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**Dissertation Report: 2020 – 22 Batch**

**“The study on challenges and opportunities in Digital learning  
among UG and PG students of universities/higher educational  
institutions”**

A Dissertation Report for the partial fulfilment of the requirement  
for

**Post Graduate Diploma in Management (PGDM)**

**Under the Supervision of**

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**Submitted by,**

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FPB2022/027

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May 2022

**CERTIFICATE FROM THE INSTITUTE**

This is to certify that **Mr. Samrat Das** is a bonafide student of Indus Business Academy, Bengaluru and is presently pursuing a Post Graduate Diploma in Management (PGDM) Registration Number: FPB2022/027. He has submitted his Dissertation Report entitled **“The study on challenges and opportunities in Digital learning among UG and PG students of universities/higher educational institutions”** in partial fulfilment of the requirement for the Dissertation Project of IBA.

To the best of my knowledge, this report has not been previously submitted as part of another Post-Graduate Degree or Diploma or similar programs of any other Management Institution or Business School or University.

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**(Dr. Subhash Sharma)**

Director

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Dated: .....

**CERTIFICATE FROM INTERNAL GUIDE**

This is to certify that Mr. Samrat Das is a bonafide student of Indus Business Academy (**IBA**), Bengaluru and is presently pursuing a Post Graduate Diploma in Business Management (**PGDM**) Registration Number: FPB2022/027 under my guidance. He has submitted his Dissertation Report entitled “**The study on challenges and opportunities in Digital learning among UG and PG students of universities/higher educational institutions**” in partial fulfilment of the requirement for the Dissertation Project of IBA.

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(Dr.Nandeesh V. Hiremath)  
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## STUDENT'S DECLARATION

I am Samrat Das, a bonafide student of Indus Business Academy, Bangalore and is presently pursuing a PGDM 2020-22 Batch and hereby declare that the Dissertation Report entitled **“The study on challenges and opportunities in Digital learning among UG and PG students of universities/higher educational institutions”** submitted in partial fulfilment of the requirements for the degree of Post Graduate Diploma in Management (PGDM) of **Indus Business Academy, Bengaluru.**

This is my ORIGINAL WORK and the findings and conclusions of this Project Work Report are based on my personal research work, based on the primary &/or secondary research, which are not submitted anywhere else for award of any other Post-Graduate Degree or Diploma / Fellowship / any other similar programs in any other Management Institution or Business School or University.

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**Name: Samrat Das**  
Reg no: FPB2022/027  
Date: 09/05/2022

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## Executive Summary

Technology has and continues to play an important role in providing education for students inside/outside of school and colleges. It is commendable that all countries have been able to implement distance learning technology using a combination of TV, radio, online and mobile platforms. However, many children in low-income countries have not participated in distance learning, with about a third of low-income countries reporting that 50% of children have not had access in a joint survey of children. The pandemic has also taken a significant toll on students. Collage closures and limited access to distance learning mean that learning poverty is likely to worsen by 53% to 63%, particularly in low-income countries, if not take remedial measures. The crisis has exposed inequalities in digital access and the fact that the "status quo" will not work to provide an education for all children. Closing the digital divide in education and harnessing the power of technology to accelerate learning, reduce learning poverty, and support skills development requires a focus on closing the gap in education:

- ❖ Digital infrastructure (connections, equipment and software);
- ❖ Human infrastructure (teacher capacity, student skills and parental support); and
- ❖ Management and logistics systems for implementing and maintaining the technology architecture. Although investment in EdTech has increased, learning and outcomes have not changed significantly in many countries.

Experience shows that distance teaching and learning is not the same as face-to-face pedagogy. For example, many teachers have access to electronic content, using it like any other textbook to read in class.

Some of the tweaks include shorter and more modular content, more engaging content such as entertaining education, ongoing commentary, small group online discussions of more open-ended questions.

Education is at the heart of relationships and relationships between people. While we can never replace the magic that happens between great teachers and students in individual settings, we need to focus on the social aspects of technology to improve outcomes. remote connection. Greater attention needs to be paid to how technology will enhance teaching and learning in an integrated learning environment that reaches students both at college and at home.

## Introduction

Digital learning is any type of learning that accompanies technology or learning practices that enable the effective use of technology. It covers a wide range of practical applications, including blended learning and virtual learning.

Success in the workplace of the future requires the right digital education. With the ongoing digital transformation at school, college or work, IT skills are becoming more and more important every day. A digital transformation is underway. People who working for different start-ups are not the only ones who need digital skills – increasingly, industrial workers in plants, staff in administrative positions and managers of banks need to be adapted in the digital realm as well.

Our educational system in particular, the way we learn and teach must be adapted for this era of digitalization. This is true for all educational levels – from primary school to universities to continuing education. A digital education will allow students to continue to participate in social life in a self-determined manner in the future. Also, digital education will ensure that companies remain competitive.

We must radically change both the way we learn and what we learn. This is because digital skills have become the fourth core competency, along with reading, writing, and arithmetic. High Schools are responsible for providing primary digital education and enhancing education in the fields of science, technology, engineering, and mathematics that will grow in importance in the future. Students must learn how to use software in a computer lab and

understand how computers, the Internet, and data protection work. It can serve as a basis for further exploration of digital and IT topics in professional learning and development courses. New high-speed data assessment capabilities allow you to tailor content and teaching to individual student needs. Intelligent software can track progress and determine which material has been mastered and which areas still need further training. In this way, courses can be personalized, paying particular attention to the development of the individual learner's potential.

In order for digital education to become a reality, it is necessary to modernize teacher education. Digital education requires well-trained teachers who can use digital media to communicate relevant information to students, trainees, and college students. Governments must also lift federal bans on state education and develop curated projects under skill development initiatives such as digital education. It is important that these efforts are practical and focused on the needs of the business. Digital learning means more than just the digitization of traditional learning materials.

The use of digital media in education will open up a whole new realm of communication, collaboration and networking. Because digital learning is not tied to time or place, it is more flexible, personalized and more mobile than traditional forms of learning. In the digital age, course content is created, shared and co-developed in the cloud. Through digital learning, young students learn to take greater personal responsibility and improve communication and teamwork.

Online learning is fast becoming one of the most effective ways to disseminate education. The impact of the virus has been so severe that online education appears to be everywhere in the growing world, leading to school closures and physical interactions between teachers and students. Fortunately, soon most schools and educational institutions switched to online mode and resumed their studies.

As a result, education has changed dramatically with the advent of e-learning, where learning takes place remotely in a digital platform rather than in a physical classroom. Online classes and skills have become superheroes in a closed age. We've all been under house arrest, but we're still connected to the world of education. Due to the lockdown, students cannot maintain contact with the outside world, and the lack of contact is evident. The only delay in students' psychological well-being was the transition to online classes. Teachers have taken great strides in creating new learning environments for students to find solutions by ensuring that their learning is not compromised and their learning is uninterrupted. With little time to prepare, the curriculum was revised, new lesson plans created, and activities planned to keep students actively engaged in online learning. For students, online classes have become an inevitable trend in education worldwide. Digital learning now provided easy access to files and folders that could be



organized and stored without physical damage. With one click, students can access notes and assignments without fear of losing or damaging them.

Thanks to advanced technology, this way of learning is not only easier, but also more fun and exciting. Technology-assisted learning has proven useful and more fun as it helps students create interactive and engaging subjects that have traditionally been considered boring. Easy access to classes and study materials at home makes it very convenient for students to attend classes from anywhere in the world. The integration of the learning platform with the interactive New age application has made online classes more convenient for both students and teachers as more students can express their views simultaneously using specific online applications. Students received regular notifications, paid more attention to their online assignments, and teachers were able to easily track students who didn't turn in their assignments on time.

Online learning has helped students become independent learners before they venture into the real world. Students were given the opportunity to explore new learning apps and platforms during class, which allowed them to develop new skills and abilities and accelerate their growth trajectory. Some students respond well to the active learning environment teachers have created online, while others need a push from time to time. Most private and public schools have made a smooth transition to online platforms like Zoom, Google Classrooms, Microsoft Teams, etc., but many still see this as a huge undertaking.

The challenges of online learning are multifaceted. Online learning has played an important role during the pandemic, but its implications cannot be ignored. Not all students have access to online classes due to the lack of smartphones, laptops and networks. Unfortunately, the less privileged segments of our society have suffered more from this. This can increase class and demographic disparities in access to quality education. One of the

biggest problems many students face with online learning is that it is difficult to concentrate on the screen for long periods of time. Needless to say, there is a lot of distracting content on the internet that most often engages and distracts students. To avoid this and allow students to focus on their lessons, teachers have put a lot of effort into

designing online classes to be clear, engaging and interactive. Online classes are not completely reliable as your internet connection plays an important role. Although internet access has improved significantly over the past few years, people in some areas still do not have access to adequate internet speeds and connections. An unstable internet connection has become one of the main excuses for students to circumvent several important requirements, such as the active visual presence required for proper vigilance. When the camera is turned off, there is no communication between the teacher and the student. It is observed widely that students would log into the class and then get distracted with other activities sometimes.

Given that students are free from the regulations and also boundaries of an appropriate classroom environment, it is perceived that the curriculum is not given importance by the students sometimes. The notebook work may have been taken lightly also. There are high chances of the students distracting themselves while learning online with other activities. Traditional classroom education offers the benefit of more face-to-face interactions with peers which are typically moderated by a teacher. Physical interaction in the classroom provides a stable environment for social interaction, especially for young children, helping them develop skills such as empathy and cooperation. It helps them in their overall development and in real-life situations.

## Literature Review

- ❖ **Amaury Nora ,Blanca Plazas Snyder (2008)** in their study of “Technology and Higher Education: The Impact of E-Learning Approaches on Student Academic Achievement, Perceptions and Persistence” mentioned that Although e-learning, web-based education, and other forms of educational technology are touted as effective in combating student dropouts and academic performance, the degree completion rate of distance learning at the end of the program and semester Some consider both to be simply acceptable. Compared to more traditional specific courses. This discrepancy, coupled with the need to establish empirical teaching techniques, fuels the desire to fully understand the true impact of various forms of technology on student retention and graduation rates. The purpose of this article is to provide the reader with a comprehensive overview of the literature on technology at the higher education level. Learn about different uses of technology in the classroom, student perceptions of technology, how technology is used, student attitudes towards technology, and research investigating the direction of technology.

In particular, the main purpose was to emphasize the consequences related to the relationship between technology and student learning, and between technology and student permanence.

- ❖ **Tara Fenwick, Richard Edwards (2015)** in their study “Exploring the impact of digital technologies on professional responsibilities and education” mentioned that Digital technologies that combine "big data" and predictive analytics are having a significant impact on professional practice at the individual, organizational, national and international levels. The interaction of code, algorithms, and big data is becoming more and more pervasive in the governance, leadership, and behaviour of different groups of experts. They reshape relationships between professional groups and between professionals and their clients/users/students. As a result of these trends, new forms of accountability and responsibility have

emerged, raising important questions about criticism and decision-making in professional practice.

However, despite the introduction of many professional norms on the use of digital data and social media, research on vocational education and training has so far limited research on these issues. .. This article aims to explore some of these trends, how they manifest themselves in different professions, and what their impact on education is. We argue that new digital technologies are reshaping professional practices and responsibilities, but professional training may not yet properly reflect these changes.

- ❖ **Dorothy N Mutisya, George L Makokha (2016)** in their study “Challenges affecting adoption of e-learning in public universities in Kenya” mentioned that Public universities in Kenya are now turning to e-learning in an effort to meet the growing demand for higher education. This study was conducted from February 2012 to February 2014 to identify the challenges affecting the adoption of e-learning in these higher education institutions. Data were collected using questionnaires for 420 teachers and 210 students, and analyzed using simple descriptive statistics. Speakers ranked heavy workload as the most serious challenge affecting e-learning adoption, followed by: insufficient internet connection, refusal of copyright for e-learning modules already their development, limited information and communication technology (ICT) skills, lack of motivation, lack of computers/laptops, insufficient machine room, and lack of time to interact online. On the other hand, students consider not enough Internet connection as the number one challenge, followed by lack of computers/laptops, insufficient machine rooms, limited ICT skills and insufficient time for interaction. online. The paper concludes that due to these challenges, the adoption of e-learning is slow and still in its infancy in public universities in Kenya. It recommends that universities invest heavily in improving e-learning infrastructure, developing e-learning content, building capacity, changing attitudes and raising awareness about e-learning.
- ❖ **Brian A. Jacob (2016)** in his study on “The opportunities and challenges of digital learning” mentioned that the best practice is that digital learning is likely to

bring a variety of benefits to students, depending on the student's personal and school conditions.

For example, non-native English speakers can benefit from online lesson, which allows you to pause and search for unfamiliar words. Similarly, online courses may be expected to be more beneficial to students attending real schools with very inferior teachers.

- ❖ **Ming-Hung Lin, Huang-Cheng Chen, Kuang-Sheng Liu (2017)** in their study “A Study of the Effects of Digital Learning on Learning Motivation and Learning Outcome” mentioned that In today's world of smart mobile devices, the Internet is breaking the boundaries of time and space and becoming a ubiquitous learning tool. Designing classroom activities for digital learning and the flexible use of technology tools are key issues in today's integrated IT technology education. In this study, students will be tested and surveyed to understand their opinions about digital learning. Quasi-experimental studies are applied in this study to effectively achieve research goals and test research hypotheses. A total of 116 students were selected in four classes as research themes for classroom research. The research result is 1. Digital learning has a better positive effect on learning motivation than classical lessons 2. Digital learning has a better positive effect on learning success than classical lessons 3. Learning motivation clearly has a positive effect on learning effect 4. We have come to the conclusion that learning motivation has a significant positive impact on learning success in learning outcomes.

It is hoped that, in conjunction with current educational trends, we will leverage the benefits of digital learning to develop viable educational strategies for the effectiveness of education.

- ❖ **Lidiya I. EvseevaOlga D. Shipunova author Elena G. PozdeevaIrina R. TrostinskayaVladimir V. Evseev (2019)** in their study of “Digital Learning as a Factor of Professional Competitive Growth” mentioned that In today's world of smart mobile devices, the Internet is breaking the boundaries of time and space and becoming a ubiquitous learning tool. Designing classroom activities for digital learning and the flexible use of technology tools are key issues in today's integrated IT technology education. In this study, students will be tested and

surveyed to understand their opinions about digital learning. Quasi-experimental studies are applied in this study to effectively achieve research goals and test research hypotheses. A total of 116 students were selected in four classes as research themes for classroom research. The research result is 1. Digital learning has a better positive effect on learning motivation than classical lessons 2. Digital learning has a better positive effect on learning success than classical lessons 3. Learning motivation clearly has a positive effect on learning effect 4. We have come to the conclusion that learning motivation has a significant positive impact on learning success in learning outcomes.

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- ❖ **Nanigopal Kapasia, Pintu Paul, Avijit Roy, Jay Saha, Ankita Zaveri, Rahul Mallick, Bikash Barman, Prabir Das, and Pradip Chouhan (2020)** in their study “Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India” mentioned that to examine the effect of COVID19 lockdown on recent graduates and postgraduate students of various colleges and universities in West Bengal. An online survey was conducted from May 1 to May 8, 2020 to collect the facts. A structured link to the questionnaire using "Google Forms" was sent to students via WhatsApp and email. A total of 232 students provided complete information to the survey. A simple percent distribution was used to assess the popularity of the study among observational participants. During their detention, about 70% of the trainees were anxious to study. Most newcomers were used to attending the study. The students experienced a variety of problems related to anxiety, poor internet connection, and an unfavourable monitoring environment at home. Students from remote areas and particularly disadvantaged areas face extremely demanding situations to observe throughout this pandemic. This observation suggests that interventions are focused to create a great viewing space among students from the inclined section of society. Urgent strategies are needed to build a resilient training system in the

country to ensure that the employability and productivity of young minds is enhanced.

- ❖ **Girisha Lakshman Naik, Malteshkumar Deshpande, D C Shivananda, C P Ajey, G C Manjunath Patel (2020)** in their study “Online Teaching and Learning of Higher Education in India during COVID-19 Emergency Lockdown” mentioned that The COVID-19 pandemic has generated a world-huge focus that the prevailing manner of life-style does now no longer work. There are many regions want the progressive modifications and it has turn out to be obvious, one of is instructional sector. In India, instructional institutes/universities continue to be closed for the reason that mid of March-2020, due to the quick unfold of COVID-19. Emergency lockdown has a safety measure upended the lifestyles of college students, mother and father and teachers. To fight this inevitable disaster instructional sectors began out accomplishing the net classes. The surprising changeover in coaching/mastering approach has raised new demanding situations and opportunities. In this study, a survey primarily based totally-research has been accomplished to examine the efficacy of on-line coaching and mastering approach as compared to standard coaching approach. A questionnaire-primarily based totally survey is ready to accumulate the information from one-of-a-kind diploma college students, schools and mother and father with wellknown publics. A general of 874 responses accrued from humans of various history participated withinside the survey. The evaluation of accumulated responses verify that the conventional chalk and speak method is regularly higher than on-line sessions. Results and evaluation indicated that loss of facilities, infrastructure, technical equipment and the net get entry to are the foremost disadvantage for accomplishing on-line sessions. The guidelines and tips are furnished to enhance the present day on-line coaching techniques to outreach many college students and enhance nice coaching/mastering experience.

The precautions to be taken via way of means of the colleges to keep away from speedy unfold of COVID-19 instances are excessive lightened, if colleges/universities open earlier than vaccination.

- ❖ **Muhammmad SULEIMAN (2020)** in his study of “Digital Education: Opportunities, Threats, and Challenges” mentioned that Digital education is largely an innovation of recent decades, although it has existed in many forms a little earlier. In the short term, the education system environment is predicted to mitigate unforeseen natural and man-made pandemics like Covid19 in 2020 by significant changes related to the digitization of part of the system. . This article aims to provide valuable ICT and digital education perspectives on the future benefits, risks and challenges associated with the adoption of the latest technologies in the digital era and extensive online courses.

We have seen a profound change in the way we interact and produce among academics with the advent of Internet technology. Overall, the digital revolution has promoted free access to information. Today's classrooms are full of ICT resources. Almost all teachers have made great strides in integrating digital technology to increase learners' access to information and collaborative activities.

- ❖ **T.Muthuprasada, S.Aiswaryab, K.S.AdityaaGirish K.Jha (2021)** in their study “Students’ perception and preference for online education in India during COVID -19 pandemic” mentioned that educational institutions around the world have closed due to the COVID19 pandemic putting academic schedules at risk. Most educational institutions have turned to online learning platforms to maintain academic activities. However, the questions of e-learning preparation, design and effectiveness are still not well understood, especially for a developing country like India where technical limitations are not clear. as device adequacy and bandwidth availability pose a serious challenge. In this study, we focused on understanding the perceptions and preferences of agricultural students towards e-learning through an online survey of 307 students. We also explore students' preferences for different attributes of online courses, which will be helpful in designing an effective online learning environment. The results indicate that the majority of respondents (70%) are willing to take online courses for program management during this pandemic. Most students prefer to use smartphones to study online. Using content analysis, we found that students liked recorded lessons with a quiz at the end of each lesson to enhance learning. Students feel that the flexibility and convenience of online courses make it an attractive option, while broadband connectivity problems in rural areas make it difficult for students to use the



internet. appropriate learning initiatives. However, in agricultural education systems where there are many practice-oriented courses, a full transition to online mode may not be feasible and requires a hybrid mode, ideas in this article. This can be useful in designing curricula for the new modality.

- ❖ **Mohana Sujana SV (2021)** in her study “Impact of Digital learning among students” mentioned that The world has now supported modern culture with more progress and development, encouraging people to buy, sell, communicate, etc., from one place. The reason behind this modernization and advancement in technology and the internet has paved the way for digitization. Nowadays people are completely dependent on technology and internet to meet all the common human needs that need to be done easily and quickly, this has led to the entry of digitization in all sectors and sectors of the economy are occupied by digital technology. Concepts. Therefore, we entered the field of education digitization through various available sources and it was widely accepted by the people. Digital learning technologies have become ubiquitous in education over the past few years; and it quickly skyrocketed due to the widespread pandemic situation in our country. So, this article discusses the impact of digital learning technology on students, which is now widely practiced. Although the adoption of some of these new digital learning technologies has been studied, there are few barriers that students face in accepting this technology. One of the most difficult downsides is that the physical interaction has been affected to some extent due to the current storyline. In this study, we compared digital learning technologies (voting, classroom feedback, and classroom chat) and their impact and student adoption of technology.

- ❖ **M. Samir Abou El-Seoud, Islam A.T.F. Taj-Eddin, Naglaa Seddiek, Mahmoud M. El-Khouly, Ann Nossei** in their study of “E-Learning and Students’ Motivation: A Research Study on the Effect of E-Learning on Higher Education: says that — Most Egyptian universities face many educational challenges and barriers that technology can help overcome. Open source code, such as the Moodle e-learning platform, has been deployed in many Egyptian

universities. Moodle can be used as an aid to deliver e-content and provides various capabilities for implementing asynchronous e-learning web modules. This paper shows that the use of interactive features of e-learning increases university students' motivation towards the learning process.

❖ **Montgomery Van Wart, Anna Ni, Pamela Medina, Jesus Canelon, Melika Kordrostami, Jing Zhang & Yu Liu(2020)** in their study of “Integrating students’ perspectives about online learning: a hierarchy of factors” mentioned that on a Large-scale (n = 987) exploratory factor analysis study. It includes various concepts identified in the literature as critical success factors for online learning from a student's perspective, determining their hierarchical importance. Seven elements have been identified as important and reliable: basic online modality, educational support, educational attendance, cognitive presence, online social convenience, online interactive modality, and social presence. According to regression analysis, the minimum factors for enrolling in future courses were basic online modality, cognitive presence, and online social convenience when students considered convenience and scheduling. Students who have accepted or accepted their own online courses desire a minimum of basic online modality, classroom presence, cognitive presence, online social convenience, and social presence. I was there. Students who prefer face-to-face instruction and need equal experience appreciated the online interactive modality and instructional support. Recommendations for online course design, policies, and future research are provided.

## Research Approach

### Exploratory Research:

Exploratory research is defined as research used to investigate an issue that has not been clearly defined. It is conducted to better understand the problem at hand, but will not yield precise results. For such research, a researcher starts with a general idea and uses this research as a way to identify problems, which may be the subject of future research. An important aspect here is that the researcher must be prepared to change direction according to the revelation of new data or ideas. Such research is usually done when the problem is in its preliminary stage. It is often referred to as the grounded theoretical approach or interpretive research, as it is used to answer questions such as the what, why, and how. There are two types of research which are called primary and secondary. Under these two categories, there are several methods that can be used by a researcher. The data collected from this study can be qualitative or quantitative.

### The importance of exploratory research

1. Exploratory research is done when a topic needs to be deeply understood, especially if the topic has never been done before.
2. The purpose of this research is to explore the problem and break it down, not to draw conclusions. This type of research will allow the researcher to establish a strong foundation to explore their ideas, choose the right study design, and find the variables that are really important for analysis.
3. More importantly, such research can save organizations or researchers a lot of time and resources as it will tell the researcher whether it is worth pursuing or not.

### Simple Random sampling:

A random sample is simply a randomly selected subset of a population. In this sampling method, each member of the population has exactly the same chance of being selected. This method is the easiest of all probability sampling methods, as it involves only a random selection and requires little prior knowledge of the population. Because it uses randomization, any study done on this sample must have high internal and external validity.

### When using simple random sampling

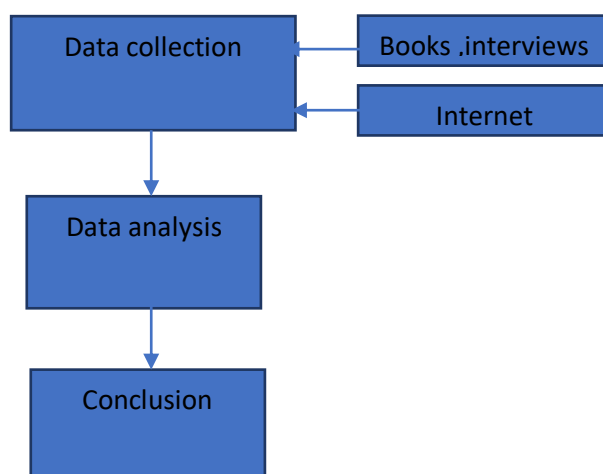
random sampling is used to derive statistical inferences about the population. This helps ensure high internal validity. Randomization is the best way to reduce the effects of potential confounding variables.

In addition, if the sample size is large enough, the simple random sample will be more externally valid. It represents the characteristics and features of a larger population. However, a simple random sample can actually be difficult to implement. There are some requirements to use this method.

- There is always a combination of a complete list of all members of the population.
- If selected, you can contact or access any member of the population.
- You have the time and resources to collect data from the required sample size.

Simple random samples work best if you have a lot of time and resources to perform your survey, or if you are surveying a limited population that can be easily sampled.

**Data Collection :** The purpose of any data collection is to collect quality evidence and transform it into a rich data analysis so that you can build convincing and reliable answers to questions raised.



**Figure: data collection process**

## Primary Data

Collecting primary data from a variety of people and their opinions and information for specific research purposes helped to carry out the analysis. In essence, the question was customized to derive useful data for the study. The data was collected through questionnaires to understand the experience and preferences of a loyal company.

- Interviews
- Opinion and information collection
- Survey
- Questionnaire etc.

## Secondary Data

To make primary data collection more specific, secondary data helps make data collection more useful. This helps to improve understanding of the problem. Secondary data is collected from various sources such as different commercial websites and published articles.

- Books /library
- Internet
- News reports
- Journals
- Census

## Scope of the study: Pan India Sample

size: The total sample size taken for the survey is 155

## Sample Design:

- ♣ Questionnaire
- ♣ Google Doc
- ♣ Landbot.io

### Sample Technique:

- Simple random sampling

**Structure of Questionnaire:** The questionnaire was designed on the basis of objectives of the study. The Questionnaire was designed with multiple choice, rating scale, open ended, Yes & No types of questions to make respondents to answer the questions with less effort. The close ended questions made it for a respondent to just tick the appropriate answer among a set of others.

### Data Collection Method:

- ♣ Primary Data from the consumer
- ♣ Secondary Data from the Internet Data Analytical Tools:

### To test hypothesis

- We will use Anova-Single factor testing
- We will use t-Test( Two-Sample Assuming Unequal Variances)
- We will use descriptive statistics
- MS Excel will be used for data collection.
- Ms word

## **Problem Statement**

We'll look at some of the most pressing issues in online education today.

1. Students in online classrooms complain about a lack of motivation due to a lack of human contact between the students and the teacher.
2. Infrastructure Issues, the need for infrastructure like computer, appropriate software, steady energy, and high-bandwidth internet are all necessities.
3. Technical Issues and Digital Literacy - The continual technical challenges that both professors and students confront on these platforms is a major issue.
4. Lack of face-to-face interaction.
5. There aren't enough EdTech and online learning options for students with special needs.
6. Course Design and Content-Even the course material and structure were considered to be modernised as a result of the change to online learning and other current teaching methods. Unfortunately, this has not been the case. Even after going online, institutions have kept their outdated course material and structure.
7. Distractions everywhere, a lack of discipline,

## **Objectives**

- 1) To study the extent to which Digital learning with respect to modern technology has impacted students learning, their perspective and willingness to continue Digital learning process.
- 2) To understand the challenges in Digital learning among UG and PG students.
- 3) To understand the opportunities in Digital learning among UG and PG students of Universities/Higher educational institutional.



## Hypothesis Development

### Hypothesis:

Students of UG and PG courses feel accessibility of resources and studying at their comfort makes them learn better without much disturbance of external factors. There is again some issues like physical health or mental health concern among them for always being in front of screen to continue their learning process. The era has come when both traditional and digital learning process in a combine's mode can create wonder in the education system and mitigate each-others drawbacks efficiently. So, by this I can hypothesis that-

**H01:** there is no association between convenience, availability and satisfaction in terms of digital learning process among UG and PG students of universities/higher education institutions.

**H1:** there is an association between convenience, availability and satisfaction in terms of digital learning process among UG and PG students of universities/higher education institutions.

**H02:** there is no association between demotivation of continuing online classes and mental/physical health issues among UG and PG students of universities/higher education institutions.

**H2:** there is an association between demotivation of continuing online classes and mental/physical health issues among UG and PG students of universities/higher education institutions.

**H03:** the combination of both traditional and digital learning process will not have better impact on providing quality education to UG and PG students of universities/higher education institutions.

**H3:** the combination of both traditional and digital learning process will have better impact on providing quality education to UG and PG students of universities/higher education institutions.

### Data Analysis and Interpretation

Table no 1	Gender profile	
Particulars	No of respondents	In %
Female	69	45%
Male	77	50%
Prefer not to say	7	5%
Others	2	1%

**Interpretation:** from the collected data , it can be interpreted that 45% of the respondents are female and 50% of the respondents are male and 5% didn't want to say their gender.

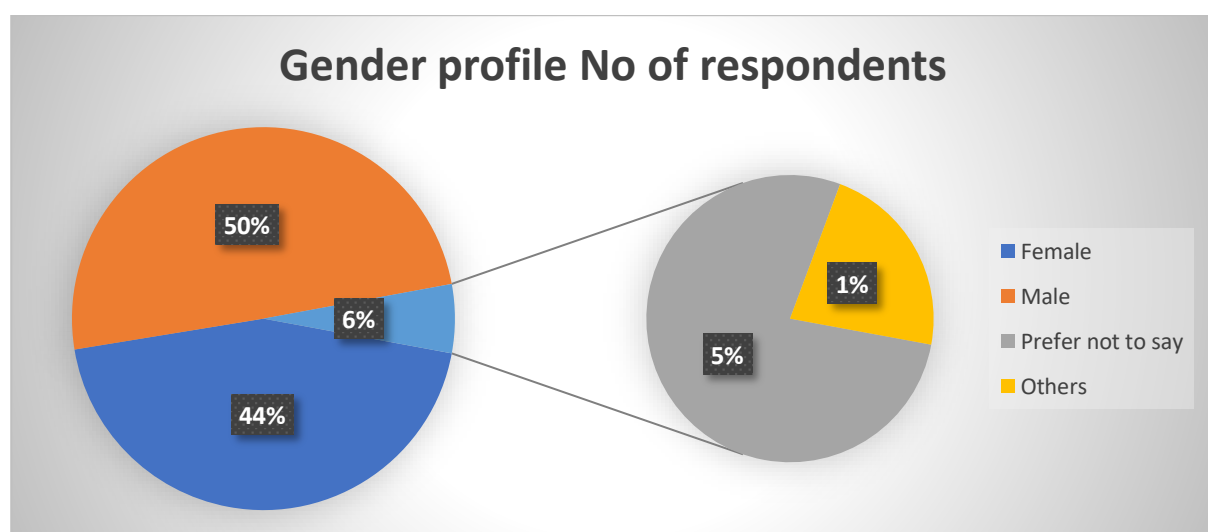


Figure:1

Table no 2	Age profile	
Particulars	No of respondents	In %
Below 18	2	1%
18-22 years	31	20%
23-25 years	108	70%
Above 25	14	9%

**Interpretation:** from the collected data , it can be interpreted that 20% of the respondents are of age between 18-20 years and 70% of the respondents are of age between 23-25 years and 9% are of above 25 years old.

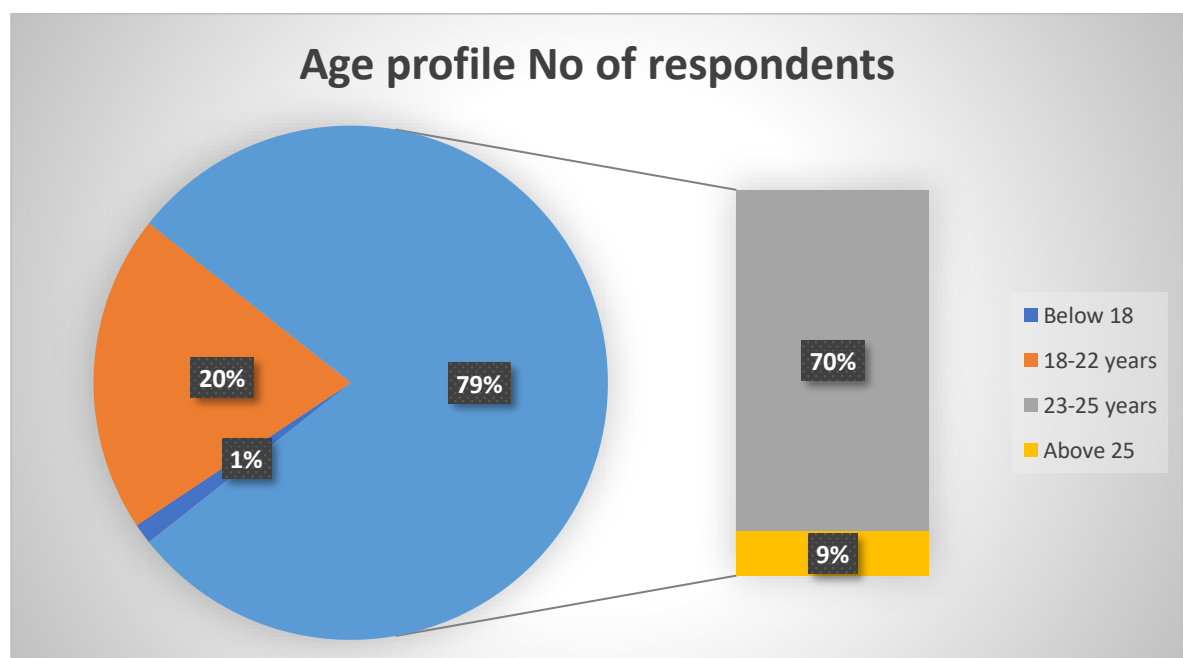


Figure:2

Table no 3	Education profile	
Particulars	No of respondents	In %
Graduation	33	21%
Post-Graduation	120	77%
Other	2	1%

**Interpretation:** from the collected data, it can be interpreted that 21% of the respondents are doing their graduation course and 77% of the respondents are of Post-Graduation course.

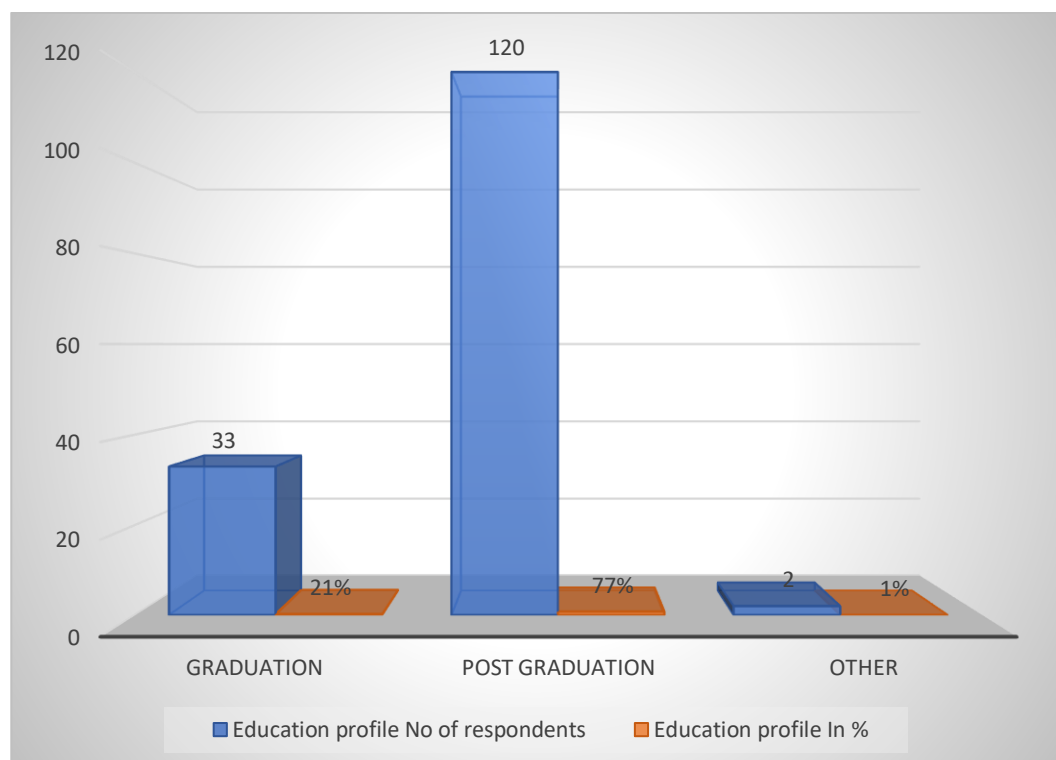
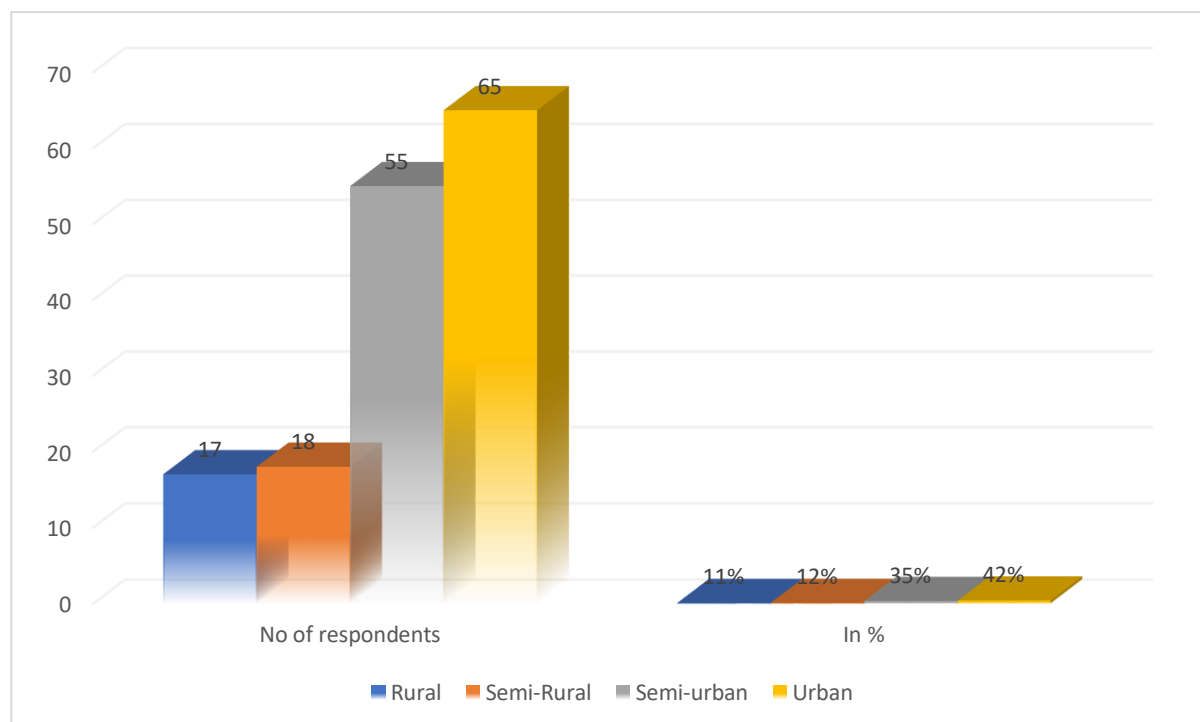


Figure:3

Table no 4	Profile	
Particulars (Nativity of the respondents)	No of respondents	In %
Rural	17	11%
Semi-Rural	18	12%
Semi-urban	55	35%
Urban	65	42%

**Interpretation:** from the collected data , it can be interpreted that 11% of the respondents are from rural area and 35% of the respondents are from semi-urban and 42% of the respondents are from urban area.



**Figure:4**

Table no 5	Profile	
Particulars(Which mode of learning do you support?)	No of respondents	In %
Traditional learning	18	12%
Digital learning	24	15%
Combination of both/ Hybrid learning	111	72%
Not sure	2	1%

**Interpretation:** from the collected data , it can be interpreted that 72% of the respondents prefer the combination of both traditional and digital learning system and 15% of the respondents like to have digital learning mode and 12% of the respondents are in favour of traditional learning process.

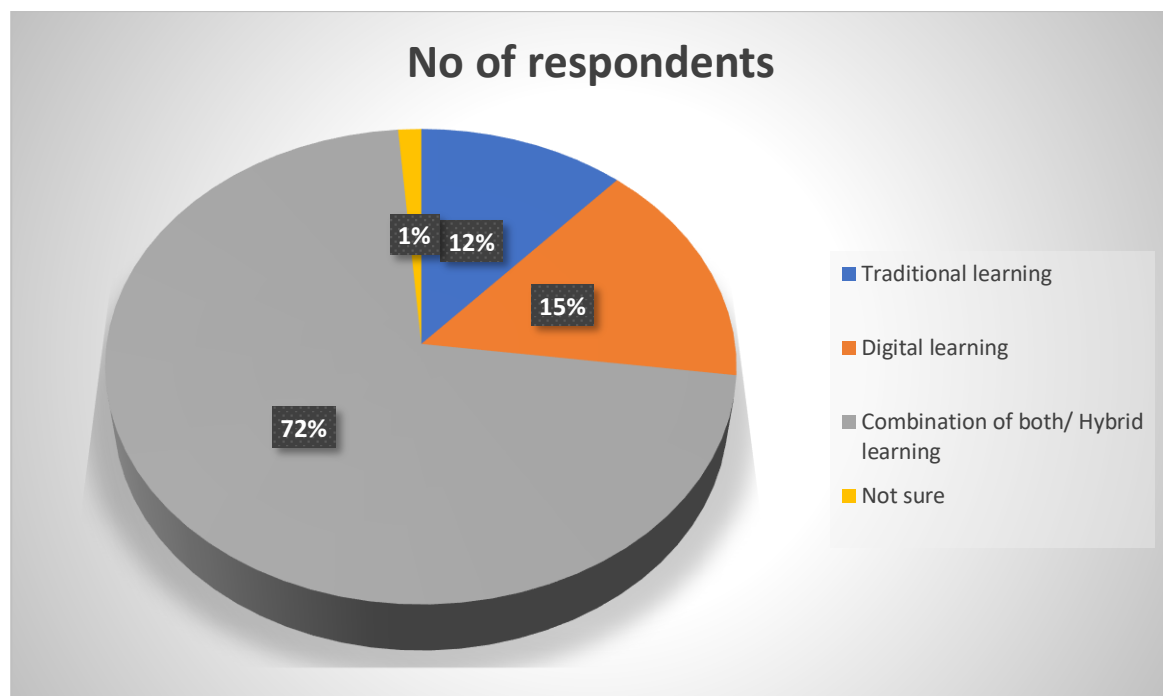


Figure:5

Table no 6	Profile	
Particulars(Are you being part of Digital learning process?)	No of respondents	In %
Yes	143	92.3
No	6	3.9
Maybe	4	2.6
Not sure	2	1.3

**Interpretation:** from the collected data, it can be interpreted that 92.3% of the respondents are being part of Digital learning process and 3.6% of the respondents are not being part of it.

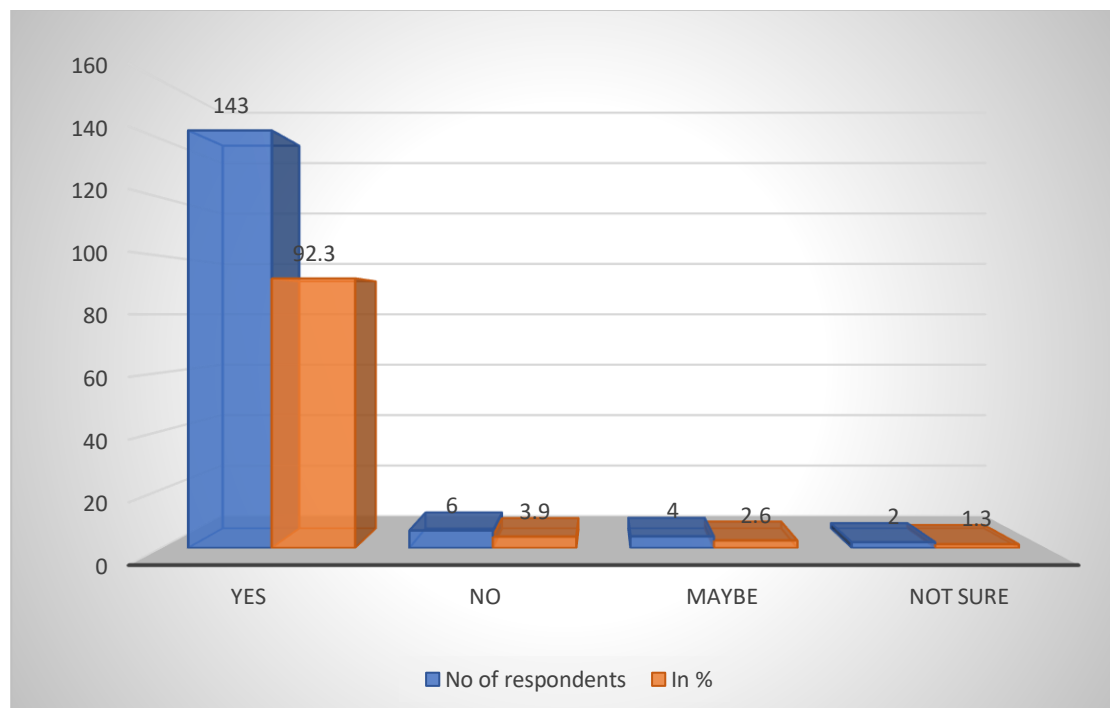


Figure:6

Table no 7	Profile	
Particulars(Which of the Digital approaches motivate you learn ?)	No of respondents	In %
Animation	57	36.8
Whiteboard and pen	62	40
Power point presentation	133	85.8
Digital pen and slate	76	49
others	4	2.4

**Interpretation:** from the collected data, it can be interpreted that 85.5% of the respondents and 36.8% of the respondents gets motivated towards digital learning process due to use of Power point presentation and animation and 40% of the respondents are attracted by using of whiteboard and pen and 49% of the respondents inclined toward it due using of Digital pen and state.

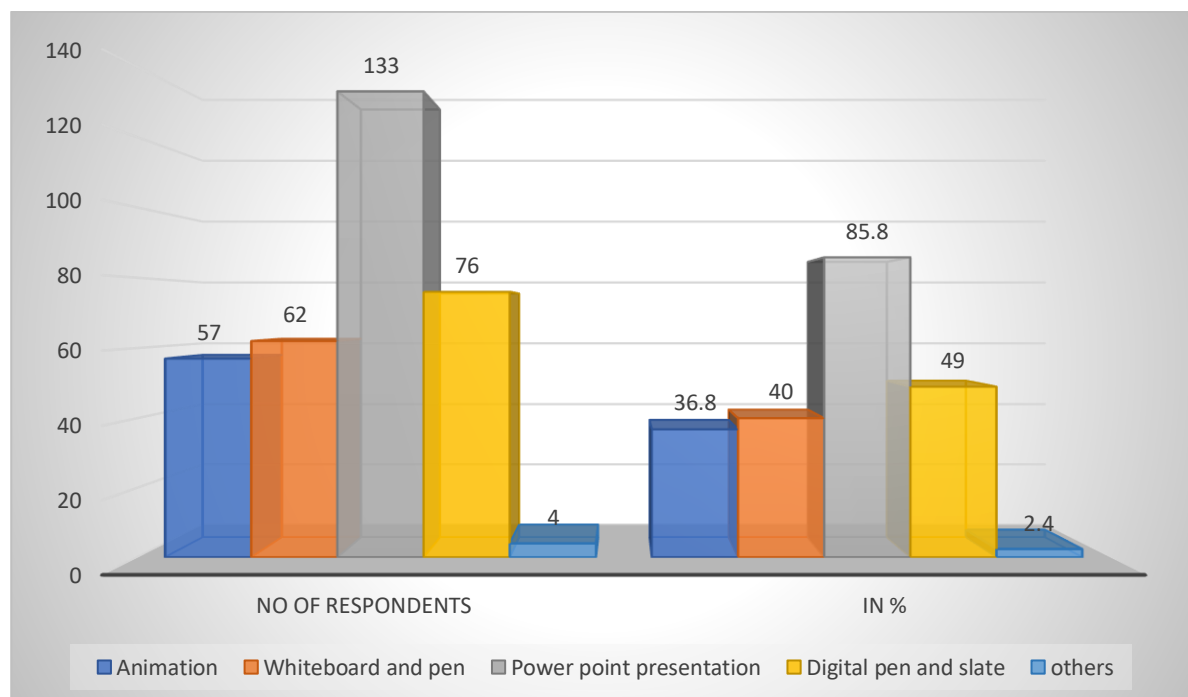


Figure:7



Table no 8	Profile	
Particulars (Yours experience with online learning from home digitally?)	No of respondents	In %
I am learning at my own pace comfortably	121	78.1
My situational changes are not suitable	24	15.5
I can learn better with uninterrupted network connectivity	96	61.9
I am distracted with various activities at home, viz. TV, chatting, etc-4	21	13.5
Others	10	6.5

**Interpretation:** from the collected data , it can be interpreted that 78.1% of the respondents are learning at their own space comfortably and 61.9% of the respondents think they can learn better without network connectivity.

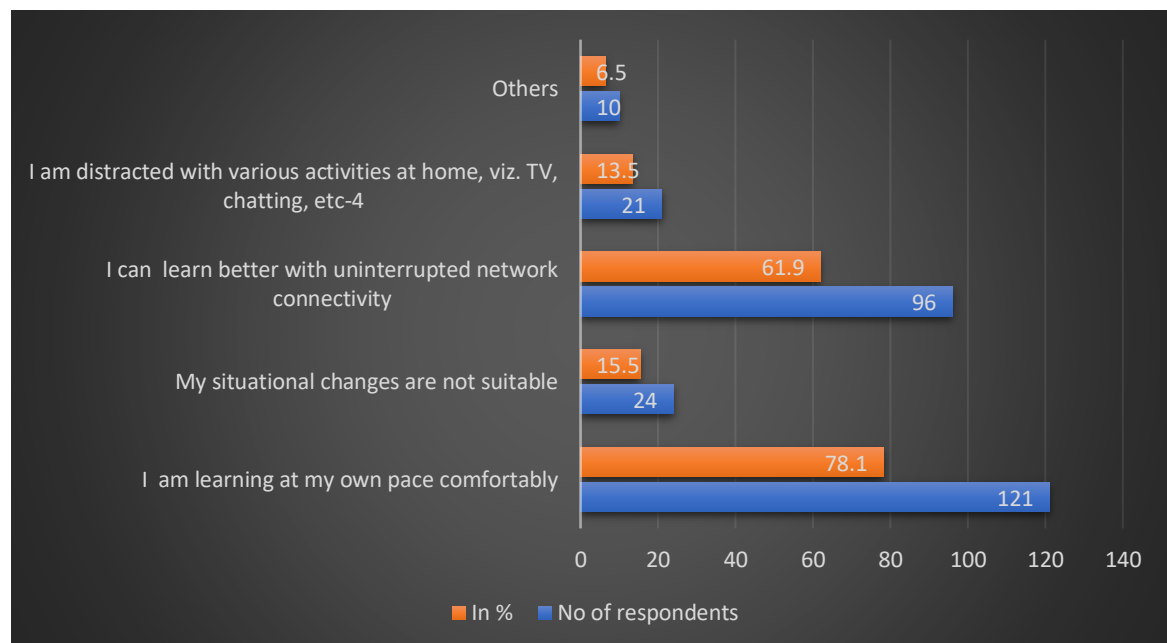


Figure:8

Table no 9	Profile	
Particulars (Do you feel Digital learning process is more convenient and helpful for easy and efficient learning process?)	No of respondents	In %
1(strongly disagree)	6	3.9
2(Disagree)	10	6.5
3(Neutral)	19	12.3
4(Agree)	49	31.6
5(strongly agree)	71	45.8

**Interpretation:** from the collected data , it can be interpreted that 45.8% of the respondents strongly agree that digital learning process is more convenient and helpful for easy and efficient learning process and 6.5% of the respondents disagree upon that.

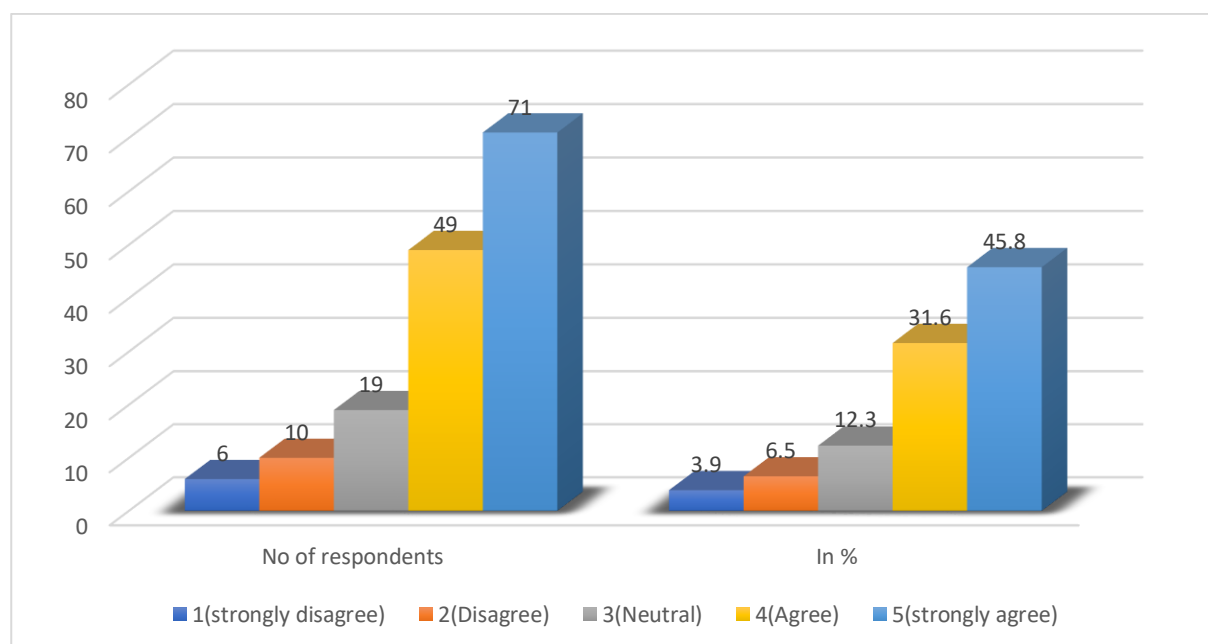


Figure:9

Table no 10	Profile	
Particulars(Do you think the accessibility of resources has become easier due to digital learning platforms?)	No of respondents	In %
1(strongly disagree)	4	2.6
2(Disagree)	9	5.8
3(Neutral)	15	9.7
4(Agree)	53	34.2
5(strongly agree)	74	47.7

**Interpretation:** from the collected data ,it can be interpreted that 47.7% of the respondents think that the accessibility of resources has become easier due to digital learning platforms and 5.8% of the respondents are against on it.

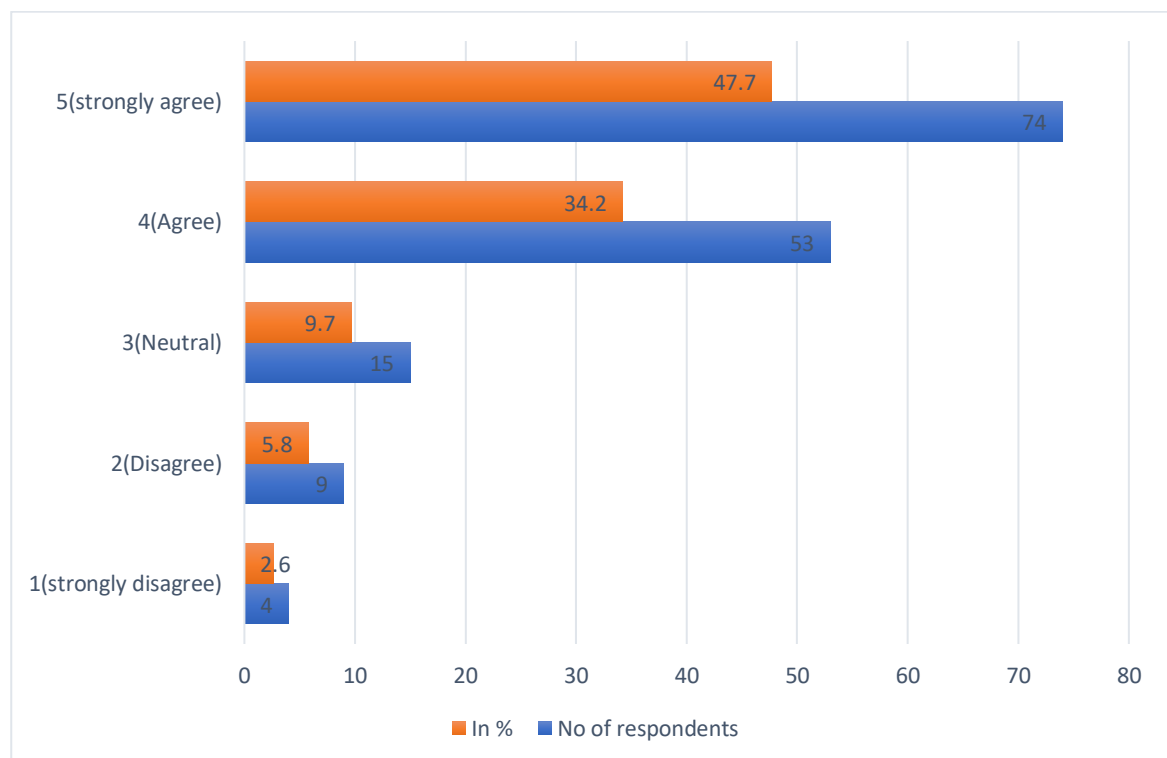


Figure:10

Table no 11	Profile	
Particulars (Do you think the availability of resources has become easier ?)	No of respondents	In %
1(strongly disagree)	4	2.6
2(Disagree)	9	5.8
3(Neutral)	14	9
4(Agree)	58	37.4
5(strongly agree)	70	45.2

**Interpretation:** from the collected data , it can be interpreted that 45.2% of the respondents strongly agreed upon the availability of resources has become easier and 5.8% of the respondents are disagreed on it.

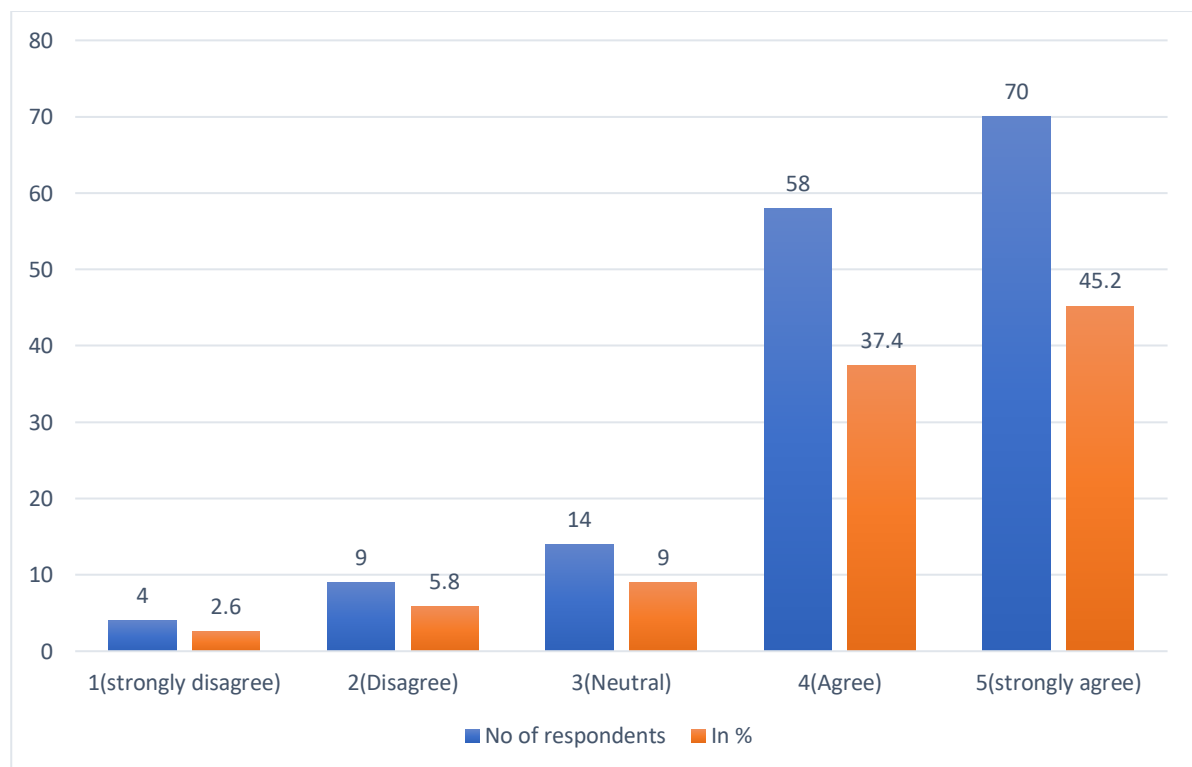


Figure:11

Table no 12	Profile	
Particulars (students have got freedom to learn courses according to their preference at anywhere, anytime?)	No of respondents	In %
1(strongly disagree)	5	3.2
2(Disagree)	6	3.9
3(Neutral)	19	12.3
4(Agree)	49	31.6
5(strongly agree)	76	49

**Interpretation:** from the collected data , it can be interpreted that 49% of the respondents strongly agreed upon that they have got freedom to learn courses according to their preferences and anywhere , anytime and 3.9% of the respondents are disagreed upon it.

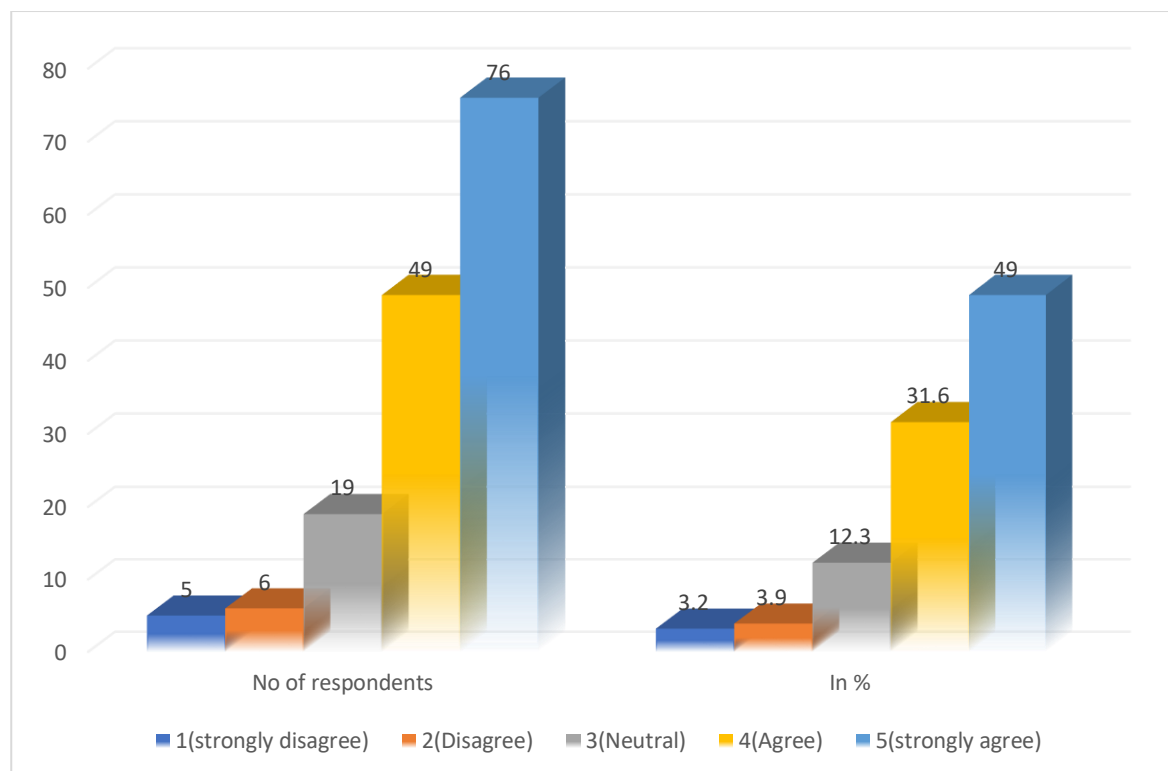


Figure:12

Table no 13	Profile	
Particulars (Online teaching- learning takes place effectively because-)	No of respondents	In %
Every student can hear the lecture clearly	93	60
PPTs are available right in front of every students	107	69
Students can doubt with out much reservation	63	40.6
Students need not walk long distances before reaching the class	49	31.6
Others	13	8.4

**Interpretation:** from the collected data , it can be interpreted that 69% and 60% of the respondents think that online learning takes place effectively because of PPTs are available right in front of every students and Every student can hear the lecture clearly and 49% of the respondents thinks that Students need not walk long distances before reaching the class.

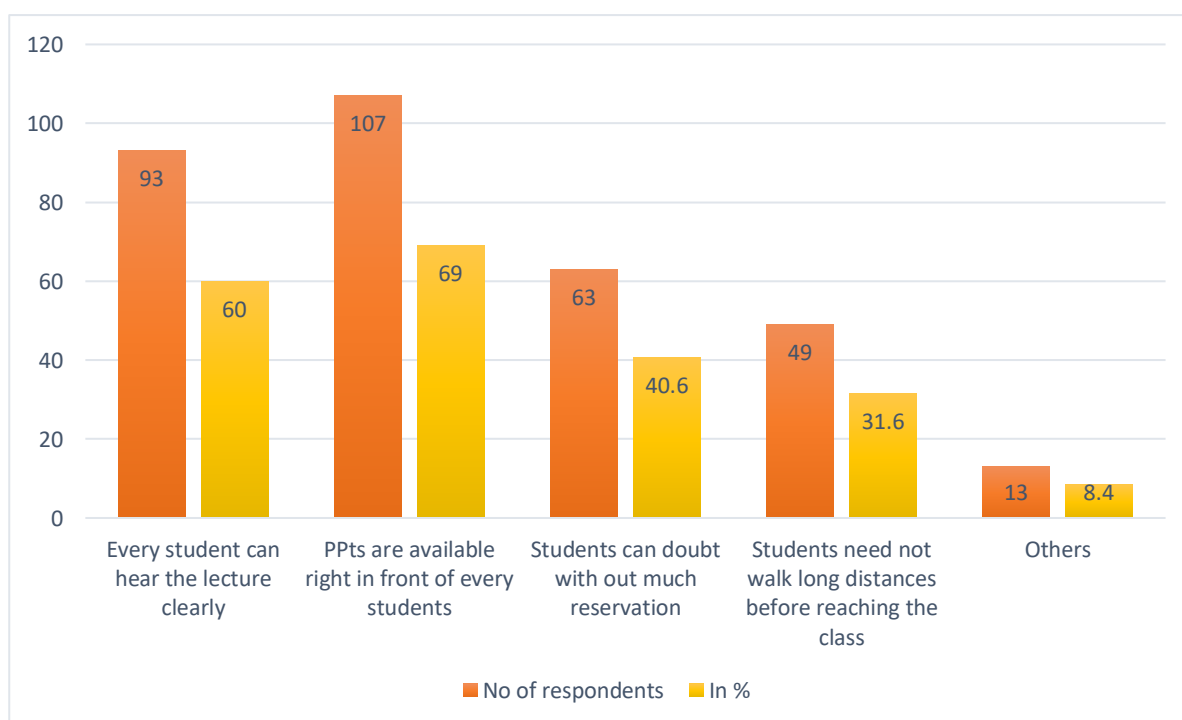
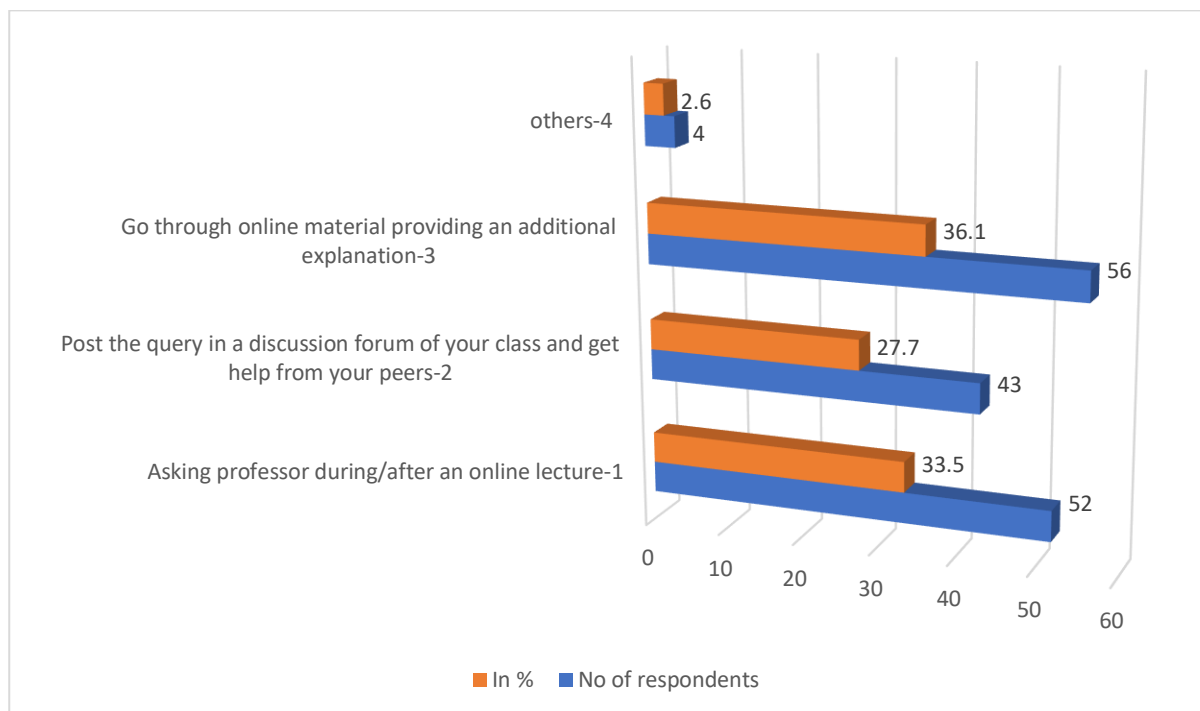


Figure:13

Table no 14	Profile	
Particulars (What is your most preferred methods for clearing doubts in online learning?)	No of respondents	In %
Asking professor during/after an online lecture	52	33.5
Post the query in a discussion forum of your class and get help from your peers	43	27.7
Go through online material providing an additional explanation	56	36.1
others	4	2.6

**Interpretation:** from the collected data , it can be interpreted that 36.1% of the respondents think that their most preferred method of clearing doubts in online learning is to Go through online material providing an additional explanation and 33.5% of the respondents think that their most preferred method of clearing doubts in online learning is to Ask professor during/after an online lecture.



**Figure:14**

Table no 15	Profile	
Particulars (Which of the following devices do you use for your online learning?)	No of respondents	In %
Laptop/desktop computer	145	93.5
Tablet	34	21.9
Smartphone	119	76.8
Other devices	7	4.5

**Interpretation:** from the collected data , it can be interpreted that 93.5% of the respondents are using Laptop/Computer for their online learning and 76.8% of the respondents are using smart phones for their online learning.

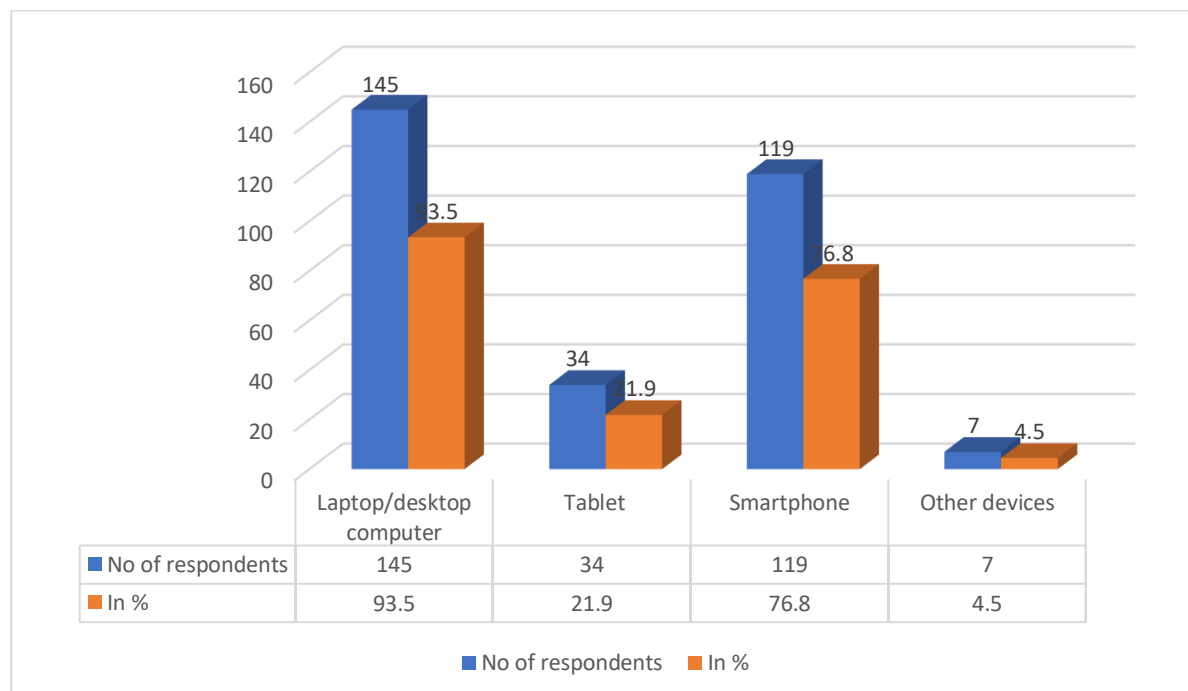


Figure:15



Table no 16	Profile	
Particulars (Do you feel demotivated in pursuing online classes? )	No of respondents	In %
Yes	58	37.4
No	35	22.6
May be	21	13.5
Not sure	7	4.5
Sometime	34	21.9

**Interpretation:** from the collected data , it can be interpreted that 37.4% of the respondents agreed upon that they feel demotivated in pursuing online classes and 21.9% of the respondents sometime feel demotivated and 22.6% of the respondent feel motivated during online classes.

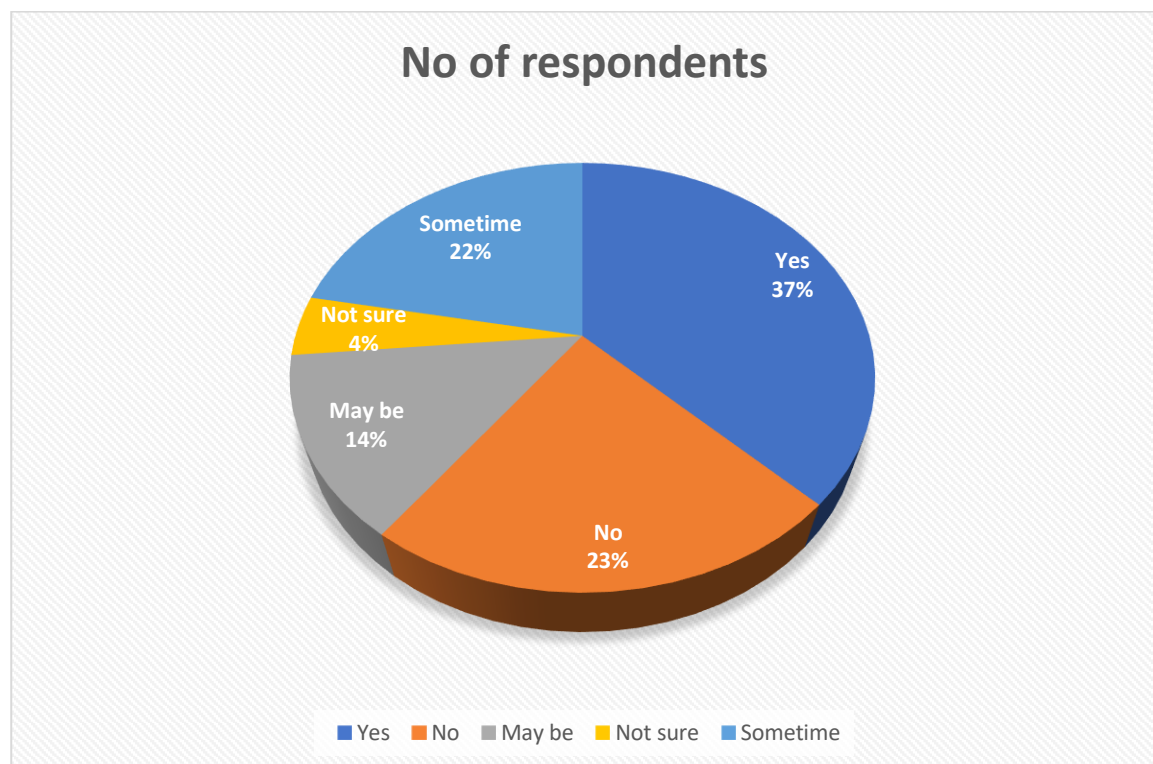


Figure:16

Table no 17	Profile	
Particulars(Do you feel human interaction of physical classroom is important for quality education?)	No of respondents	In %
Yes	117	75.5
No	6	3.9
Maybe	15	9.7
Doesn't make any difference	15	9.7
Not sure	2	1.3

**Interpretation:** from the collected data , it can be interpreted that 37.4% of the respondents agreed upon that they feel demotivated in pursuing online classes and 21.9% of the respondents sometime feel demotivated and 22.6%of the respondent feel motivated during online classes.

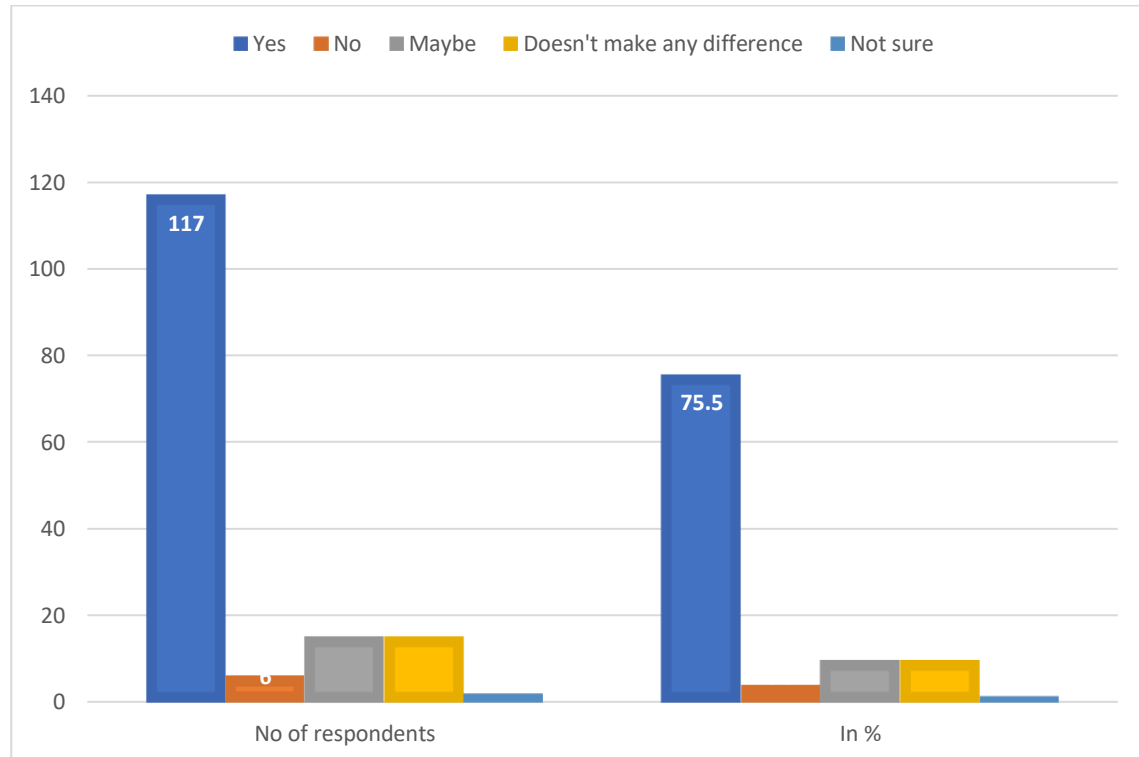


Figure:17

Table no 18	Profile	
Particulars(What do you think about the interaction between teachers and students in this Digital learning process?)	No of respondents	In %
Increased	33	21.3
Decreased	100	64.5
no change	14	9
Not sure	8	5.2

**Interpretation:** from the collected data , it can be interpreted that 64.5% of the respondents agreed upon that they feel the interaction between teachers and students have been decreased in this digital learning process and 9% of the respondents feel that there is no such change but 21.3% of the respondents feel the interaction between teachers and students have been increased.

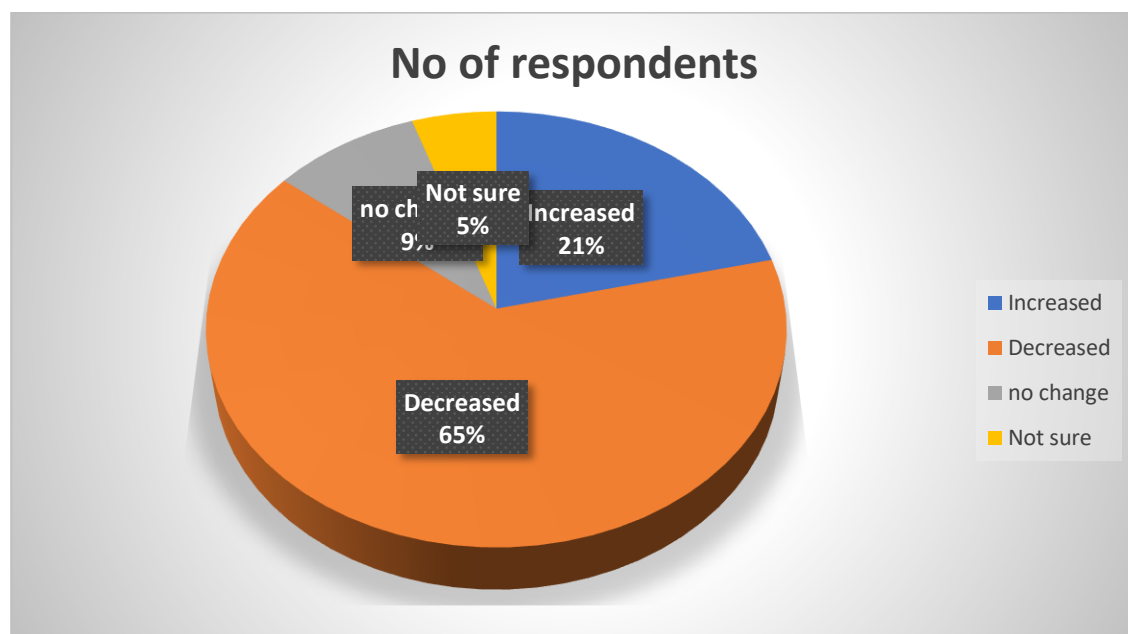


Figure:18

Table no 19	Profile	
Particulars (Do you face infrastructural issues to continue online classes?)	No of respondents	In %
yes	62	40
no	16	10.3
maybe	13	8.4
Sometime	60	38.7
Not sure	4	2.6

**Interpretation:** from the collected data , it can be interpreted that 38.7% of the respondents sometime face infrastructural issues to continue online classes and 40% of the respondents face infrastructural issues and 2.6% of the respondents are not sure about it.

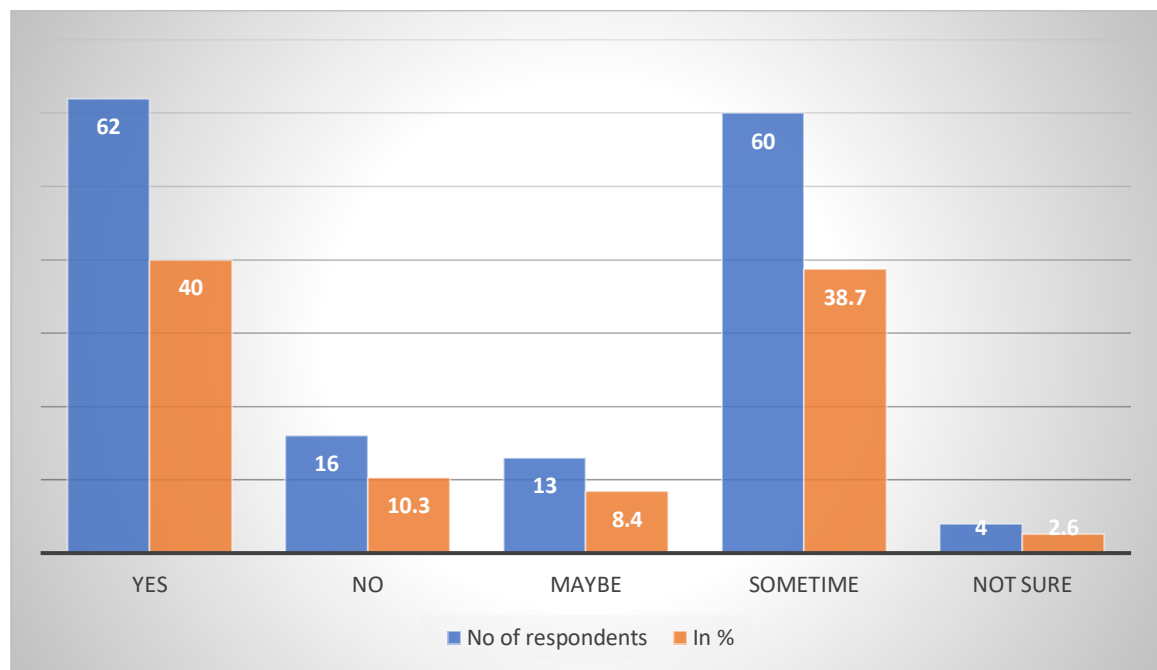


Figure:19

Table no 20	Profile	
Particulars (If yes, what kind of infrastructural issues do you face?)	No of respondents	In %
Computer/Laptop/Tablet issue	91	58.7
No appropriate software	34	21.9
No Steady energy	58	37.4
No High bandwidth internet	75	48.4
No issues	29	18.7

**Interpretation:** from the collected data , it can be interpret that 58.7% of the respondents are facing computer/laptop/tablet issues and 48.4% of the respondents face internet bandwidth issues and 37.4%of the respondents face electricity issues but 18.7% of the respondents are not facing any issues.

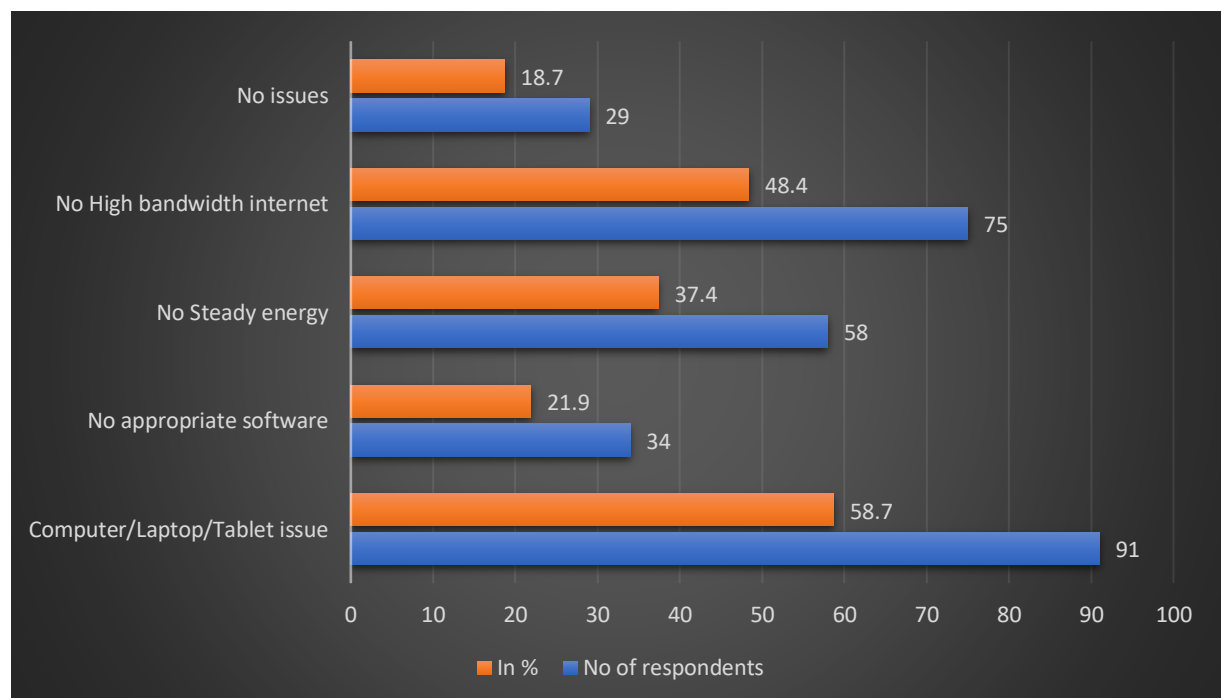


Figure:20

Table no 21	Profile	
Particulars(Have you found a lot of technical issue while attending online classes or webinar etc?)	No of respondents	In %
yes	60	38.7
No	17	11
Maybe	10	6.5
Not sure	10	6.5
Sometime	58	37.4

**Interpretation:** from the collected data ,it can be interpreted that 38.7% of the respondents sometime face technical issues to continue online classes or webinars and 37.4% of the respondents sometime face technical issues and 6.5%of the respondents are not sure about it.

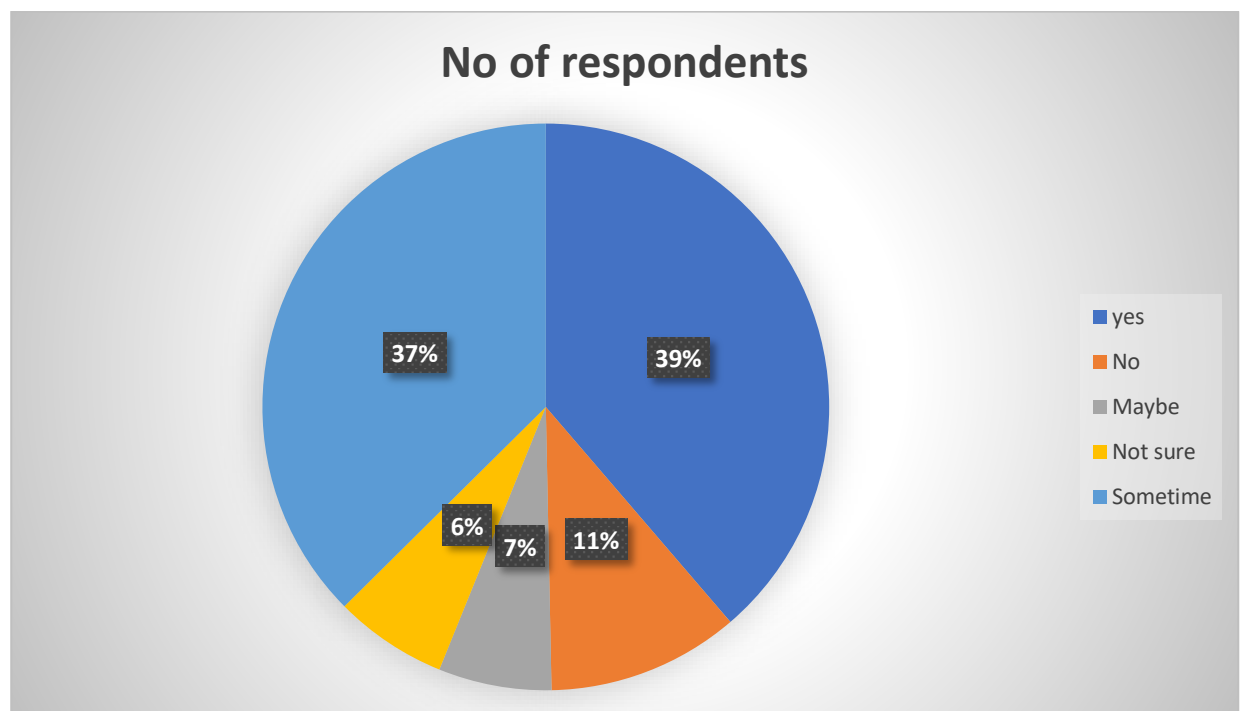


Figure:21

Table no 22	Profile	
Particulars(Do you think online classes is affecting students mental and physical health?)	No of respondents	In %
yes	68	43.9
no	16	10.3
maybe	58	37.4
notsure	13	8.4

**Interpretation:** from the collected data , it can be interpreted that 43.9% of the respondents think online classes affecting students mental and physical health and 10% of the respondents thinks it's not affecting students mental and physical health and 8.4% of the respondents are not sure about it.

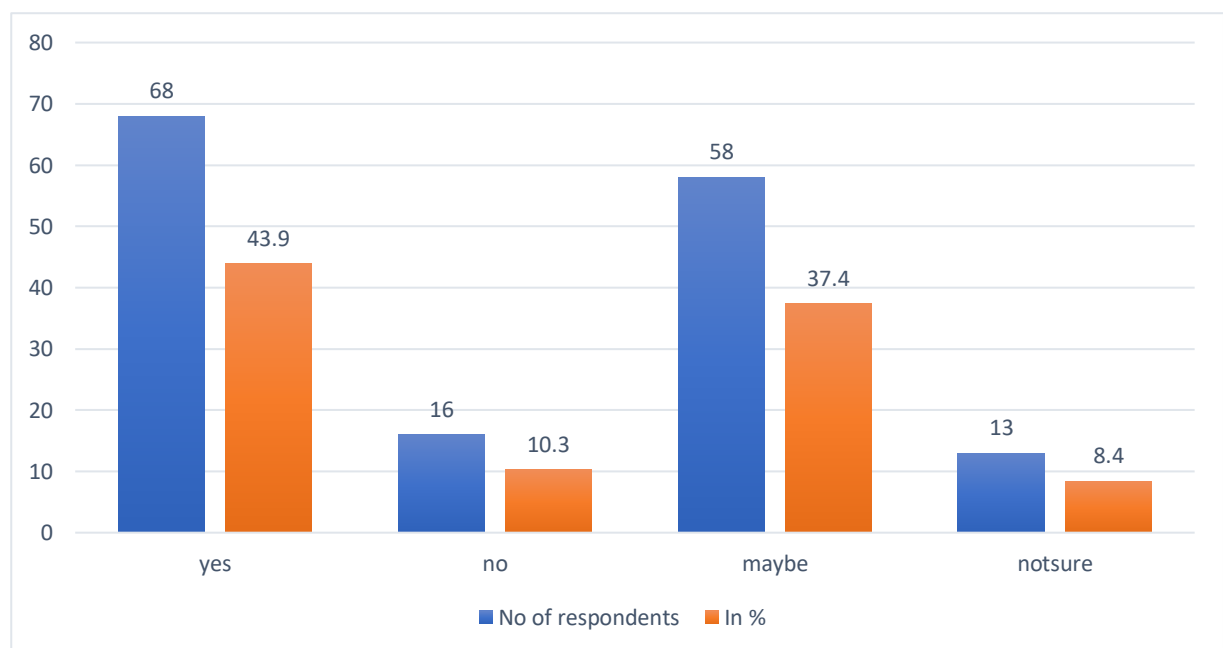


Figure:22

Table no 23	Profile	
Particulars (If yes, what all health issues you are having frequently?)	No of respondents	In %
eye sight problem	71	45.8
Zoom fatigue	20	12.9
stress and Anxiety	24	15.5
No issues	35	22.6
Others...	5	3.1

**Interpretation:** from the collected data , it can be interpreted that 45.8% of the respondents think they r getting eye-sight issues due to online classes and 12.9% of the respondents are having zoom fatigue and 22.6%of the respondents are not having any issues.

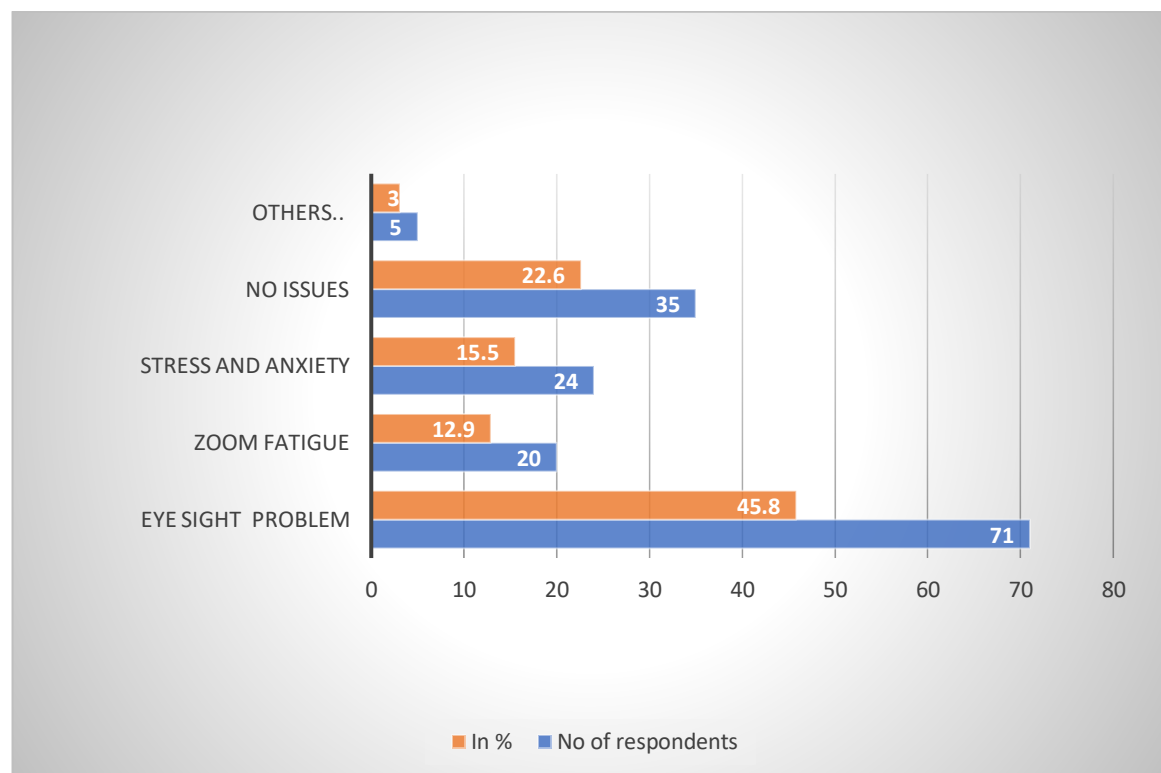


Figure:23



Table no 24	Profile	
Particulars (Do you think Digital learning process are capable of providing Quality education?)	No of respondents	In %
Yes	118	76.1
No	8	5.2
Maybe	23	14.8
Not sure	6	3.9

**Interpretation:** from the collected data ,it can be interpreted that 76.1% of the respondents thinks that Digital learning process are capable of providing Quality education and 5.2% of the respondents are against it. While 14.8% of the respondents thinks may be Digital learning process are capable of providing Quality education.

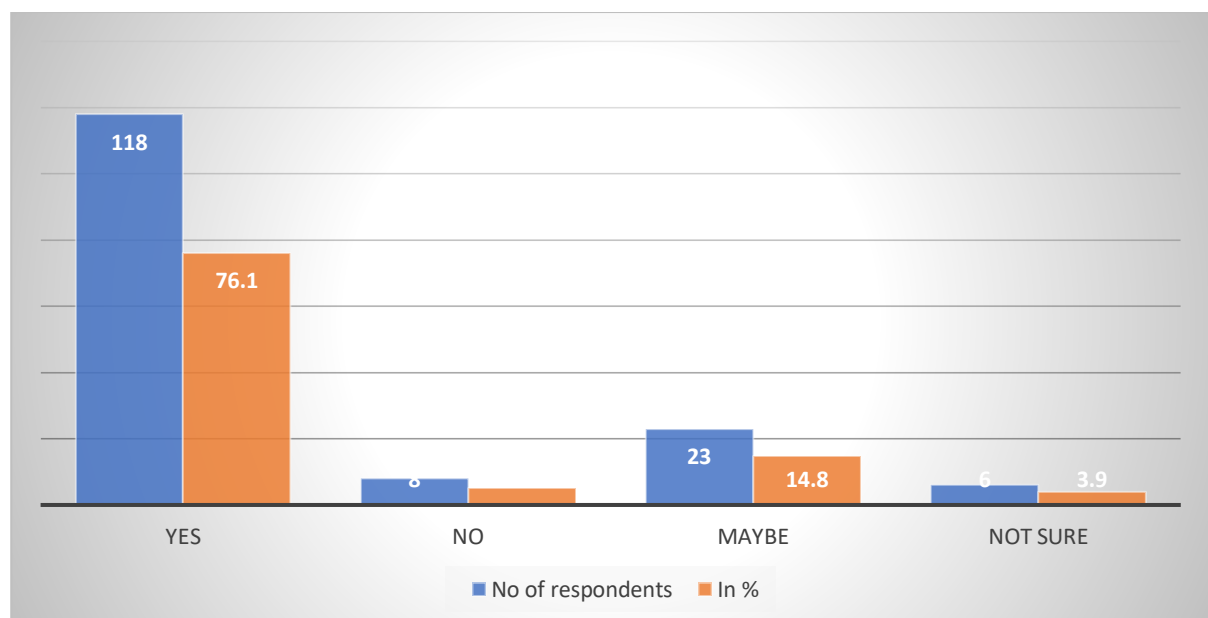


Figure:24

Table no 25	Profile	
Particulars (Do you believe Digital learning is future of quality education ?)	No of respondents	In %
1(strongly disagree)	3	1.9
2(Disagree)	9	5.8
3(Neutral)	19	12.3
4(Agree)	66	42.6
5(strongly agree)	58	37.4

**Interpretation:** from the collected data , it can be interpreted that 42.6% of the respondents do believe Digital learning is future of quality education and 37.4% of the respondents strongly agree that believe Digital learning is future of quality education and 5.8%of the respondents are disagreed on it.

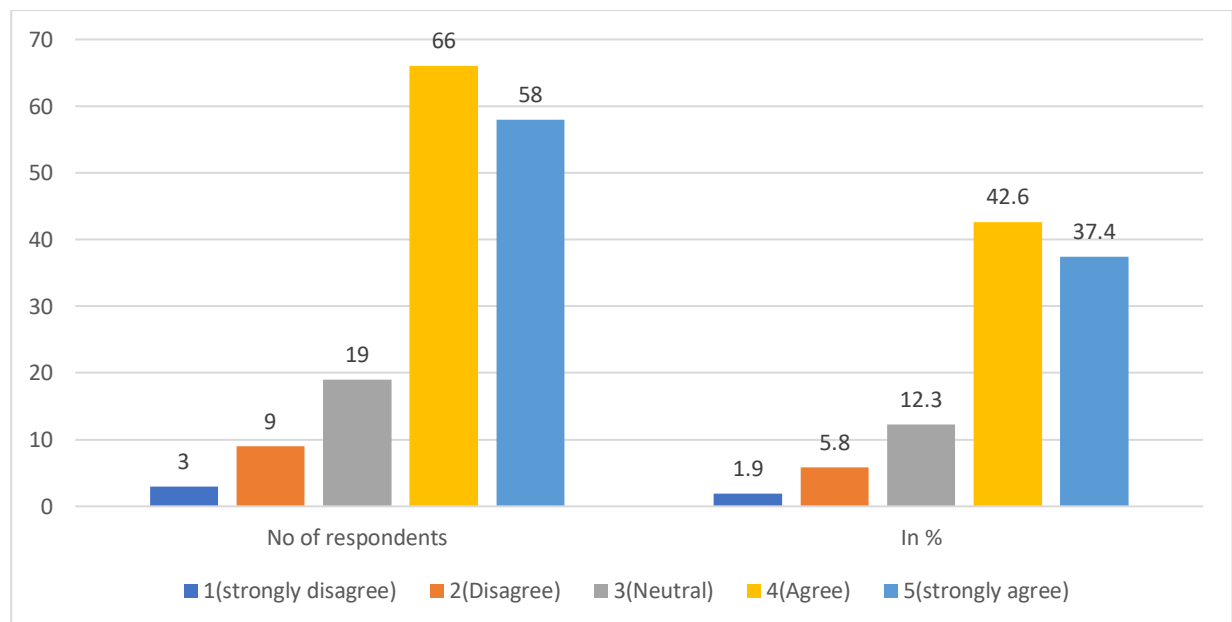


Figure:25

Table no 26	Profile	
Particulars (Do you think the combination of both traditional and digital learning process will have better impact on providing quality education?)	No of respondents	In %
Yes	139	89.7
No	2	1.3
Maybe	10	6.5
Not sure	4	2.6

**Interpretation:** from the collected data, it can be interpreted that 89.7% of the respondents feel that the combination of both traditional and digital learning process will have better impact on providing quality education and 2.6% of the respondents are not sure about it.

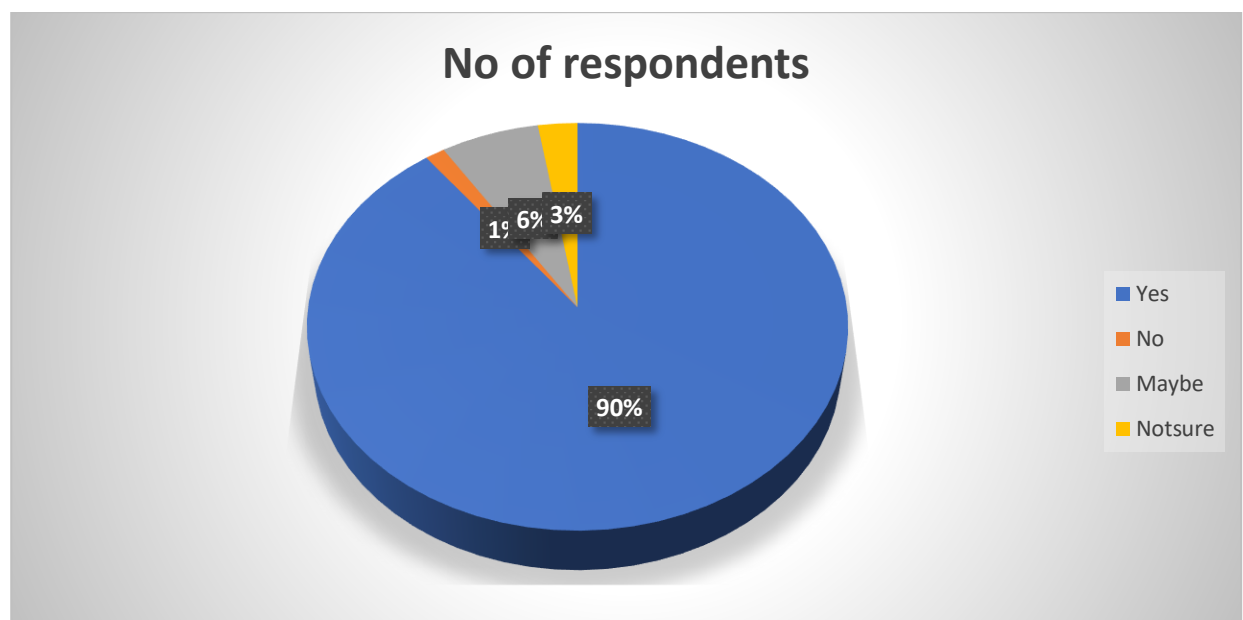


Figure:26

Table no 27	Profile	
Particulars (How satisfied are you being part of Digital education system?)	No of respondents	In %
Very satisfied	58	37.4
Satisfied	75	48.4
Neutral	15	9.7
Dissatisfied	7	4.5
Very dissatisfied	0	0

**Interpretation:** from the collected data, it can be interpreted that 48.4% of the respondents are satisfied of being part of digital education system and 37.4% of the respondents are very satisfied of being part of digital education system and 4.5% of the respondents are dissatisfied about it.

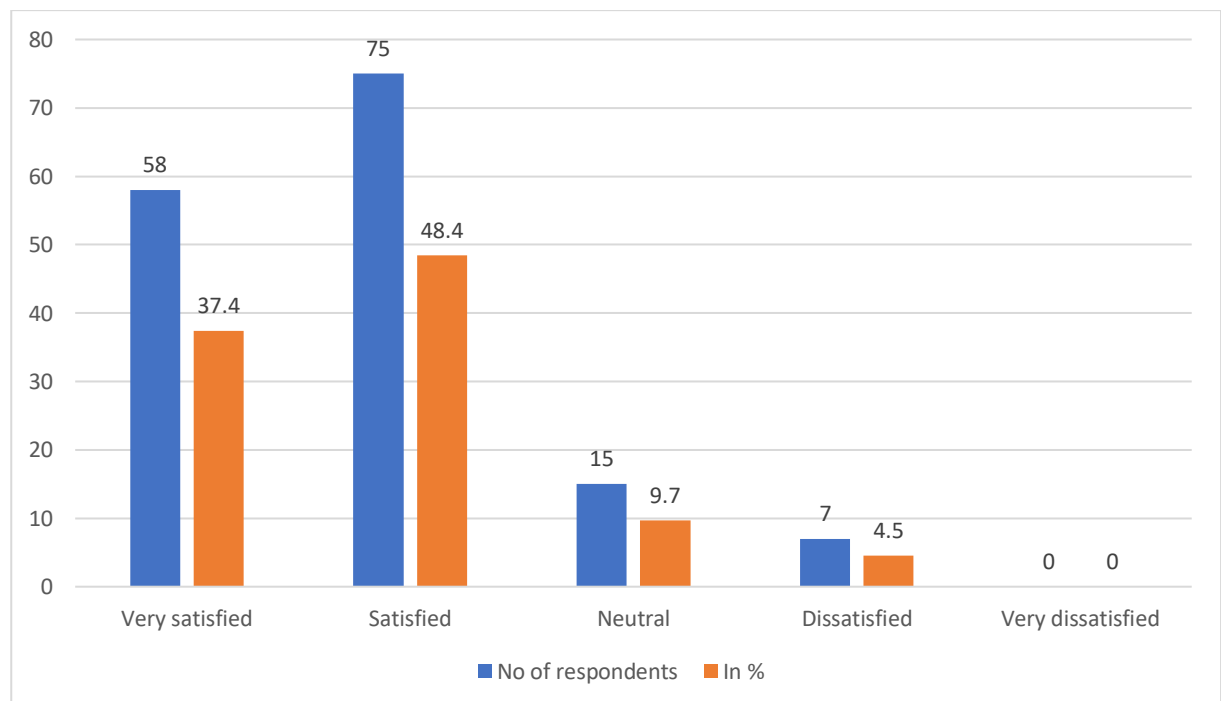


Figure:27

Table no 28	Profile	
Particulars (Are you willing to continue online learning process?)	No of respondents	In %
1(very low)	4	2.6
2(Low)	11	7.1
3(Neutral)	13	8.4
4(High)	78	50.3
5(very high)	49	31.6

**Interpretation:** from the collected data, it can be interpreted that 50.3% of the respondents feel that they are highly willing to continue online learning and 2.6% of the respondents are having very low willing to continue online classes and 8.45 of the respondents are neutral about it.

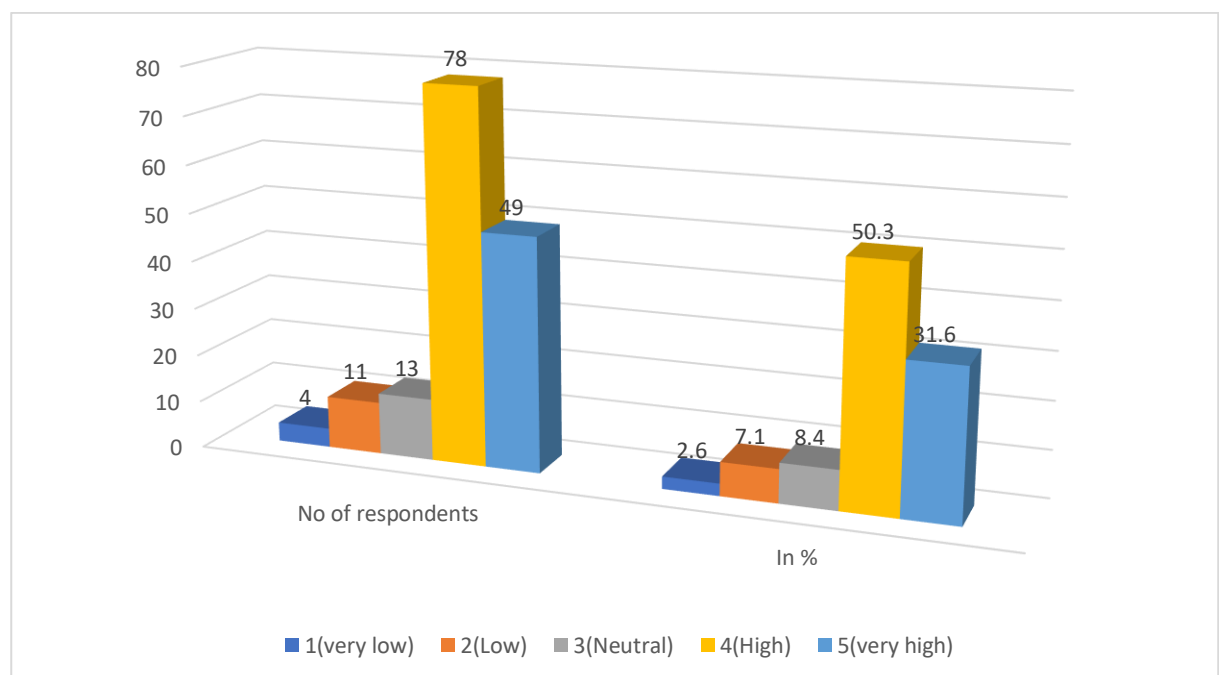


Figure:28

Table no 29	Profile	
Particulars (Would you recommend your peers to pursue online classes?)	No of respondents	In %
Yes	129	83.2
No	6	3.9
Maybe	16	10.3
Not sure	4	2.6

**Interpretation:** from the collected data, it can be interpreted that 83.2% of the respondents will recommend their peers to pursue online classes and 2.6% of the respondents are not sure about it and 3.9% of the respondents will not recommend to their peers to pursue online classes.

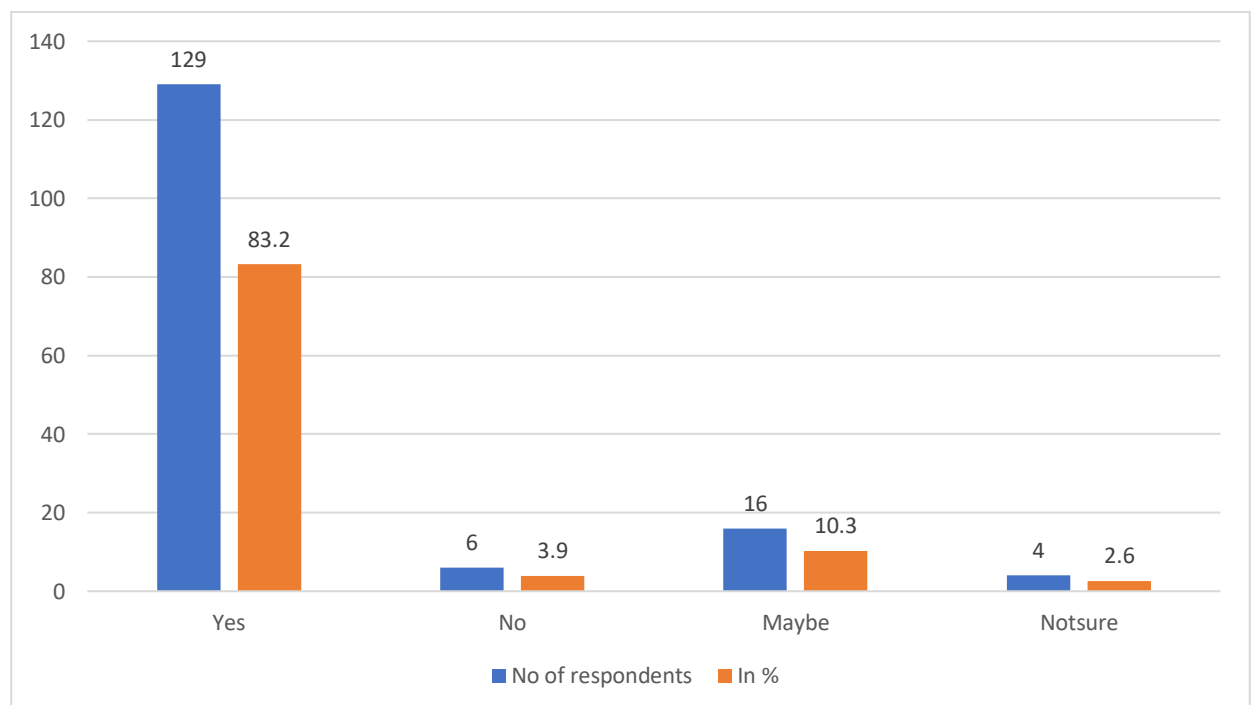


Figure:29

Table no 30	Profile	
Particulars (which education system you look forward to have in future?)	No of respondents	In %
Traditional education system	15	9.7
Digital education system	9	5.8
Hybrid education system (combination of both traditional and digital education system)	130	83.9
Not sure	1	0.6

**Interpretation:** from the collected data, it can be interpreted that 83.9% of the respondents are looking forward to have Hybrid education system (combination of both traditional and digital education system) and 5.8% of the respondents are looking forward to have Digital education system and 9.7% of the respondents are willing to have traditional education system in future.

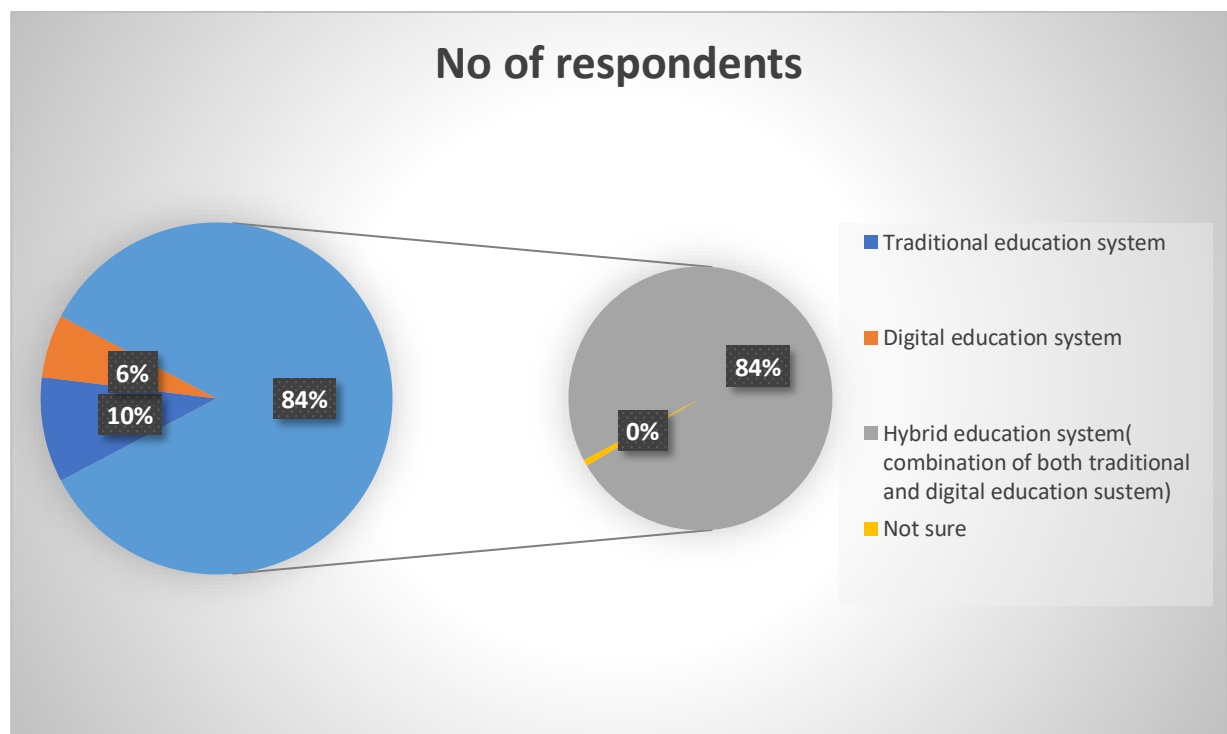


Figure:30

## Hypothesis Testing

**H01:** there is no association between convenience, accessibility and satisfaction in terms of digital learning process among UG and PG students of universities/higher education institutions.

**H1:** there is an association between convenience, accessibility and satisfaction in terms of digital learning process among UG and PG students of universities/higher education institutions.

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	A	B	C	D
1	28. How satisfied are you being part of Digital education system?	10. Do you feel Digital learning process is more convenient and helpful for easy and efficient learning process?	12. Do you think the availability of resources has become easier ?	
2	1	5	5	
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65	2	1	1	
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89	1	4	5	

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91	2	4	4			129	2	4	4	
92	2	5	4			130	2	4	5	
93	2	4	4			131	2	4	4	
94	2	4	4			132	2	5	4	
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109	2	4	4			147	2	5	5	
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114	2	3	4			152	1	4	5	
115	1	4	5			153	3	5	5	
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118	2	5	4			156	2	3	4	
119	2	5	4			157				
120	2	4	4			158				

**Tool used:** MS Excel (Single-factor Anova testing)

Anova: Single Factor						
SUMMARY						
Groups	Count	Sum	Average	Variance		
28. How satisfied are you being part of Digital education system?	155	285	1.8387	0.6816		
10. Do you feel Digital learning process is more convenient and helpful for easy and efficient learning process?	155	634	4.0903	1.1866		
12. Do you think the availability of resources has become easier?	155	646	4.1677	0.9847		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	543	2	271.25	285.24	2.11369E-81	3.0152
Within Groups	439	462	0.951			
Total	982	464				
<b>Conclusion: As F value is greater than F-crit, therefore we reject the Null Hypothesis</b>						

**Interpretation:** as F value > F-crit, we will reject the null hypothesis(H01) i.e. **there is no association between convenience, accessibility and satisfaction in terms of digital learning process among UG and PG students of universities/higher education institutions.** And accept the alternative hypothesis(H1) i.e. **there is an association between convenience, accessibility and satisfaction in terms of digital learning process among UG and PG students of universities/higher education institutions.**

**H02:** there is no association between demotivation of continuing online classes and mental/physical health issues among UG and PG students of universities/higher education institutions.

**H2:** there is an association between demotivation of continuing online classes and mental/physical health issues among UG and PG students of universities/higher education institutions.

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151	4	1	
152	3	4	
153	3	4	
154	3	5	
155	4	2	
156	3	5	
157			
158			

**Tool used:** MS Excel

**Procedure:** here from the data set, questions of demotivation and mental/physical health issues due to online classes had been taken and on that two-tailed t-test had been done to analyse the hypothesis.

<b>t-Test: Two-Sample Assuming Equal Variances</b>		
	<b>23. Do you think online classes is affecting students mental and physical health?</b>	<b>17. Do you feel demotivated in pursuing online classes?</b>
Mean	<b>2.103225806</b>	<b>2.509677419</b>
Variance	1.145119397	2.420360285
Observations	155	155
Pooled Variance	1.782739841	
Hypothesized Mean Difference	0	
df	308	
t Stat	-2.679882282	
P(T<=t) one-tail	0.00388047	
t Critical one-tail	1.649815934	
P(T<=t) two-tail	<b>0.007760939</b>	
t Critical two-tail	1.967696005	

**Interpretation:** we are rejecting the null hypothesis as the p value is very small. At 5% significance level  $p < 0.05$ , hence we will reject the null hypothesis and accept the alternative hypothesis( $H_2$ ) i.e. **there is an association between demotivation of continuing online classes and mental/physical health issues among UG and PG students of universities/higher education institutions.**

**H03:** the combination of both traditional and digital learning process will not have better impact on providing quality education to UG and PG students of universities/higher education institutions.

**H3:** the combination of both traditional and digital learning process will have better impact on providing quality education to UG and PG students of universities/higher education institutions.

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1	<b>27. Do you think the the combination of both traditional and digital learning process will have better impact on providing quality education?</b>		
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156	4	

**Tool used:** MS Excel (Descriptive statistics)

**27. Do you think the combination of both traditional and digital learning process will have better impact on providing quality education?**

<b>Mean</b>	<b>3.84516129</b>
Standard Error	0.041080847
Median	4
Mode	4
Standard Deviation	0.51145242
Sample Variance	0.261583578
Kurtosis	14.95797393
Skewness	-3.771965028
Range	3
Minimum	1
Maximum	4
Sum	596
Count	155
Largest(1)	4
Smallest(1)	1
Confidence Level(95.0%)	0.081154723

**Conclusion:** As mean is greater than 3, we will reject the Null Hypothesis and accept the Alternative Hypothesis.

**Interpretation:** As the Mean value has come greater than 3 from the Descriptive statistic of the respondent data set, we will **reject** the Null hypothesis(H03) i.e., **the combination of both traditional and digital learning process will not have better impact on providing quality education to UG and PG students of universities/higher education institutions.** And we will **accept** the Alternative hypothesis(H3) i.e., **the combination of both traditional and digital learning process will have better impact on providing quality education to UG and PG students of universities/higher education institutions.**



## Findings

- a) Most of the students have gone through digital learning process and the power point presentation, animation, digital pen and slate made them interested to inclined towards it more.
- b) Students preferring to continue digital learning as they feel they can learn at their own pace comfortably and they can focus more without disturbance. Also, they got freedom to learn courses according to their preference at anytime, anywhere.
- c) Students feel that digital learning process is more convenient and helpful for easy and efficient learning process. They also think that the accessibility of resources has become easier due to digital learning platforms. Also, availability of resources has become easy at the same time through google search and from other digital platforms.
- d) Online teaching helping students to hear lecture clearly and PPTs are available right in front of every student. Also, they don't need to walk long distance before reaching the class.
- e) Most of the students use Computer or laptop or mobile phone to continue their digital learning.
- f) Digital learning makes students demotivated at times. they face infrastructural and technical challenges to continue online classes sometime.
- g) Staring all the time in front of digital screen gives students mental/physical problems like Eye-sight issues, stress and anxiety etc.
- h) Students thinks it's important to have human interaction of physical classroom for quality education. Due to digital learning the interaction between students and teachers have been decreased which is causing lower quality of learning deliverables.
- i) Students think that the future of education will be based on digital learning process but few traditional learning techniques are also important to have to provide quality education. So, they support the combination of both tradition and digital learning process (Hybrid learning system) to have for better impact on providing quality education.

### Recommendation

1. Students have to take care of their gadgets like laptops, computer mobile phones or tablets that they can continue digital learning smoothly.
2. While attending classes they have to take care of their health like Eye-sight problems, anxiety that it doesn't affect their health.
3. Also, it's important to make sure all infrastructural needs are handy with them that they can continue seamless learning.
4. Being active during online classes is another important thing that students need to learn for better understanding of the subjects. Asking queries to professors and clearing all doubts then and there is important.
5. Application related issues and High band-width network connectivity is important to not get logged out of classes.
6. Using the potential power of digital learning and taking full advantage of it is required.

<b>Limitation</b>
-------------------

- I. Analysis has been done basically on respondents' personal opinion, not from any particular group or focus group or experts.
- II. Survey was filled by students and people from outside
- III. Many of the website's data of information has been kept confidential and they are not exposed.

## **Conclusion**

Learning never stops, it has actually evolved to thrive as well as to survive, and technology has proven itself to be the most important element of invention, a result of learning. Technology helped learning, and learning led to the advancement of technology. Students who are going through difficult times to learn more and more need guidance from parents and teachers. Offline learning and e-Learning go hand in hand, and online education will eventually become an integral component of universities/higher educational institutions. Somewhere in the future education will be hybrid. Technology has become part of academia and is not going anywhere. Online applications and programs have helped both teachers and students develop new skills and abilities that support themselves and advance their knowledge. Online learning cannot fully replace traditional classroom learning but it should return to combination of both Traditional and Digital learning i.e., Hybrid learning to bring the best out of it.

## Bibliography

- a) **Amaury Nora ,Blanca Plazas Snyder (2008)**, “Technology and Higher Education: The Impact of E-Learning Approaches on Student Academic Achievement, Perceptions and Persistence”
- b) **Brian A. Jacob (2016)**, “The opportunities and challenges of digital learning.
- c) **Brian A. Jacob(2016)**, The opportunities and challenges of digital learning  
(<https://www.brookings.edu/research/the-opportunities-and-challenges-of-digital-learning/>)
- d) **Muhammmad SULEIMAN (2020)** “Digital Education: Opportunities, Threats, andChallenges”( [https://www.researchgate.net/publication/345378791\\_DIGITAL\\_EDUCATION\\_OPPORTUNITIES\\_THREATS\\_AND\\_CHALLENGES](https://www.researchgate.net/publication/345378791_DIGITAL_EDUCATION_OPPORTUNITIES_THREATS_AND_CHALLENGES))
- e) **T.Muthuprasada, S.Aiswaryab, K.S.AdityaaGirish K.Jha (2021)**,“Students’ perception and preference for online education in India during COVID -19 pandemic”<https://www.sciencedirect.com/science/article/pii/S2590291120300905>
- f) <https://files.eric.ed.gov/fulltext/EJ1309475.pdf>
- g) <https://core.ac.uk/download/pdf/234940654.pdf>
- h) <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-020-00229-8>
- i) [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3897833](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3897833)
- j) <https://www.ejmste.com/download/a-study-of-the-effects-of-digital-learning-on-learning-motivation-and-learning-outcome-4843.pdf>
- k) <https://www.sofolympiadtrainer.com/blog/the-impact-of-digital-education/>
- l) <https://www.impactmybiz.com/blog/impact-of-digital-education-on-technology-25-stats/>

**Annexure:1**

Dear participant,

Hi, I am Samrat Das, student of Indus Business Academy. As part of my dissertation, I am conducting a survey on. **“The study on challenges and opportunities in Digital learning among UG and PG students of universities/higher educational institutions**

“It would be great if you could spare five minutes to fill out this Google form for me. The data that you provide will be used for academic purposes only.

**1. Name:** .....

**2. Gender:**

- a) Female
- b) Male
- c) Prefer not to say
- d) Other

**3. Age**

- a) Below 18 years
- b) 18-22 years
- c) 23-25 years
- d) above 25 years

**4. Education**

- a) Graduation
- b) Post-Graduation
- c) Other

**5. Nativity of the respondent**

- a) Rural
- b) Semi-rural
- c) Semi-urban

- d) Urban

**6. Which mode of learning do you support?**

- a) Traditional learning
- b) Digital learning
- c) Combination of both/ Hybrid mode
- d) Not sure

**7. Are you being part of Digital learning process?**

- a) Yes
- b) No
- c) Maybe
- d) Not sure

**8. Which of the Digital approaches motivate you learn?**

- a) Animation
- b) Whiteboard and pen
- c) power point presentation
- d) Digital pen and slate
- e) Other

**9. Yours experience with online learning from home digitally?**

- a) I am learning at my own pace comfortably
- b) My situational changes are not suitable
- c) I can learn better with uninterrupted network connectivity
- d) I am distracted with various activities at home, viz. TV, chatting, etc
- e) Others

**10. Do you feel Digital learning process is more convenient and helpful for easy and efficient learning process?**

(Strongly disagree)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

(Strongly agree)

**11. Do you think the accessibility of resources has become easier due to digital learning platforms?**

(Strongly disagree)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

(Strongly agree)

**12. Do you think the availability of resources has become easier?**

(Strongly disagree)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

(Strongly agree)



**13. Students have got freedom to learn courses according to their preference at anywhere, anytime?**

(Strongly disagree)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

(Strongly agree)

**14. Online teaching- learning takes place effectively because-**

- a) Every student can hear the lecture clearly
- b) PPTs are available right in front of every students
- c) Students can doubt with out much reservation
- d) Students need not walk long distances before reaching the class
- e) Others

**15. What is your most preferred methods for clearing doubts in online learning?**

- a) Asking professor during/after an online lecture
- b) Post the query in a discussion forum of your class and get help from your peers
- c) Go through online material providing an additional explanation
- d) Others...

**16. Which of the following devices do you use for your online learning?**

- a) Laptop/desktop computer
- b) Tablet
- c) Smartphone
- d) Other devices

**17. Do you feel demotivated in pursuing online classes?**

- a) Yes
- b) No
- c) Maybe
- d) Not sure
- e) Sometime

**18. Do you feel human interaction of physical classroom is important for quality education?**

- a) Yes
- b) No
- c) Maybe
- d) Doesn't make any difference
- e) Not sure

**19. What do you think about the interaction between teachers and students in this Digital learning process?**

- a) Increased
- b) Decreased
- c) No change
- d) Not sure

**20. Do you face infrastructural issues to continue online classes?**

- a) Yes
- b) No
- c) Maybe
- d) Sometime
- e) Not sure

**21. If yes, what kind of infrastructural issues do you face?**

- a) Computer/Laptop/Tablet issue
- b) No appropriate software

- c) No steady energy
- d) No high bandwidth internet
- e) No issues

**22. Have you found a lot of technical issue while attending online classes or webinar etc?**

- a) Yes
- b) No
- c) Maybe
- d) Not sure

**23. Do you think online classes is affecting students mental and physical health?**

- a) Yes
- b) No
- c) Maybe
- d) Not sure

**24. If yes, what all health issues you are having frequently?**

- a) Eye-sight problem
- b) Zoom fatigue
- c) Stress and Anxiety
- d) Neck and shoulder pain
- e) Others

**25. Do you think Digital learning process are capable of providing Quality education?**

- a) Yes
- b) No
- c) Maybe
- d) Not sure

**26. Do you believe Digital learning is future of quality education?**

(Strongly Disagree)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

(Strongly Agree)

**27. Do you think the combination of both traditional and digital learning process will have better impact on providing quality education?**

- a) Yes
- b) No
- c) Maybe
- d) Not Sure

**28. How satisfied are you being part of Digital education system?**

- a) Very satisfied
- b) Satisfied
- c) Neutral
- d) Dissatisfied
- e) Very dissatisfied

**29. Your willingness to continue online learning process?**

(Very low)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

(Very high)

**30. Would you recommend your peers and to pursue online classes?**

- a) Yes
- b) No
- c) Maybe
- d) Not sure

**31. Which education system you look forward to have in future?**

- a) Traditional education system
- b) Digital education system
- c) Hybrid education system (combination of both traditional and digital education system)
- d) Not sure

## Annexure 2: Excel sheets

Coding Sheets:

	A	B	C	D	E	F	G	H
1	<b>1 Gender</b>							
2	female-1		male-2	prefer not to say-3	others-4			
3								
4	<b>2 Age</b>							
5	below 18 years-1		18-22 years -2	22- 25 years -3	above 25 years -4			
6								
7	<b>3 Education</b>							
8	Graduation-1		Post Graduation-2	Other-3				
9								
10	<b>4 Nativity of the respondent</b>							
11	Rural-1		Semi-Rural -2	Semi-urban -3	Urban -4			
12								
13	<b>5 What mode of learning do you support?</b>							
14	Traditional learning-1		Digital learning-2	Combination of both-3	Not sure-4			
15								
16	<b>6 Are you being part of Digital learning process?</b>							
17	Yes-1		No-2	may be-3	Not sure-4			
18								
19	<b>7 which of the Digital approaches motivate you learn</b>							
20	Animation-1		Whiteboard and pen-2	power point presentation-3	Digital pen and slate-4	othrt-5		
21								
22	<b>8 Yours experience with online learning from home digitally</b>							
23	I am learning at my own pace comfortably-1							

	A	B	C	D	E	F	G	H
22	<b>8 Yours experience with online learning from home digitally</b>							
23	I am learning at my own pace comfortably-1							
24	My situational changes are not suitable-2							
25	I can learn better with uninterrupted network connectivity-3							
26	I am distracted with various activities at home, viz. TV, chatting, etc-4							
27	others-5							
28								
29	<b>9 Do you feel Digital learning process is more convenient and helpful for easy and efficient learning process?</b>							
30	1(strongly disagree)		2	3	4 5(strongly agree)			
31								
32	<b>10 Do you think the accesibility of resources has become easier due to digital learning platforms?</b>							
33	1(strongly disagree)		2	3	4 5(strongly agree)			
34								
35	<b>11 Do you think the availability of resources has become easier ?</b>							
36	1(strongly disagree)		2	3	4 5(strongly agree)			
37								
38	<b>12 students have got freedom to learn courses according to their preference at anywhere, anytime?</b>							
39	1(strongly disagree)		2	3	4 5(strongly agree)			
40								
41	<b>13 Online teaching- learning takes place effectively because-</b>							
42	every student can hear the lecture clearly-1							
43	PPts are available right in front of every students-2							
44	students can doubt with out much reservation-3							
45	students need not walk long distances before reaching the class-4							

	A	B	C	D	E	F	G	H
48	14 What is your most preferred methods for clearing doubts in online learning?							
49	Asking professor during/after an online lecture-1							
50	Post the query in a discussion forum of your class and get help from your peers-2							
51	Go through online material providing an additional explanation-3							
52	others-4							
53								
54	15 Which of the following devices do you use for your online learning?							
55	laptop/desktop computer-1		tablet-2	Smartphone-3	Other devices-4			
56								
57								
58	16 Do you feel demotivated in pursuing online classes?							
59	Yes-1		No-2	May be-3	Not sure-4		Sometime-5	
60								
61	17 Do you feel human interaction of physical classroom is important for quality education?							
62	Yes-1		No-2	Maybe-3	Doesn't make any difference-4		Not sure-5	
63								
64	18 What do you think about the interaction between teachers and students in this Digital learning process?							
65	Increased-1		Decreased-2	no change-3		Not sure-4		
66								
67	19 Do you face infrastructural issues to continue online classes?							
68	yes-1		no-2	maybe-3	Sometime-4		Not sure-5	
69								
70	20 If yes, what kind of infrastructural issues do you face?							

	A	B	C	D	E	F	G	H	I
70	20 If yes, what kind of infrastructural issues do you face?								
71	Computer/Laptop/Tablet issue-1		No appropriate software-2	No Steady energy-3	No High bandwidth internet-4		No issues-5		
72									
73	21 Have you found a lot of technical issue while attending online classes or webinar etc?								
74	yes-1		No-2	Maybe-3	Not sure-4		Sometime-5		
75									
76	22 Do you think Digital learning process are capable of providing Quality education?								
77	Yes-1		No-2	Maybe-3	Not sure-4				
78									
79	23 Do you believe Digital learning is future of quality education ?								
80	Strongly Disagree-1		2	3	4		Strongly Agree-5		
81									
82	24 Do you think the the combination of both traditional and digital learning process will have better impact on providing quality education?								
83	yes-4		no-1	maybe-2	notsure-3				
84									
85	25 Do you think online classes is affecting students mental and physical health?								
86	yes-1		no-2	maybe-3	notsure-4				
87									
88	26 If yes, what all health issues you are having frequently?								
89	eye sight problem-1		Zoom fatigue-2	stress and Anxiety-3		No issues-4		Others.. -5	
90									
91	27 How satisfied are you being part of Digital education system?								
92	very satisfied-1		satisfied-2	Neutral-3	Dissatisfied-4		Very dissatisfied-5		

	A	B	C	D	E	F	G	H
82	24	Do you think the the combination of both traditional and digital learning process will have better impact on providing quality education?						
83		yes-4	no-1	maybe-2	notsure-3			
84								
85	25	Do you think online classes is affecting students mental and physical health?						
86		yes-1	no-2	maybe-3	notsure-4			
87								
88	26	If yes, what all health issues you are having frequently?						
89		eye sight problem-1	Zoom fatigue-2	stress and Anxiety-3	No issues-4	Others...-5		
90								
91	27	How satisfied are you being part of Digital education system?						
92		very satisfied-1	satisfied-2	Neutral-3	Dissatisfied-4	Very dissatisfied-5		
93								
94	29	Are you willing to continue online learning process?						
95		1(very low)	2	3	4	5(very high)		
96								
97	30	Would you recommend yours peers and to pursue online classes?						
98		yes-1	no-2	maybe-3	notsure-4			
99								
100	31	which education sytem you look forward to have in future?						
101		Traditional education system-1	Digital education system-2	Hybrid education systa	Not sure-4			
102								
103								
104								

	A	B	C	D	E	F	G	H	I
91	27	How satisfied are you being part of Digital education system?							
92		very satisfied-1	satisfied-2	Neutral-3	Dissatisfied-4	Very dissatisfied-5			
93									
94	29	Are you willing to continue online learning process?							
95		1(very low)	2	3	4	5(very high)			
96									
97	30	Would you recommend yours peers and to pursue online classes?							
98		yes-1	no-2	maybe-3	notsure-4				
99									
100	31	which education sytem you look forward to have in future?							
101		Traditional education system-1	Digital education system-2	Hybrid education systa	Not sure-4				
102									
103									
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### Coding Sheets:

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	A	B	C	D	E	F	G	H	I
	1. Name	2. Gender	3. Age	4. Education	5. Nativity of the respondent	6. Which mode of learning do you support?	7. Are you being part of Digital learning process?	8. Which of the Digital approaches motivate you learn ?	9. Yours experience with online learning from home digitally?
1									
2	Sonu	2	3	2	4	3	1	1,3	3
3	Abhinav Kumar	2	3	2	3	3	2	3	3
4	Bharath N	2	4	2	4	1	1	3	3
5	Adiga	2	2	1	4	3	1	1,3	1,3
6	Sourav Banerjee	2	3	2	4	3	1	3	1
7	Gowtham	2	3	1	4	3	1	1,2,3	1,4
8	Prashant	2	4	1	4	1	1	1	5
9	Shashank	2	3	2	4	3	1	1,2	2
10	Shyam	2	2	1	2	3	1	1,2,3,4	1,2,3,4
11	Sunil	1	3	2	3	1	1	1,3,4	1,3,4
12	Avinash	2	2	2	3	3	1	2,3	1,3
13	Sheetkha Basak	1	3	1	4	3	1	1,2,3	1
14	Vahini	1	2	2	1	1	2	1,2,3,4	3,4
15	Prakash Kumar Thakur	2	3	1	3	3	1	1,4	5
16	Sushant Havale	2	3	1	2	3	1	1	1
17	Narayan	2	3	2	2	2	1	1,2,3,4	1,3
18	Subhash	2	2	1	1	1	1	1,3, Helps to learn fast.	1,3,5
19	Ajay molhanta	2	3	2	1	1	1	2,3	1,3,5
20	Giresha gothwani	1	3	2	1	1	1	1,3,4	1,2,3,4
21	Dinesh Kumar	3	4	2	3	3	1	1,2,4	1,3,4
22	Vidya Singh	1	2	1	4	3	1	1,2,3,4	1,2,3
23	Riya Chowdhury	1	3	2	4	3	1	3,4, Time saving and easy going approach.	1,2,3
24	Sheeba	1	3	2	3	3	1	1,3,4	1,2,3
25	Subham Sharma	2	3	2	3	3	1	2,3,4	1,3
26	Priyanka Singh	1	3	2	4	3	1	3,4	1,3
27	Abhishek Kumar	2	3	1	2	2	1	1,3,4	1,2,3
28	Sonal Singh	1	2	1	4	3	1	3,4	1,3
29	Sudheer Addapa	2	2	3	2	3	1	1,3	1,3
30	Smriti Ghosh	1	4	2	4	3	1	3,4, Other tutorials available in websites.	1,3
31	Somalia Nagraj	1	3	2	3	3	1	3,4	1,2,3
32	Hitesh Kumar	2	2	1	2	3	1	3,4	1,3

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	J	K	L	M	N
10. Do you feel Digital learning process is more convenient and helpful for easy and efficient learning process?	11. Do you think the accesibility of resources has become easier due to digital learning platforms?	12. Do you think the availability of resources has become easier ?	13. Students have got freedom to learn courses according to their preference at anywhere, anytime?	14. Online teaching- learning takes place effectively because-	
2	5	5	5	1.2	
3	4	5	4	2	
4	1	5	5	5	
5	5	5	5	1.2,3,4,4	
6	5	5	5	1.2	
7	5	5	5	2,4,4	
8	1	3	3	5	
9	2	4	4	1,4,4	
10	3	3	3	1.2,3,4,4	
11	2	2	2	1.2,5	
12	5	4	4	1.2	
13	5	5	5	1.2,3,4,4	
14	3	2	5	1.2,3	
15	2	5	5	1.2,3,4,4	
16	4	3	5	1.2,4,4	
17	5	5	5	1.2	
18	5	5	5	1.2,3,4	
19	5	5	5	1.2,3,4	
20	5	4	4	1.2,4	
21	3	4	3	1,3,4	
22	5	5	5	1.2,3	
23	5	5	5	2,4	
24	5	5	5	1.2,3	
25	5	5	5	1.2,3	
26	5	5	5	2,4	
27	5	5	5	1.2,3,4	
28	3	4	3	1.2,3	
29	5	5	5	2,4	
30	2	2	2	1.2	
31	5	5	5	1.2,3	
32	5	5	5	2,3,4	



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27.	Do you think the the combination of both traditional and digital learning process will have better impact on providing quality education?	28. How satisfied are you being part of Digital education system?	29. Your willingness to continue online learning process?	30. Would you recommend yours peers and to pursue online classes?	31. Which education system you look forward to have in future?
1					
2	4	1	5	1	3
3	3	4	4	3	3
4	4	4	1	2	3
5	4	1	5	1	3
6	4	1	5	1	3
7	4	1	5	1	3
8	3	3	2	4	1
9	4	4	1	3	3
10	4	1	5	3	3
11	4	1	4	1	3
12	3	2	4	1	2
13	4	2	4	1	3
14	3	3	2	2	1
15	4	3	2	3	3
16	4	2	4	1	3
17	4	2	5	1	3
18	4	3	4	1	3
19	4	1	5	1	3
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21	4	2	4	1	2
22	4	2	5	1	3
23	4	1	5	1	3
24	4	1	4	1	3
25	4	1	5	1	3
26	4	1	5	1	3
27	4	3	4	1	3
28	4	1	4	1	3
29	4	1	5	1	3
30	4	1	4	1	3
31	4	1	5	1	3
32	4	1	5	1	3

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Z68													
	AB	AC	AD	AE	AF	AG	AH	AI					
	28. How satisfied are you being part of Digital education system?	29. Your willingness to continue online learning process?	30. Would you recommend yours peers and to pursue online classes?	31. Which education system you look forward to have in future?									
1													
2	1	5	1	3									
3	4	4	3	3									
4	4	1	2	3									
5	1	5	1	3									
6	1	5	1	3									
7	1	5	1	3									
8	3	2	4	1									
9	4	1	3	3									
10	1	5	3	3									
11	1	4	1	3									
12	2	4	1	2									
13	2	4	1	3									
14	3	2	2	1									
15	3	2	3	3									
16	2	4	1	3									
17	2	5	1	3									
18	3	4	1	3									
19	1	5	1	3									
20	2	5	1	3									
21	2	4	1	2									
22	2	5	1	3									
23	1	5	1	3									
24	1	4	1	3									
25	1	5	1	3									
26	1	5	1	3									
27	3	4	1	3									
28	1	4	1	3									
29	1	5	1	3									
30	1	4	1	3									
31	1	5	1	3									
32	1	5	1	3									

AF32										
	A	B	C	D	E	F	G	H	I	
33	Anu upadhyay	1	3	2	3	3	1	3,4	1,3	
34	Sneha Singh	1	3	2	3	3	1	3,4	1,3	
35	Amir Chaudhan	2	3	2	4	3	1	3,4	1,3	
36	Anusika	1	3	2	3	3	1	2,3,4	1,3	
37	Priga Sharma	1	3	2	3	3	1	3,4	1,2,3	
38	Barsha Dad	1	4	2	3	3	1	1,3,4	1,4	
39	Jitlin	2	3	2	1	3	1	1,2,3	3	
40	Pritam Ghosh	2	3	2	3	2	3	1	1	
41	Poulami	1	3	2	3	3	1	1,2,3,4	1,3	
42	Fatima	1	3	2	4	3	1	1,2,3	1,3,5	
43	Piyush	2	3	2	4	3	1	2,3	1,3	
44	Arpit	1	4	2	4	3	1	2,3,4	1,2,3,5	
45	Nikhil Kumar	2	4	2	4	2	1	1,2,3	1,3,4	
46	Pragya Singh	1	4	2	4	3	1	2,3,4	1,3	
47	Animesh Das	2	3	2	4	2	1	1,3	1,2,3	
48	Arko Banerjee	3	4	2	4	2	1	1,3,4	1,3,5	
49	Leela Prasad	2	3	2	3	3	1	1,3,4	1,3	
50	Kamal patro	2	3	2	1	1	1	3	1,3,4	
51	Abhishek Kumar	2	3	2	1	1	1	1,3	1,2,4	
52	Rama Krishna	2	2	1	1	1	1	3	1,3	
53	Rishi	2	3	2	2	3	1	2,3,4	1,3	
54	Svetla Singh	1	3	2	2	3	1	2,3,4	1,3	
55	Priga saku	1	3	2	4	2	1	1,3,4	1	
56	Chaitanya Reddy	2	2	2	2	3	1	3,4	1,3	
57	Karan Sharma	2	3	2	1	1	2	Pen paper	3	
58	Sarika Singh	1	4	2	3	3	1	2,3,4	1	
59	Shyam	2	3	2	3	3	1	2,3,4	2,4	
60	Vincent	2	4	2	4	3	1	1,3,4	1	
61	Aashi upadhyay	1	3	2	4	2	1	1,2,3	1	
62	Badrinath	2	3	2	2	2	1	1,2,3,4	1	
63	Ram Prasad	2	2	1	1	1	1	2,3,4	2,4	
64	Madusmita jena	1	3	2	3	3	1	1,2,3,4	1,4	
65	Subham Kumar	2	2	1	2	3	1	3,4	1,2,4	
66	Mahesh	2	3	2	3	3	1	1	1	
67	Anvesha	1	3	2	3	2	1	2,3	1,3	
68	Keeta Mukherjee	1	3	2	3	3	1	1,3,4	1,2,3	

I68										
	J	K	L	M	N					
33	5	5	5	5	2,4					
34	5	5	5	5	2,4					
35	5	5	5	5	1,2,3					
36	5	5	5	5	2,3					
37	5	5	5	5	2,3,4					
38	3	4	5	5	2,3,4					
39	4	4	3	4	1,2,3					
40	5	5	5	5	1,2					
41	4	5	5	5	1,2					
42	5	5	4	5	1,2,3					
43	4	4	4	4	1,2,4					
44	4	4	4	4	1,2,3,4					
45	5	5	5	5	1,3,4					
46	5	5	5	5	1,2					
47	5	5	5	5	1,2,3					
48	5	5	5	5	1,2,3					
49	5	5	4	4	1,2,3,4					
50	2	2	3	3	1,4					
51	1	1	1	1	5					
52	2	2	2	2	1,2					
53	3	3	3	3	2,3					
54	3	3	3	3	2,4					
55	5	5	5	5	1					
56	2	2	2	3	1,3					
57	5	5	5	5	1					
58	5	5	5	5	1					
59	4	4	2	2	2,3,4					
60	5	5	5	5	1,2,3					
61	4	4	5	5	1,2					
62	4	4	4	4	1,2					
63	1	1	1	1	2,4					
64	3	3	3	3	1,2,3,4					
65	1	1	1	1	1,2,4					
66	3	5	4	4	1					
67	5	5	5	5	1,2,3					
68	5	4	5	4	2,3,4					

N68							
	O	P	Q	R	S	T	
33	2	1,3	3	1	2	4	
34	2	1,3	1	4	1	4	
35	2	1,3	1	3	1	4	
36	2	1,3	2	4	1	4	
37	1	1,3	1	1	1	1	
38	2	1	2	4	1	4	
39	1	1,3	2	1	2	3	
40	3	3	2	3	1	2	
41	1	1,3	3	1	2	4	
42	2	1,2,3	4	1	2	2	
43	3	1,2,3	2	1	2	4	
44	3	1	2	1	2	2	
45	2	1,2	2	1	2	2	
46	1	1,3	2	1	2	4	
47	3	1	1	1	2	1	
48	3	1,2,3	2	1	2	4	
49	1	1,2,3	2	1	2	4	
50	3	1	1	1	2	1	
51	1	1	1	1	2	1	
52	2	3	1	1	2	1	
53	3	1,3	3	1	2	4	
54	3	1,3	3	1	2	4	
55	1	1,2,3,4	2	1	1	1	
56	3	1,3	3	1	2	4	
57	1	1,2	1	1	1	1	
58	1	1,2,3,4	1	1	1	1	
59	2	1,3	1	1	3	1	
60	2	1,2,3,4	1	1	1	1	
61	1	1,2,3	1	1	1	1	
62	1	1,2,3	1	1	1	1	
63	3	1	1	1	2	1	
64	2	1,2,3	1	1	1	1	
65	1	1,3	1	1	3	1	
66	2	1,2,3	1	1	1	1	
67	2	1,3	1	1	2	1	
68	2	1,2,3	1	1	3	1	

T68							
	U	V	W	X	Y	Z	
33	3,4	5	3	2	1	5	
34	2,4	1	1	3	1	1	
35	1,2	1	1	3	1	5	
36	1,3	5	3	3	1	5	
37	3,4	1	1	1	1	5	
38	2,3,4	5	3	1	1	4	
39	4	5	3	1	3	4	
40	4	3	3	2	1	5	
41	1,3	5	3	1	1	4	
42	5	5	3	4	1	5	
43	5	5	3	1	1	4	
44	5	2	3	1	1	4	
45	5	3	2	4	1	5	
46	1,5	5	3	1	3	5	
47	5	5	3	1	1	5	
48	1	5	3	1	1	5	
49	1	5	3	2	3	4	
50	1,2,3,4	1	1	3	2	2	
51	1	1	1	3	4	1	
52	1,3,4	1	1	3	4	2	
53	1,3	3	3	1	3	3	
54	1,3,4	5	3	2	3	3	
55	1	1	1	1	1	5	
56	1,2	5	1	1	1	2	
57	1	1	1	1	1	5	
58	1,2,3,4	1	1	1	1	5	
59	1,3,4	1	3	2	3	2	
60	1	1	1	3	1	4	
61	1,2,3,4	1	1	1	1	4	
62	1,2,3,4	1	1	1	1	4	
63	1,2,3,4	1	1	3	1	3	
64	1	1	1	3	1	3	
65	1,3	1	1	1	1	2	
66	1	1	1	3	1	4	
67	1,3,4	2	4	4	1	5	

	AA	AB	AC	AD	AE
33	4	1	5	1	3
34	4	1	1	1	1
35	4	1	5	1	3
36	4	1	5	1	3
37	4	1	5	1	3
38	4	2	4	3	3
39	4	2	4	1	3
40	3	1	5	1	2
41	4	2	4	1	3
42	4	2	4	1	3
43	4	2	4	1	3
44	4	1	4	1	3
45	4	1	5	1	2
46	4	1	5	1	3
47	4	2	5	2	3
48	4	2	4	1	3
49	4	2	4	1	3
50	2	4	2	2	1
51	2	4	1	2	1
52	2	4	2	4	1
53	4	3	3	3	3
54	4	3	3	3	3
55	4	1	5	1	3
56	4	2	3	3	3
57	4	1	4	1	3
58	4	2	4	1	3
59	4	4	2	3	3
60	4	1	4	1	3
61	4	1	4	1	3
62	4	1	4	1	3
63	4	2	3	1	3
64	4	1	3	1	3
65	4	2	2	1	3
66	4	1	4	1	3
67	4	1	4	1	3
68	4	2	4	1	3

	AB	AC	AD	AE	AF	AG	AH	AI
33	1	5	1	3				
34	1	1	1	1				
35	1	5	1	3				
36	1	5	1	3				
37	1	5	1	3				
38	2	4	3	3				
39	2	4	1	3				
40	1	5	1	2				
41	2	4	1	3				
42	2	4	1	3				
43	2	4	1	3				
44	1	4	1	3				
45	1	5	1	2				
46	1	5	1	3				
47	2	5	3	3				
48	2	4	1	3				
49	2	4	1	3				
50	4	2	2	1				
51	4	1	2	1				
52	4	2	4	1				
53	3	3	3	3				
54	3	3	3	3				
55	1	5	1	3				
56	2	3	3	3				
57	1	5	1	1				
58	2	4	1	3				
59	4	2	3	3				
60	1	4	1	3				
61	1	4	1	3				
62	1	4	1	3				
63	2	3	1	3				
64	1	3	1	3				
65	2	2	1	3				
66	1	4	1	3				
67	1	4	1	3				
68	2	4	1	3				

Vertical (Value) A