UF IFAS Extension UNIVERSITY of FLORIDA

UF/IFAS PEER REVIEWED AEC798

https://doi.org/10.32473/edis-WC459-2024

Designing Instruction to Guide Reflection[1]

R. G. (Tre) Easterly III[2]

Introduction

Reflection is a critical part of the learning process. John Dewey (1933), who is considered the father of experiential learning, noted, "[understanding is] a result that is attained only when acquisition is accompanied by constant reflection upon the meaning of what is studied" (pp. 78–79). This is often simplified to a more succinct maxim, "We do not learn from experience. We learn from reflecting on experience" (Lagueux, 2014, p. 1). In the most straightforward examples of learning, reflection is immediately in or immediately after the action. When a child touches something hot, they experience pain. An immediate reflection happens, which causes that child to associate that item with pain. As students advance in age, they either develop reflective practices or fail to learn from their experiences (Dewey, 1933).

Research suggests effective teachers structure reflection for their learners (Cimer et al., 2013). Reflection is critical because it helps the learner encode their new knowledge, helping them tie what they experienced in class with what they already know and believe. In some cases, reflection can help students reconcile misconceptions about a topic. For example, if a student has only seen plants growing in soil, they may benefit from guided reflection related to the needs of plants after seeing a video related to hydroponic production. However, teachers tend not to be as explicit in emphasizing reflection in their instruction as they should be (Kolb, 2015). The major reasons for omitting or minimizing reflection are lack of time and limited tools to guide reflection (Greenall & Sen, 2014; Kosta & Kallick, 2008; Miller, 2019). This article will not give teachers more time in their day, but it does aim to provide a few strategies to help guide reflection. These strategies can be used to inform teaching in the formal classroom, Extension programming, and non-formal teaching.

Definition and Types of Reflection

Reflection is the act of recalling, considering, and evaluating an experience with a purpose of developing an understanding of the experience and improving future practice (Richards, 1990). Schön (1983) described two types of reflection: reflection-in-action and reflection-on-action. According to Schön, reflection-in-action occurs while the learner interacts with the material, in the moment of learning. Reflection-on-action happens after the experience, where the learner processes what they have experienced, justifies that with their pre-existing knowledge, and examines how that experience could inform future experiences.

Reflection Categories

There are four main categories for reflection. Each category has its own strengths and best practices for use. The first two, *feeling and perceiving* and *metacognition,* help students understand the experience more thoroughly. The categories of *knowledge in a new setting (transfer)* and *planning for next steps* focus on improving future practice. Teachers should examine the learning objectives, learning

1. This document is AEC798, a publication of the Department of Agricultural Education and Communication, UF/IFAS Extension. Original publication date May 2024. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication.

2. R. G. (Tre) Easterly III, assistant professor, agricultural education, Department of Agricultural Education and Communication; UF/IFAS Extension, Gainesville, FL 32611.

experiences, and student factors to select the appropriate category to guide reflection. It may also be appropriate to use multiple categories.

Feeling and Perceiving

Reflection in this area explores the initial reaction to an experience. The purpose of this type of reflection is to help students process the experience and begin to classify their new knowledge. Examples of types of questions in this area include:

- "What did you like about this?"
- "What do you wish was different?"
- "How did this experience make you feel?"
- "Does this experience align with what you believed before? If not, how did it change your thinking?"

Metacognition

Metacognition refers to thinking about thinking or examining the cognitive processes during an experience (Flavell, 1979). In metacognitive reflection, students examine their mental processes during a specific learning experience. Examining the learning process could cause students to examine aspects that were difficult, areas that challenged their thinking, or things that made them think in new ways. This happens in learning when learners intentionally slow down and focus on difficult parts while learning something new. Teachers can facilitate metacognitive reflection through careful questioning. Asking the following questions could spur metacognitive reflection:

- "What did you find most difficult, and what made it difficult?"
- "How long did it take you to complete this task? How long would it take you if you did it again?"
- "How would you describe your learning process as you did this new skill?"

Knowledge in New Setting (Transfer)

Kolb (1984) described the learning process as a cyclical loop where the learner experiences something, reflects on the experience, learns something from the reflection, and applies the new knowledge with active experimentation. In this process, the utility of the reflection moves beyond unpacking the experience to considering what can be learned in new settings. Applying knowledge in new settings is known as transfer. Reflection can be structured to make transfer more seamless. Examples of reflection questions that could support transfer are:

- "How could you take what we learned today to make an agricultural operation more profitable or to decrease the environmental impact?"
- "How could you take what you learned and advocate to people who don't understand this topic?"
- "How could this knowledge support what you are learning in other classes?"

Planning for Next Steps

The learning cycle is often depicted as one loop. However, some models show the iterative nature of the learning cycle (Joplin, 1981). These cycles linked together underscore the importance of planning for the next stages of learning. Reflection in this area guides students through the process of planning for the next steps of their learning. After an introductory lesson on asexual propagation, students may be pushed to learn about various methods of asexual propagation. A question that might guide this would be:

- "Now that you have learned _____, what do you hope to learn next?"
- A teacher could also guide students to draw a concept map of their knowledge using solid lines to connect what they know and dotted lines to what they will learn in the future.
- Having the students develop a learning checklist of things they hope to learn or skills they would like to develop would be an effective way of guiding reflection to plan for the next steps of learning.

Conclusion

Reflection is a critical part of the learning process. While it is natural for learners to reflect on their own, leaving reflection to happen on its own for each learner is unfeasible and will lead to uneven learning gains. Effective teachers guide reflection. Examine the four types of reflection and choose the best method that helps accomplish the learning objectives. Build reflective practices throughout the learning process, not just at the end of the unit or lesson.

References

Cimer, A., Cimer-Odabosi, S., & Vekli, G. S. (2013). How does reflection help teachers become effective teachers? *International Journal of Education Research, 1*(4), 133–149.

Costa, L., & Kallick, B. (2008). Learning through Reflection. In L. Costa & B. Kallick (Eds.), *Learning and Leading with Habits of the Mind: Sixteen Essential Characteristics for Success* (pp. 221–235). ASCD.

Dewey, J. (1933). *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. Heath & Co. Publishers.

Flavell, J. H. (1979). Metacognition and Cognitive Monitoring: A New Area of Cognitive Developmental Inquiry. *American Psychology, 34*(10), 906–911. https://doi.org/10.1037/0003-066X.34.10.906

Greenall, J., & Sen, B. A. (2016). Reflective Practice in the Library and Information Sector. *Journal of Librarianship and Information Science*, *48*(2), 137–150. https://doi.org/10.1177/0961000614551450

Joplin, L. (1981). On Defining Experiential Education. *Journal of Experiential Education, 4*(1), 17–20. https://doi.org/10.1177/105382598100400104

Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice Hall.

Lagueux, R. C. (2014). A Spurious John Dewey Quotation on Reflection. https://www.academia.edu/17358587/A_Spurious_John_Dewey_Quotation_on_Reflection

Miller, J. M. (2020). Reflective Practice and Health Sciences Librarians: Engagement, Benefits, and Barriers. *Journal of the Medical Library Association, 1*(108), 17–28. https://dx.doi.org/10.5195/jmla.2020.777

Richards, J. C. (1990). Beyond Training: Approaches to Teacher Education in Language Teaching. *Language Teacher*, *14*(2), 3–8.

Schön, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*. Basic Books.