The effect of COVID-19 pandemic lockdown on academic performance of pre university science students

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Abstract
The outbreak of Novel Corona Virus COVID-19 has wrecked havoc in entire globe, like others sectors of the economy education sector also effected badly, following the closure of educational institutions, in mean time institutions all over the globe switched to online teaching and learning mode using different online tools. Educational institutions suspended the classroom teaching and learning as per the instructions of the government which would affect the academic performance of the students hence it was mandatory for the educational institutions to switch to online teaching from traditional face to face teaching and learning. The present study was conducted to analyze the effect of Lockdown on academic performance of students of Bidar and Gulbarga district and give recommendations which may be useful in better way of education students. Students studying pre university Science were chosen for the study, they were invited to answer to Likert five point scale questionnaire posted using Google form. Structured a questionnaire with five parts: online class room, learning outcomes, alternative assessment method, impact of online teaching and learning satisfaction. A sample size of 150 students have been chosen from Bidar and Gulbarga district with a response rate of 92.4%, the result revealed that the lockdown during COVID-19 pandemic affected the academic performance of majority of the students (95.8%) considered for the study. The major difficulty for the selected sample arises due to practical sessions which are not easy to learn online or virtual mode, respondents felt it is not enough to study online even though different tools of online learning mimic the real situation.

Keywords: Pandemic, COVID-19, online education, havoc, lockdown, academic performance, google form

Introduction
Corona virus has first identified in Wuhan city, China in Dec, 2019 (Munster et al., 2020, Zhu et., al 2020) the outbreak of corona virus spread rapidly to the entire globe, hence on 12th March, 2020 the World health organisation (WHO) has declared is as a pandemic [1]. UNESCO (2020) survey data shows that the peak in school closure at the beginning of April month in 2020, about 1.6 million students were affected over 194 countries. Many countries have declared lockdown to break the spread of infection [2]. The pandemic has negative effect on all sectors of world economy such as health, business, labor class, transport, hotel, education etc.; COVID-19 pandemic affected each and every level of academicians/ education system [3]. This outbreak needed an urgent and collective action by the communities, stakeholders, and the governments. Unlike other sector in world education sector also hit hard affecting the academics of students worldwide. As the lockdown extended educational institution in order to ensure that there should not be any disturbance to students academics governments of different countries have taken different steps/ measures and institution followed the rules and regulations of the government and switched from traditional classroom/ face to face learning system to online/ virtual learning system. Educational institutions abiding by the rules of the government have either postponed or cancelled their academic activities to stop further rapid spread of corona virus through gathering/ mass gathering of students in campus leading the virtual or online learning system as an alternate to teach and learn and also reduce the contact between people [4]. The online teaching and learning mode started effectively in all educational institutions in the country without disturbing the learning for their students.

Initially both teachers and students faced challenges to adapt to the new learning due to various challenges such as lack of training to handle online classes, lack of awareness about online teaching and learning tools, lack of devices (smart phones, tab, laptop, computer etc.)
to attend classes, insufficient internet packs, network issues to most of the students and teachers as people moved to their villages etc., even then both teachers and adapted themselves to new online pedagogy by sideling various challenges. Universities, colleges and other educational institutional institutions in selected districts were able to guide and support ensuring that there is no stoppage of learning activities and promised a constant support to students even on virtual learning mode. The present study focused on 150 pre-university science students of 2020-21 batch. Pre University is considered as turning point in every student’s life. The response was collected from student on their experience, challenges, problems and successes following new learning or online system.

**Literature review**

There are number of studies conducted on COVID-19 in past two years focusing on various matters related to COVID-19. Few studies conducted highlighted on COVID-19 in relation to educational studies the pandemic has a profound impact on medical students, dental medical students, and radiology trainees [5-10].

- Alqureshi (2020) observed that students scored higher marks in all courses during the COVID-19 pandemic comparing with previous years that were taught face- to face/ offline [11].
- Azubuike et al. (2021) conducted a study on impact of Online learning on learners and found a digital divide among the Nigerian learners between private and public educational institutions and families of financially challenged and abled.  
- Ebohon Irabar, Obienu and Omoregie (2021) have examined the teacher and student experience online mode during lockdown due to pandemic. The integration of different gadgets like, Television, mobile phones and internet based technologies to digitalise learning and teaching at all levels of education.
- Hrastinski (2008) explained that the activities of Synchronous learning occurred through live audio or video and provide immediate feedback.
- Kumar et al. (2020) explained that corona virus spread through droplet and people can get infected when come in contact with person with cough and sneezing with symptoms from virus.
- Lawal et al. (2020); Ebohon et al. (2021) found out that poor access to internet and lack of internet was a problem to online teaching and learning including primary, secondary and tertiary institutions in Nigeria during COVID-19 pandemic.
- Munster et al. (2020; Zhu et al. 2020) explained that the novel Corona virus was identified as causative agent of COVID-19 disease by hospitalized patients with pneumonia in Wuhan city of China, in 2019.
- UNESCO (2020) survey data shows that the peak in school closure at the beginning of April month in 2020, about 1.6 million students were affected over 194 countries.

**Objectives of the study**

- To study and understand the impact of COVID-19 lockdown on academic performance of pre-university science students of 2020-21 batch.
- To find out the experience, issues and challenges of selected students following online teaching.

**Research methodology**

**Sampling**

A sample size of 150 students studying PU Science stream of 2020-21 batch from Bidar and Gulbarga districts have been chosen. A cross sectional study method was adopted to analyze the impact of COVID-19 lockdown on academic performance of pre university science students.

**Data collection**

The required date is collected from both Primary and secondary sources. The study majorly needed primary data hence to collect primary data a structured questionnaires is chosen which is divided into five parts were developed in Google forms. A questionnaire was designed to measure the issues, challenges and satisfaction of students using five-point Likert scale. A pilot study was conducted before sharing the questionnaire links to the target respondents and accordingly required changes were made to the questionnaire and then shared links to target audience via emails and different social media platforms. The required secondary data was collected from sources like news papers, research articles and journals, books, different websites including government websites.

**Research design**

An empirical research design was chosen to analyze the mentioned objectives. A descriptive research design was selected to describe the prevailing level of Impact of COVID-19 pandemic on academic performance of students.

**Statistical analysis of data**

Correlation analysis between satisfaction of students and different variables of Likert five-point scale was performed to determine the significant difference between marks awarded during face to face learning (2019) and learning during pandemic through online/ virtual mode. A version of SPSS (statistical package for social science research) 20.0 was used for data analysis.

**Results**

**Demographic profile**

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of respondents (%)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td>70</td>
<td>46.6</td>
</tr>
<tr>
<td>Girl</td>
<td>80</td>
<td>53.4</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>40</td>
<td>26.7</td>
</tr>
<tr>
<td>Second</td>
<td>110</td>
<td>73.3</td>
</tr>
<tr>
<td><strong>Residential area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>100</td>
<td>66.6</td>
</tr>
<tr>
<td>Rural</td>
<td>50</td>
<td>33.4</td>
</tr>
</tbody>
</table>

Source: Survey result

The survey shows 53.4% of students are girls and 46.6% are boys, majority of students targeted is second year with 73.3% and first year is 26.7% and 66.6% students are staying in urban area whereas 33.4 are staying in rural area.
Table 2: Respondents opinion to statements from Questionnaire

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Statement</th>
<th>5 (SA) %</th>
<th>4 (A) %</th>
<th>3 (N) %</th>
<th>2 (DA) %</th>
<th>1 (SDA)%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor internet connection</td>
<td>40</td>
<td>33</td>
<td>10</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Limited interaction with teachers</td>
<td>60</td>
<td>17</td>
<td>9</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Less concentration during class</td>
<td>52</td>
<td>12</td>
<td>3</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Ineffective practical sessions</td>
<td>77</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Good experience with online class</td>
<td>10</td>
<td>37</td>
<td>5</td>
<td>48</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>May hinder employability chance</td>
<td>76</td>
<td>14</td>
<td>10</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>7</td>
<td>Unable to absorb all the knowledge and skill</td>
<td>59</td>
<td>23</td>
<td>11</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Youtube class videos are more helpful</td>
<td>60</td>
<td>10</td>
<td>7</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Recorded lectures are more helpful</td>
<td>48</td>
<td>29</td>
<td>15</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>High marks compared to previous year</td>
<td>56</td>
<td>31</td>
<td>7</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Survey data

**Interpretation**
The above data shows 40% of students strongly agreed that they have poor internet connection, 33% agreed to this statement, 10% remained neutral, 9% disagree and 8% of students are strongly disagree with the statement. 60% students have strongly agreed that they have limited interaction with teachers followed by 17% of them agreed to this statement, 9% remain neutral and disagree and strongly disagree with 7% each. 52% have strongly agreed they get less concentration during class followed by 25% of them strongly disagreed, 12% agreed, 8% disagree and 3% remained neutral to this statement. 77% students strongly agreed to the statement that they have ineffective practical session followed by 10% agreed 7% strongly disagree, 3% neutral and 3% disagree to the statement. 48% of them disagreed that they have good experience with online class followed by 37% agreed, 10% strongly agree, 3% neutral and 0% have strongly disagreed to the statement, 76% students have strongly agreed that it may hinder employability chance, followed by 14 agreed, 10% neutral and 0% disagree and 0% strongly disagree. 59% students have strongly agreed that they are unable to absorb all knowledge and skills followed by 23% agree, 11% neutral, 10% disagree and 7% strongly disagree to the statement. 60% students have opined that Youtube class videos are helpful followed by 15% disagree, 11% agree, 7% neutral and 8% have strongly disagreed to the statement, 48% of them have strongly agreed recorded class videos are more helpful followed by 29% agree, 5% neutral, 13% disagree and 5% strongly disagreed to the statement, 56% of them have strongly agreed they scored high marks during online than offline classes followed by 31% agree, 6% disagree, 7% strongly disagree with the statement.

Graph 1: Usage of devices to access online class

**Source:** Survey data

**Graph 2: Usage of online tools/platforms**

**Interpretation:** Graph 2 reveals that majority of students i.e., 70% have used Smart phones due to affordability and user friendly, followed by 15% using laptop, and 12% using tablet, and 3% using personal computer to access online class.
Findings of the study
The findings of the study revealed that majority of the students had issues related to attending online classes, attending online class with less network or internet connection especially in rural areas was a major challenge, for most of the students buying smart phone was a problem/challenge as most of the parents had very less income or no source of income, by sideling all these problems and issues students attended the online classes and majority of them felt online classes are not as effective as offline as there is no practical experience/session/lab which is most important to learn the concept of science subjects thus they feel it hinders their knowledge and employability skills, lack of awareness about different apps also an issue initially, and students opined that they get less interest in online class as there is no control over them by the teachers.

Conclusion
The study showed the varying degree of impact on academic performance of Pre university students. Online classes helped them to continue their academics even during pandemic. The present found that initially majority of the students were not able to access to online class as there is lack of either the means or the instruments as there is digital gap and financial problem. Different students had different issues and challenges some of them were not able to cope up due to financial problem of parents, initially due to digital gap they were not able to access to online class, internet connection and more charges to get internet was another major problem for students. Finally it’s all because of digitalization people could do most of the work online or from home.

References