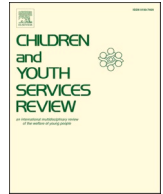




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Educational disruption: Impact of COVID-19 on students from the Northeast states of India

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ABSTRACT

The year 2020 has been plagued with COVID-19 and many sectors such as the manufacturing and services are affected, with the educational sector being one of them. Even though a probable way through online learning is found to continue academic activities, the result and the process may not be successful. This study intends to identify the areas of educational disruption due to the COVID-19 situation. For this purpose, a structured questionnaire is used to collect data from students of various part of the Northeast states of India. The findings from the study revealed that there are many reasons that causes educational disruption in the life of students of north-eastern states of India. Students from the north-eastern states of India have been facing poor network, which leads to poor communication between the teachers and students. Continuous lockdown also causes mental stress to the students. As the tension rises due to the on-going pandemic, insecurity regarding the future plans of students also rises. Owing to financial constraints, students are not able to meet the necessary requirements for effective online learning.

1. Introduction

The novel coronavirus outbreak of pneumonia emerged in Wuhan, Hubei province, China, in December 2019 (Kang et al., 2020). The virus then started to spread all over the world. On 29th July the confirmed cases have risen to more than 16,739,530 and the death cases have risen to more than 660,407 affecting around 188 countries (Johns Hopkins University & Medicine, 2020). Due to the spread of the virus, many industries have been affected with a lockdown being imposed. This lockdown has had a toll on the livelihood of people working in various sectors.

The lockdown has had a severe impact on students and their learning process. A total of 50.43% of respondents of Spanish University presented moderate to severe impact of the outbreak. University students have been specially impacted by the COVID-19 confinement (Odriozola-González et al., 2020). Educational Institutions have taken steps to continue the academic process by using digital sources. The sudden change in the delivery of academic activities poses difficulties for the teachers and students to adapt. An interactive environment refers to an effective communication environment in the process of knowledge acquisition. An increase in interaction can improve students' learning

enthusiasm and concentration. In a traditional classroom, there are various teaching interaction modes, such as reversed classroom, random questions, and group reports. However, in an online class, there is less room for teaching interaction, and the teacher's input teaching is the main teaching mode. Study shows that users' personal factors have no direct influence on user satisfaction, whereas platform availability has the greatest influence on user satisfaction (Chen et al., 2020). During outbreaks, individuals are put under extremely stressful conditions resulting in higher risk of developing anxiety and depression particularly for students and healthcare professionals (Naser et al., 2020). In India exams have been postponed, college admissions are delayed with uncertainty (EconomicTimes, Indiatimes, 2020) and a host of other confusions have led to a disruption in the education of a student. The closure of schools, has affected the education of more than 1.5 billion children and youth worldwide due to the coronavirus COVID-19 pandemic. Although many parents with access to technology and internet are increasingly turning to online education technology to keep their children learning at home, a large number of parents are not able to do so. According to a survey done by Oneindia, 89% of respondents believe that their children's learning will be affected by delay in lifting the coronavirus lockdown. Basic Internet access to students is the

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biggest hurdle. Most parents cannot afford internet recharges and/or the child doesn't get access to the device in rural areas. In many cases, the family may not even own a smartphone (Oneindia, 2020).

Although a possible path was available for educational activities through online network, there also exist multiple complications in various areas of online activities that result in educational disruption. UNESCO has introduced the term 'educational disruption' for the effects of the crisis on education systems (Karalis, 2020). This study aims at identifying the main areas that cause educational disruption outside traditional teaching, among the north-eastern states of India during COVID-19 pandemic.

2. Data and methods

2.1. Subjects

This study is based on 175 students from various categories of institutions residing in Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, which form the North - Eastern states of India (Figs. 1 and 2).

2.2. Data collection and procedure

A survey was initiated in the month of June and July to collect the responses from various students. For the purpose of the survey, a 'Google form' was used and circulated through online modes like Emails, WhatsApp and Messenger. A total of 175 responses were collected. Questionnaires were collected from respondents from all eight states of North-East India. In order to reach out to the respondents, the North-East student organizations were contacted, and the questionnaire was circulated online. A majority of the students were dispersed and unreachable as the Pandemic posed great challenges especially with the students attempting to reach their homes without any transport facilities.



Fig. 2. The North East States of India.

2.3. Data Analysis

A well-structured questionnaire was prepared for the collection of primary data. Data for the study has been collected through primary sources and secondary sources. Convenience sampling was adopted to find out the primary data with a sample size of 175 respondents. Research articles and news reports were sources of secondary data. All the samples were considered fit for the analysis and the data was entered into Statistical Package of Social Sciences (SPSS). Factor Analysis was conducted on the data collected in order to identify the areas that causes educational disruption among students.

3. Results and discussion

3.1. Respondent's profile

For the purpose of identifying the areas that cause educational disruption, the students of north-eastern region of India have been selected. Tables 1 and 2 displays the profile of the respondents. In Table 1 the home state of the respondents is presented. Out of 175 respondents 16% respondents were from Assam, 6.8% responses were collected from Arunachal Pradesh, 7.4% responses were given by students from Manipur, Meghalaya respondents were of 10.3%, 8.6% of the total respondents were from Mizoram, responses from Nagaland were 10.8%, 6.3% responses were from Sikkim and 59% of responses were from of Tripura. In Table 2 the different educational background of the students is given. Majority of the respondents were pursuing Bachelor's degree that comes around 49.1%, 25.7% of the respondents were studying Master's degree, 14.3% of the respondents were undergoing various training and job-oriented courses whereas 6.3% of the respondents were undergoing entrance coaching classes, and 4.6% were school going students.

In order to identify the areas that leads to educational disruption among students of north-eastern states of India due to COVID-19 pandemic, the data has gone through KMO and Bartlett's Test and after finding out that the data is reliable, Factor Analysis is executed.

3.2. Cronbach's alpha

One of the most popular reliability statistics in use today is the Cronbach's alpha. Cronbach's alpha determines the internal consistency

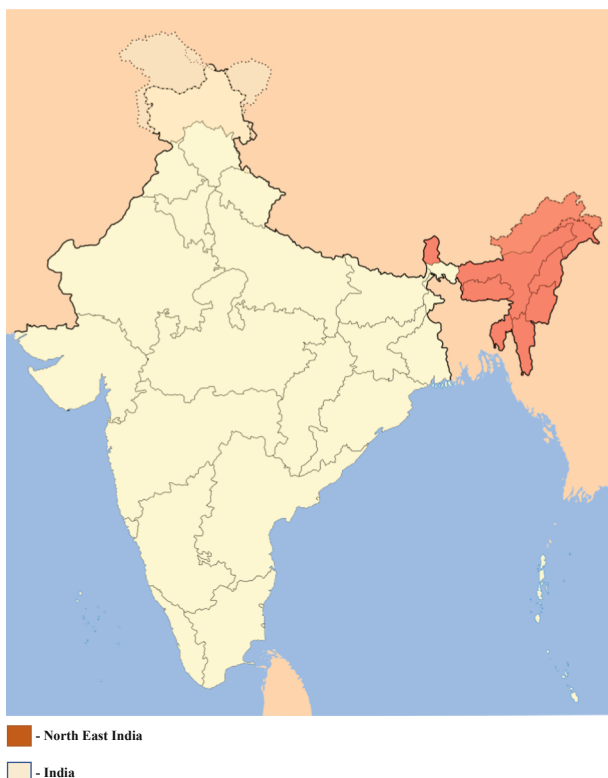


Fig. 1. The Country of India.

Table 1
Respondent's Home State Profile.

| Home State of the Respondents | Frequency | Percentage (%) |
|-------------------------------|-----------|----------------|
| Assam | 28 | 16 |
| Arunachal | 12 | 6.8 |
| Manipur | 13 | 7.4 |
| Meghalaya | 18 | 10.3 |
| Mizoram | 15 | 8.6 |
| Nagaland | 19 | 10.8 |
| Sikkim | 11 | 6.3 |
| Tripura | 59 | 33.7 |
| Total | 175 | 100.0 |

Table 2
Respondent's Presently Studying Profile.

| Presently Studying | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| School | 8 | 4.6 |
| Under Graduate | 86 | 49.1 |
| Post Graduate | 45 | 25.7 |
| Entrance Coaching | 11 | 6.3 |
| Others | 25 | 14.3 |
| Total | 175 | 100.0 |

or average correlation of items in a survey instrument to gauge its reliability (Reynaldo & Santos, 1999). Table 3 shows that the reliability for 28 items considered for the study is 0.908, which suggest that the items have a relatively high internal consistency.

3.3. KMO and Bartlett's Test

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors (www.ibm.com/support/knowledgecenter/en/SSLVMB_24.0.0/spss/tutorials/). KMO is used to determine the sampling adequacy that should be greater than 0.5 for a satisfactory factor analysis to proceed. From Table 4 we can see that Keyser-Meyer-Olkin measure of sampling adequacy is 0.836 and Bartlett's Test of Sphericity and approximate Chi-Square value is 2565.056 which is statistically significant at 5% level. Hence it can be concluded that the sample size is adequate to derive the factors that contribute towards educational disruption.

3.4. Communalities

Communalities indicate the amount of variance in each variable that is accounted for (IBM/communalities). Initial communalities are estimates of the variance in each variable accounted for by all components or factors (IBM/communalities). Table 5 shows the Communalities for 28 factors that leads to educational disruption. It shows the range of the factors from 23% to 76.1%, which indicates that the variance for the factors that leads to educational disruption contributes significantly.

3.5. Total variance

The amount of variance accounted for in the items' variance-covariance matrix by each of the factors and cumulatively by all

Table 3
Cronbach's Alpha.

| Reliability Statistics | Number of Items |
|------------------------|-----------------|
| Cronbach's Alpha | 28 |
| 0.908 | 28 |

Table 4
KMO and Bartlett's Test.

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.836 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2565.056 |
| | df | 378 |
| | Sig. | 0.000 |

Table 5
Communalities.

| | Initial | Extraction |
|---|---------|------------|
| Depression due to continuous lockdown | 1.000 | 0.663 |
| Insecurity rises over uncertainties | 1.000 | 0.659 |
| The need to go back to home town becomes a priority | 1.000 | 0.299 |
| Emotional instability in the family | 1.000 | 0.618 |
| Inability to concentrate on online classes | 1.000 | 0.618 |
| No contact with the Institution | 1.000 | 0.544 |
| Virtual classroom is not user friendly | 1.000 | 0.605 |
| Online class discussion time period is less | 1.000 | 0.619 |
| Responding to online tasks and assignments given takes time | 1.000 | 0.447 |
| Limited information on online learning | 1.000 | 0.671 |
| Lack of learning environment at home | 1.000 | 0.230 |
| Availability of smart phone and laptop to access online classes | 1.000 | 0.761 |
| Online class is a new concept to me | 1.000 | 0.586 |
| Online learning cannot replace a traditional classroom | 1.000 | 0.569 |
| Poor interaction between fellow classmates | 1.000 | 0.753 |
| Lack of communication between the teacher and students | 1.000 | 0.751 |
| Ability to pursue higher education | 1.000 | 0.532 |
| Teaching aids like boards, class presentation etc. are not being effectively used | 1.000 | 0.655 |
| Fear of the virus | 1.000 | 0.511 |
| Teachers are finding it difficult to adopt technological advancement | 1.000 | 0.555 |
| Network connection is weak | 1.000 | 0.711 |
| Technical glitches lead to inaccessibility of online material | 1.000 | 0.621 |
| Lack of knowledge of online tools | 1.000 | 0.575 |
| Delays in examinations | 1.000 | 0.496 |
| Shortage of job opportunities | 1.000 | 0.712 |
| Lack of campus placements | 1.000 | 0.672 |
| Delay in declaration of exam results | 1.000 | 0.433 |
| Financial instability | 1.000 | 0.455 |
| Extraction Method: Principal Component Analysis. | | |

the factors. In table 6 it is seen that all 5 extracted factors are those with an eigenvalue greater than 1 account for 47.477% of the variance in the items' variance-covariance matrix. It can be found that the 28 variables are reduced to 5 predominant factors with cumulative values percentage of 33.104, 40.538, 47.477, 53.676 and 58.293.

3.6. Rotated component matrix

The rotated component matrix helps to determine the components as generated by the test. (IBM/rotated component matrix). Table 7 depicts that 11 variables create to form the first factor which can suitably be named as "Online Learning". The second factor with 5 variables is termed as "Emotional Distress", the third factor can be named as "Future Plans" which is a group of 5 variables, the fourth factor is named as "Communication" which has 3 variables under it and the last factor which is a group of 4 variables is termed as "Resources". The areas that causes educational disruption among students of north-eastern states if India during the pandemic are classified into five areas. Fig. 3 depicts the Scree Plot which brings out the amount of variation that each principal component captures from the data collected.

In online learning, students are exposed to lectures along with audio and video content related to their curriculum. In addition, they can also choose to have their own learning sequenced, directed and evaluated with the assistance of a teacher (Huang et al., 2020). Online learning is an area where variables such as limited information on online learning, online class discussion time period, technical glitches, user

Table 6
Total Variance.

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.269 | 33.104 | 33.104 | 9.269 | 33.104 | 33.104 | 5.972 | 21.329 | 21.329 |
| 2 | 2.082 | 7.435 | 40.538 | 2.082 | 7.435 | 40.538 | 3.030 | 10.822 | 32.151 |
| 3 | 1.943 | 6.939 | 47.477 | 1.943 | 6.939 | 47.477 | 2.979 | 10.641 | 42.792 |
| 4 | 1.736 | 6.199 | 53.676 | 1.736 | 6.199 | 53.676 | 2.350 | 8.393 | 51.184 |
| 5 | 1.293 | 4.617 | 58.293 | 1.293 | 4.617 | 58.293 | 1.991 | 7.109 | 58.293 |

Extraction Method: Principal Component Analysis.

Table 7
Rotated Component Matrix.

| | Component | | | | |
|---|-----------|-------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 |
| Limited information on online learning | 0.782 | | | | |
| Online class discussion time period is less | 0.743 | | | | |
| Technical glitches leads to inaccessibility of online material | 0.722 | | | | |
| Virtual classroom is not user friendly | 0.703 | | | | |
| Network connection is weak | 0.675 | | | | |
| Online class is a new concept to me | 0.661 | | | | |
| Inability to concentrate on online classes | 0.649 | | | | |
| Online learning cannot replace a traditional classroom | 0.598 | | | | |
| Teachers are finding it difficult to adopt technological advancement | 0.594 | | | | |
| Teaching aids like boards, class presentation etc. are not being effectively used | 0.588 | | | | |
| Responding to online tasks and assignments given takes time | 0.549 | | | | |
| Depression due to continuous lockdown | | 0.789 | | | |
| Insecurity rises over uncertainties | | 0.691 | | | |
| Emotional instability in the family | | 0.676 | | | |
| Fear of the virus | | 0.498 | | | |
| The need to go back to home town becomes a priority | | 0.421 | | | |
| Lack of campus placements | | | 0.779 | | |
| Shortage of job opportunities | | | 0.708 | | |
| Delays in examinations | | | 0.602 | | |
| Ability to pursue higher education | | | 0.508 | | |
| Delay in declaration of exam results | | | 0.487 | | |
| Poor interaction between fellow classmates | | | | 0.833 | |
| Lack of communication between the teacher and students | | | | 0.714 | |
| No contact with the institution | | | | 0.525 | |
| Availability of smart phone and laptop to access online classes | | | | | 0.846 |
| Lack of knowledge of online tools | | | | 0.557 | |
| Financial instability | | | | 0.533 | |
| Lack of learning environment at home | | | | 0.475 | |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

unfriendliness of virtual classroom, weak network connection, new conceptual online class, concentration on online classes, unparalleled online classroom to traditional classroom, teachers finding difficult to adopt technological advancement, teaching aids such as boards, class presentation etc. on not being effectively used and there is a increased delay in responding to online tasks and assignments. These lead to disruption in the educational process of the student.

The COVID-19 pandemic and the lockdown has been a great source of stress for not just students but for almost everybody. On an average,

people showed increased levels of perceived stress and anger during the pandemic compared to before (Shanahan et al., 2020). In this study emotional distress is an area where the students are affected psychologically by the circumstances of the region. The uncertainties caused by the pandemic also give rise to insecurity. Fear of the virus and the need to go back home for students who are studying away from home, have become a priority and these have led to emotional instability in the family.

In the United Kingdom, the majority of universities and medical schools had suspended face to face teaching by 17th March 2020, forcing students to move to online distance learning for the indefinite future (Franchi, 2020). In India, there has been a suspension of academic activities from the month of March. Future Plans is a factor where due to the pandemic, students have experienced uncertainties or delay in various educational events such as campus placements, examinations and declaration of results, which leads to an inability to pursue higher education and also a shortage of job opportunities.

Teacher’s communication skills have a significant role in the academic achievement of the students (Khan et al., 2017). Communication is one of the important factors for a healthy educational activity. Students have experienced poor interaction with fellow classmates, communication between teacher and students are weak along with almost no contact with the institution.

In most research, family background has been measured by socio-economic indicators (Teachman, 1987) e.g., parents’ education, family income, to the extension of other family characteristics that also affect educational attainment (Teachman, 1987). Resources is needed to accomplish any task and due to the pandemic, the availability of proper resources for the academic sector is missing. Many students in rural areas cannot afford to have a smart phone or laptop for online class. These students with little resources do not have the proper knowledge of online tools. They suffer owing to their financial instability and a home environment that is not suitable for online classes.

Academic activities should be well thought out and organized without any disruptions. Due to the pandemic, the traditional flow of educational activities could not continue and it had to switch to the new online educational activities. The sudden switch comes with many problems being identified on various fields such as online learning, network, communication, future plans, educational resources, and mental distress, which results in educational disruption.

4. Concluding remarks

Due to the rise of COVID-19 infection in India and the lockdown that has been imposed, there has been a complete change in the academic life of a student. Bhaumik in her study found that only 35.2% learners found online classes as effective as face-to-face classes (Bhaumik & Priyadarshini, 2020).

The research has its limitations as it is a very difficult and challenging time for all. The respondents chosen for the study are students from a small region of India. At the time when this research was conducted, the students were in a panic trying to reach their hometowns when all transport facilities were shut. Reaching out to the students was a very difficult task as there is poor internet connectivity in these North

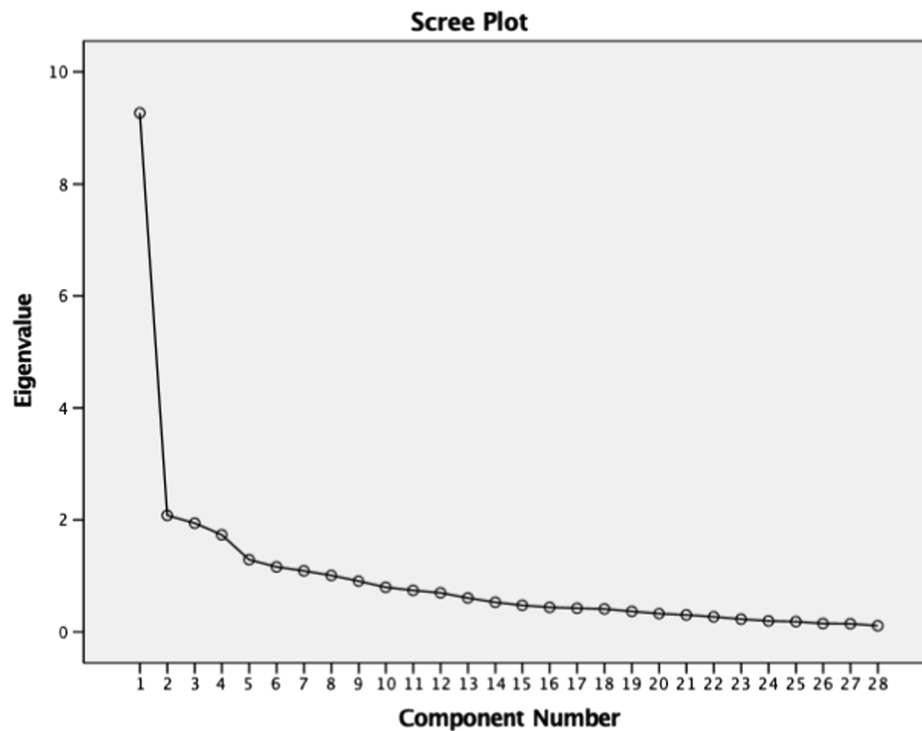


Fig. 3. Scree Plot showing findings of Principal Component Analysis.

East regions. Most of the respondents in the study are from Assam and Tripura as most of the students who take up studies outside their hometowns are from these states. A study considering all students from the Northern states of India can be conducted to gain more insights into the problems faced by these students. Another difficulty was in identifying literature relating to disruptions that are caused by the Pandemic. At the time of this research, very few articles were available.

This study identified that Online Learning is a new concept for many students as well as teachers and with proper awareness the process of online teaching can be organized successfully. The rise in COVID-19 infection causes emotional distress and this continues to rise during the lockdown. Due to psychological stress students fail to concentrate on their studies. The future has become uncertain along with the closure of educational institutions, delays in exams, making any plans for further studies very difficult to make. Communication is very essential for any task, and due to the lockdown, communication through technology has replaced face to face interactions. It has its own limitations. The availability of basic resources is another challenge for many students of the North East states of India. Online learning, emotional distress, future plans, lack of communication and resources have been identified as areas that causes educational disruption in the life a student especially those who live and come from the North East states of India. In order to ensure that there is no disruption in the academic life of a student, these areas that have been identified in this study need to be assessed and looked into to help the student tide over this situation. Simply ignoring these issues will only escalate into bigger issues, which may have an adverse impact on the life of a student.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.childyouth.2020.105769>.

[org/10.1016/j.childyouth.2020.105769](https://doi.org/10.1016/j.childyouth.2020.105769).

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