Plan for a SoTL Project

by Adam Langridge, Conestoga College

|  |
| --- |
| **Research Question**  What are you curious about?  What would you like to know about strategies that might hinder and/or help students to learn, in your course?  Do you want to know if an activity, assignment, or teaching strategy “works?”  Do you have a question about how to help your students learn a particular skill?  I am curious about the possible uses of artificial intelligence (AI) for grading. AI could potentially be superior to humans in grading, because bias is not inherent to AI and AI can grade without fatigue or human error. However, I could be wrong about this, so research is needed. |
| **Identify challenge/outcome related to learning that is related to your question.**  Describe the learning in a way that suggests how you might *measure* it using either qualitative or quantitative methods.  I would deploy AI to grade different types of assignments (essay, quiz, report, project, etc.) using different sorts of evaluation tools (rubrics, point systems, sliding-scale, etc.). Qualitative methods would be best to measure the quality of AI grading. I would, of course, check all results myself. However, student feedback from focus groups or general discussion would also be useful in measuring AI’s grading effectiveness. |
| **Describe the instructional activity, assignment, or teaching strategy that will promote student learning on the outcome you identified.**  SoTL projects might investigate the impact of a *modification* to an existing strategy or assignment. Describe how the new approach differs from the old approach and why this modification might change student learning on this outcome.  What I am proposing isn’t a specific strategy or instructional activity, so I’m not exactly sure how to answer here. However, this approach to grading would differ from previous approaches greatly. With the exception of autograded quizzes, humans have graded evaluations. The hope is that students will see the AI as more objective and fairer than human graders. Moreover, appropriate feedback could be provided in detail. Time for comments would be less of an obstacle in creating great feedback for AI. |
| **Describe the evidence that would persuade an external audience that the new or modified teaching strategy improves student learning on the targeted learning outcome.**  Describe the evidence you would need to collect to answer questions about the impact or value of this teaching strategy. How would you convince others that this approach is better than other approaches? What comparisons should you make? Examine students; skill before and after the assignment? Compare students who complete the learning activity to another group of students – what comparisons would be meaningful?  I would need to show that an expert human grader would provide the same results when grading as AI in a range of different types of assignments with differing evaluations tools. Moreover, qualitative data in the form of feedback from students through focus groups, questionnaires and general discussion about the fairness and accuracy of AI grading would help convince skeptics. Detailed, accurate and helpful feedback, and far more of it than would come from a typical human grader, would be needed, in addition to grading accuracy, to really convince others that AI grading is viable. |
| **How and where would you publish, present, or disseminate this work?**  I would initially present findings at a conference, perhaps next year’s CALL conference (<https://www.callontario.org/>). From that I would receive input from other instructors and I could gauge receptivity to AI grading from peers. From there, I would publish findings and reflections. The Interdisciplinary Journal of Student Success (<https://cdspress.ca/?page_id=3942>) or a similar academic journal with focus on education would work. |

Adapted from: C. J. Stanny, E. M. El-Sheikh, & H-M. Chung (2009) ***Getting Started with a SoTL Project***

Center for University Teaching, Learning, and Assessment <http://uwf.edu/cutla/>

Ethical Concerns:

The main ethical concern with the project is potential lack of fairness in grading. The AI may simply do a bad job of the grading, which would be unfair to students and would likely violate a few grading policies of any institution such research would take place in. To avoid such a problem, it would be advisable to have human graders conduct grading of the evaluations parallel to the grading done by the AI and to use the human grading for the sake of fairness. If the AI grading is roughly accurate to the human grading; humans would have to grade in parallel to the AI to demonstrate proficiency on the part of the AI anyway, so eliminating this ethical concern would not require additional work.

Another consideration would be privacy. When conducting focus groups or in reporting data from questionnaires, anonymity would have to be ensured to participants.