

Enhancing the Feedback Experience for Instructors and Students Victor Oguledo, James Hudson IV, Ricardo Silveira, Russell G. Almond & James A. Hernandez Department of Educational Psychology Learning Systems, Florida State University

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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

Figure 1 Student

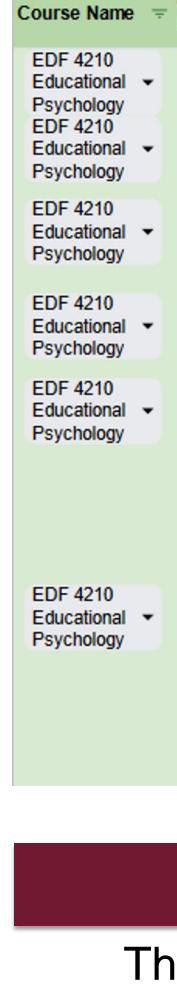
Constructivism

Constructivism is a philosophy that states that knowledge is something that people construct based on what they observe and their own experiences and biases, and that the actual truth cannot be known (Woolfolk, 2019). In this philosophy, people actively construct their knowledge and understanding of the world based on the information they have. The two main components of cognitivism are cognitive constructivism and social constructivism

Cognitive constructivism is an individual process where the individual uses their own knowledge, self-concept, and beliefs to construct their understanding of the world (Woolfolk, 2019). Social constructivism is a social process in which public knowledge is formed. In this, social interactions and cultural tools influence individuals' constructions of their view of the world and influences their individual development and learning.

This lesson plan relates to constructivism because the teacher is guiding the students in their construction of their knowledge, mostly through inquiry-based learning. The teacher is giving the students a problem to solve, and they must use what they know, and the materials before them to make hypotheses about the solar system and the bodies within it. For example, when the class modeled the solar system with students acting as the planets, they had to observe the differences in orbit of each planet and think about the implications of that.

Figure 4 Feedback Pallet Database



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- Junit

The "Mock-up" prototype of the Feedback System is displayed below in 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 2

It	Do	CU	IM	er	1t

ach Fallel Dalabase										
Context						Triggers from Document (highlighted)				
Course Number =	Assignment 👳	Dataset	⇒ Grader	Ŧ	Student	÷	Incorrect Example	Ŧ	Correct Example	÷
2275 💌	CSLPA Section 1 - Draft	N/A	 James 	•	Pseudo Albert	•		•		•
2275 💌	CSLPA Section 1 Draft	N/A	 James 	•	Pseudo Albert	•		•		•
2275 💌	Any 💌	N/A	 James 	٠	Pseudo Albert	•	This lesson plan relates to constructivism because the teacher is guiding the students in their construction of their knowledge, mostly through inquiry-based learning.	•		•
2275 💌	CSLPA Section 1 👻 Draft	Solar System	 Artificial Intelligence 	•	Pseudo Albert	•		•		•
2275 💌	CSLPA Section 1 ✓ Draft	Any	 James 	•	Pseudo Albert	•		•		•
	CSLPA	Color			Describe		This lesson plan relates to constructivism because the teacher is guiding the students in their construction of their knowledge, mostly through inquiry-based learning. The teacher is giving the students a problem to solve, and they must use what they know			
2275 🕶	Section 1 Draft	Solar System	 James 	•	Pseudo Albert	•	and the materials before them to make hypotheses about the solar system and the bodies within it. For example, when the class modeled the solar system with students acting as the planets, they had to observe the differences in orbit of each planet and think about the implications of that.			•

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.

Results

		Assianme	nt Rubric/Scale			
, ,	/ 🗆 1	CSLPA Rubric SP23				
		Criteria	Ratings			Pts
APA Format/Spelling & Grammar Run-on sente Good effort on this sentence. There information packed into this sentence this run-on sentence.		Section 1 - Learning Theories: Constructivism view longer description	constructivism (2pts) and at least two of its key components (2pts). Student applied the two defined key components to specific examples from the lesson plan	6 to >4 pts Partially Meets Expectations Either the definition of constructivism (-/2pts), definitions of two of its key components (-/2pts), OR application of the two key components to the lesson plan (-/4pts) is unclear or inaccurate.	4 to >0 pts Does Not Meet Expectations Either the definition of constructivism (-/2pts), definition of two of its key components (-/2pts), AND/OR application of the two key components to the lesson plan (-/4pts) is unclear, inaccurate, or missing.	6 / 8 pts
- Constructivism +2 😣 🗕	JH ♥ …		(4pts). 12 to >8 pts		6 to >0 pts	
 Constructivism +2 S — Constructivism This is a good start. Be explicit abou component of Constructivism you ar 		APA Format/Spelling & Grammar	Meets Expectations Students' explanations are clear with few grammatical and spelling errors. Students also included references and proper citations. Students provided a brief introduction and conclusion.	Partially Meets Expectations Students' explanations are somewhat clear with some grammatical and spelling errors. And/or students did not include references and proper citations in APA format. And/or students did not provide a brief introduction or conclusion.	Does Not Meet Expectations Students' explanations are not clear with many grammatical and spelling errors AND students did not include references and proper citations in APA format. And/or students did not provide a brief introduction or conclusion.	/ 12 pts
to this lesson plan. For example, stat [Solar System] lesson plan includes Constructivism. For example"	e that "The Social	igure 3	Criteria	Coore	Status Suggested ▲ Editing ▲ Approved Author	Total Points: 6 out of 100
× –		- Feedback Not	A Features Rubric sc Learning	ale of the Objective Criteria Solution Score Value change ir points on Rubrid	RA RUSSELAIIIOIU	
Constructivism -2 Missing application of the lesson pla Cognitive Constructivism. Constructivism +2 Good application of Social Constructivism	an to		Search/New Note Search database by typing — R content of note Search Results List of similar notes from	PA Format/Spelling & Grammar -1 un-on sente ood effort on this sentence. There is formation packed into this sentence is sentence.	JH 2 ···· O Valid Relia 7/10 See Nease fix this run-	module for a detailed lanation of writing clear and
specific event in the Solar System le	esson plan.		Are you sure you v note?	ant to delete the Yes	COL	cise sentences per APA Format/ lling and Grammar.
Secre on Dubric and Note		Dia	Yes, Delete	No, Keep.		Student Support These two features are designed to Illow students to interact with the
Score on Rubric and Note Value Scale (criteria) = (change in = (in note points) documents	unked to t	ecific _ Feedback _	play on Note ■ Corrective description = Re	einforcing Description		eedback to enhance their learning experience.
Constructivism • 2 • Good	Definition 👻	•	•	Good definition of Constructivism		
Constructivism	definition _	•	· · · · · · · · · · · · · · · · · · ·	Great definitions of both Cognitive and Social - Constructivism		
APA Format/Spelling & Missin Grammar	g indent 💌	-	All paragraphs need to be indented.	-		
Constructivism Applie	d Social ructivism		-	Good application of Social Constructivism to a specific event in the Solar System lesson plan.	Refe	rences
Constructivisiti Cognit	ation of ive ructivism	-	Missing application of the lesson plan to Cognitive Constructivism.	•		
Constructivism • Be Ex	plicit 🔹 Solar Syst	em 🔹	Be explicit about which component of Constructivism you are applying to this lesson plan. For example, state that "The [Solar System] lesson plan includes Social Constructivism. For example"	This is a good start 🔹		6
				http	os://bit.ly/EC	CAFeedback2
Implica	tions					

