

Productive use of COVID-19 outbreak to develop Virtual Pandemic awareness course to stimulate STEM curiosity in high school students

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Abstract

Due to numerous misinformation circulating about Covid-19. It was crucial to develop an interactive virtual health awareness course addressing Covid-19 and utilizing STEM learning in the content of the course. Twenty students (12 Females and 8 Males) from secondary schools inside Qatar participated in the course. The design of the course content integrated diverse tools were integrated in the course contents such as interactive quizzes, online games, videos, and PowerPoint presentations to increase student's interest in STEM. A feedback mechanism evaluated the course content design and delivery. The results indicated student's positive responses to the STEM learning experience and the activities implemented in course

Introduction

Health awareness campaigns aim to raise awareness of specific diseases so that the necessary measures are executed rapidly. Due to the recent events of the Covid-19 pandemic, it is essential to raise awareness about the virus to decrease its spread. The health awareness targeting school students lack important aspects such as interactivity, engagement, and communication. Our work aims to design a virtual health awareness course following STEM curriculum standards to promote secondary student's innovation.

Objectives

- Inspire student's creativity and innovation to develop their capabilities.
- Integrate digital tools into the science activities of the course to address STEM learning
- Encourage students to join and retain a three-weeks course during the pandemic outbreaks

Methodology

1- Research Methods:

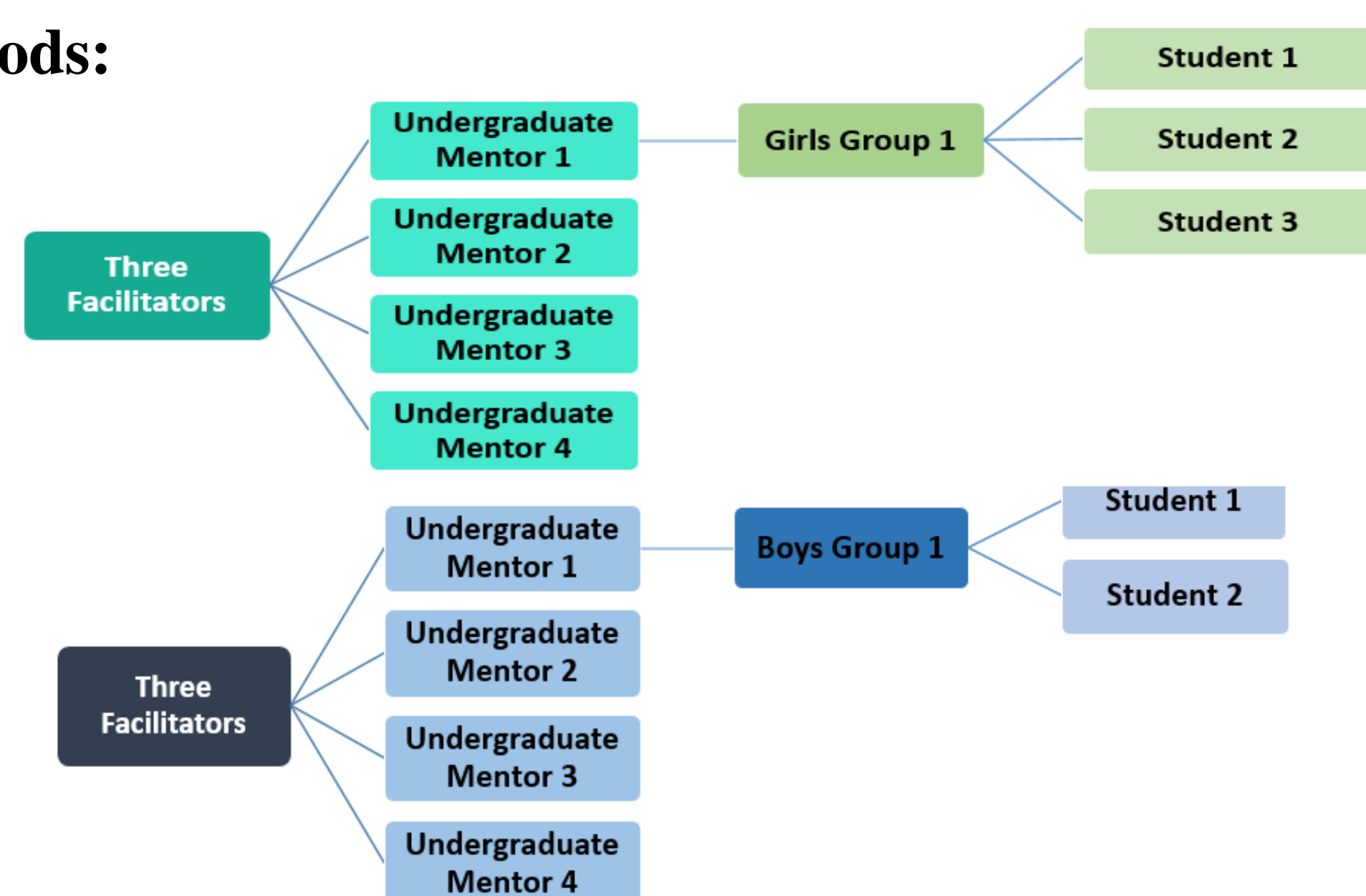


Figure 1: Distribution of secondary students groups under their UG mentors that were supervised by three mentors

2- Course Breakdown:

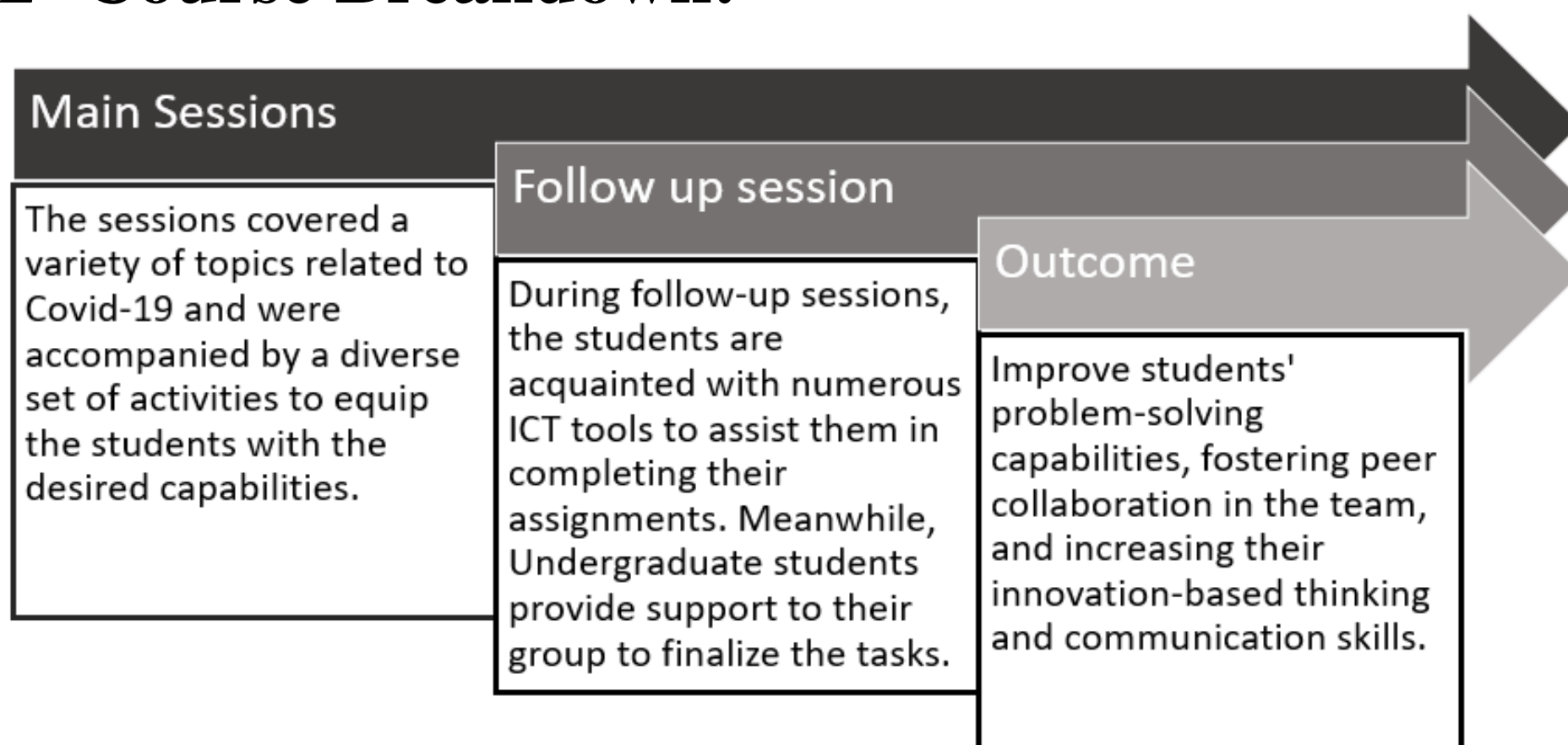


Figure 2: Session break down with 1 hour duration for main session, and a 30 minutes for the follow up session.

Course Breakdown in percentage

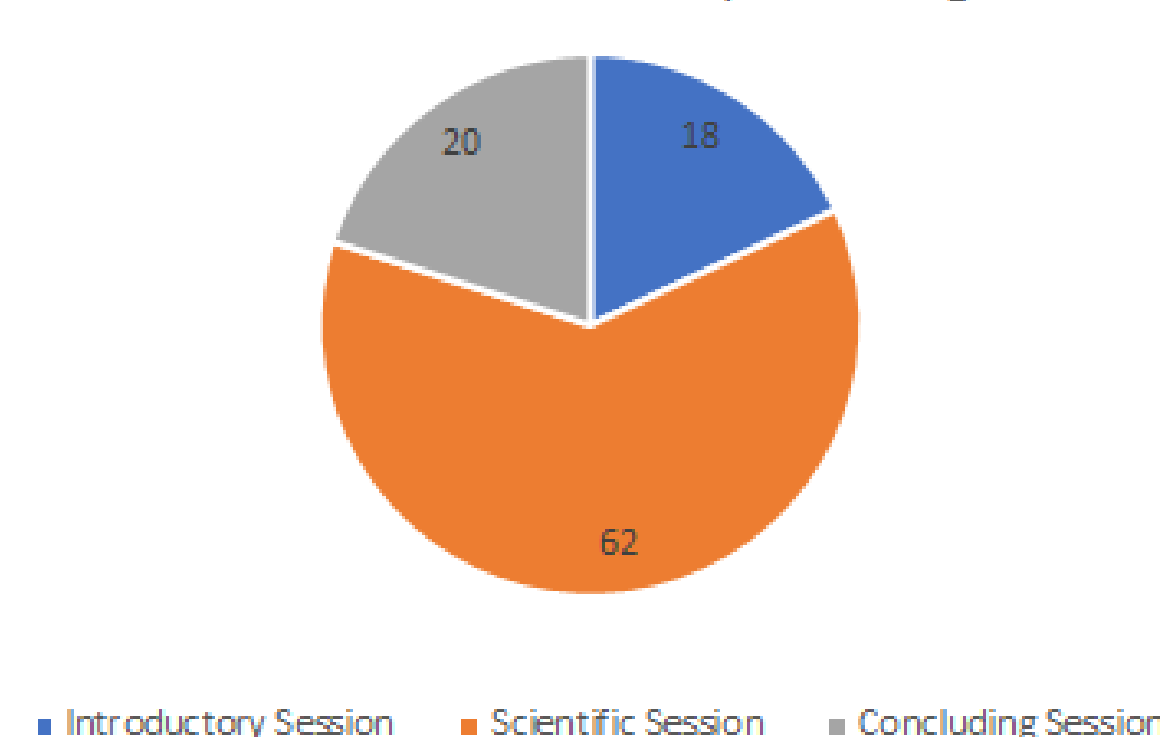


Figure 3: Course breakdown into 3 parts they are introductory session, scientific session, and concluding session.

3- Course Assessment:

Table 1: Course assignments detailed information

Sessions	Assignment	Objectives
1	Make an Advertisement	• Improve students' ability to investigate and conduct research, and assess students' reflections on the current event.
2	Create a Presentation related to restrain Covid-19.	• Live discussions and debates enable the learning of crisis management skills.
3	Develop a new prototype that reduces COVID-19 transmission.	• Problem-solving capabilities, peer collaboration, and innovation-based thinking
4	Writing report based on scientific research	• Writing and oral communication skills
5	Document the pandemic	• Improving competencies in documentation
6	Inquiries about Covid-19	• Research and oral communication
7	Film Making	• Video editing and film making

Results and Discussion

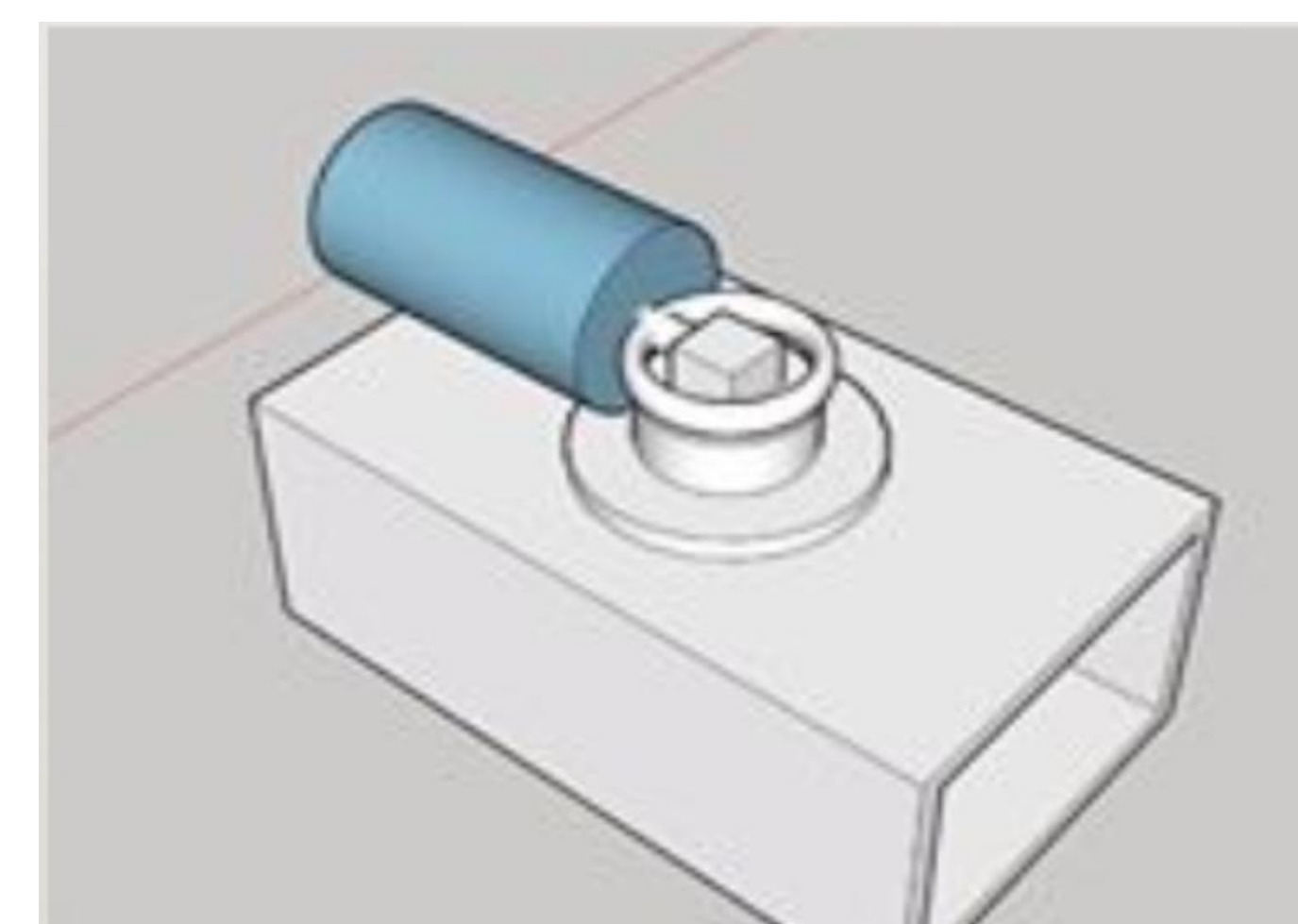


Figure 4: Example of students project executed using ICT tools.

DIGITAL LEARNING TOOLS DISTRIBUTION AMONG COURSE DAYS

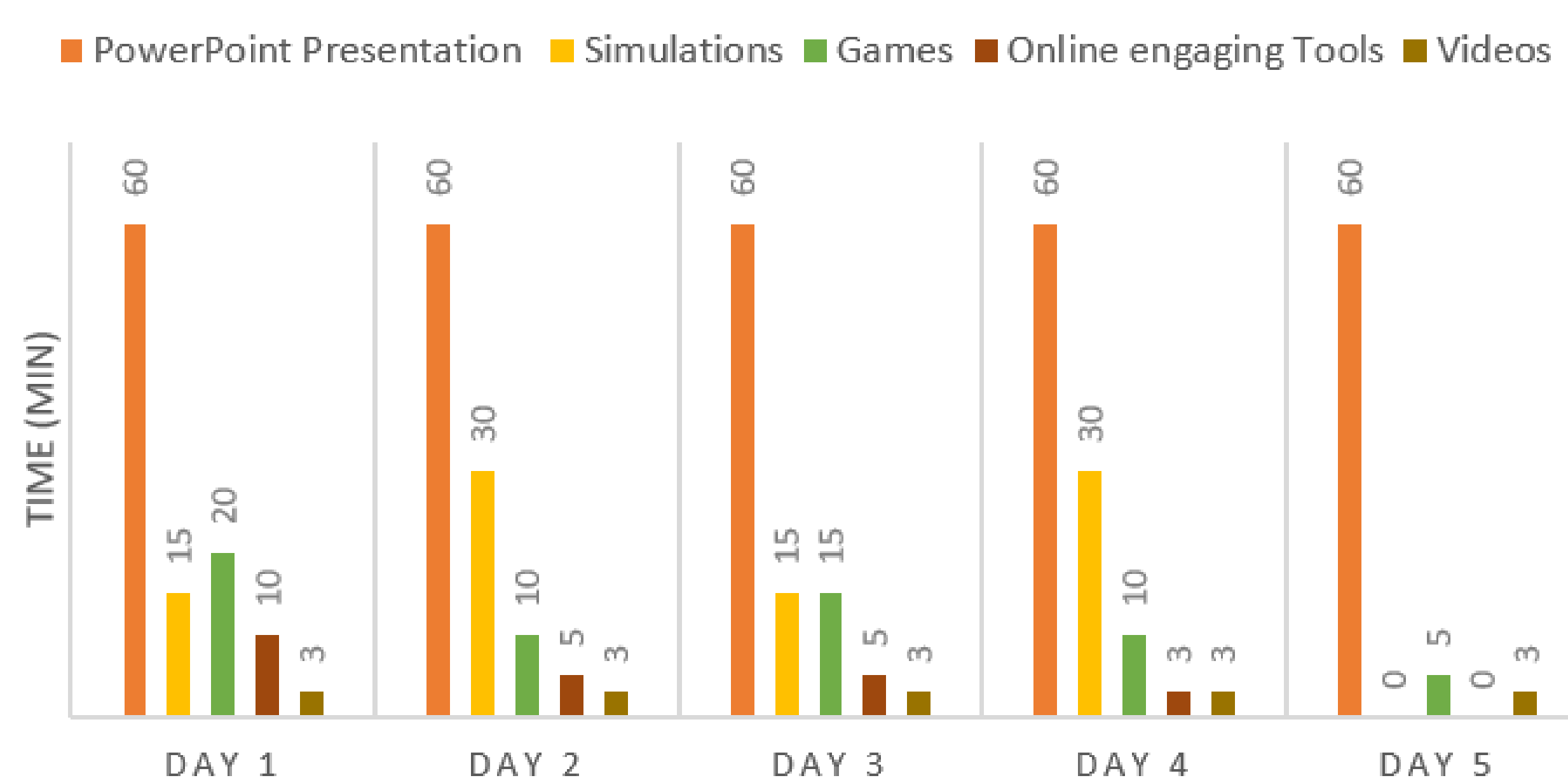


Figure 5: The use of digital learning tools during the session

NUMBER OF REGISTERED STUDENTS IN THE COURSE

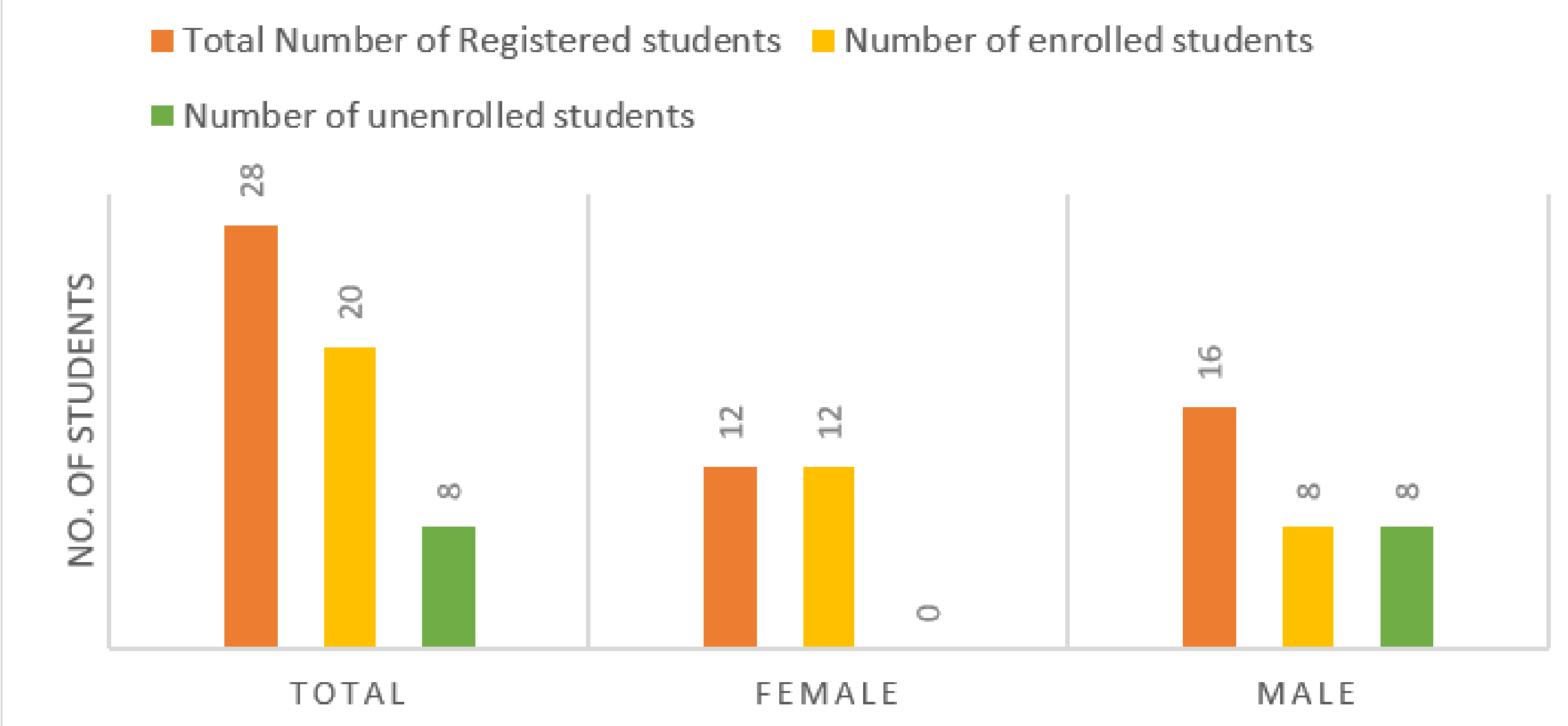


Figure 6: Student retention through the course

Conclusion

The course succeeded in developing an engaging virtual Covid-19 health awareness course to overcome the drawbacks of conventional health awareness campaigns. It successfully evaluated the effect of integrating STEM learning, ICT tools, live discussion in the course content. Daily feedback from the participants is used to evaluate the effectiveness of the course, where participants highlighted the significance of integrating challenges and activities in the sessions.

Acknowledgments

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