A STUDY ON "THE EFFECTIVENESS AND IMPORTANT FACTORS OF ONLINE TEACHING DURING THIS PANDEMIC PERIOD"

Dr. Radha Jerry Louis
Assistant Professor, Neville Wadia Institute of Management Studies and Research, Pune

Prof. Vinod Kishan Lalbeg
Assistant Professor, Neville Wadia Institute of Management Studies and Research, Pune

ABSTRACT

Crisis has its own ways to put up a challenge. Covid 19 is one such crisis for all of us. This pandemic has taught us to understand the limitations and importance of the current digital infrastructure that could be built on. There are ways in which educational institutions are working to create a framework that would help teachers and students to connect. This paper studies various parameters which are important in understanding the effectiveness of teaching through online mode during this pandemic period. Data has been collected through questionnaire from the postgraduate students and Management faculty teachers on variouscriteriawhich could help in analysing the current effectiveness of teaching and understand the features which requires more focus to enhance online teaching. Based on the findings the authors propose that effective online teaching is dependent upon 1) internet connectivity, infrastructure and device used. 2) engagement of the student, teacher communication and lively sessions. 3) 75% of the students those surveyed responded positively and would consider attending online sessions. 4) 54% of the faculties surveyed preferred online and offline teaching in future as well.

Keywords: *Online Lectures, Infrastructure, Internet Connectivity, Lively Session, Communication, Retention, Engagement.*

INTRODUCTION

Teaching online is nothing like teaching in person, which is more interactive and engaging. Educators are working to adjust their approach to teaching to help maintain a positive, productive environment. There are struggles inherent to teaching during a pandemic. A teacher is handling new situation both personally and professionally. To do this better one has to acknowledge that this is a transitionary period. Shifting teaching online takes time, mistakes and effort for the students to learn new ideas and systems. (Courses, 11 june 2020)

The connection and engagement between the Institutes and students need to be attended. There is a needto put efforts in the right direction to increase effectiveness of teaching through the online mode. In this paper the authors have intended to understand the effectiveness of teaching through the online mode by surveying the management teachers and the management students. Both the perspectives will help in understand the commonalities in the approach and the challenges faced by both the parties. There are

parameters that were identified like Engagement of the students and teachers, connectivity issues, understanding level through online mode of teaching, convenience in online teaching, involvement from the teachers and students, communication and its effectiveness in a lecture, importance of a focused session, issues related to attending like infrastructure, noise, device etc. A structured questionnaire was designed separately for the teachers and the students and responses were collected. The responses were then analysed using Excel and Python to derive inferences.

OBJECTIVES OF THE STUDY

To study the effectiveness of teaching through online mode during pandemic period

To study and identify the critical factors that impact the effective delivery of online teaching

To study various issues that impact the attendance

LITERATURE REVIEW

In a research article by Anna Qian Sun and Xuifang Chen has highlighted in the conclusion that Online education is likely to stay and grow.

Online education will continue to increase its presence and influence higher education through its presence and influence higher education through a vigorous process of reshaping, refining and restructuring. It is also important to understand that it is unlikely that the same will replace the traditional higher education but merely will be an alternative. The online education is gaining importance because of physical distance, schedule conflicts and unaffordable costs. (Chen, 2016)

In a paper, Paul Gorsky and Ina Blau have suggested that teaching presence, social presence and instructors response time appear to be the most important factors in the rating attained by instructors. (Blau, 2009)

In his research work Muntajeeb Ali Baig has compared the online and offline teaching mode in the subject of Physics and has advocated that learners of online classroom scored more whereas the face to face classroom learners did not get the opportunity to interact actively and manipulate learning objects. According to him students should be given an opportunity to collaborate with their peers in creating knowledge. (Baig, 2011)

In his research work ---- has advocated that there is strong evidence to suggest that online learning is at least as effective as traditional format but the evidence is not conclusive. Online learning is still being written and how it progresses is dependent on those present. (Nguyen, 2015)

METHODOLOGY

A systematic data collection was done using Primary as well as Secondary data. The Management Institutes in Pune were targeted for collection of data from the teachers as well as the students. A structured questionnaire was floated amongst the teachers and students of the management faculty and the responses were recorded.

Target of the program: Management teachers, Management Students

Geographical ambition: Pune region

Sample Design: Convenience Sampling method

Data collection: Through a structured questionnaire

Research Design: The objective of this research was to understand whether the teachers and

Students Gender wise distribution

students engaged in the online teaching learning during pandemic period found online teaching effective or the same needs efforts to further be built on. Selective parameters were identified and framed in the form of a questionnaire and data collected on those parameters to conclude.

Sampling: A total of 240 students were targeted. 16 forms were rejected due to incomplete information. 224 responses were recorded from the students. A total of 55 teachers were targeted. 5 forms were rejected due to incomplete information. A total of 50 forms were analysed during this research.

Data: Data collected was analysed using MS Exceland Python

Tools: MS Excel, Python.

Tracking: Questionnaire on the google form was tracked for the respondents

Reporting: Tables, pie charts, pivot tables

Parameters: The following parameters were shortlisted to be incorporated in the study. There were two sets of questionnaire's prepared for Students and teachers one each respectively. Both the questionnaires were prepared incorporating the following parameters.

Engagement

Connectivity

Understanding – Theory / practical '

Convenience

Involvement / interactive

Communication – effectiveness

Focused session

Assignment

The following parameters were considered to be incorporated in the questionnaire as the issues that the students would be facing related to attending a class.

Connectivity

Infrastructure

Noise

Device

DATA ANALYSIS
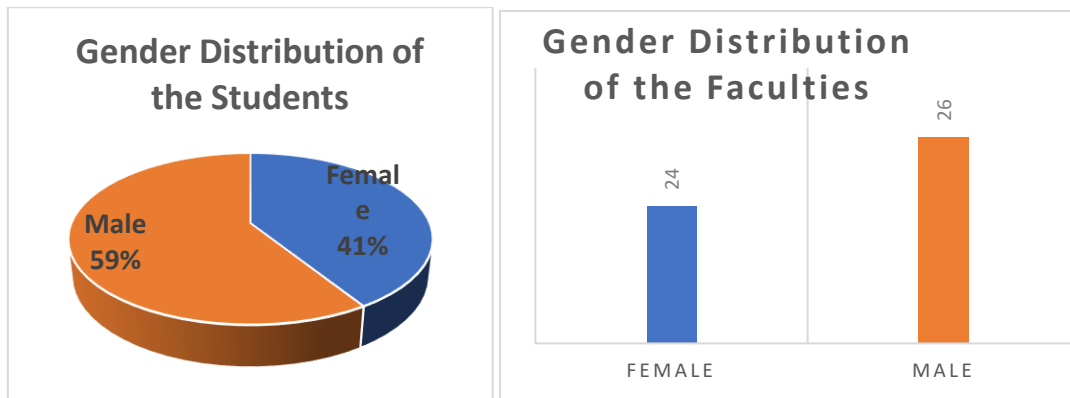Q. Gender
Faculty Gender Wise Distribution

Fig. 1: Gender Distribution – Students and Faculties

There were total 132 Male and 92 Female student respondants. Similarly 24 Female and 26 Male faculties reponded to the questionnaire.

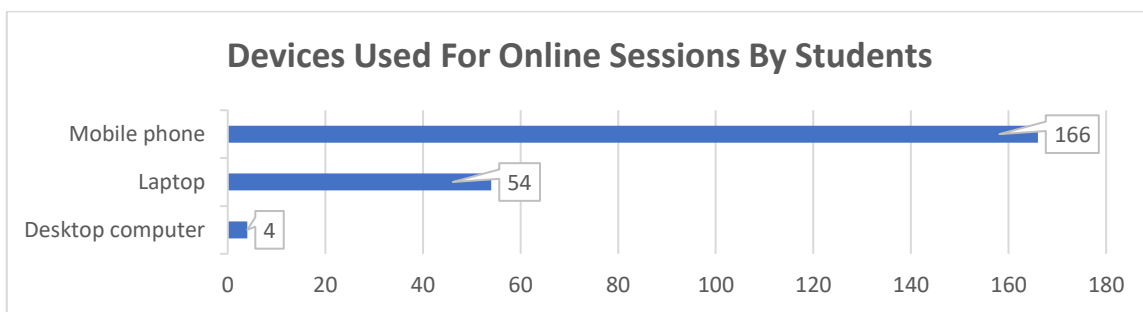Q. Which device are you using to attend online sessions?

Fig. 2: Devices used for Online Sessions by Students

Out of 224 students 166 are using Mobile phones which is around 74% while only 24% are using laptops with 2% using Desktop computers.
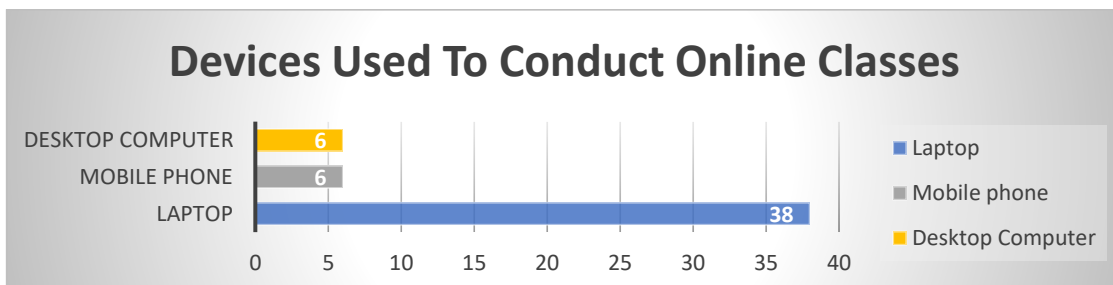
Q. Which device are you using to conduct the online classes?

Fig. 3: Devices used for Conducting Online Sessions by Faculties

38 faculties out of 50 i.e. 76% are using Laptops and 12% each are using Mobile and Desktops.

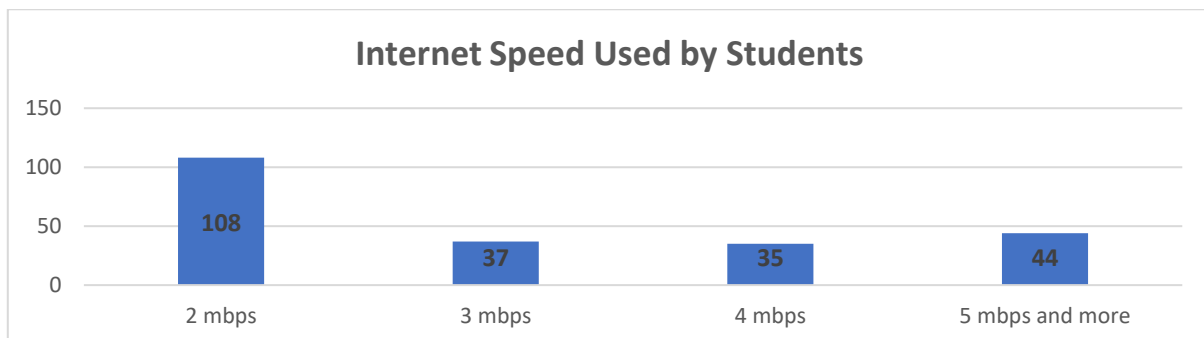Q. What is the internet speed of the device?

Fig. 4: Internet Speed used by the Students

48% of the students have only 2 MBPS internet speed, while only 19.64% are having 5MBPS or more internet speed available.

Q. What is the internet speed of the device? (Faculty)

Internet Speed Used by Faculties

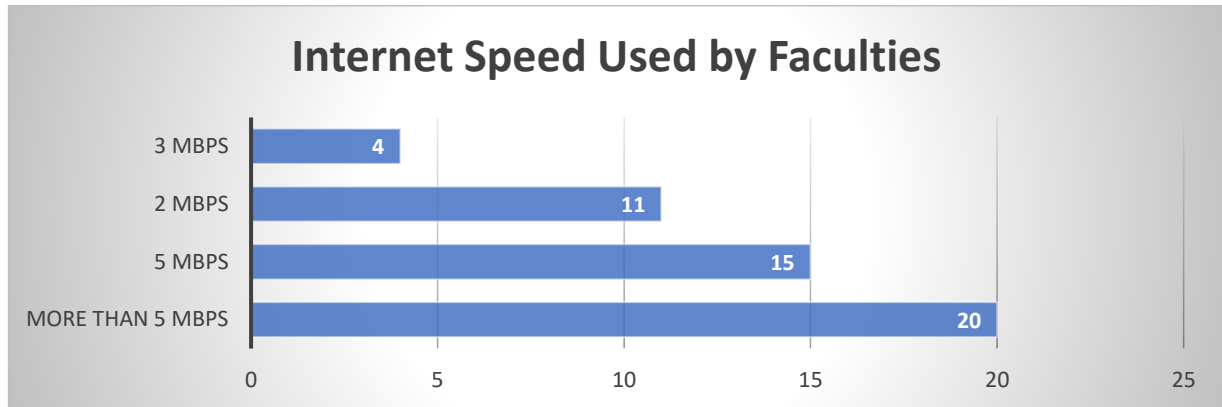|	
3 MBPS	4
2 MBPS	11
5 MBPS	15
MORE THAN 5 MBPS	20

Fig. 5: Internet Speed used by Faculties to conduct Online Sessions

70% of the faculties enjoy around 5 MBPS or more internet speed.

Q. Do you feel engaged in the online class? [rate your experience]

Students Feeling Engaged in the Online Sessions

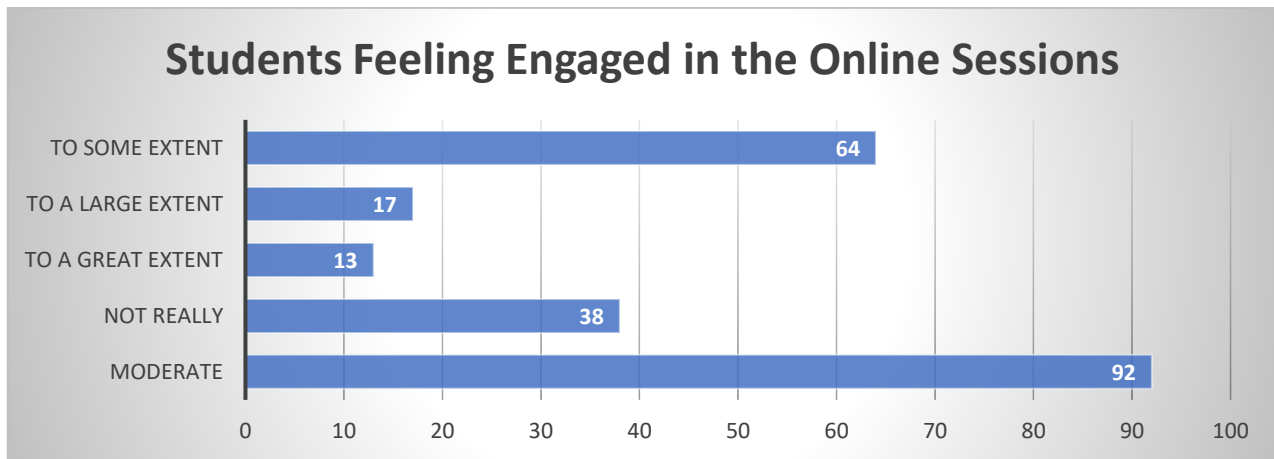|	
TO SOME EXTENT	64
TO A LARGE EXTENT	17
TO A GREAT EXTENT	13
NOT REALLY	38
MODERATE	92

Fig. 6: Extent to which the Students feel Engaged in Online Sessions

Around 17% do not feel engaged while 28% feel engaged to some extent. 41% to moderate level and only 7 to 6 % feel large to great engagement level.

Q. Do you feel engaged and connected with the students in the online class? [rate your engagement with students]

Faculties Engagement Level

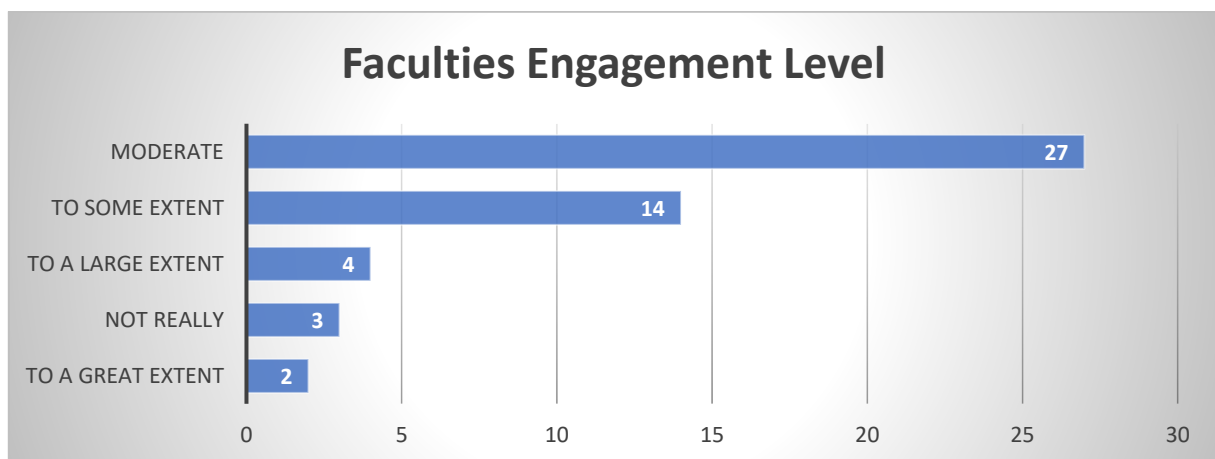|	
MODERATE	27
TO SOME EXTENT	14
TO A LARGE EXTENT	4
NOT REALLY	3
TO A GREAT EXTENT	2

Fig. 7: Faculties Engagement Level with students during Online Session

54% faculties feel connected with the students to a moderate level while only 6% feels not connected with the students during online sessions.
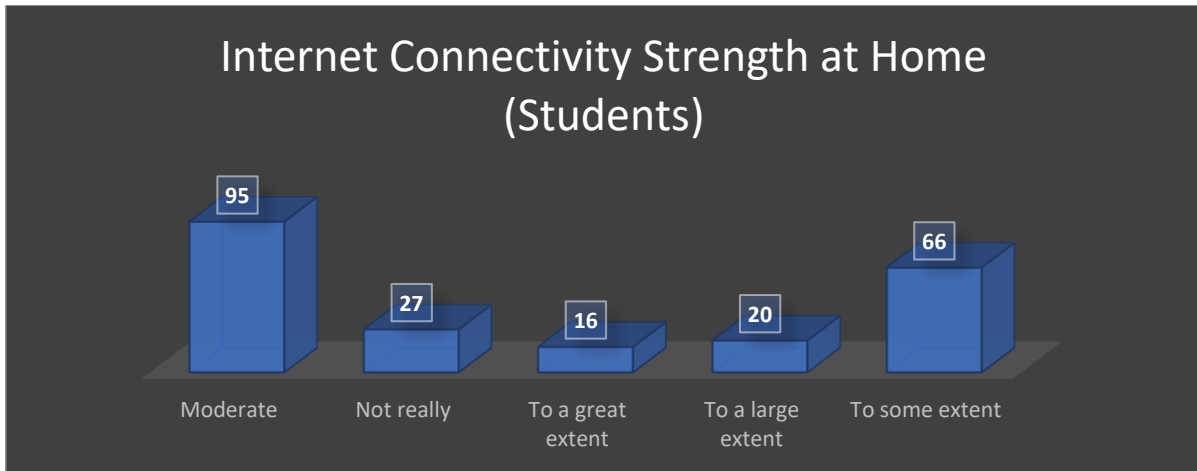

Fig. 8: Internet Connectivity Strength at Home (Students)

Around 58% of the students have moderate to great internet connectivity at their home.

Q. What is the Internet Connectivity strength at your house? [connectivity issues]

Q. What is the Internet Connectivity strength at your house? [connectivity strength] (Faculty)
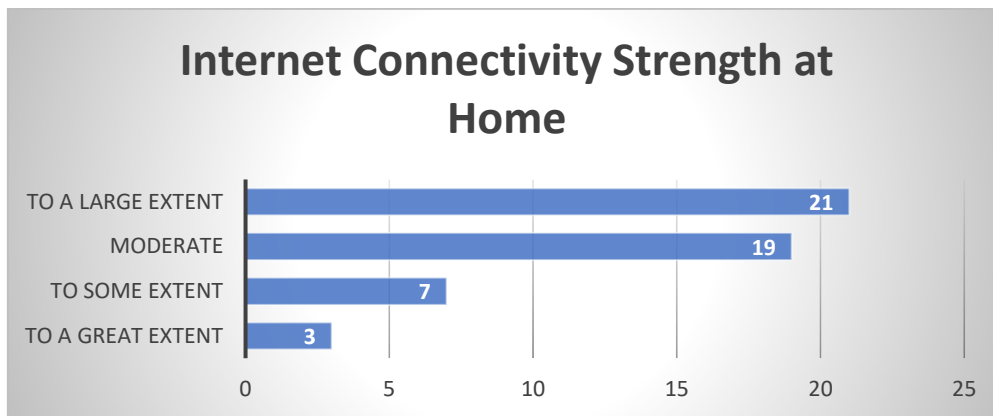

Fig. 9: Internet Connectivity Strength at Home (Faculties)

Around 86% of the faculties have moderate to great internet connectivity at their home.

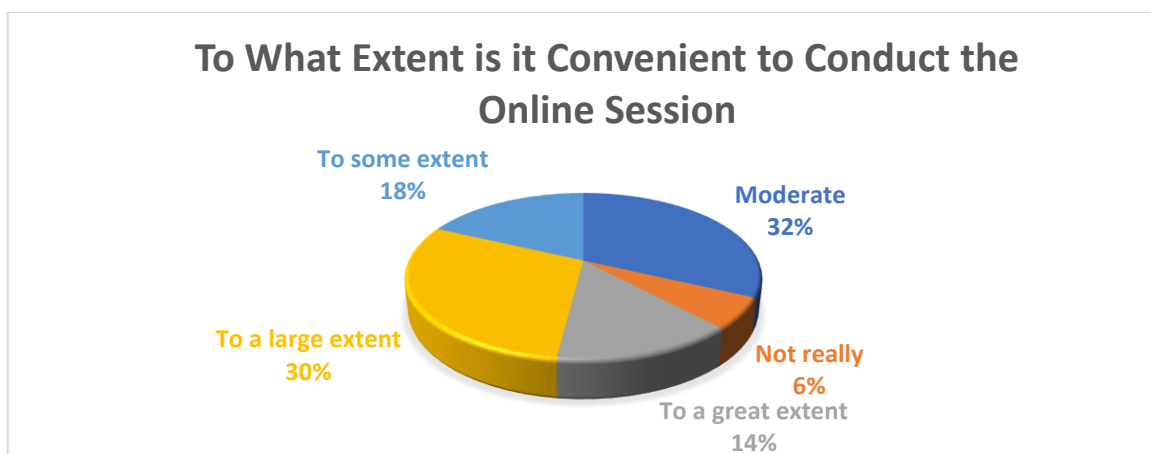Q. To what extent is it convenient to conduct the online classes?

Fig. 10: Level of Convenience while Conducting Online Sessions

From the feedback it is clear that 76% are convenient conducting online session moderately to great extent.

Q. To what extent is it convenient to attend online classes?
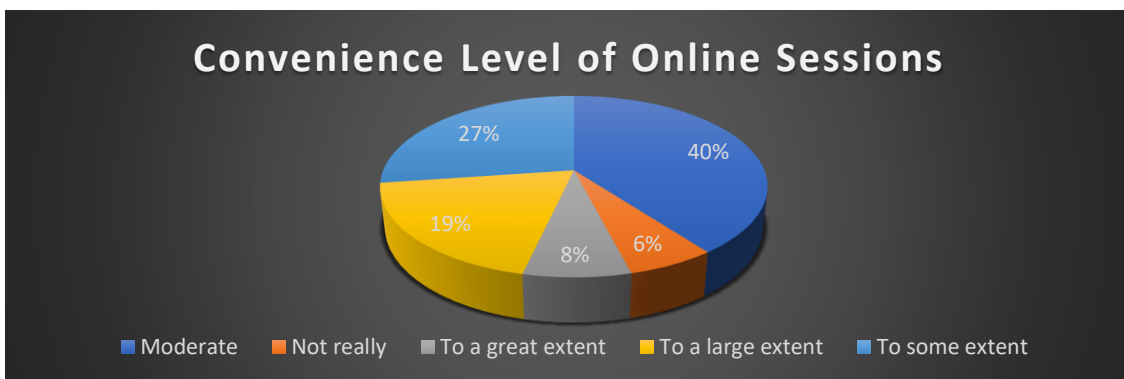

Fig. 11: How Convenient it is to attend Online Sessions for Students

Around 152 i.e. 67% of the students find moderate to great level of convenience to attend online session. Only 6% are not convenient in attending online sessions.

Q. What is the extent to which you are able to grasp the content that is delivered during the lecture? [rate your understanding level]
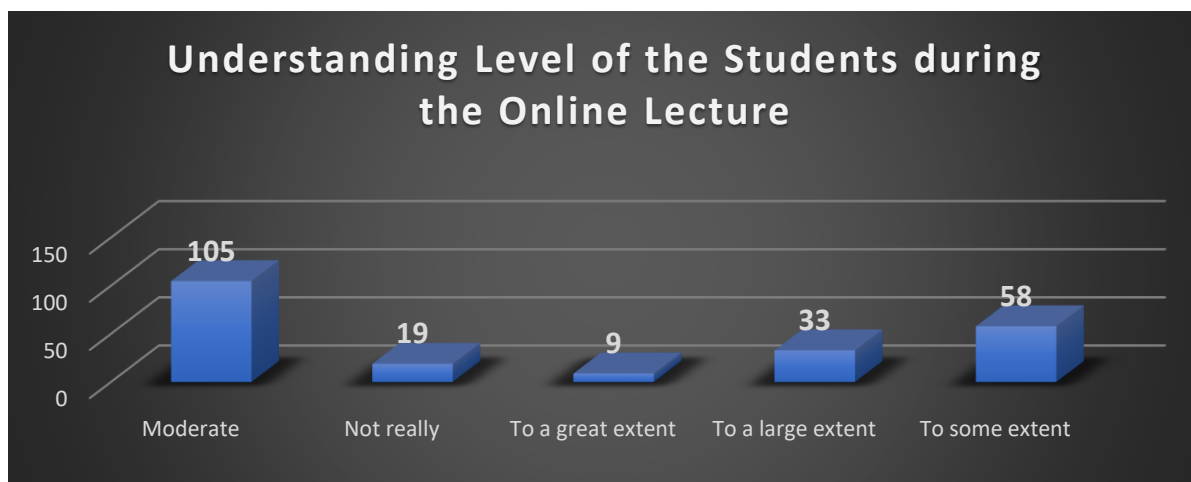

Fig. 12: Grasping level of the Students during Online Sessions

Around 65% of the students have moderate to large extent of understanding level during the online sessions. But around 34% said that their understanding or grasping level in low to some extent during online session/ lectures.

Q. What is the extent to which you are able to include and explain the content that is delivered during the lecture?
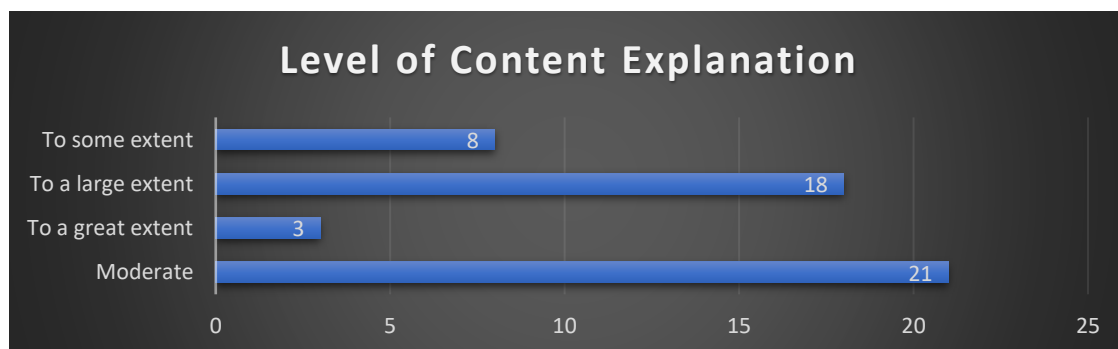

Fig. 13: Level to which Content can be Explained to the Students in Online Session

42% rated Moderate level, while 36% to a large extent and 6% said they are able to include and explain the content to a great extent.

Q. What is the extent to which you are involved during the online lectures? [rate your involvement]

Students' Involvement Level during Online Sessions

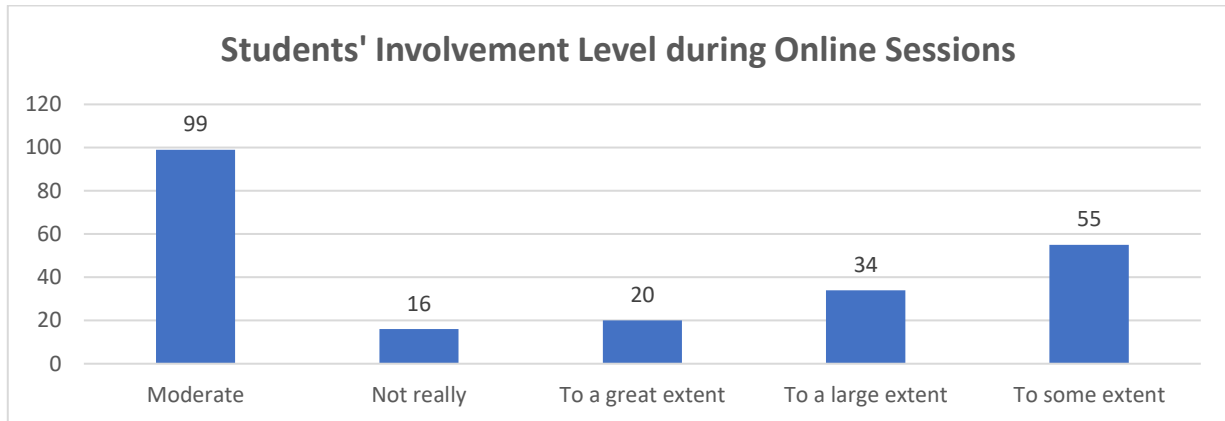| Category	Value
Moderate	99
Not really	16
To a great extent	20
To a large extent	34
To some extent	55

Fig. 14: Students' Involvement Level during Online Sessions

The 68% students' involvement level is between moderate to great extent, while 44% students rated level of involvement as moderate.

Q. What is the extent to which you think that the students are involved during the online lectures? [rate student involvement]

Involvement Level of Students during Online Lectures

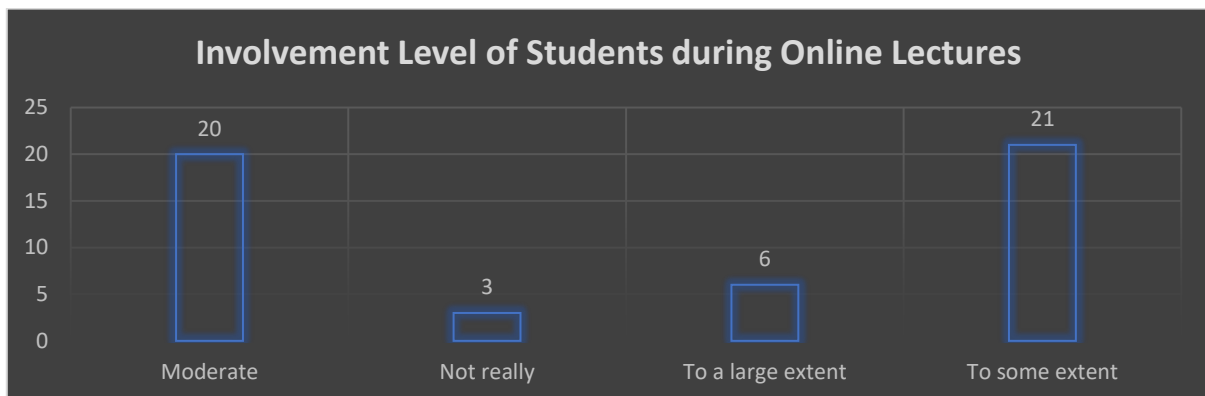| Category	Value
Moderate	20
Not really	3
To a large extent	6
To some extent	21

Fig. 15: Students Involvement Level as per Faculties

Around 82% of the faculties believe that students' involvement level is moderate to some extent during the online sessions. Only 12% felt that the involvement level is to a large extent.

Q. To what extent do you think the teachers' communication is important for online sessions? [rate teacher's communication]

Level of Importance of Teachers' Communication Skills

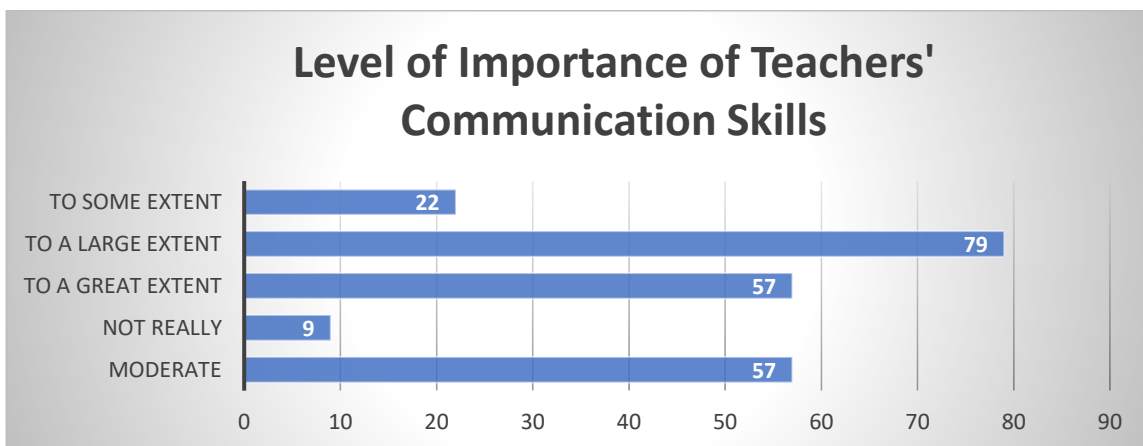| Category	Value
TO SOME EXTENT	22
TO A LARGE EXTENT	79
TO A GREAT EXTENT	57
NOT REALLY	9
MODERATE	57

Fig. 16: Importance of Teachers' Communication Skill as per Students

As per the above chart it is clear that 60% of the students consider teachers' communication is important from large to great extent. While around 25% say that it is moderately important.

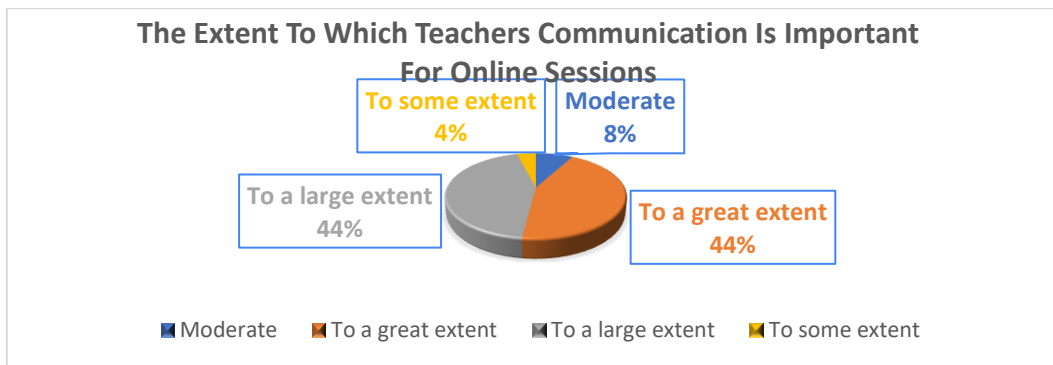Q. To what extent do you think the teachers' communication is important for online sessions?

Fig. 17: Importance of Teachers' Communication Skill as per Faculties

Around 88% of the faculties considers communication skill important from large to great extent, which is a big number and clearly indicates that communication skills should be taken seriously while conducting online sessions.

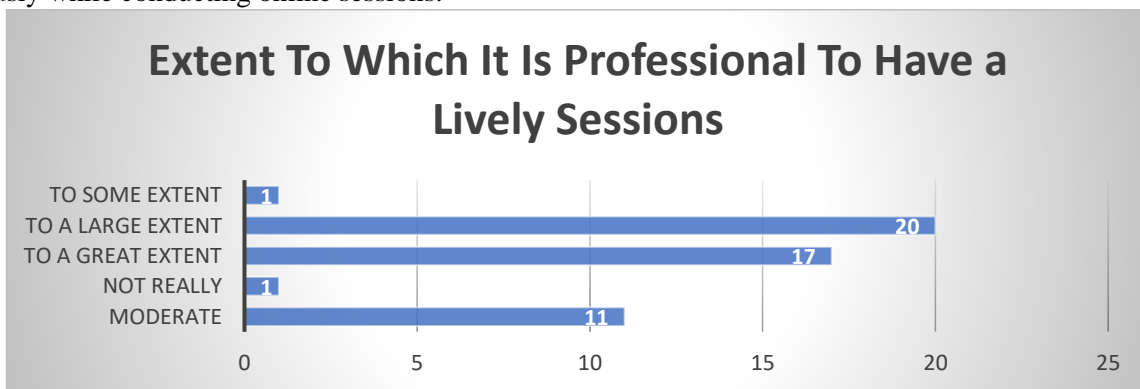Q. To what extent do you think that It is professional to have a lively session?

Fig. 18: Extent to which Lively Sessions is Recommended by Faculties

Lively sessions are highly recommended by 74% of the faculties between large to great extent. It can be considered one of the important factors for online sessions.

Q. Rate the following factors impacting the attendance of the student (1 being the lowest and 5 as the highest)
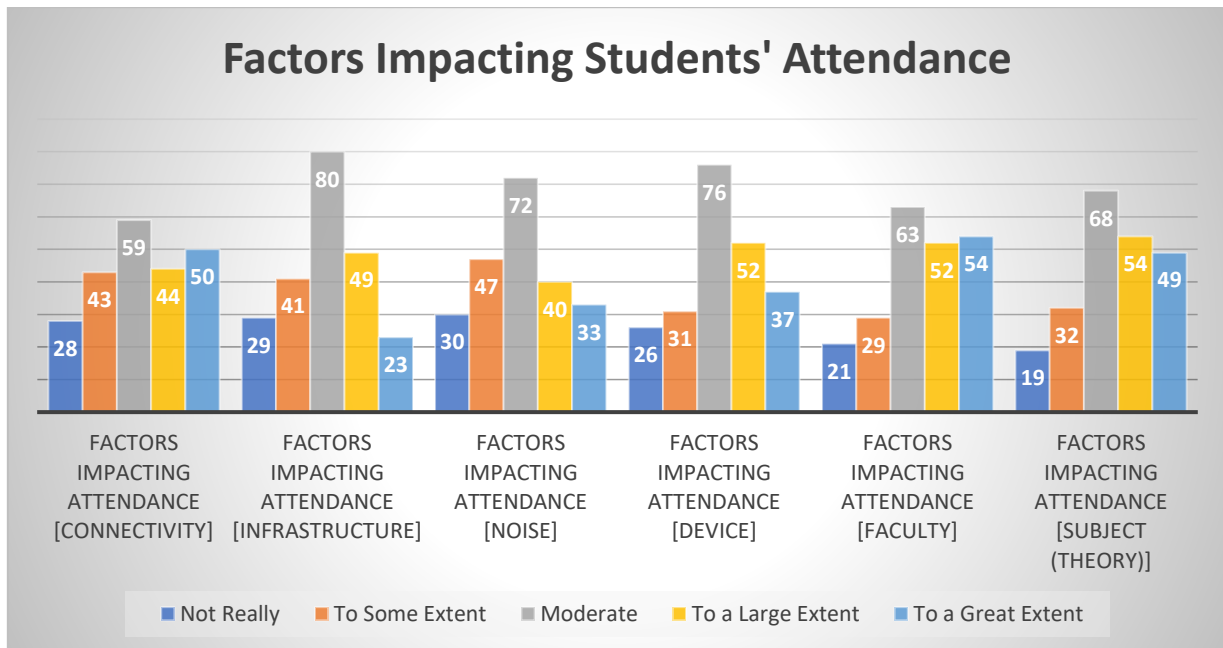
Fig. 19: Factors Impacting Attendance of the Students (Students Feedback)

Calculating the weighted average of all the rating it is observed that students rated Subject as the most important factor followed by Faculty and then Connectivity as the top 3 factors affecting the attendance of the students.

Q. Rate the factors impacting the attendance of the students.(1-Low to 5-High)

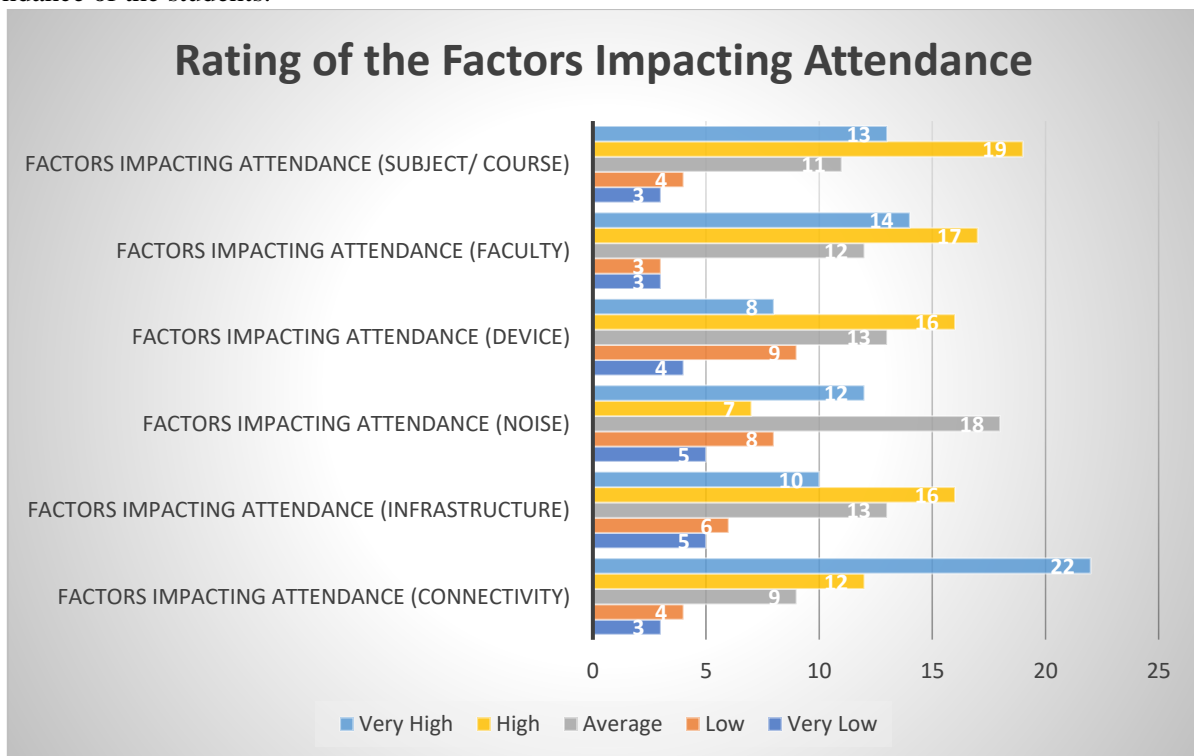Fig. 20: Factors impacting the Attendance of the Students (Faculty Feedback)

By using the weighted average of all the rating it is observed that faculties rated Connectivity as top most factor impacting attendance. While Subject/ Course was the second and Faculty third important factor impacting the attendance of the students.

Q. To what extent do you advocate for self-paced learning through online portals?

Students Advocating Self-paced Learning through Online Portals

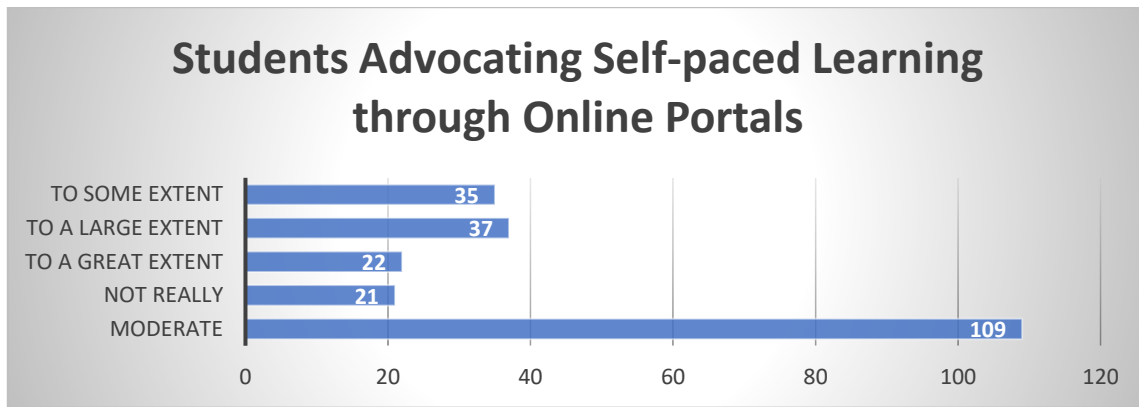| Category	Value
TO SOME EXTENT	35
TO A LARGE EXTENT	37
TO A GREAT EXTENT	22
NOT REALLY	21
MODERATE	109

Fig. 21: Students Advocating Self-Paced Learning through Online Portal

Around 48% students moderately advocate self-paced learning, while there are 26% advocate to a large to great extent. It is also seen that nearly 16% advocating it to some extent and 9% totally against self-paced learning.

Q. For what extent do you advocate self-paced learning?(faculty)

Extent to which Teachers Advocate Self-Paced Learning

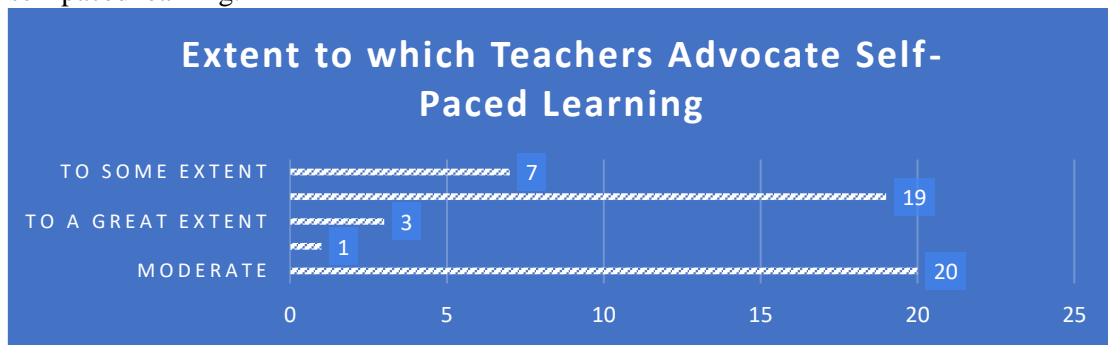| Category	Value
TO SOME EXTENT	7 / 19
TO A GREAT EXTENT	3
MODERATE	1 / 20

Fig. 22: Teachers Advocating Self-Paced Learning

40% moderately, 38% to large extent, 6% to great extent advocate self-paced learning. While only 2% do not advocate self-paced learning with 14% advocating to some extent.

Q. To what extent are you able to retain from the content covered in the class?

Students' Retention Level

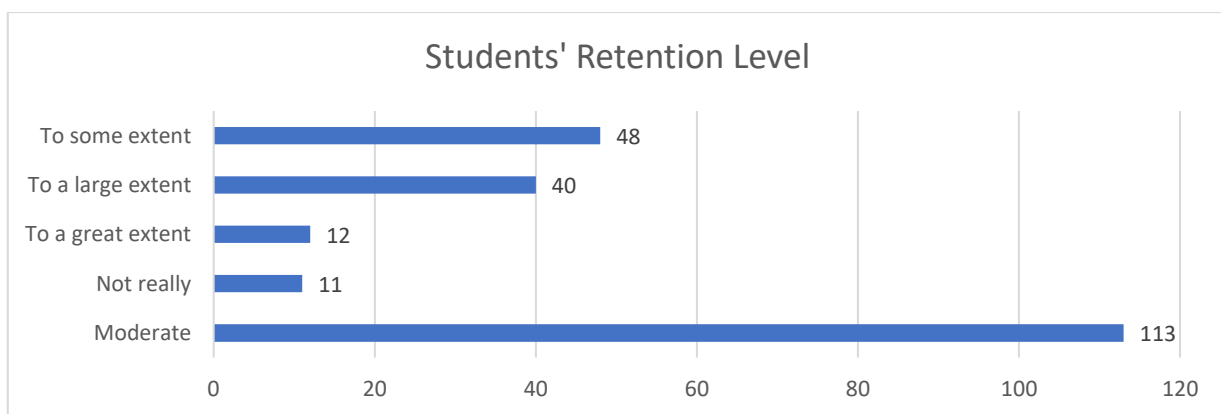| Category	Value
To some extent	48
To a large extent	40
To a great extent	12
Not really	11
Moderate	113

Fig. 23: Students' Retention Level

From the above fig. 23 it is clear that approx. 50% of the students believe that the retention level is moderate, 18% says the retention is to a large extent. While 21% feels the retention is to some extent only.

Q. To what extent are you able to assess the levels of retention through the online mode?
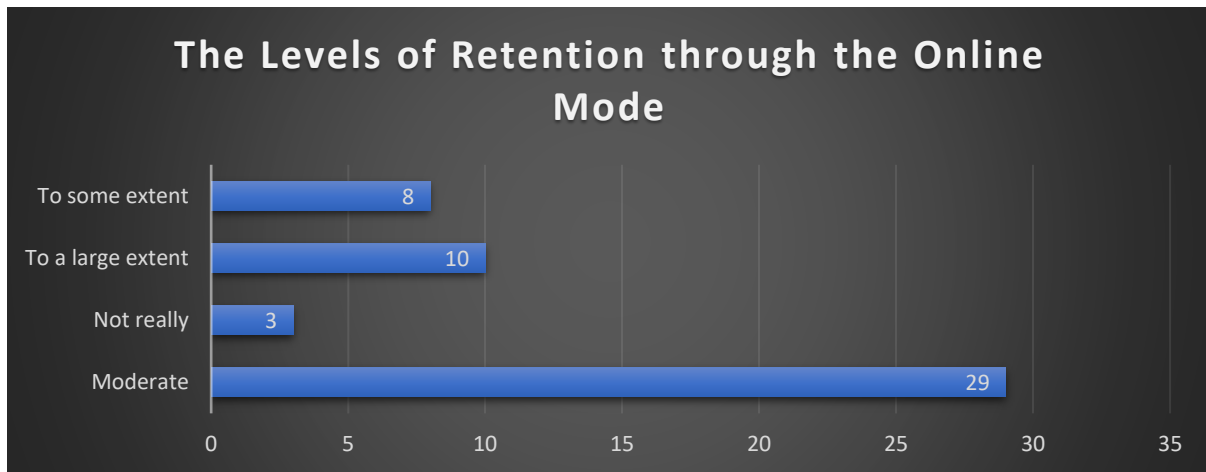
Fig. 24: Retention Level through Online Mode (Faculty)

Around 58% faculties feels retention is of moderate level, with 20% stating the retention level is to a large extent. There are 16% who said retention is to some extent only.

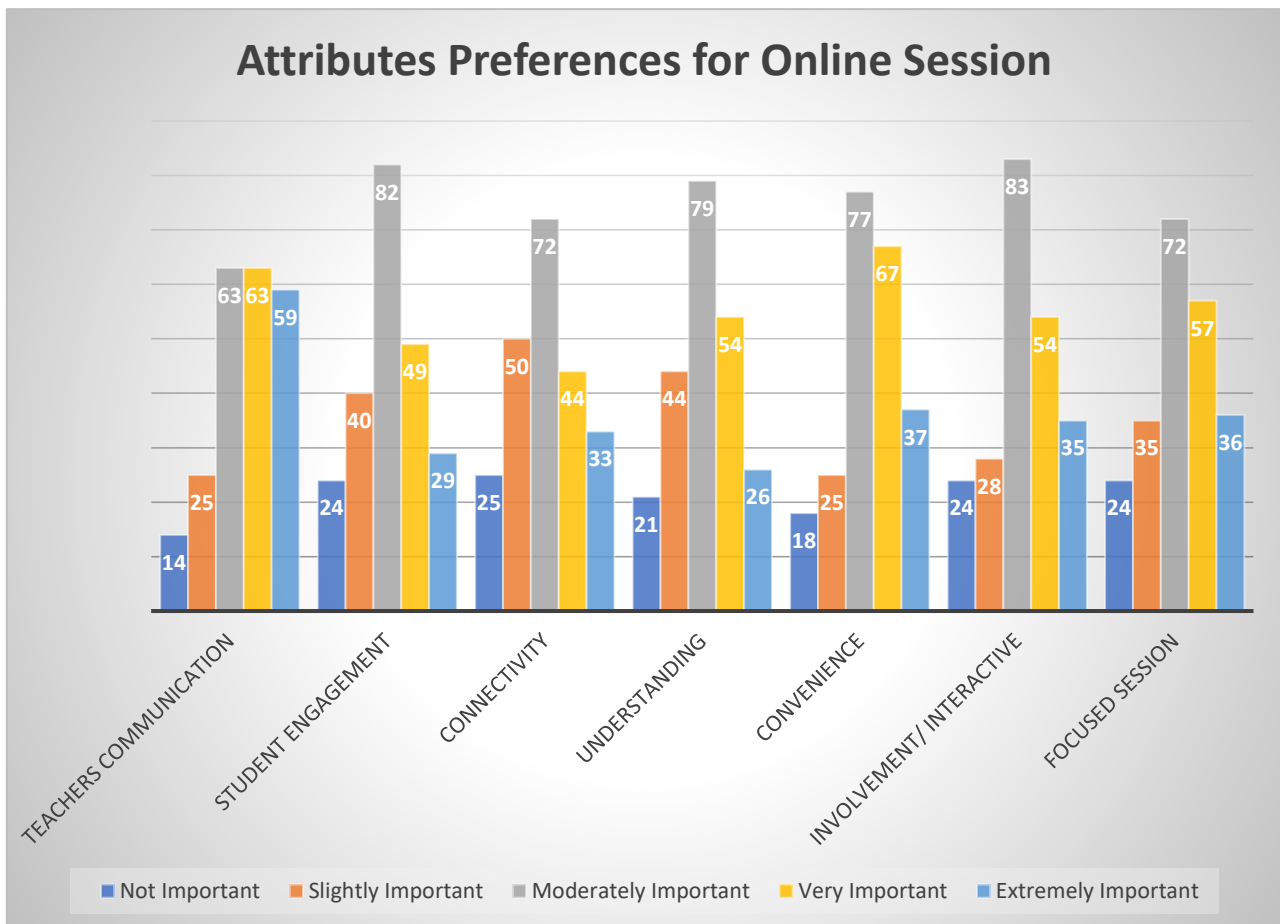Q. Rank of attributes important during an online session (Students)

Fig. 25: Attributes Preferences for Online Sessions

Using the weighted average, it is clear that students top most preference is Teachers' Communication, followed by Convenience and Involvement/Interactive ranked as the third preferred attribute.

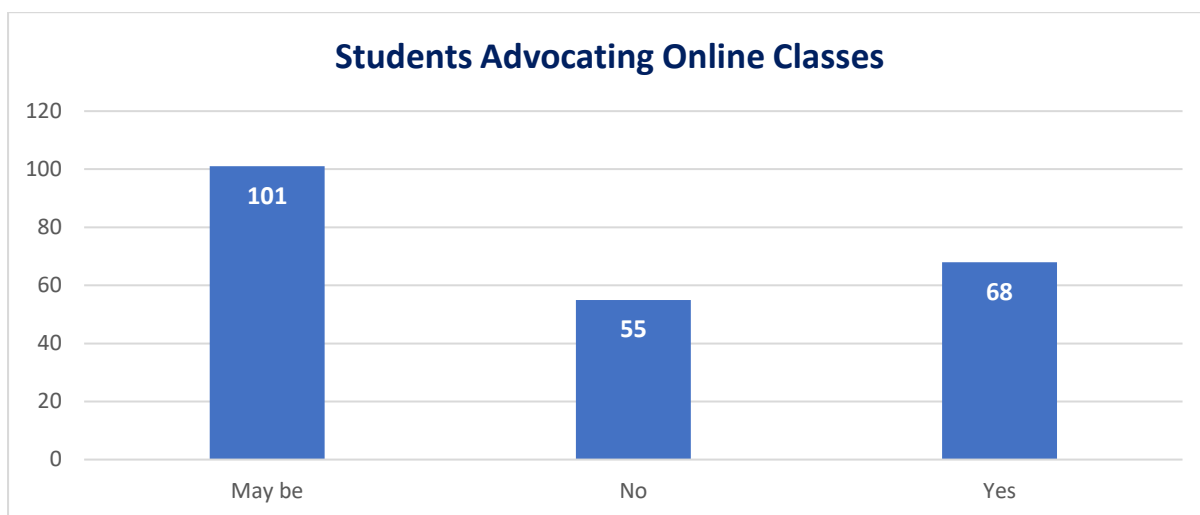Q. Do you advocate for online classes?

Fig. 26: Students Advocate Online Classes

Only around 30% advocate online classes, and 24.5% saying no to online classes. There are more than 40% who are not sure whether they will advocate online classes.

Q. Do you advocate for online classes as a complete or a perfect alternative to offline classes?
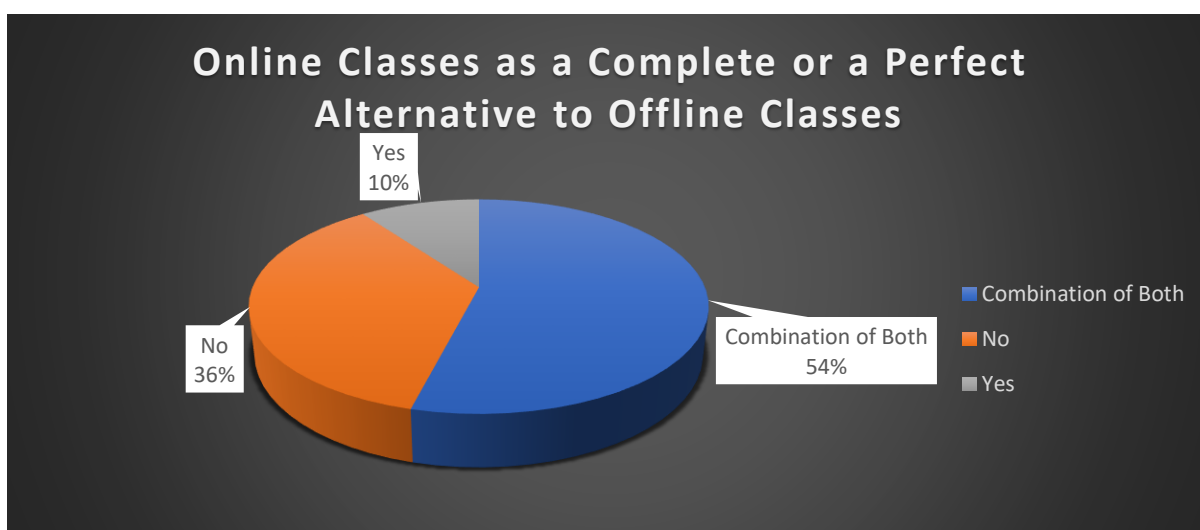

Fig. 27: Faculties advocate Online Classes

It is seen that 54% of the faculties recommend combination of online and offline classes, while 36% are against online classes. Whereas there are only 10% in favour of only online classes.

FINDINGS

1. Around 76% of the faculties uses Laptops while 74% of the students are using Mobile Phones for online sessions. This indicates that faculties are using laptops so that they can share the e-contents and simultaneously record their lectures so that it could be shared through various platforms like YouTube, Google Class Room, Institute's LMS etc. The students on the other hand are using their smart phones (Mobile) as it is more convenient to attend to the sessions on go and

there is no new investment required as they already have a smart phone available with them.

2. Faculties are using high internet speed compared to students. It has been observed that around 70% of the faculties have 5 MBPS or more internet bandwidth facilities available compare to only 20% of the students using 5 MBPS or more internet bandwidth.

3. According to 54% of the faculties students are moderately engaged during online sessions. While there are around 41% of the students who feel they are moderately engaged during online sessions. This is a very big concern as it can be demotivating for both the faculties

and the students. It also means that the students do not feel like they belong and are a part of something. Faculties should come up with innovative ideas to engage the students as it is known that students will learn better if the engagement level is high.

4. 86% of the faculties have moderate to great internet speed at their home. While 58% of the students have moderate to great internet speed at their home. This also justifies the point that more faculties have higher internet speed facilities compared to the students.

5. There were around 76% of faculties who feel that it is moderately to great extent convenient to conduct online lectures. While the 73% of the students feel it is moderate to not really convenient to attend online lectures. This clearly indicates that the students at large are not comfortable with online lectures were as the faculties are comfortable with online lectures. What can be the reason? Is it due the facilities available with the faculties or is it because the faculties will be just engaging few lectures online while the students have to attend many such online sessions of various other faculties. It is a further topic of research.

6. It is observed that around 81% of the students feel that they can grasp the contents to a not really to moderate level compared to 65% feeling that they grasp the contents to moderate to great extent. Whereas it has been observed that 94% of the faculties feel that the retention level is between moderate to great extent. This is again indicating that the faculties are not very much sure about the level to which they are able to impart knowledge to the students.

7. Around 76% of the students say that they are not really or moderately involved in the online lectures compared to 68% feeling they are moderately to greatly involved in the online lectures. Whereas 88% faculties are of the opinion that students are not really or moderately involved in the online lectures. This again indicates that the engagement level of the students should be increased.

8. According to 88% of the faculties rate communication is very important from large to great extent. While around 86% students feel communication is important from moderate to great extent. This thus becomes a very important factor for conducting online lectures. Can bad communication skills of faculties be a reason for less engagement/ involvement level of students?

9. There is great no. of around 96% of the faculties advocating lively session to a moderate to a great extent.

10. From the various factors like connectivity, infrastructure, noise, device, faculty and theory subject it is found that using weighted average of the rating given by the faculties that Connectivity, Subject/ Course and Faculty top 3 factors impacting the overall attendance of the students. While according to the rating given by studentsSubject(theory) as the most important factor followed by Faculty as important and then Connectivity as the 3rd factor affecting the attendance of the students. Whereas Noise and Infrastructure the least important factor impacting attendance as per both faculties and students.

11. It is observed that around 26% of the students feel retention level below moderate level while 23% feels it is above the moderate level. This is a very close percentage and hence can be concluded that 50% of the students retain the contents taught in online session.

12. Students responded to the attributes they preferred more for online sessions and it was found that using the weighted average of rating the students gave preference to Teachers' Communication skills, followed by Convenience. While third preference given to Involvement/ Interactive session for the online sessions to be successful in all means.

13. It was finally observed that 54% of the faculties would prefer a combination of online and offline classes while only 10% advocated only online classes. While it was also seen that 36% of the faculties need not advocate online or combination of online and offline classes. We also observe that 45% of the students are not sure whether they should recommend online classes and only 30% of the student advocate online classes and around 25% not in favour of online classes.

14. Using Recursive Feature Elimination (RFE) method it was observed that features like Device, Convenience, Retention level, Lively Session and Subject are important features that play big role in deciding whether the student will prefer online classes or not. Another method of Principal Component

Analysis (PCA) also indicated the same features/ variables.

SUGGESTIONS AND CONCLUSION

The responses of the faculty clearly indicate that around 50 to 60% of them would like to engage studentsthrough online classes. But it is also noted that if the online classes have to succeed then the faculties should focus more on improving communication skills, find innovative ideas and have interactive and lively sessions to engage the students, which will increase the retention level and also encourage the students to attend online classes. Whereas the overall effectiveness of the online learning is dependent on factors which is considered very important like the faculty's communication skills, the subject, faculty himself and connectivity. If these factors are addressed the students and faculties are found to be optimistic and would consider accepting a combination of online and offline sessions. It has been noticed

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that students might not be very enthusiastic about only online lectures due to factors like connectivity, less engagement level and devices available for online lectures. A self-paced learning can be considered to be a very good option instead of a live online classes. As of now replacing offline classes with fully online classes does not seem to be the right option. Institutions need to be reinforced that the students are the prime stakeholders and their benefits and convenience should be given priority rather than insisting on conducting on-line classes.

SCOPE FOR FUTURE RESEARCH

This survey is conducted during the pandemic crisis and adaptation to the new way of lecturing and attending was already affected during this period. It is suggested that a survey independent of the situation which measures the preference of effective online teaching can be further explored.

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