

Mirror, Mirror: Reflecting for Progress

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Introduction

Reflection has been noted to enhance metacognition (Schunk, 2012), increase critical thinking (Brookfield, 2017), promote self-directed learning (Baxter Magolda, 2004), and increase student motivation (Shulman, 1992). While reflection has been continually researched in education, the importance of reflection in the learning process dates to John Dewey (1933). Reflection happens in multiple modes, but this innovation focuses on self-reflection as a deliberate process (Lew & Schmidt, 2011). Similarly, the use of video technology for feedback and training in education and teacher preparation is not a new concept (Bueno de Mesquita et al., 2010), but the integration of Mirror by Swivl to promote higher order thinking and automate reflection in teacher preparation is.

When considering the preparation of school-based agricultural education (SBAE) teacher aspirants and future faculty members, reflection helps to improve practice (Schön, 1983), foster creativity (Brookfield, 2017), and reduce stress (Schonfeld, 2014). Therefore, Dr. Eck has piloted the integration of Mirror within the agricultural education program at Oklahoma State University, which aligns with the findings of Greiman and Covington (2007) who found agricultural education students to prefer verbal reflection. Specifically, Mirror has been integrated as a reflection tool across two courses, one at the undergraduate level and one at the graduate level to further establish student's preparedness for professional practice (Schön, 1983).

How It Works

Swivl Mirror "is a tool that automates reflection using AI [Artificial Intelligence] to align classrooms and develop even higher order skills" (Swivl, 2024, para. 1). Mirror is a standalone reflection tool that provides students an opportunity for individual or group reflection. Standard reflection prompts are available, or the educator can input customized prompts based on class needs. In addition to prompt selection, educators can build class rosters in Mirror to allow for easy reflection. Once classes are built, individual students or groups of students can be selected based on the reflection style (i.e., individual or group) being implemented. When prompted, students select their name from the Mirror dashboard and then have 30 seconds to reflect on each of the assigned prompts. Each reflection ends with students having the opportunity to engage in a mindfulness activity built into the Mirror platform. AI capabilities allows for student feedback to help motivate students and improve reflection, and provide educators with key insights (e.g., activity, reflection quality, goal alignment, sentiment, and mindset) on their personal dashboard.

Undergraduate Implementation

Undergraduate SBAE teacher aspirants engaged with Mirror throughout a required laboratory teaching methods course. Students ($N = 23$) reflected individually using Mirror twice throughout the semester and once in small groups. For individual reflection, a secondary room was used to allow students privacy as the reflected across four prompts focusing on their preparedness to integrate laboratory teaching methods and their interest in pursuing a career as an SBAE teacher. Group reflection focused on a specific learning activity during class and prompted groups of four to five students to reflect on their experience.

Graduate Implementation

Five PhD students reflected with Mirror four times throughout the semester in a *Faculty Preparation in Agricultural Sciences and Natural Resources* course. The three reflection prompts focused on student's preparedness to enter the professorate, their concerns with a faculty career, and their goals to prepare them for desirable faculty positions. Given the smaller class size, the Mirror was set up in the back of a large classroom and students reflected on assigned days as they enter the classroom.

Results to Date

Reflection in both courses aimed to provide an opportunity for personal reflection and student growth. Student's perceptions of Mirror reflections have been positive overall, as it has allowed for personal growth and goal setting through purposeful reflection. Setting up the educator side of Mirror had a steeper learning curve than classroom implementation, as the educator needs to create an account, establish classes, add students, and select/develop relevant reflection prompts. Students found the interface to be user friendly and intuitive. A key to implementation is clearly articulating the goals of Mirror reflection with students and providing an overview/demonstration of the Mirror.

Future Plans

While the integration of Mirror has been limited to one faculty member, results to date support expansion of reflection with Mirror. The Oklahoma State University agricultural education program has plans to implement purposeful reflection in additional courses (both undergraduate and graduate), provide opportunities for student teacher reflection during block week, mid-term seminar, and capstone seminar, and offer Mirror reflection during Curriculum for Agricultural Science Education (CASE) summer institutes. With the flexibility to add multiple courses and add/change students within courses, the plans to purchase additional Mirror devices is still unknown, but the educator dashboard is limited to a single user. In addition, the expansion of Mirror use could become problematic with conflicting class times depending on the individual class reflection needs. Therefore, continued implementation will dictate departmental needs for Mirror devices. Mirror provides additional opportunities for use that have yet to be explored at Oklahoma State University, these include immersive video calls, whiteboard functionality, video observation, and guided student work with objectives and step-by-step instructions (Swivl, 2024). Future plans also include consideration of the additional capabilities of Mirror.

Costs/Resources Needed

To implement purposeful reflection with Mirror, the purchase of a Swivl Mirror is needed. The mirror is complete with a large screen, 180-degree camera, stand, and remote control. The base price for the mirror is \$2500. While quantity of devices depends on the intended use, multiple classes and students can be added to the Mirror for broad integration. The agricultural education program at Oklahoma State University currently has one Mirror that was used across two courses for the semester. In addition to the purchase of Mirror, an annual subscription for the AI reflection platform and educator dashboard is needed, a one-year subscription is provided with the purchase of Mirror.

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