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AN EVALUATION OF THE SOCRATIVE (PERSONAL RESPONSE SYSTEM) APP FOR INCREASING STUDENT ENGAGEMENT AND LEARNING IN AN UNDERGRADUATE PSYCHOLOGY CURRICULUM

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Introduction:
Personal response systems using hardware such as ‘clickers’ have been around for some time, however their use is often restricted to multiple choice questions (MCQs) and therefore used as a summative assessment tool for the individual student. More recent innovations such as ‘Socrative’ have removed the need for specialist hardware, instead utilising web-based technology and devices common to students, such as smartphones, tablets and laptops. While improving the potential for use in larger classrooms, this also creates the opportunity to pose more engaging open-response questions to students in class. This poster will present two applications of the Socrative system in an undergraduate psychology curriculum which aimed to encourage interactive engagement with course content using real-time student responses and lecturer feedback.

Application 1: Revision Lecture
Socrative was used at the end of a first year undergraduate psychology module on statistics, one month before a summative examination on the topic. 19 MCQs on course content were created and were therefore used as a summative assessment tool for the individual student. More recent innovations such as ‘Socrative’ have removed the need for specialist hardware, instead utilising web-based technology and devices common to students, such as smartphones, tablets and laptops. While improving the potential for use in larger classrooms, this also creates the opportunity to pose more engaging open-response questions to students in class. This poster will present two applications of the Socrative system in an undergraduate psychology curriculum which aimed to encourage interactive engagement with course content using real-time student responses and lecturer feedback.

Impact on Learning Assessment and Metacognition
A hierarchical linear regression analysis was performed to test the predictive strength of the variables on performance in the statistics examination. The initial model included MCQ performance as a single predictor, and a second model tested the effects when the variables of self-rated knowledge pre/post MCQs were added. Both models were statistically significant (p < .001), as was R²(5) = .068, p < .05. The analysis is summarised in Table 2.

What is notable from the analysis is that performance on the MCQ test was the strongest predictor of exam performance, explaining 14.8% of the variance, with the knowledge rating variables explaining a further 6.8%. Surprisingly, the only post-MCQ test knowledge ratings significantly predicted exam performance. It was expected that post-MCQ tests would have been significant predictors, assuming students used the MCQ test experience and feedback to more accurately assess their judgments of learning – using this to guide their revision for the exam. It would appear that the MCQ revision test did not have a metacognitive value to the students. This would indicate that an intervention may be required to ensure students understand how to use the results of a practice test to guide their future revision.

Student Experience
The MCQs remained live until the statistics examination. The initial model included MCQ performance as a single predictor, and a second model tested the effects when the variables of self-rated knowledge pre/post MCQs were added. Both models were statistically significant (p < .001), as was R²(5) = .068, p < .05. The analysis is summarised in Table 2.

Table 2: Hierarchical Linear Regression Analysis Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>Predictor</th>
<th>Std. b</th>
<th>F</th>
<th>R²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MCQ Performance</td>
<td>1.177**</td>
<td>7.9</td>
<td>.068**</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>2</td>
<td>MCQ Performance</td>
<td>1.177**</td>
<td>7.9</td>
<td>.068**</td>
<td>&lt;.01</td>
</tr>
<tr>
<td></td>
<td>Pre-MCQ Knowledge Rating</td>
<td>.187</td>
<td>1.9</td>
<td>.014</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>Post-MCQ Knowledge Rating</td>
<td>.167</td>
<td>1.7</td>
<td>.011</td>
<td>.20</td>
</tr>
</tbody>
</table>

Application 2: Flipped Lecture Engagement
Socrative was used at the end of a second year undergraduate module on conceptual issues in psychology. This module involves students learning about the philosophy of science and requires them to critically reflect on conceptual issues within psychological science (e.g. the use of metaphors and the development of theories). Ratings of this module are historically low, and students often reported finding the content ‘boring’ or ‘irrelevant’. The suspected reason for this, is that unlike all other modules, which require the acquisition of specific knowledge, this module requires students to critically evaluate abstract concepts, which cannot be done by traditional rote learning.

To address this, a one hour flipped-lecture was developed to allow students the opportunity to overtly practice their critical thinking skills. Students were asked to revise their knowledge of the topic of Freudian Theory in advance of the lecture, that they would be required to answer a series of conceptual questions based on Freudian Theory (e.g. Figure 4), and that they would receive formative feedback from the lecturer.

In large classroom environments, it is notoriously difficult to engage students to participate, due to fear of being incorrect and embarrassed in the presence of peers. Socrative was used to pose the questions, which required free-response answers. This allowed students the opportunity to anonymously ‘text’ in their thoughts, which were then displayed on a projector screen to the rest of the class. Student responses were integrated by the lecturer to scaffold group discussion, while providing oral feedback on students’ thinking skills and understanding.

Student Preparation
The success of a flipped-lecture is dependent on the students pre-preparing for the lecture, as lack of content knowledge will inhibit any meaningful engagement with the tasks presented. Students were asked about their preparation before answering the questions and their (dis)appropriateness responses are summarised in Figure 4. As this was the first time these students had encountered Socrative, it may be that they had not realised the benefits of participation and thus preparation. Nonetheless, incentives to ensure preparation is an important consideration for future flipped-lecture initiatives.

Student Experience
Due to time constraints, no quantitative evaluation of the session was done, but students did comment on the usefulness of the flipped-classroom in their module review feedback (see Student Feedback Quote text box for a typical example). They also suggested more use of the technology, across all lectures, rather than being confined to a single session, indicating Socrative fulfilled its purpose of improving student engagement with the module.

Lecturer Experience
The flipped lecture worked very well considering quite poor attendance and a general lack of preparation within the cohort. The students who engaged with the class provided insightful answers to the questions and contributed to the structured discussion in a valuable way. There were a few inappropriate comments to begin with, but this stopped quickly when they were acknowledged and encouraged to participate meaningfully. Students rated the module as being significantly higher in terms of intellectual stimulation and challenge (λ(19) = 2.1, p < .05) compared to the previous year, where this flipped-lecture was not used. Future sessions will collect student evaluations and link this to examination performance.