Enhancing the Feedback Experience for Instructors and Students

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Introduction

One of the most challenging tasks for an instructor is to provide feedback about student writing that is high-quality, timely, and aligned with the course objectives. This is particularly true in student writing about a technical subject, where students may have problems with either the technical content or expressing their ideas through language, figures, and tables. In addition, if the instructor uses a grader or teaching assistant to provide feedback, they need to train those graders to provide feedback that is consistent with the instructor's feedback.

Therefore, **the purpose of this project is to create a feedback system using Evidenced-Centered Classroom Assessment (ECCA) to enhance the feedback experience for instructors, their teaching assistants, and students.** ECCA is a theory describing that learning may be optimized when there is alignment between teaching activities, learning activities, assessing activities, and learning objectives. In this project we are creating a feedback system that assists instructors in aligning learning activities like student technical writing (See Figure 1 Student Document), with the assessing activity of grading the student writing (See Figure 2 Rubric), and the teaching activity of providing high-quality timely feedback (See Figure 3 Feedback Note) to the learning objectives (See the Scale/Criteria column in Figure 4 of the Feedback Database).

Methods

The Co-Principal investigators and three undergraduate assistants have been developing this Feedback system. We have completed the design phase by conducting a Use-Case Analysis. **At present we have developed a "mock-up" of the prototype to guide coding.** We are currently using Java code to build the first working prototype. Then we will test the prototype and gather feedback to improve the system. The following tools are being used:
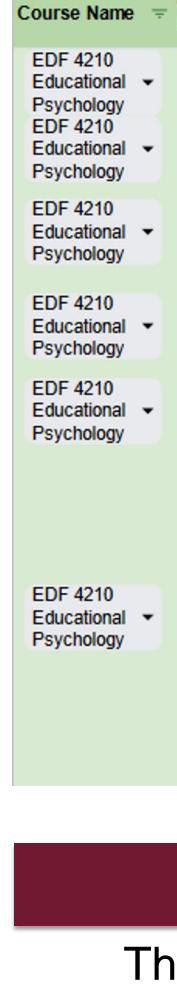- Java & BlueJ
- Git
- Umbrello & Figma
- Ticktick
- Junit

Results

The "Mock-up" prototype of the Feedback System is displayed below in Figures 1-4. Figure 1 is an example of student "Pseudo Albert's" learning task, a final writing assignment for instructor James' undergraduate Educational Psychology course. On the right-hand side of this figure there are feedback notes James has/is making to assess Albert's learning performance. This feedback note also acts as a teaching activity to specifically signal to Albert how close their performance matched the learning objectives. For example, Albert received three "+2's" and one "-2" points, for a total of 6/8 points on the Constructivism learning objective (See Figure 2 of the Rubric). Figure 3 represents the elements of a newly generated feedback note. The minimum viable product we are creating is for a grader like James to type in their note and for the feedback system to automatically search and generate results from the database of feedback notes (see Figure 4). If James has not made a similar feedback note, or wants to make changes to an existing note, the system will automatically add a new entry into the database for James to use on the next student's assignment.

Figure 1
Student Document

Figure 2
Assignment Rubric/Scale

Figure 3
Feedback Note Features

Figure 4
Feedback Pallet Database

References

https://bit.ly/ECCAFeedback23

Implications

This Feedback System may assist instructors in enhancing the quality and timeliness of the feedback they provide on their students' writing documents. By designing this Feedback System around ECCA, this may improve the quality of teacher feedback by aligning this feedback to specific features of student performance, with the learning objectives of the course, and providing more accurate ratings of student performance on the rubric. Additionally, instructors may save time using the Feedback System because of the intuitive search feature of the note and with the well-organized Feedback Pallet Database.