Evaluating Online Worksheets as an Assessment in Practical Chemistry Courses



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Introduction

The traditional assessment for practical chemistry courses are written reports, which can be time-consuming to write and mark, reduce available time for other course activities such as tutorials, lack assessment diversity, and are often viewed as an all-or-nothing assessment in which grades are based on one attempt.

Here, we explore the use of smart online worksheets^{1–7} as an assessment method in two second-year practical courses. Developed alongside LearnSci, the worksheets are a replacement to written report assessments for some of the experiments the students perform.

We present here the qualitative evaluation of their use across a physical chemistry laboratory course and a biological chemistry laboratory course.

Methodology

Two similar but distinct, anonymous, voluntary student surveys were conducted, which included Likert-scale and freetext response questions.

The surveys were distributed through the virtual learning environment, which was supplemented with lecture, tutorial,

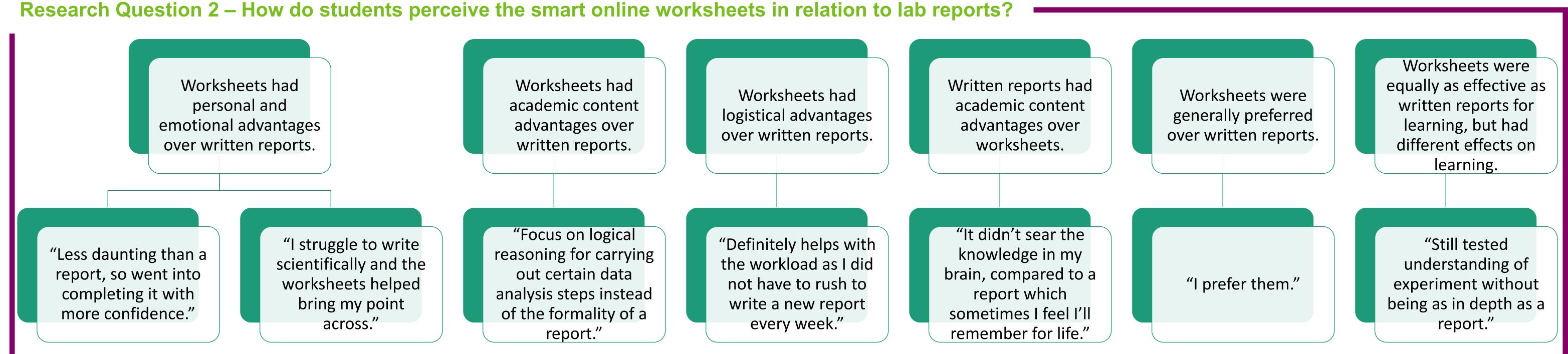


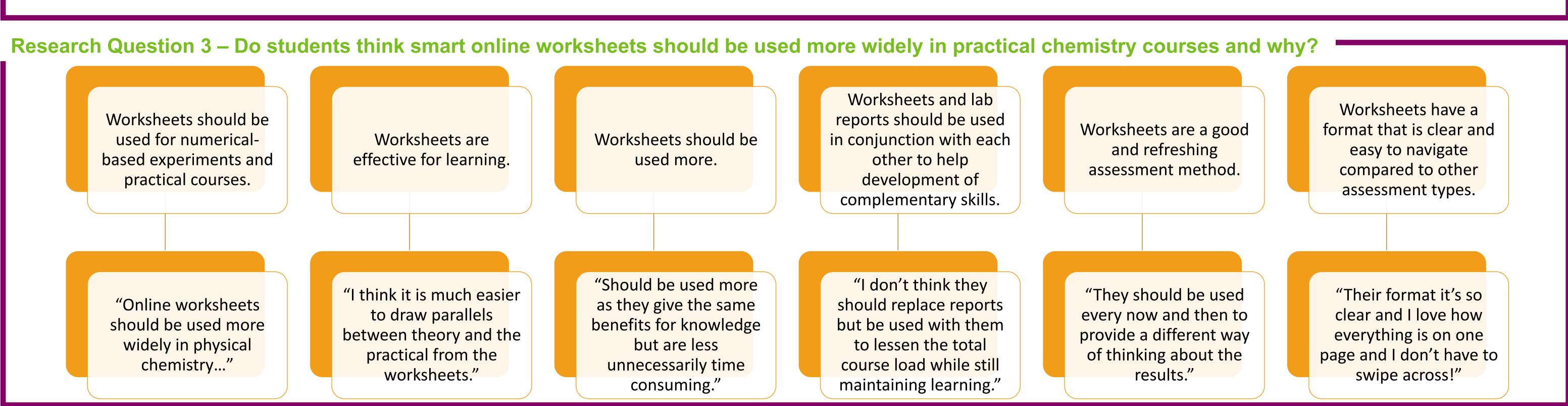
Thematic analysis was used to analyse qualitative data.

Statistical testing was carried out on IBM SPSS at the 95% confidence interval.

and lab session announcements.

The response rate was about 20% for both courses. Research Question 1 – How do students perceive the smart online worksheets? The **physical chemistry** online worksheets... The biological chemistry online worksheets... 60% 60% "I liked that they were "I loved the online marked as you went worksheets." through." 50% 50% 40% 40% "I really like the fact "Overall enjoyable, 30% 30% that I get instant challenging, and feedback." informative." 20% 20% 10% 10% "Sometimes feel "Introduction of the slightly pressurised to worksheets definitely 0% 0% think about the Neither Neither helps with the answers in the exact Slightly Strongly Slightly Slightly Slightly Strongly Strongly Strongly workload." agree nor agree nor moment." disagree disagree disagree disagree agree agree agree agree disagree disagree ...made the steps needed ...made the steps needed 52% 6% 6% 0% 39% 6% 56% 31% 9% 3% for data analysis clear. for data analysis clear. ■ ...made the steps needed ■ ...made the steps needed for data analysis easy to 0% 0% 58% 35% 6% 0% 31% 6% for data analysis easy to 53% 9% perform. perform. ...made me more ...made me more confident in drawing confident in drawing 3% 0% 58% 6% 50% 3% 32% 0% 38% conclusions from my conclusions from my results. results.





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