

Proposing an Assessment Strategy in Data Science Approach

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Academia has been promoting Academic Integrity. With the Pandemic, Academic Integrity has been more and more important due to online education. Students have more opportunities to write term papers or reports as evidence or artifact of their learning. It is now essential that students write papers guaranteed by originality. There is no question about it. On the other hand, papers that passed the rigorous process of Academic Integrity have been still evaluated by hand by a professor who is in charge of the course. In here, the evaluation has been solely based on the expertise and professional experience, i.e., by human hands, which is time-consuming and not reliable. Some innovative professors employ the rubric assessment approach to be fair with grading. And yet, the grading is by hand. In most Asian universities, a professor usually is in charge of several courses, each of which has more than several hundred students. It is almost impossible to monitor all students' progress while nurturing their learning throughout the course. This paper proposes an assessment strategy for actively engaged students in such large classrooms based on educational innovation. It is meant for the assessment strategy making use of Data Science in mind.

Based on the concept that the reflective writing by a learner is the mirror of the active learning mind, the reflective writing can be a valid and reliable corpus filled with active vocabulary in the mind of the learner. By having students opportunities to reflect on their learning at the milestones in the course, the corpus is accumulated with active vocabulary. By categorizing such active vocabulary making use of machine learning or deep learning approach with reference to Bloom's Taxonomy Matrix, is it possible to visualize in the form of a heatmap, not only the result but the progress of learning in the course. In this way, the learner can visually view his/her own progress in learning immediately.

While the Learning Analytics approach makes use of the activity log archived in the Learning Management System managed by the university, the proposed assessment approach makes use of the reflective writing by the actively engaged learner as the corpus. The main goal of the Learning Analytics approach is to identify a group of students who have a tendency to drop out or quit school and to offer academic advising before it is too late. On the other hand, the proposed approach is for all levels of actively engaged learners to view their own progress of learning as well as the result of learning at the end of the course.

The presentation includes demonstrations of the proposed assessment strategy, followed by the theoretical description as well as the rationale behind the proposal.

Summary

Academia has been promoting Academic Integrity. With the Pandemic, Academic Integrity has been more and more important due to online education. Students have more opportunities to write term papers or reports as evidence or artifact of their learning. It is now essential that students write papers guaranteed by originality. There is no question about it. On the other hand, papers that passed the rigorous process of Academic Integrity have been still evaluated by hand by a professor who is in charge of the course. In here, the evaluation has been solely based on the expertise and professional experience, i.e., by human hands, which is time-consuming and not reliable. Some innovative professors employ the rubric assessment approach to be fair with grading. And yet, the grading is by hand. In most Asian universities, a professor usually is in charge of several courses, each of which has more than several hundred students. It is almost impossible to monitor all students' progress while nurturing their learning throughout the course. This paper proposes an assessment strategy for actively engaged students in such large classrooms based on educational innovation. It is meant for the assessment strategy making use of Data Science in mind.

Based on the concept that the reflective writing by a learner is the mirror of the active learning mind, the reflective writing can be a valid and reliable corpus filled with active vocabulary in the mind of the learner. By having students opportunities to reflect on their learning at the milestones in the course, the corpus is accumulated with active vocabulary. By categorizing such active vocabulary making use of machine learning or deep learning approach with reference to Bloom's Taxonomy Matrix, is it possible to visualize in the form of a heatmap, not only the result but the progress of learning in the course. In this way, the learner can visually view his/her own progress in learning immediately.

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Primary author: Dr YAMAMOTO, Tosh (Kansai University, CTL)

Co-author: Mr IKEZAWA, Tommoya (Asia University)

Presenters: Mr IKEZAWA, Tommoya (Asia University); Dr YAMAMOTO, Tosh (Kansai University, CTL)

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