

Prepared to Reflect: Using Notebooking to Support Pre-Class Learning and Application

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Introduction/Need for innovation

Learning from experience requires learners to reflect on experiences, make meaning, and apply ideas across future contexts (Dewey, 1938; Schön, 1983). Reflection is especially important in applied learning environments because learners are required to connect concepts, experiences, and decision-making across classroom and applied contexts. Experiential learning theory and practice have long served as foundations for learning within agricultural education (Kolb, 1984; Coleman et al., 2024). When paired with a focus on relevance, reflection can also support motivation by helping learners value course concepts and consider how those concepts may be applied in current and future contexts (Ambrose et al., 2010). However, assigned readings, videos, podcasts, and other preparatory course materials may not be fully internalized or applied prior to class without a structured process for identifying, organizing, and connecting key ideas (Ambrose et al., 2010; Fiorella & Mayer, 2015).

This innovation combines critical reflection with structured notebooking to support preparation, engagement, and application of course concepts. Notebooking can support generative learning by prompting learners to select key ideas, organize text and images, and integrate new learning with prior knowledge and experiences (Fiorella & Mayer, 2015). When paired with the What, So What, and Now What protocol, notebooking aligns with the experiential learning cycle by helping learners move from engagement with course content toward reflection, meaning-making, and future application (Baker et al., 2012). To operationalize the combination of notebooking and critical reflection, students review course materials before class and prepare a notebook artifact prior to class. Goals for this innovation include: (a) providing a consistent routine for students to practice identifying the courses big ideas, (b) encouraging students to consider the importance of those ideas as standalone concepts and within the context of their existing schema, and (c) providing structured opportunities for students to apply what they have learned to a current or future context. This innovation was tested with two sections of AGED 5524 Instructional Process in Ag Ed and one section of AGED 580 Planning Agri-Phenomenon Instruction at Cal Poly, San Luis Obispo.

How it works

For each desired learning segment, the instructor provides learners with a driving question, and one or more artifacts including but not limited to readings, video, podcast, and other resource and reference materials or other media. Then, the learner engages with the artifacts before class and creates a notebook page artifact prior to the class meeting (samples to be provided on the poster). The notebook page is structured around the three-part critical reflection protocol: What, So What, and Now What (Rolfe et al., 2001).

1. **What:** learners identify key ideas and summary points from the artifacts.
2. **So What:** learners explain why ideas matter by connecting them to prior knowledge, experiences, theory, literature, or practice.
3. **Now What:** learners apply ideas forward by considering how the ideas impact their current context, shape their decisions, actions, attitudes or practice moving forward.

Notebook pages were evaluated using a single-point rubric aligned the what, so what, now what protocol. To meet expectations, each submission must address all three critical reflection questions at a rigorous level and demonstrate meaningful engagement with the assigned content. Submissions that do not meet expectations receive feedback and are eligible for resubmission. This positions notebooking as an iterative learning routine that supports preparation, reflection, discussion, and transfer of learning across the course. Submission format requirements include:

1. **Balance text and images:** approximately 50% images and 50% text.
2. **Color:** intentional use of color to enhance meaning.
3. **Relationships:** use of connectors or other visual tools to show relationships.

Results to date/Implications

During implementation, faculty observed varied levels of engagement with the notebooking process. Many learners dedicated substantial time and energy to notebook pages that reflected careful thinking, meaningful connections, and application of course concepts. Others struggled to balance text and images, particularly when the visual component was not their preferred way of expressing learning. Faculty feedback was provided on each submission using a single-point rubric, and students could revise work that did not meet expectations. Over time, learners generally met assignment expectations, even when notebooking was not their preferred mode of demonstrating learning.

Informal feedback from preservice teachers completing full-time clinical practice further suggested the relevance of the skill. Several noted that notebooking, visual organization, or structured reflection were expected routines within their clinical practice sites, helping them recognize transfer beyond the university course. The innovation was also implemented with in-service teachers pursuing master's degrees, who expressed greater confidence with the process and interest in testing the approach in their own classrooms.

Future plans/Advice

Learners should be provided with examples and resources to build their sketching skills. It's also important that instructors frame sketching as a skill developed through practice rather than an artistic requirement. Feedback should emphasize the quality of thinking, connections, and application rather than the quality of the sketches. Early in the process, honoring process over product can help reduce resistance and build confidence.

Templates, guided layouts, and dot paper can also reduce cognitive load by helping learners identify big ideas and organize their thinking for those that need them. Looking forward, instructors may consider offering an alternative option for learners who have demonstrated the intended skill of notebooking but do not prefer notebooking as a way to engage.

Costs/Resources

Direct costs are limited to instructor labor for revising syllabi, developing assignment instructions and rubrics (estimated at .5-2 hours), and curating pre-work materials (.5-2 hours per). Indirect costs include class time for explaining the protocol and feedback/grading.

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