
A Study on Exploring Technology Disruption in Higher Education: Impact, Challenges and Opportunities

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ABSTRACT

The technological disruption era signifies fundamental shifts across all facts of life, replacing out dated systems that no longer meets the contemporary needs with new ones. When it comes to education, the old school teaching methodologies are evolved into digital patterns, a sample survey was held to obtain the data from PG students of different higher educational institutions through google form about awareness and use of technology. This study identifies the role of technology in higher education, whether the new teaching methodology are helpful for student engagement. The benefit of technologies outside like (AI, virtual reality, machine learning etc.) has impact on learning of student in higher education. The findings of study will be helpful for future similar studies.

I INTRODUCTION

The landscape of higher education has been undergoing a profound transformation, primarily driven by technological advancements. Technology disruption is those that disrupt established practices often starting with small number users, but growing overtime to extent that they displace previously dominant. incumbent technology, conversely, sustaining technologies are technologies that enhance the performance of established technologies (Flavin2012)

Some of the technologies poised to change higher education are: 1) Virtual reality, 2) Collaboration platform, 3) Augmented reality, 4) Artificial intelligence, 5) Internet of things.

Number of researchers have anticipated that use of technologies would disrupt learning and teaching practices in higher education (e.g., bhin and Munro 2008, Sharples 2003) however digital technologies have in practices, reproduced, rather than transformed and disrupted, existing pedagogical approaches (fly and love 2011). In this paper we discuss the role of technology disruption and its impact on teaching methodology.

Higher educational institutions are pillars for providing specialised and professional programmes for the students, The future depends on what we do in present correspondingly a higher education institutions existence depends on how they clasp the opportunity that technological disruption provides. this paper scrutinises the technological readiness of students eventually in disruptive era of technology.

II OBJECTIVES

Objective in research refers to a clear and concise statement of a specific goals and aims of research study. it is a concrete description of what research is trying to achieve and it provides the direction to investigate the variables. The objective of the research study is:

1. To find the impact of technology disruption on higher educational institution.
2. To analyse the role of technology in enhancing teaching methodology and student engagement.
3. To find out the drawback and opportunities in integrating technology in education.

III STATEMENT OF THE PROBLEM

This paper is conducted to know the impact of technology disruption in higher education, it helps to navigate the balance between integrating technological advancement while preserving the integrity and effectiveness of traditional teaching methods.

1. What is the impact of technology disruption on higher education institution? The fusion of technology in higher education institutions has the potential to significantly enhance teaching and

learning, student success, and institutional efficiency. However, it is crucial for institutions to adopt a strategic approach to digital transformation, investing in comprehensive processes that leverage data to drive insights and actions. This includes ensuring that students are engaged and motivated throughout the learning process. The use of disruptive technologies, such as MOOCs, blended, flipped, and online classes, can transform higher education by providing modern and relevant technologies to students and increasing flexibility, efficiency, and quality of education.

2. What role did technology take place in enhancing teaching methodology?

In initial period, educational institutions used old school methodology for learning, the implementation of technology magnified the significance of improvement in teaching system, which results in better student engagement. Tools like online learning, chatbased collaborations, AI guided learning, virtual and augmented reality, computerbased training etc. all these tools help in student engagement.

3. What are the major drawbacks and unlimited opportunities of integrating technology in education?

Bringing technology classrooms halts also has its own challenges like technical skills required for both students and teachers to understand the subject matter, bridging the digital divide and ensuring equal access of technology to every individual and addressing privacy concerns and protecting against cyber threats are some of the major concerns or drawbacks of technology if we overcome these drawbacks there is an immense opportunity as technology will play a significant role in the future job so it is necessary for students to be in touch with technology at the early stage

IV REVIEW OF LITERATURE

Overview of previously published works on the technology disruption on higher education, previous research papers rare analysed and used as a reference for this research study.

Artificial Intelligence and the Disruption of Higher Education: Strategies for Integrations across Disciplines, (James Hutson, 2022): This paper shows that educators will not be replaced nor will other non-repetitive task-oriented professionals instead AI will augment rather than replace what teachers do in the classroom and it is imperative that education we equip the students with the tools necessary to secured in an unknown future both cognitive and technological.

Disruptive innovative technologies in higher education (Yadav, 2019): In this paper we recognize the nature of disruptive technology which are in use , this paper describes the AI technology will knowledge based system neither supports instructionist or constructionist view of teaching .future mixed initiatives technology will be predicted to strongly control the learning in interaction it says there is no longer need to be in elite university to get ahead of curve.

Creative disruption in higher education: Society, technology, and globalization (Lemoine, P. A., & Richardson, M. D .2019). this paper states that disruption generate a new learning model with the more creative and large communication so in education students get much more knowledge and skills the emergence of creative application in world of education can make it easier for everyone to seek knowledge whenever and wherever. Various types of new learning that are spread on the internet the form of applications and learning sites, not only encourages students to be able to use all facilities, but educators are also able to master all of them and become facilitators for the students.

Discourses of digital “disruption” in education: a critical analysis, Neil Selwyn- city university Hong Kong 2013: This paper conducted a survey, where new range of technologies is being used to support learning and teaching higher education, like Christensen’s theory predicts people prefer to use technologies that are casual to use. Students will not use the technology by higher education institution but use outside source which are free to use.

V RESEARCH METHODOLOGY

Research Methodologies refers to specific procedures or techniques used to identify, select, process, and analyse information about a topic. It is a process by which researchers design their study so that they can achieve their objectives using the selected methods research method. It includes all the important aspects of research including research design data, collection methods, data analysis methods and the overall framework within which research conducted.

1. SAMPLING DESIGN

A research study was conducted with the sample size of 100, where the research sample are collected from the students of PG department in the colleges of Bengaluru rural area, based on the stratified sampling, where the samples are randomly collected from the selected colleges. they are {St. Francis de sales college, Swami Vivekananda college, Spoorthi college, Vishwa Chetana pu and degree college,

Aksara college}. students are randomly selected; this ensures that the representation from all five colleges in the same.

2. PERIOD OF THE STUDY

The research was conducted from the date of 15 January 2024 till 15 March 2024 to get genuine information from the respondents.

3. DATA COLLECTION

We first gathered the information through primary data, we collected data through questionnaire's and distributed among students in various colleges. Sample survey was regulated in google form where it is circulated among the students and got responses. According to that responses we have analysed and absorbed the meaningful data collection. Data collection helps us to interpret the raw data into a meaningful conclusion in an effective manner, so it assisted to improve the process and deciding.

4. TOOLS USED:

Data tools in research referred to the various software algorithms or instruments used to collect and analyse data the tools are essential for gathering information systematically and reliability to answer research question test hypothesis and evaluate outcomes. Different data tools are used for understanding the technology disruption in higher education.

Objective 1: Participants were asked to respond to the statement using two-point Likert scale, where 1 represents "yes" and 2 represents "no". Responses are covered numerically for statistical analysis using excel.

Objective 2: Participants will be asked to rate their agreement with statements using five- point Likert scale ranging from 1- strongly disagree,

2 -disagree, 3- neutral, 4 -Agree, 5- strongly agree. Responses are covered numerically for statistical analysis using excel.

OBJECTIVE 3: Participants will be asked to rate their agreement with statements using rating scale method where the statements are provided.

Respondents are required to rate the statements according to their opinion. The assertion is ranked according to average score of the statements.

VI ANALYSIS

Analysis in research methodology refers to systematic examination and interpretation of collected data during research study. It involves identifying patterns, trends, relationships, and insights within the data to answer research questions or test hypothesis.

1 Impact of technological disruption on higher educational institutions

This study points out the impact of new arrival of technology on mainstream courses provided by educational institutions. We all learnt our academia in old school method, where only narrow scope of knowledge was provided to the students. They were having limited access to the resources of knowledge and with inadequate infrastructure in educational institution. The arrival of technology like artificial intelligence has an immense impact on higher educational institutions, a sample survey was conducted to analyse the impact of technological disruption on educational institutions, and it showed that technology plays a crucial role in shift of teaching from traditional educational institutions to a digitally equipped institution. If all institutions adopt technology, it improves the overall management and performance of the institution.

TABLE 1

IMPACT OF TECHNOLOGY DISRUPTION ON HIGHER EDUCATIONAL INSTITUTION

SL NO	IMPACT	NO OF RESPONDENTS
1	POSITIVE	88
2	NEGATIVE	12
3	TOTAL	100

CHART 1

IMPACT OF TECHNOLOGY DISRUPTION ON HIGHER EDUCATIONAL INSTITUTION

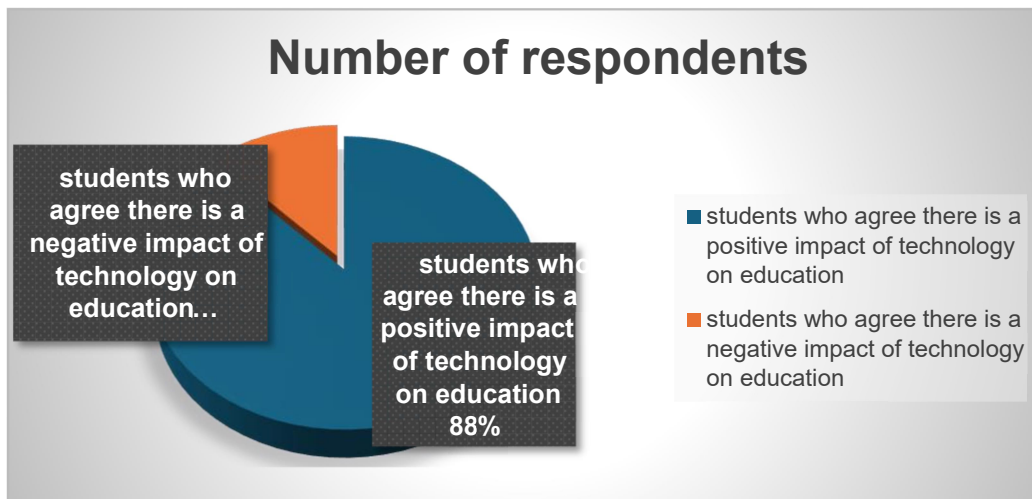


Table 1 shows that the students and the management are highly receptive and active in integration of technology. Which means it shows the technological readiness of people which is important for the development of the economy. Our research shows that out of 100 sample 91 people are accepting with the technology disruption has an impact on higher education system whereas only 9 people disagree with the technological disruption impact on higher education.

2 Role of technology in enhancing teaching methodologies to improve student engagement:

Technology application of systematic knowledge towards the development of a new device , new machine students lived in terms of education technology has been on a high rapport as it is inventing new teaching methodologies such as using multimedia technology which improves teaching contents and makes the best of pastime content based instruction where the approaches are based on the information where there will be an integration of contextual learning, task based learning where in this approach the technology will assign tasks for the students according to their capabilities it gives demand high level of motivation and accurately reflect what are their mistakes, flipped classrooms is a pedagogical approach that combines both online and offline learning where both audios and videos are given to the students live offline classes are conducted which helps in students improvement. These are some of the examples of teaching methodologies that can improve the student engagement offer higher education institutions.

TABLE 2

ROLE OF TECHNOLOGY IN ENHANCING TEACHING METHODOLOGY

Sl no	Role of technology	No of Respondents
1	Agree	91
2	Disagree	9
3	Total	100

Table 2 shows out of 100 respondents, 91 students agree that there is a positive role of technology in leading their education into higher level, but 9 other students disagree that the role of technology does not have any impact in enhancing teaching methodologies to improve student engagement.

3 Finding out the drawbacks and the opportunities in integrating technology in education.

Technology disruption is replacing the obsolete method and embracing the innovative technology or method. Embracing technology has numerous advantages and opportunities as well as if not properly monitored then it can lead to disadvantages situation so technology can also have a negative impact and drawbacks some of them are:

- a) On technology and easily gets distracted from subject matter.
- b) Socio economic disparities (like poverty) will widen the digital divide.
- c) Technology tools raise concerns about privacy and security of information or data.
- d) Overreliance technology may diminish human connection.
- e) Technology undermines students' ability to develop foundational skills

TABLE 3

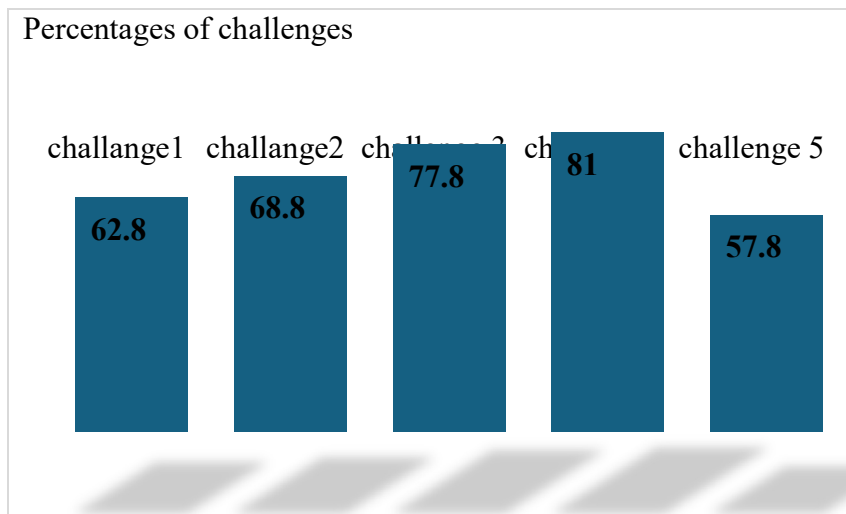
CHALLENGES OF TECHNOLOGY DISRUPTION

Challenge of technological disruption	percentages of all the challenges
challenge1	62.8
challenge2	68.8
challenge 3	77.8

challange4	81
challenge 5	57.8

CHART 3

CHALLENGES OF TEACHNOLOGY DISRUPTION



the challenges are given as statements in the questionnaire, rating method is used to get a percentages score of each statement. From the above figure we can interpret on result over reliance on technology may diminish human connection is one of the major concerns with the percentage rate of 81, it shows that over reliance on technology as a huge impact as it leads to incapability of own thinking process, and the least percentage is 62.8 the challenge is dependency on technology leads to distraction from the subject matter. But other students believe that technology helps in student engagement rather than distraction.

When you overcome all challenges there are potential opportunities of technological disruption in education, the one who takes the advantage of the opportunity will have a competitive advantage in the future. In this study a sample survey was conducted to know the opportunities of technological disruption in higher education, and list of those opportunities are:

1. Technology enables students to access to vast amount of information.
- 2) technology in education help students develop digital literacy skills such as information and media literacy.
- 3) it helps to connect peers from around the world enabling cross cultural exchanges, collaboration, global awareness.
- 4)

Adaptive learning system personalise instruction individual needs and performance.5) Gamification of learning materials motivate and engage students.

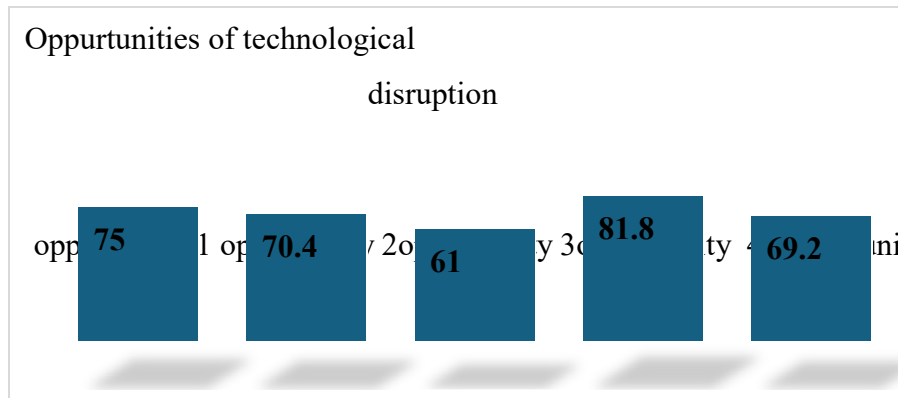
TABLE 4

OPPUTUNITIES IN TECHNOLOGY DISRUPTION

Opportunities of technological disruption	Percentages of all the opportunities
opportunity 1	75
opportunity 2	70.4
opportunity 3	61
opportunity 4	81.8
opportunity 5	69.2

CHART 4

OPPUTUNITIES IN TECHNOLOGY DISRUPTION



To know the best opportunity of technological disruption rating scale method was conducted to find percentages of all the opportunities, we discovered that Opportunity - adaptive learning system personalise instruction individual needs and performance. Has the average of 81.8 where this much of students agree that the best opportunity of technology in education is it personalise the instruction and increase the performance of the students which is helpful for their personality development. technology helps to connect peers from around the world enabling cross cultural exchanges, collaboration, global awareness. This opportunity 3 as a percentage of 61, students still believe that it takes more time to integrate all the technology in higher education, so it is the least supported opportunity.

This research paper mainly aims at understanding the numerous opportunities provided by the technological disruption towards the higher education. The findings of this paper states that students are receptive towards technology which shows their technological readiness and willing to improve in digital literacy. The research was conducted in the Bengaluru rural area amongst 5 colleges and we can find that all the educational institutions are slowly integrating technology in their mainstream , the reason for integration of technology is because of the introduction of new technological teaching methodologies are engaging the students to improve their academics, broaden the knowledge, make learning more fun and easy which improves the students engagement in the class. Do technology has its own challenges if it is overcome then there will be a limitless knowledge and content forest students because future is depended on technology. Technology is both a tool for helping human and for destroying them this is the paradox of our times which we are compiled to face, so behalf of hesitating it is necessary to embrace it and learn how to deal with it on a long term.

VII CONCLUSION

The rapid advancement of technology has brought about significant changes in education, particularly in how postgraduate students learn. This paper examines the impact of technology disruption on student learning highlighting the positive effect of different teaching methodologies and the complementary role of technology alongside traditional teaching methods. Technology disruption in education addresses accessibility barriers enabling equitable access to educational resources and opportunities for all the students. Technology has revolutionized teaching methodologies, offering innovative tools and platforms that enhance the learning experience for students and educators alike. The integration of multimedia resources, interactive simulations and virtual reality environment has enhanced the classroom interactions fostering deeper engagement and competition additionally technology has democratized access to education breaking down barriers of geography and social economic status through online learning platforms and digital resources, individuals have greater flexibility and autonomy in pursuing their educational goals , furthermore technology has opened up a plethora of opportunities for collaboration research and lifelong learning from virtual labs.

VIII APPENDEX

Google form:

https://docs.google.com/forms/d/e/1FAIpQLSeCAA3CeSJ9qr9qe7fYbtSwElCXaQbumMhAP6cj8rweVaG0A/viewform?usp=sf_link

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