Webinars: An assistive tool used by higher education educators during Covid19 case study

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Abstract— **The education ecosystem in India is primarily dependent on face to face interaction of teachers with students. Technology assistive tools available to educators act as an aid for imparting quality education. However, the complete transition from face-to-face interaction to virtual interaction was challenging for educators over the world during the Covid-19 pandemic outbreak. This paradigm shift in teaching and the use of webinars as the primary resource for teaching has shown a significant impact on the learning patterns of both educators and students. This paper presents a case study conducted on educators of Chitkara University, Rajpura Punjab, India. The goal is to figure out their experience of using webinars as a teaching tool during the Covid-19 period for engineering undergraduates. It also discusses the challenges and issues faced by faculty members while conducting webinars. The usability score for webinars as a tool for teaching comes as 68.22%, which infers that a significant number of faculty members find it a useful tool for teaching their course. Further, several webinars platform explored by educators, out of which Go-To-Webinar platform is most favorable for the majority of faculty members.**

Keywords— Webinars, Covid19, higher education, assistive-tool, educators.

I. INTRODUCTION

As the Government of India has stated about the outbreak of Covid-19 in India, as of 25 March 2020, all education institutions must remain closed for 21 days, which later on extended to till date [1]. Soon after this announcement, several educational institutions apprized to plan-out their strategies for teaching students remotely. The Information and Communication Technology (ICT) tools play an essential role in structuring teaching frameworks for students remotely. The paradigm shift from the face - to - face interaction to the adoption of virtual training was a challenging task for educators and students also. Several ICT - based teaching tools explored by the various educators of different institutions. The present IT infrastructure offers both synchronous and asynchronous modes of teaching to students. The term synchronous means real-time teaching, where an educator is actively involved in teaching students remotely using webinars and audio-video conferencing way. Whereas the term asynchronous refers to teaching anywhere, anytime, and anyplace. This method also offers flexibility in planning time-table and set the pace of learning as per the learning ability of an individual. It includes online learning or e-learning through massive open online courses (MOOC), You-tube channels, NPTEL, Swayam Courses, and recorded webinar lecture series [2].

From the literature review, it observed that webinars are rarely utilized resource for teaching before Covid-19 [3]. But educators explored the real potential of webinars as teaching tools during this hard time. Webinars are live lectures broadcast through the internet. Sometimes they are also referred to as web-based content delivery mechanisms or tools. They are the multimedia resources for delivering education and training. The critical characteristic of webinars is interactivity, the ability to view, send, receive, and discuss information [3][4][5]. Webinars may be available not only for e-learning classes, but also as part of a mixed course wherein full participation is challenging. Webinars are not, however, a suitable replacement for the classroom environment. Technology can have drawbacks in some circumstances and topics. It can be an exemplary addition to e-learning or mixed learning [6]. Compared to other forms of education, webinars are unique in terms of providing opportunities for teachers and students to access and use many online interaction levels [2] and learning through technology already become an important part of the educational cycle at the higher education level. It enables students to discover educational content at their own pace and following their interests. This gives freedom to students to take care of themselves rather than merely being a teacher-led training [7]. The significant component of teaching through webinar lies in the engagement of students throughout the live session and their assessment. Several researchers have argued on these components. Sharon et al. argued over the authenticity of assessment taken through online mode. It is a challenging task for every educator to validate the assessment taken by them for their respective courses through online media [8]. Self-disciplined and internally motivated students tend to engage themselves positively while learning through webinars and online media more as compared to other students [7]. Despite all these factors, other issues need to cater during online teaching-learning by the educators: instructional design, digital content prepared for live webinars, length of webinar set for a particular topic by the teacher, and content delivery speed of teacher [9].

This paper presents a case study on the faculty members of Chitkara University, Rajpura Punjab, India. The study

aims to learn their views and know-how of using webinars for teaching Covid-19 to graduates in engineering. Faculty members of the university voluntarily participated in this study. They gave their feedback and concerns through the google feedback form and telephonic interviews conducted. The other sections of the paper explain the background of webinar technology, case study on webinar technology, conclusion, and future scope and references.

II. BACKGROUND OF WEBINAR TECHNOLOGY

Almost 95% of institutions of higher education use some form of e-learning. It have three basic criteria : 1) networked and capable of instantly apprising, storing / retrieving, delivering and sharing directions and information; 2) Provided to end users via a device with regular Internet technology; and 3) focused on the most comprehensive view of learning solutions that go beyond conventional training paradigms [10]. The effective use of computers in classrooms depends on teachers' computer attitudes. Recent research found that teachers' attitudes, awareness and skills in computer usage were main factors that influenced their initial computer technology acceptance and subsequent computer usage behaviour. Also it was observed that teachers and students are often hesitant to consciously or sustainably participate in information technology practices. A well-defined context is therefore important to predict and understand the use of teacher technology and acceptance [11]. There is clear and most obvious drive towards technological convergence. The new aim now seems to be the creation of a university professor in the literacy of

information and literacy. Therefore, the way technology training is carried out can be absolutely essential. Technology alone does nothing to improve educational practices; successful integration involves the application and integration of technological instruments into education. That means that the faculty should have not only access to software integration tools, but also training in the use of tools. Tech infrastructure's main task is to promote both learning and education technology for students. Technology to enhance and promote student - teacher interaction. The connectivity (network capacity) and safety networks are key issues that need to be taken into account as most universities are provided with technical infrastructure to support Internet and database technologies (online registration, Students ' financial assistance, Online Directory, etc.). The technology required in pedagogy focuses on Web - based educational platforms and incorporates interactive learning objects. The goals of funding for technological learning involve building society. The creation of an online community that encourages knowledge self-acquisition and enables students to share common values, expertise and understanding may be an example of this technology.[12]. The implementation of a webinar platform for teaching - learning is also sponsored by the information technology. The purpose and application of this tool are very limited. However, the true potential of these tools was explored a few days after the Covid-19 pandemic. Table 1 shows the comparison of various webinars used by educators and industry staff.

Table 1: Comparison of different webinar delivery platforms features

Features/Platform's	ZOOM [13]	GoToMeeting [14]	GoToWebinar [15]	Google MEET[16]	CISCO WEBEX[17]	Microsoft TEAMS[18]
Free version available	Yes	Yes(14-day trial)	Yes	Yes	Yes	Yes (limited time
Meeting participants (default)	100	150	100	100	200	250
Screen-sharing	Yes	Yes	Yes	Yes	Yes	Yes
Whiteboard	Yes	Yes	Yes	No	Yes	Yes
Meeting recording	Yes	Yes	Yes	Yes	Yes	Yes
E2E encryption	No	No (AES encryption)	No	No	Yes(optional)	No
Plans from (p/m)	$14.99	$12	$12	$6.00	$13.50	$5.00
Mobile app	Yes	Yes	Yes	Yes	Yes	Yes
Customer rating	09-oct	7.9/10	8.1/10	4.5/5	4.2/10	8.4/10

Room Moderation	Yes	Yes	Yes	Yes	Yes	Yes
No latency	Variable	Good	Good	Good	Good	Variable
Multi-languages	Yes	Yes	Yes	Yes	Yes	Yes
Join webinars via phone (dial-in)	Yes	Yes	Yes	Yes	Yes	Yes
File Transfer	Yes	Yes	Yes	Yes	Yes	Yes
Collaborative Workspace	Yes	Yes	Yes	Yes	Yes	Yes

III. CASE STUDY ON WEBINAR TECHNOLOGY

The case study on the use of webinars as a teaching tool conducted on faculty members of the Chitkara University, Rajpura Punjab, India. A total of thirty-eight faculty members from different engineering departments participated in this study. The participants get initial training to use the platforms for their course work. Fig 1 shows that 82% of the participants have gone through initial training on the use of webinar platforms for their online-classes, and 18% did not participate in the training process. Further, they completed their courses by taking an average time for webinar delivery of 15hrs. After completion, of course, they provided with google form to give their feedback response on the use of webinar technology. The link for the same is as https://forms.gle/qnYFu25CdboTGM6VA . Their responses were recorded in Ms-Excel and analyzed for further interpretation.
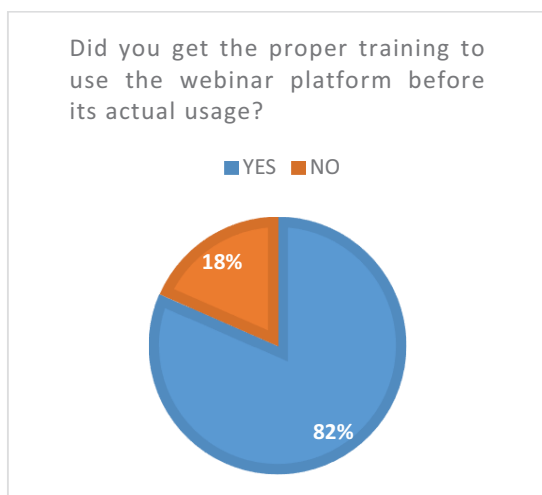

Fig 1: Faculty training on the use of webinar platforms

a. *Participants*
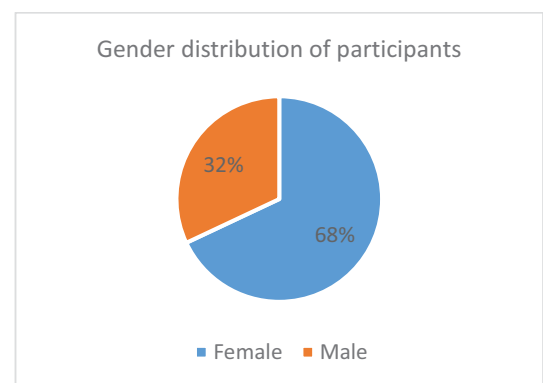   The demographic representation of the participants shown below.

Fig2: Gender distribution of the participants.

Fig2 represents the distribution of participants based on gender. 68% of female faculty members and 32% of male faculty members participated in this case study. The average age of the participant is 34.3 years, and the average teaching experience in years of the research participants is 9.74 years, which infers that faculty members in this study have a fair amount of teaching experience and a decent level of understanding things. Fig3 represents the knowledge of participants about using webinars for teaching before Covid-19. It is very much clear from the data that the majority of participants, i.e., 63% of faculty members, have no experience of using webinar technology for teaching purposes before this.
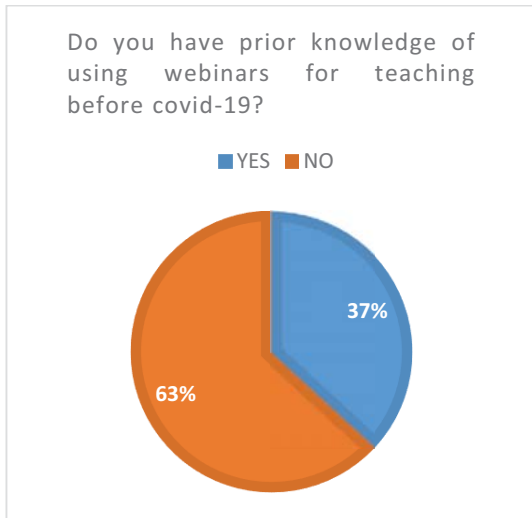
Fig 3: Knowledge about the use of webinar technology

b. *Webinars as a System for teaching*

After the successful training session on how to use webinar tools for online teaching, all the participants completed their course using these tools. Fig 4 shows the awareness gathered about the webinar platform from a different source of information like friends, print media, social media, and their organization information system.
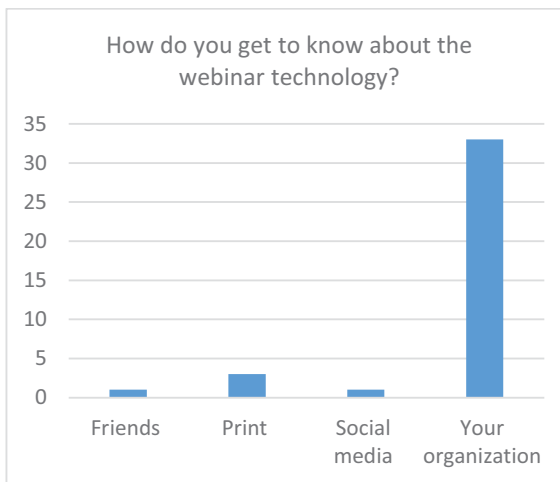

Fig 4: Knowledge about webinar technology

In the next step, participants share their experience with the use of webinar tools for teaching through a system usability survey (SUS) questionnaire designed by John Brooke in 1996 [19]. It is a ten items questionnaire that covers the usability factor of any developed system by the user. The participant has to show their level of confidence for the usage of webinar systems in teaching defined on a Liker

scale of 1 to 5, where 1 stands for "strongly disagree" and 5 stands for "strongly agree."

Steps to Calculate System Usability Score
- Calculate the data by taking average of collected responses to each question asked as represented in table 2.
- Subtract one from average user response for the question asked at serial numbers 1, 3, 5, 7, and 9 of table 2.
- Subtract average user response from five for the questions asked at serial number 2, 4, 6, 8, and 10.
- Calculate the sum of all modified scores obtained for questions 1 to 10.
- Multiply the total by 2.5 and receive a percentage of the SU score.
- The usability score for the system would now falls between 0 and 100.

Table 2: system usability questionnaire

S.No	Item	Average Score
1	I think I would like to make frequent use of this webinar system	3.68 (2.68)
2	I found the webinar system to be unavoidably dynamic	1.89 (3.11)
3	I believed it to be an easy to use webinar program.	3.42 (2.42)
4	In order to use the webinar program, I believe I need the assistance of a technical person.	2.34 (2.66)
5	I found that different functions were well incorporated into this webinar framework.	3.66 (2.66)
6	I found the webinar program was somewhat inconsistent.	2.00 (3.00)
7	I'd imagine the majority of people would learn to use this webinar system very fast.	3.42 (2.42)
8	I found the webinar system to be very complicated to use.	1.84 (3.16)
9	I was very confident in using the webinar system.	3.68 (2.68)
10	Before I could start this webinar system I would learn many things.	2.50 (2.50)
	Total SUS Score	27.29
	SUS Score in %age (2729 * 2.5)	**68.22%**

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According to John Brooke method to calculate system usability, the overall score higher than 58% is acceptable for any system to be used on a large scale by the consumers. For this case study, the overall score obtained is 68.22%, which means that the webinar system for teaching students remotely is acceptable by the faculty members of the university significantly[19][20].

c. Additional reviews

Further, participants asked to give their review on webinar technology as per the questions asked and represented below: Firstly, based on their experience of usage of webinar technology, their recommendation for future use and to other colleagues is represented by fig 5. Accordingly, 86% of faculty members are in favour of recommending webinar technology to other faculty members for their courses.
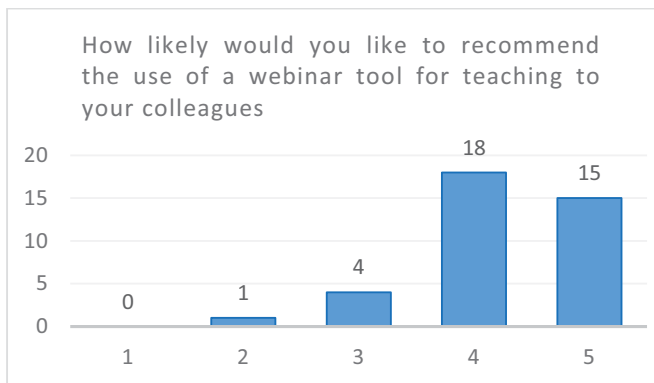
Fig 5: Faculty recommendation for the use of webinar technology.

Secondly, another important aspect regarding the teaching-learning process is the achievement of course learning outcomes. As teaching through webinars is a new experience for the majority of the faculty members in the research study. 68.4% of the faculty members have the views of achieving the course learning outcomes of their respective courses by teaching online using webinar technology. Rest 26.3% have marginally achieved, and 5.3% of faculty members have not achieved the learning outcomes of their course through the webinar teaching method. The detailed description is as shown in fig 6 below.
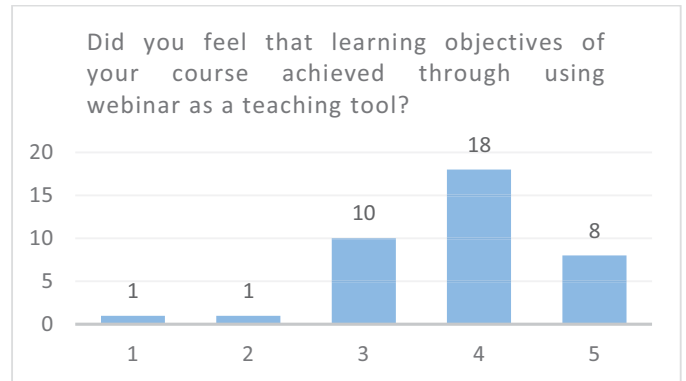
Fig 6: Faculty perception about course learning outcome achieved

Thirdly, after using different types of the webinar platform, their preference about using the platform amongst widely used ones are as shown in fig 7. According to the choice of platform, 68.4% of the participant likes Go-To-Webinar platform, 7.80% like Microsoft Teams, 13.15% likes Google Meet, and 10.52% like Zoom platform to conduct live webinars. It is evident from the data that Go-To-Webinar is the most preferred software platform by the majority of the faculty members to take their courses using webinar technology.
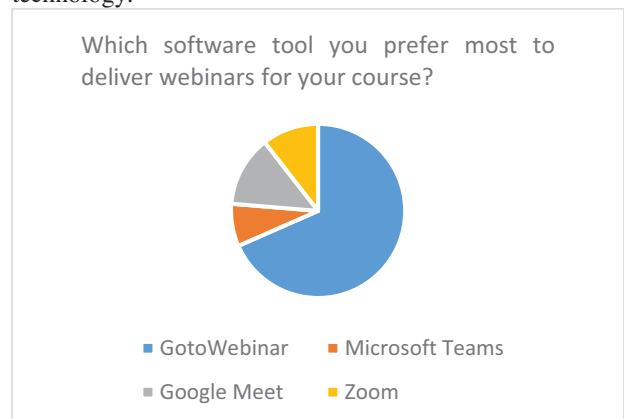
Fig 7: Preference of webinar software for future use

Finally, the participants shared the challenges faced by them while conducting live webinars using the platforms mentioned above. Some of these challenges are mentioned below as:

"*Audio connection problem faced by me, when the receiver exactly does not about "how to connect audio."*

"*Writing with the pen tool."*

"*Unable to chat and teach at the same time. Also, the audio was not working well sometimes.*"

"*If you are mute n you forget to unmute yourself; there is no one to tell you this unless you have a co-organizer."*

While the other challenges are internet connectivity, the large size of video recording, screen sharing, making an attendee as presenter, student-teacher interaction and resource material sharing, etc.

IV. CONCLUSION AND FUTURE SCOPE

The webinar is an online digital content delivery platform that was not in use before the Covid-19 pandemic outbreak. A sudden shift in the teaching-learning process had explored the true potential of the information technology infrastructure of every country throughout the world. In order to curb the negative effect or loss of educational time, webinars or online learning platforms emerged as true saviours. Shifting from offline to online mode of teaching requires well-planned execution of the administrative authorities. Hence, exploration of different platforms, training to the faculty members and students, conducting demo sessions, and introducing online assessment platforms becomes useful in this need of the hour. To examine the acceptance and feedback of the faculty members who had experienced this change in a higher educational institute, a case study so conducted. From the study, it observed that the acceptance rate of this technology by the faculty member of a particular university is 68.22%. Their organization provides full support in providing them training and other relevant resources, which result in achieving the course learning outcomes for many of the courses successfully. In the end, as this webinar technology is an outcome of information technology, whose backbone is internet connectivity. Many times faculty members faced difficulty in conducting their session due to this only reason. Other challenges include writing with a pen, audience interaction, audience engagement, and assessments. Future work in this regard is to prepare faculty members to make their session more engaging and improve the rate of achieving the learning outcome of the course. Also, efforts in making the assessment more and more authentic so that students prepare well and learn more sincerely.

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