

ZOOMABLE ONLINE OUTLINERS FOR LEARNING AND TEACHING IN STEM: A CASE FOR CONSIDERATION

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INTRODUCTION

- Enhancing the learning of students through the use of technology is an important aspect of modern higher education in the UK (Jenkins at al., 2011).
- Over the course of the last three academic years, there is an apparent positive impact on student learning upon the use of ZOOs such as (WorkFlowy, 2020) and (Dynalist, 2020) as learning and presentational tools (E. Pfluegel et al., 2019).

METHODOLOGY

- By carrying out surveys and in-class quizzes, while taking into account data extracted from early module feedback , students' perception on the use of ZOOs has been recorded.
- All clicker sessions and surveys were anonymous in order to obtain approval from the ethics committee at Kingston University.

RESULT ANALYSIS

Q1: 50% of students expressed their understanding of PBL as "very confident" while others were "confident"

Q2: A total of 75% understood the differences between high-level workshop instructions and a walk-through exercise "very confidently.", the remaining students expressed themselves as "confident".

Q3: The majority were comfortable using Dynalist

Q4: Most students found the learning material based on Dynalist accessible

Q5: 50% of students strongly agreed that they have benefitted from PBL in this module while the rest agreed only.

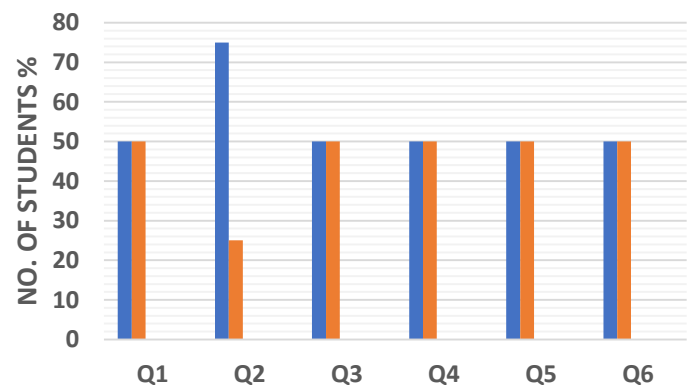
Q6: 50% of students strongly agreed that incremental release of workshop for PBL on Dynalist brought benefits while the remaining have said they only "agree".

AIM OF PROJECT

- Knowledge built up in an outline and released gradually over a set period of time encourages students to practice problem-based learning and prepare them for tackling real-world problems.
- The aim of the project is to investigate the use of ZOOs for PBL.

PBL SURVEY

Very confident Confident
Neutral Not very confident
Not confident at all



"PBL is preferred for theoretical discussions and debate"

"PBL was beneficial in this session, the overall module should have more PBL exercises in my opinion"

REFERENCES

- Dynalist Website, 2020, <https://dynalist.io/>
- Jenkins, M., Browne, T., Walker, R. and Hewitt, R. (2011) The development of technology enhanced learning: findings from a 2008 survey of UK higher education institutions. *Interactive Learning Environments*, 19(5), pp.447-465.
- E. Pfluegel, N. Bailey, J. Denholm-Price, Using Zoomable Online Outliners in STEM Education, Horizons in STEM Conference, July 2019
- Workflowy Website, 2020, <https://workflowy.com/>