significantly equal perception with B.Ed. students.

In this pandemic situation, as indicated by the results of the study, student-teachers are feeling isolated because of complete absence of physical interaction with their classmates and teachers. Moreover, some percentages of student-teachers are still not equipped with adequate digital skills to continue various online activities and to deal with different e-learning tools. Hence, often they feel that they will be left out if they cannot be accustomed to newly emerged online teaching-learning process. Also, for majority student-teachers, it has become difficult to bear the internet charges to continue online classes. Although most of them have their own gadgets, but a large percentage of student teachers do not have access to fast internet connection. Some proportion of student-teachers find it difficult to search and access relevant study materials from the vast pool of e-resources. Therefore, student-teachers are going through a no. of challenges to remain in the track of online teaching-learning. In this situation, their teachers have a vital role to play to remove their anxiety in their life. Since in the near future, the present student-teachers, who are pursuing their B.Ed. and M.Ed. programme, will take an essential part of the education system as teachers as well as teacher educators, hence their mental health and psychological development should be carefully taken care of.

On the other hand, online learning has a positive influence on some percentages of student-teachers. These student-teachers have enough digital competency to successfully carry on their online classes and e-learning activities. They are satisfied with the curriculum transaction taking place in online mode and scope of interaction facilitated by online learning. They also do not have any problem regarding access and availability of internet and e-learning resources. They are happy because online learning gives them the opportunity to study at their own pace. So, some of them want to continue the online mode of learning even after the pandemic is over.

But, more than half of the student teachers agreed that it is difficult to comprehend the subject matter in online learning and often some doubts remain unclarified in online mode of learning. Most importantly, majority of the student-teachers agreed that they get no scope for in hand experience in case of practicum portion of their syllabus.

Analysing the above factor, it may be concluded that despite all the issues and challenges, online learning has become the panacea during the educational crisis occurred due to Covid-19 pandemic. If some issues like digital divide, absence of enough digital competency, lack of prior training can be eliminated, then this transformation of teaching-learning process to online mode from traditional classroom will get more acceptance among student teachers and will be treated as an alternative teaching-learning approach to benefit students in various aspects.

Educational Implication

In this present global pandemic situation, challenges regarding digital infrastructure are being continued for the students as well as student-teachers to avail online learning. These challenges are more prominent in the rural areas of the country. Rural students as well as student-teachers do not get the accessibility of fast internet connection and of all e-resources like the urban students. The digital infrastructure of the country should be improved for the sake of the students, student-teachers and teachers to disseminate education, especially in rural areas. The present study will help the policymakers, academicians and university officials to focus on this aspect of digital divide. Educational institutes should also take the responsibility to make necessary arrangements for digital facilities for the rural students and student-teachers. Moreover, the students, student-teachers and the teachers should be trained to be equipped with adequate digital skills and competency to maximize their benefit that can be derived from the online classes. The results of this study will help the policymakers and academicians to seriously concentrate on this matter of special e-skills training. High-speed internet connection should be considered as a basic service and

made available all over country, especially in the rural and remote areas. The charges of the internet should also be economical, so that the rural and semi urban poor student-teachers can afford it easily. This study will inspire the policy-makers and government personnel to sensitively deal with these issues. As virtual classes are the only option in this pandemic, the regulatory authorities should implement some policies so that every student can opt for online classes without any problem and hazitation.

References

- Agung, A. S. N., Surtikanti, M. W., & Quinones, C. A. (2020). Students' perception of online learning during COVID-19 pandemic: A case study on the English students of STKIP Pamane Talino. *SOSHUM: Jurnal Sosial Dan Humaniora*. 10(2), 225-235.
- Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher education studies*. 10(3), 16-25.
- Allo, M. D. G. (2020). Is the online learning good in the midst of Covid-19 Pandemic? The case of EFL learners. *Jurnal Sinestesia*. 10(1), 1-10.
- Blizak, D., Blizak, S., Bouchenak, O., & Yahiaoui, K. (2020). Students' perceptions regarding the abrupt transition to online learning during the COVID-19 pandemic: case of faculty of chemistry and hydrocarbons at the university of boumerdes—Algeria. *Journal of Chemical Education*. 97(9), 2466-2471. DOI: 10.1021/acs.jchemed.oc00668
- Darling-Hammond, L., Wise, A. E., & Klein, S. P. (2019). *A license to teach: Building a profession for 21st-century schools*. Routledge. <https://doi.org/10.4324/9780429039928>
<https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>
- Kanrar, A., & Ray, P. (2021). Teaching and learning in the Covid 19 pandemic: Perception of the students with particular reference to West Bengal. *International Journal of Education*. 13, 97-115
- Muhammad, A., Kainat, A. (2020). Online learning amid the COVID-19 pandemic.: Students' perspectives. *Journal of Pedagogical Sociology and Psychology*. 2(1), 45-51.
- Nachimuthu, K. (2020). Student-teacher's attitude towards online learning during covid-19. *International Journal of Advanced Science and Technology*. 29(6), 8745-8749.
- Naffi, N., Davidson, A., Patino, A., Beatty, B., Gbetoglo, E., & Dupondel, N. (2020). Online learning during COVID-19: 8 ways universities can improve equity and access. Reterived from <https://theconversation.com/online-learning-during-covid-19-8waysuniversities-can-improve-equity-and-access-145286>. On 16 March 2021.
- Nambiar, D. (2020). The impact of online learning during COVID-19: students' and teachers' perspective. *The International Journal of Indian Psychology*. 8(2), 783-793. DOI: 10.25215/0802.094
- Obeidat, M. M. (2021). Undergraduate Students' Perspective Towards online learning: A Case Study of Hashemite University Students in Jordan. *European Journal of Molecular & Clinical Medicine*. 7(8), 4054-4071.
- Ullah, O., Khan, W., & Khan, A. (2017). Students' attitude towards online learning at tertiary level. *PUTAJ- Humanities and Social Sciences*. 25(1-2), 63-82.
- Yunita, W., & Maisarah, I. (2020). Students' Perception on Learning Language at the Graduate Program of English Education Amids the COVID 19 Pandemic. *Linguists: Journal of Linguistics and Language Teaching*. 6(2), 107-120.
- Zabadi, A. M., & Al-Alawi, A. H. (2016). University students' attitudes towards e-learning: University of Business & Technology (UBT)-Saudi Arabia-Jeddah: A case study. *International Journal of Business and Management*. 11(6), 286-295.