

Improving Student Performance through Interactive Webinars

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Abstract— In the rapidly evolving landscape of education, the integration of technology has proven to be instrumental in reshaping traditional learning paradigms. This paper delves into the realm of improving student's performance by harnessing the potential of interactive webinars as an innovative educational tool. The paper aims to investigate the impact of interactive webinars on student engagement, knowledge retention and overall academic achievement in the course. The findings of the study provide empirical evidence that interactive webinars positively influence student performance. The analysis demonstrates that students who actively participate in interactive webinars exhibit higher levels of comprehension, engagement and retention compared to conventional classroom instructions. The students' engagements in the webinars are monitored by MOODLE activities, question answer sessions and their quick notes. The comparative graph of pre-test and post-test clearly describe that, there is improvement and shifting of students from CD, DD & FF grade to AA, AB, BB & BC grade. Employing a mixed-methods approach, the research draws upon quantitative data from pre and post webinar assessment, as well as qualitative insights obtained from student surveys and interviews. These methods enable a comprehensive evaluation of the effectiveness of interactive webinars in comparison to traditional instruction methods. In addition to that incorporating industry resource persons into educational activities like interactive webinars can significantly enhance the learning experience of the students. Industry professionals bring real-worlds insights, practical knowledge and helping bridge the gap between academic theory and practical application.

Keywords— Interactive Webinar, Industry Resource Person, Student Performance, Industry Practices.

I. INTRODUCTION

THE landscape of education has been rapidly transformed by the digital age, where technology plays an integral role in shaping the way students learn and educators teach. Traditional classroom models are evolving to incorporate innovative approaches that leverage the power of technology

to enhance student's engagement, understanding and overall performance. This research paper delves into the potential of integrating industry experts into interactive webinars and its impact on improving student performance.

The conventional methods of education, while effective to an extent, often struggle to bridge the gap between theoretical concepts and their practical applications in real-world scenarios. As industries become more dynamic and diverse, the demand for graduates equipped with not only textbook knowledge but also a profound understanding of industry practices and trends are increasing. Interactive webinars, infused with the perspectives of industry professionals, emerge as potent tool to address this demand and deliver a holistic learning experience.

Incorporating industry resource persons into educational initiatives like interactive webinars can significantly enhance the learning experience for students. Industry professionals bring real-world insights, practical knowledge, and up-to-date trends to the table, helping bridge the gap between academic theory and practical application.

The primary objective of this research is to investigate how the inclusion of industry resource persons in interactive webinars influences student performance across various educational levels. By exploring the dynamic interplay between academic instructions and real-worlds expertise, this study aims to contribute to the ongoing dialogue about innovative educational strategies that prepare students for the challenges of an evolving professional landscape.

In present research paper this innovative technique was used for Geotechnical Engineering course which is offered in 5th semester of Undergraduate (B. Tech.) program. The course outcome for Geotechnical Engineering is as given below:

CO1: Classify types of soil using different index properties.

CO2: Calculate permeability of various types of soil using different methods.

CO3: Analyze compressibility phenomenon of soil using laboratory and field considerations.

CO4: Determine settlement, shear strength and bearing capacity of soil.

This course deals with study of index and engineering properties of soil, which helps to classify the soil and identify the strength parameters. In this webinar series, all CO's are taken as topic for the webinar.

This paper was submitted for review on August 30, 2023. It was accepted on November, 16, 2023.

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II. LITERATURE REVIEW

Interactive webinars thrive on learner engagement. Sanjib K. Gupta et. al. (2021) emphasized the importance of active participation and collaboration in online environments, which can be achieved through interactive elements like polls, quizzes and breakout sessions. Lieser P. et. al. (2018) found that incorporating gamification elements in webinars can motivate students and foster deeper engagement.

Research investigating the impact of interactive webinars of student's performance has shown promising results. In a study by McKinney et. al. (2017), interactive webinars were associated with increased test scores and improved knowledge retention compared to traditional lectures. Similarly, Verma et.al. (2018) reported that students who participated in interactive webinars exhibit higher levels of critical think and problem solving skills.

Through an in-depth exploration of existing literature, this paper will establish a theoretical framework that underscores the significance of interactive learning and the potential of industry collaboration. Furthermore, the research will adopt a missed-methods approach, combining quantitative data from pre and post assessments with qualitative insights gathered from student surveys and interviews. By evaluating the impact on student engagement, comprehension, knowledge retention, and overall academic achievement, this study seeks to unravel the tangible benefits that industry-involved interactive webinars can offer.

III. METHODOLOGY

The research adopted a mixed methods approach to comprehensively investigate the impact of incorporating industry resource persons into interactive webinar on student performance. Quantitative data was collected to measure students' performance, while qualitative data was gathered to explore students' perceptions and experiences with interactive webinars.

A. Conduction of webinar series

This study involved 65 undergraduate students enrolled in webinar on 'Geotechnical Engineering and It's Application' at Rajarambapu Institute of Technology, Islampur. Ethical considerations were taken into account and participants provided informed consent to participate in this study. The webinar series is conducted on online mode and the webinar flyer is designed as below:



Fig. 1 Webinar Flyer

Conducting a successful webinar, especially one that involves industry resource persons, requires careful planning, technological setup, and effective communication. In this program students are also involved to arrange all the technical and nontechnical things.

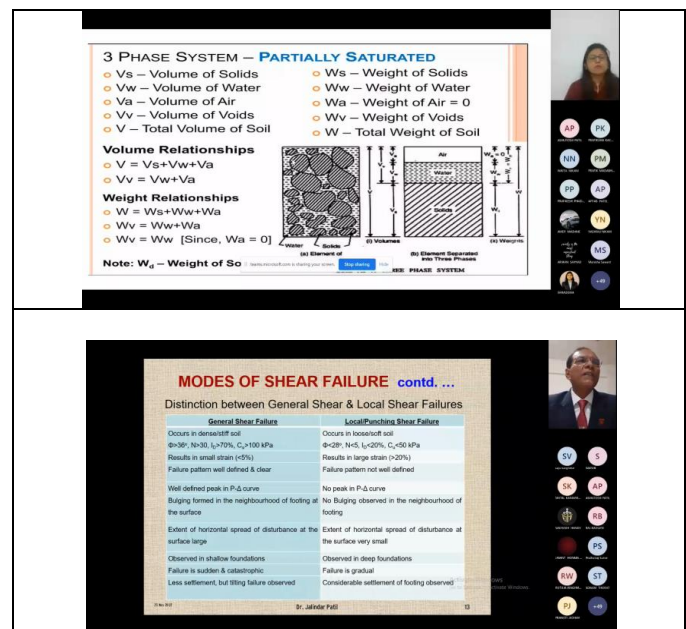


Fig. 2 Glimpses of Webinar Series

B. Students involvement in the webinar

This webinar series is organized under Indian Geotechnical Society (RIT Student Chapter), therefore all the organization was done by the students, in which student management skills are assessed during conduction of the activity. During the webinar students were asked to write the short notes and key points with respective the webinar topics so that they should be enough attentive during the webinar. Later students should upload these short notes and key points on MOODLE for further assessment which ensures the involvement of the student. Students were also asked to write the maximum questions during the webinar in chat box, so that they can think beyond the topic concerning the practical expectations, and again this activity helps us to ensure the students active participation in the webinar.

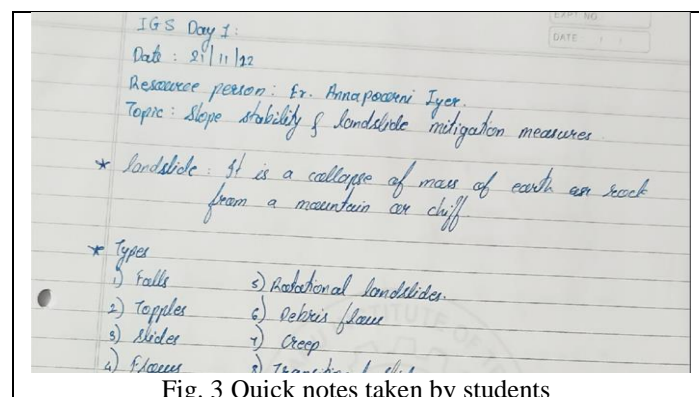


Fig. 3 Quick notes taken by students

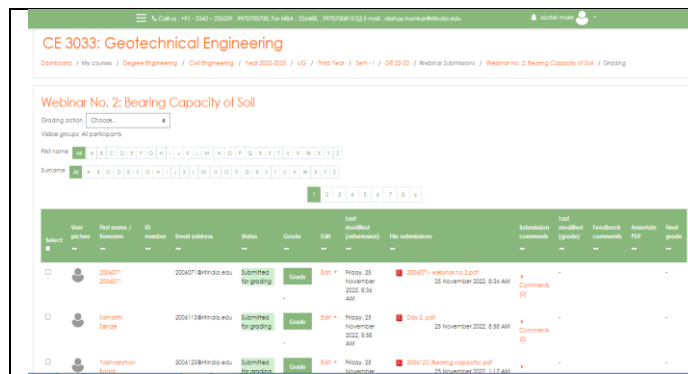


Fig. 4 Quick notes uploaded on MOODLE

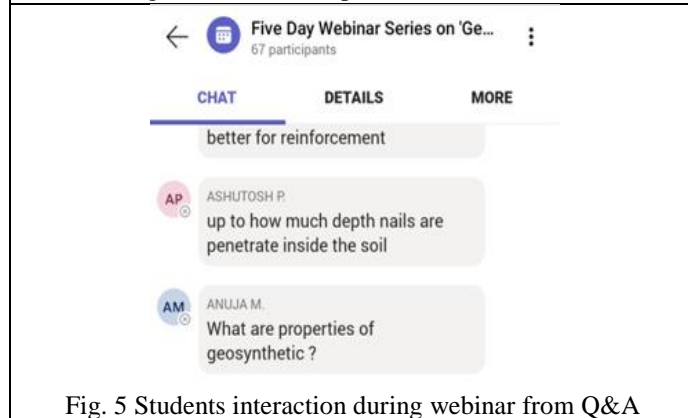


Fig. 5 Students interaction during webinar from Q&A

C. Students assessment

Participant's academic performance was measured using their pre-test and post-test scores on course related assessments. The pre-test was administered prior to the implementation of interactive webinars, while the post-test was conducted after the completion of the webinar session. The comparative study of results of the pre-test and post-test are done and significant changes in the grades of students were observed. Below graph shows the distribution of students according to grades in pre-test and post-test.

Qualitative data was collected through semi-structured interviews and open-ended surveys. Total 65 participants were selected to participate in individual interviews aimed at understanding their perceptions of interactive webinars. Additionally, an open ended survey was administrated to the entire participant pool to gather insights their experiences, challenges faced and suggestions for improvement. The students feedback were also collected to check the understanding of the knowledge of student in that particular subject, their involvement, and overall impact of the webinar series to achieve the course objectives.

D. Challenges

During the execution of interactive webinars aimed at improving student performance, several challenges are arrived; some of the challenges are listed below

1. A technical issue such as poor internet connectivity, audio problems disrupts the flow of the webinar.
2. Ensuring consistent engagement from participants is challenging. Some students were hesitating to participate actively during the webinar.

3. Balancing content delivery, interactive activities and Q&A with a limited time frame were tricky.
4. Students were distracted by their environment or engage in multitasking during the webinar.
5. Coordinating schedules with industry resource persons were challenging due to their commitments.

IV. RESULTS AND DISCUSSION

The effective implementation of this activity for Geotechnical Engineering course in 5th semester of B. Tech. Civil Engineering program the results of pre-test and post-test shows significant improvement in the students' performance, especially the student failure rate was decreased from 35% to 13% as shown in the comparative graph below:

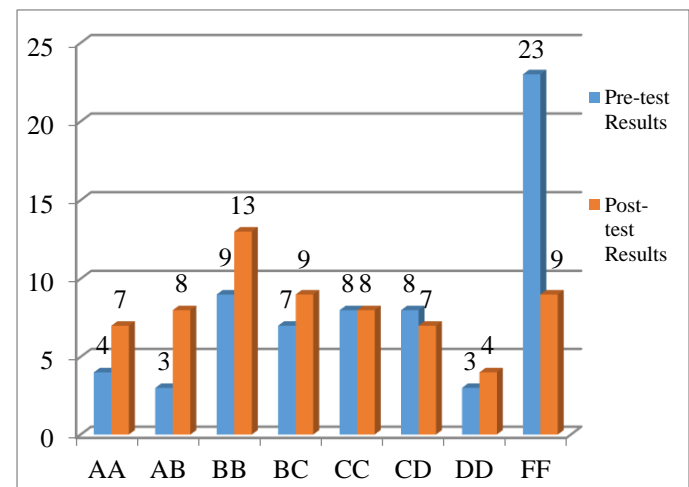


Fig. 6 Comparative graph of pre-test and post-test results

The above graph shows the change in the grade of students in post-test results, there is increase in the number of students in the grade AA, AB, BB & BC and decrease in CD, DD & FF grade. The result shows the use of interactive webinars influenced students' engagement and participation. There is improvements in the grades of students and decrease in the rate of failure. In addition to this there is increase in quantitative data such as increased attendance rates, active participation in discussions, and feedback responses. After conducting this interactive webinars it positively affects knowledge retention and comprehension.

Conclusions:

1. The use of interactive webinars helped in improving students' performance with respect to grades scored during pre and post-test.
2. Conduction of interactive webinar with industry resource person, significantly important to bridging the gap between the academic theory and real-world applications.
3. The use of interactive webinars can be incorporated into pedagogical practices to foster engaged learning environments.
4. The integration of industry insights and active engagement caters to students' diverse learning style, enhancing their compression and skill development.

ACKNOWLEDGEMENT

Author would like to thank Dr. P.V. Kadole, Director, Rajarambapu Institute of Technology (RIT) and Dr. S. K. Patil, Dean Academic, and Dr. S.S. Kumbhar, Head, Department of Civil Engineering, K.E. Society's, Rajarambapu Institute of Technology, Rajaramnagar for encouragement and motivation during this study.

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