

STUDENT INTERACTIONS DURING ONLINE PROBLEM SOLVING: INTENSITY, COMPLEXITY, AND TEMPORAL DYNAMICS

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KEYWORDS: online learning, problem solving, interactions

SUB-THEME: Technology Enhanced Learning

INTRODUCTION

Student interactions play a critical role in shaping learning experiences in the classroom; in-person and online. A sudden shift to remote learning in 2020 demonstrated the need to understand student interactions in online settings. In this study, we examine first year undergraduate chemistry students' engagement with each other, the instructors, and the content in a fully virtual environment. Data was collected in 2020 in the form of discussion forums used during problem-solving classes. These forums served as communication channels for students to interact with teaching associates (TAs) and with each other during class.

METHODOLOGY

A total of 2049 discussion forums posts from 96 students were deductively analysed for the interaction dimensions: student-student, student-TA, and student-content (Moore, 1989) and types of interactions (e.g. lurk, respond, create) (Prestridge & Cox, 2023). Based on interaction complexity and intensity (low, medium, or high), each student was categorised into one of four profiles based on Prestridge & Cox (2023) work: Bench sitter, Hustler, Striker, Champion.

RESULTS

The analysis revealed that interaction intensity and complexity fluctuated throughout the semester. Overall, forum contributions declined over the semester (929 for topic 1, 703 for topic 2, and 417 for topic 3). However, the percentage of Champions (highly engaged in both frequency and complexity) increased by the end of the semester. Interactions of medium complexity predominated (75-80% of all interactions), with greatest focus on task submissions (35-60%). Factors such as group dynamics and the nature of the problem played a significant role in the level of engagement and types of interactions amongst peers and instructors. Findings emphasise the importance of structured support, such as the TA's role in facilitating online engagement and student interactions in online chemistry education.

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Proceedings of the Australian Conference on Science and Mathematics Education, The University of Melbourne, 30 September - 2 October 2025, page 75, ISSN Number 2653-0481.