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Education during Pandemic: An Instructors' Perspective from Maharashtra

Aditi Sawant[1], Adhithya Balasubramanian[2] & Badri G Narayanan[3]

[1]Professor of Economics, St Xaviers College, Mumbai, India
[2]Student, Shiv Nadar University, Delhi, India and Intern,
Infinite Sum Modelling LLC, Seattle, USA
[3]Senior Economist, University of Washington Seattle and Founder-Director,
Infinite Sum Modelling LLC, Seattle, USA
E-mails: badrinarayanang@gmail.com; adhithyabb@gmail.com; aditi.sawant@xaviers.edu

Abstract: *COVID-19 has resulted in a widespread lockdown of several economic activities, including the education sector. Universities across the country are shut due to the pandemic. In this paper, we conduct a primary survey to gain insights into teachers' sentiments and examination controllers in the Maharashtra state. We aim to look at the constraints faced by the stakeholders concerning the conduct of examinations during the pandemic. Results show that statistical significance exists between the ability to conduct online examinations and prior training and experimentation using online modes. We observe the importance of capacity building and infrastructure through this. However, the overall sentiments towards learning during a pandemic are affected by issues relating to social and psychological factors that stakeholders cannot ignore.*

1. INTRODUCTION

COVID- Coronavirus disease 2019 is the 21st century's most significant challenge the world is dealing with together. Massive lockdowns are in place over the last few months in most continents across the world. Several economic and social activities are closed due to the pandemic. One of the critical sectors that are affected due to the pandemic is the education sector. Several universities and schools across the world have been shut for several months. Our particular focus here is concerning the state of Maharashtra in India. Indian schools and universities have not been functioning since mid-march, with many institutions moving to online modes. Recently, few institutions and schools have opened in China after months of lockdown with strict social distancing and hygiene measures. Universities like Cambridge have moved to online until the summer of 2021. Does the question remain if institutions in India are capable of restarting under such measures? Does the country have the necessary infrastructure to restart

socially-distance based (online) education? Another related problem is the feasibility of online assessment and examinations in the country that are at a standstill. Few institutions have adopted it, but do most have the resources?

Hence, this paper looks at the problems concerning teachers and examination controllers addressed in the past few months and concerning future perspectives in terms of restarting classes and examinations. We surveyed teachers and college administrations in the first week of May 2020 from colleges in Maharashtra with a particular focus on Mumbai. Several indicators discussed above were surveyed with a significant focus on conducting online examinations as a critical factor in this assessment. We observe the importance of social and psychological constraints as essential factors along with the importance of infrastructure and capacity building with regards to prior training and experimentation. This paper is organized as follows: Section 2 reviews the literature; section 3 discusses our methodology; section 4 explains our results and findings, while section 5 concludes.

2. LITERATURE REVIEW

The economic shocks due to the Coronavirus pandemic have been widespread throughout the world. Maharashtra is one of the worst affected states in India, with Mumbai as the worst-hit city in the country as on May 24th, 2020. Learning outcomes have taken a severe hit due to this. For example, Sawant *et al.* (2020) observe that several psychological, social, and infrastructural issues in the country can affect students' sentiments. Pellowski *et al.* (2013) remark in their paper that the worst-hit demographics of the HIV pandemic were at the lowest levels of socioeconomic status. A very recent study on the COVID situation in China also remarks that health systems should pay immediate focus on stress and psychological distress levels (Liu *et al.*, 2020). Along with this premise, another article that will be useful towards this study will be the focus on infrastructure for the conduct of online examination- Mandavia (2019) addressed that only 36% of India has seen internet penetration as per a report from the Internet and Mobile Association of India (IAMAI).

Hence, this paper is an original approach to a primary survey of teachers and examination controllers who are undergoing rapid changes in their educational lifestyle. We point to several constraints that are significant for policymakers to understand and implement for a cohesive transition to alternative forms of education or towards maintaining the core integrity of all stakeholders during the pandemic.

3. METHODOLOGY

We did two kinds of surveys to gain insights into teachers and examination controllers separately (as specified in the appendix). We analyze the teachers' mindset, parent-student-teacher interactions, and heavy emphasis on online modes of assessments. We try to understand the past pattern with regards to prior experimentation of online modes vis-a-vis the teachers' present sentiments. On the examination controller's end, the focus is on the logistical feasibility and knowledge of implementing new kinds of conducting examinations. We observe that through variables such as infrastructure and logistical familiarity with online modes like monitoring students and handling unethical practices. Overall the research design aims to look at the current situation of the stakeholders involved along with ways to strengthen capacity building. An essential part of the paper is a thematic review of the survey. The aim is to deconstruct the qualitative data to obtain several key insights and codes. The methodology will break down the data into codes and group them. Following that, we will draw thematic inferences based on the codes. Several qualitative questions were the focus of the survey for teachers and examination controllers, where we asked about the reasoning behind their choices for questions relating to online examinations, physical examinations, and their opinion on the current situation.

Of the teachers surveyed for this study, more than 90% of the teachers are from Mumbai-based Universities in India. In that distribution, we observe that almost 60% of the teachers were from art streams, 20% from science, rest from commerce. The pie chart in figure 1 shows the split accordingly.

Figure 1: Distribution of streams in our survey
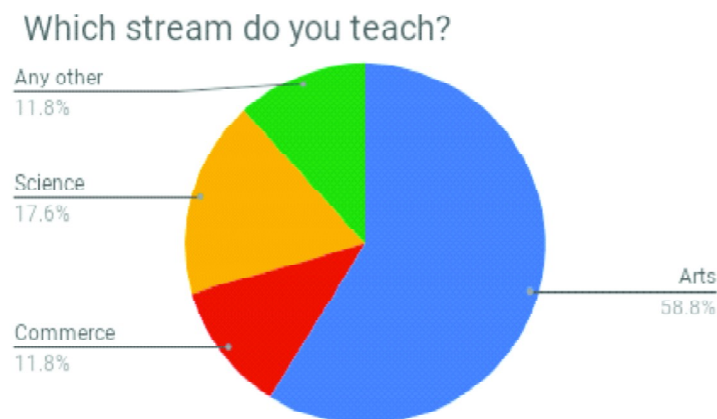
4. RESULTS & DISCUSSION

One of the chief variables of study is the preference towards the type of examination to be conducted during the pandemic and lockdown. Semesters are in a standstill due to the pandemic with several examinations due. A clear indication of the results shows that physical examination was strongly not preferred by teachers (Figure 2 below). However, the maximum number of votes is for deciding the ongoing semester results using the average of the previous semester and ongoing semester internal examinations and class tests. Around 65% of the teachers do not prefer an online mode of examination.

Figure 2: Distribution of preferences for mode of examination
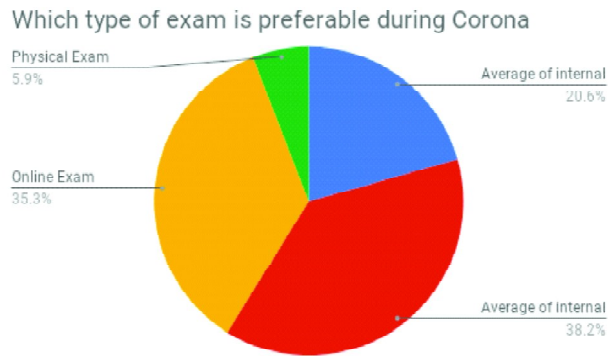
Most of the teachers, significantly 61% of them say that they will be able to conduct online examinations. The survey helped us find the core reasoning of this response. We find statistical significance between the teachers who had tested with the online mode before, teachers who had trained their students in online mode, and teachers who were willing to conduct online examinations. Table 1, 2, 3 below shows that the likelihood ratio chi-square probability is less than 0.05 for all three variables. Therefore, teachers and students with prior knowledge of the user towards online modes and with the right amount of training prefer this mode.

However, the survey on exam controllers reveals an apprehension towards the conduct of online examinations. 4 out of 6 controllers feel that they do not have the right infrastructure for the same. Almost all of them express their concern over the verification and authenticity of conducting examinations online. Monitoring is a big hurdle with several students not having an internet connection, further complicates the scenario.

52% of the teachers feel that we will not be able to make enough MCQs for their subjects due to the nature of the subjects, as most of them are from

the arts field. Another basic pattern that we observe is that 60% of the teachers are not in the right mindset to conduct physical examinations. There is a 50-50 split with regards to parents and students' expressing their inability to appear for examinations if conducted.

Table 1
Have you ever experimented online exam for your subject?

Can you conduct online exams?		No	Yes
	No	11	2
	Yes	8	13

Likelihood-Ratio chi(2) P Value : 0.006

Table 2
Have you ever experimented online exam for your subject?

Have you ever trained your students to give online exam?		No	Yes
	No	17	5
	Yes	2	10

Likelihood-Ratio chi(2) P Value : 0.000

Table 3
Have you ever trained your students to give online exam?

Can you conduct online exam?		No	Yes
	No	11	2
	Yes	11	10

Likelihood-Ratio chi(2) P Value : 0.000

The qualitative analysis and themes provide critical insights into the state of physical examination, online examinations in Maharashtra. A weak number of around 6% of the teachers voted for the physical examination. It was the least chosen option amongst the teachers. Though many teachers say they can conduct online exams, it is not the preferred mode. The reasoning behind it is the discussion for this part of the paper. We try to bring out themes from the qualitative results of the survey on these questions. When asked for the same, teachers responded with the following as the reason behind their reservation towards examinations during the pandemic-

"Possible that Virus spreads again"- "social distancing norms will not be followed. This will increase the probability to get infected by Coronavirus"-"Some may not be able to appear because they might be in a different zone"-"No one wants to give exams in fear"-"Travelling in public transport at proximity and outstation students may not be able to come for the exams because of conditions in their state"-"The system is not prepared to do so immediately as exam conduct needs a lot of preparation"-"We have not handled such situation before so have zero experience of it"-"Students not well trained, lack of required infrastructure and knowledge with students"- "Infrastructure, problem with rural area students and all the students they do not have a smartphone or laptop or computer"-"Correction, how do we make sure students have not merely copy pasted from other source"-"Since the syllabus is incomplete so it's difficult to conduct the exam"-"physical as well as mentally set up of students and teachers.Everybody will look at eachother with some sort of fear or doubt about Corona".

According to teachers, the above responses indicate the different kinds of aspects and themes that arise out of this problem. We can code the problem into the following broad categories:

1. Medical Reasons

2. Logistical Constraint

3. Psychological Constraint

The following codes give us an overarching state of affairs. Many of the teachers feel that there is a significant possibility that the virus can spread due to physical examinations. They feel that it will not be possible to maintain social distancing, and the lack of sufficient infrastructure is an issue. Physical contacts cannot be eradicated, leading to this problem. Hence, they cite medical reasoning. One of the essential codes is the logistical constraint. Teachers feel that there is a lack of infrastructure to deal with online exams. They also like exam controllers, feel that monitoring would be a problem along with the issue of access to connectivity for many students. The secondary logistical hurdle is students living in different states in different situations, so they might not be able to appear for exams. Transportation safety is an added constraint in this theme. The third code that we explore is the psychological constraint. Several teachers feel that no student wants to give examination in fear, and we cannot ignore the mental state of students and teachers. There is a fear of traveling and the risk of exposure to viruses on top of the existing social situation due to lockdown.

The above themes relate to the issue of the current situation amongst education stakeholders in the state. Maharashtra and Mumbai are amongst the worst affected due to the novel coronavirus. Improving student training, improving the college infrastructure to conduct examinations during the pandemic, and the ability to conduct online examinations are just not enough to move forward with educational practices. There are several personal constraints faced by stakeholders of the system in different parts of the country. Put together; these logistical, social, and psychological constraints dominate the rhetoric leading to the apprehension and reluctant attitude to move forward with the semester.

5. CONCLUSION

Our survey covers essential facets that can affect the education practices in Mumbai and Maharashtra. Another study by Sawant *et al.* (2020) addressed some core issues surrounding a student's perspective on education like psychological, social, and infrastructural problems. Following that, our results in this paper yield results regarding teachers and college authorities will of exam conduct in a similar region. Though a significant 60% say that they can conduct online examinations, figure 2 clearly shows that examinations at present were not preferred by teachers also. Therefore, we observe the expertise and infrastructure are not necessary conditions for the conduct of exams in situations like the pandemic. Though we have shown statistical significance that prior knowledge and training are influential for online examinations, other psychological and social factors affect the choice. Several teachers have cited that they are not in the mindset to conduct physical examinations. We cannot ignore psychological reasoning as it is a proven influential factor affecting the sentiments of stakeholders involved in such a situation (Sawant *et al.*, 2020). Several parents and students express their inability to appear for physical examinations. Mumbai is one of the worst affected cities in the country, with several places sealed. We can perhaps see a more significant shift in favor of reluctance to appear for examinations due to social factors that can affect parents' and students' behavior. Our thematic qualitative analysis provides a deeper understanding of the survey results explaining the current state of affairs discussed in this section. On top of this, examination controllers from different universities express their concerns over any kind of online assessment due to several factors related to infrastructure, monitoring due to unfamiliarity of the interface, student social issues. Policymakers and decision-makers should take note of the above insights. A drive to adopt an online mode of practice cannot be transitioned to only with training and experimentation, but

enough attention should be given to the social and psychological constraints of the situation.

We must mention one limitation and caveat of this study. We focus on the state of Maharashtra only, with emphasis on Mumbai universities. The analysis does not translate to India's behavior as a whole, as different situations are being experienced everywhere with different constraints.

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Appendix A.

Questionnaire- Teachers

1. Name of your college*: ....
2. Which stream do you teach?*: O Science O Commerce O Arts O Others
3. Which type of exam is preferable during Corona pandemic?* O Physical Exam O Online Exam O Average of internal exam/ class test of current semester and previous semester O Average of internal exam/ class test of current semester
4. If Government relaxes lockdown, are you in a mind set of conducting physical exams?*: O Yes O No
5. Has your student/ parents of the student expressed fear or inability for appearing to the physical exam after lock down?* O Yes O No
6. If yes, what problems have they specified?: ....
7. If physical exam is conducted immediately after relaxing lock down what are the possible problems?*: ....
8. If online exam is conducted what would you prefer?*: O Projects / Assignments O MCQ O Combination of MCQ and Short answers O None of the above
9. Have you ever experimented online exam for your subject ?*: O Yes O No
10. Can you prepare sufficient MCQ's for your subject?*: O Yes O No

11. How many answer sheets do you assess on an average for final exams?*: …………

12. Have you ever trained your students to give online exam?* O Yes O No

13. Can you conduct online exam?* O Yes O No

14. If yes, explain how?: …………...

15. If no, explain why?: …………..

16. What do you think are the possible problems that may arise in conducting online exam from your side?*: …………………..

17. Any other comments/ suggestions: …………………

* = Required

Questionnaire- Exam Controllers

1. Name of your college*: ....

2. In case Physical exam is conducted do you have sufficient infrastructure?*: O Yes O No

3. In case of Online exam do you have sufficient infrastructure?*: O Yes O No

4. In case of Online exam can you cross check the identity of the person who appears for the exam?*: O Yes O No

5. If the students purposefully disrupts the internet connection on seeing the paper/ during the viva then how are you going to monitor that?*: …………………..

6. Any other comments/ suggestions: …………………