Creating an environment in which students can continuously process feedback

	Using	Class size	Instructor workload	Learner workload
	Assignment Review and Skill Review	<15	🕐🕐🕐	🕐 ● ●

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Context

Students in this Ecology course are independent 3rd year level students that work in small Problem Based Learning sessions. The instructor does not believe in extrinsically motivating students to ask for feedback. Instead, a feedback culture is normalized and receiving feedback is perceived as essential by students. The learning activities are aimed at testing the levels of knowledge and understanding.

The teacher aims to create an environment in which students can continuously process feedback.
It includes an open ended assignment, in which a 100% score is not possible to achieve.
Feedback is key since there is not one correct answer to the assignment. It is ok for students to make mistakes and there should always be room for further improvement based on feedback.

The assignment is divided into two parts. First, students hand in a scientific proposal that the teacher reviews using Assignment Review, and then an additional in-class presentation where Skill Review is used to give live feedback.
The motivation to use technical support is to enhance the existing teaching method rather than modifying it.

Constructive alignment

Learning objectives

- Students should be able to understand, illustrate, discuss and review the main ecological concepts.
- Students should learn to write and evaluate (scientific) proposals.
- Provide and receive feedback in a positive and constructive manner, both orally and written.

Learning activities

In this course students will face so called open-ended problems: problems for which the solution possibilities appear to be infinite. To find a proper solution students need to break down the problem into several pieces to understand it, generate ideas to solve it, and evaluate the generated ideas to find the most effective solution. This process is called Creative Problem Solving (CPS).The course also includes a presentation, during the presentation students receive live feedback from the teacher. After receiving feedback on a presentation students are asked to self-reflect and process the feedback. The actual skill of presenting is not graded by the instructor or specified as a specific learning objective. During the entire process students gather feedback.
These learning activities address the following levels of Bloom's Taxonomy:

Remember
Understand
Apply
Analyze
Evaluate
Create

- **Analyze** - The problem definition stage includes a systematic effort to define, construct, and focus on a problem to be solved.
- **Evaluate** - Once many creative ideas have been generated, they need to be evaluated to decide which ideas are the most promising.
- **Create** - After it is established what the problem is, ideas need to be generated on how to solve it. The goal of the idea generation stage is to come up with as many original ideas as possible.
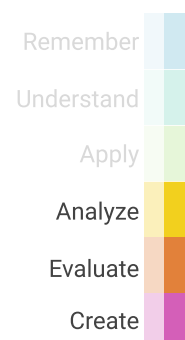
Assessment of learning outcomes

- The instructor evaluates whether students demonstrate an in-depth understanding of concepts, skills, and processes during tutorials. Instead of only scoring the understanding, the instructor will also provide feedback on students' performance during tutorials.
- The student's ability to process feedback is evaluated by reviewing to what extent students corrected their shortcomings.

Quote from the instructor

> "*It is anecdotal, but I am pleasantly surprised to see students are actually very interested in feedback once it is available in an accessible and clear way.*"

Notable outcomes

- According to the instructor the biggest gain is the time that is saved through automation.
- Students enjoyed working with the tool and would like to see its application in other courses as well.
- Students perceived the workflow to be very intuitive. Being able to access feedback whenever students wanted to was considered as the biggest benefit.
- In most cases, the students who performed poorly had not read their feedback.
- After introducing FeedbackFruits, there were fewer students who approached the instructor with irrelevant questions.
- Providing feedback while presenting can result in distraction, as students start to focus on processing the feedback rather than paying attention to the presentations. Using the option within FeedbackFruits to hold the feedback until a certain release date could be a solution to avoid distraction and ensure feedback consistency in the future.
- In order to give consistent feedback, the instructor could benefit from correcting or adjusting some of the comments at a later point in time.

The role of the instructor

- Sharing assessment criteria to create transparency.
- Providing written feedback on the work and checking whether students reply with follow-up questions.
- Provides live feedback in class during presentations.
- Checks the analytics table to evaluate progress made and specifically whether students read and process their feedback.

Added value of technology

- Being able to see whether students indeed viewed and processed the feedback.
- Being able to reuse feedback comments for other students saves time and allows the teacher to better focus on the presentations.
- No more delay for students in receiving their feedback; fast processing of feedback was previously rather difficult to organise, especially in bigger groups of students.

Possible variation

Also let students review the in-class presentations using the Group Member Evaluation tool and compare the students' assessments to the instructor's.