

## Continuous Improvement: A Best Practice for Online Teaching and Learning

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**Abstract:** During the COVID-19 pandemic, an adult noncredit program in the California Community College system partnered with Ease Learning to help convert face-to-face courses to an online modality. Subsequent data revealed a misalignment in the courses' Student Learning Outcomes and Instructional Objectives which became a barrier to student success. Wile's External Tangibility (E-T) Model of Human Performance provided the framework for analyzing the quantitative data presented to the program in the Skillways Continuous Improvement Analytics reports and helped identify potential internal and external causes of performance gaps. This process allowed the program to develop best practices and prioritize the remaining gaps in the curriculum development and approval processes as part of continuous improvement efforts to create a student-centered culture.

*Keywords:* continuous improvement, student equity, diversity, equity, inclusion

The problem being researched is a misalignment of Student Learning Outcomes (SLOs) and Instructional Objectives (IOs) and their impact on the curricula development and course design processes. This paper will discuss the relevant literature, the research approach, and the major themes identified.

### Relevant Literature Review

The National Research Center for Distance Education and Technological Advancements (DETA) and the Western Cooperative for Educational Telecommunications (WCET) noted the positive correlation between student experience in online courses and learning outcomes (DETA & WCET, 2021). This understanding led the adult noncredit program to partner with Ease Learning to support mathematics faculty in converting face-to-face course content to an online modality during the pandemic. However, subsequent data revealed a misalignment in the courses' Student Learning Outcomes and Instructional Objectives and gaps within internal curricula development and approval processes.

This section reviews the relevant research and examines similar analysis findings related to the identified problem to determine its significance within the higher education system.

### Continuous Improvement

Continuous improvement (CI), or "the ongoing improvement of products, services or processes through incremental and breakthrough improvements" (ASQ, n.d., para. 1), provides the first step to creating a student-centered culture by establishing a framework to set goals and create systems to measure, assess, and provide feedback on progress (Bush-Mecenas, 2022; Major & Major, 2011). However, implementing CI may present challenges, such as the need for a shared

vision, key measures to assess progress, and a system to provide actionable feedback (Bush-Mecenas, 2022; Maxwell & Person, 2016). Despite the potential complexities, higher education institutions that wish to embrace diversity, equity, anti-racism, and accessibility efforts may consider CI as a systematic way to close student achievement gaps.

### **Diversity, Equity, Inclusion, Anti-Racism, and Accessibility (DEIAA)**

The California Community College Chancellor's Office (CCCCO) acknowledges the systemic gaps which create barriers for many students and has adopted measures to address these needs, such as working toward faculty diversity and collaboration across the state to advance diversity, equity, inclusion, anti-racism, and accessibility (DEIAA) and promote a student-centered culture (CCCCO, 2023). Several studies have connected instructional design and student success, particularly in an online learning environment. Gillingham and Molinari (2012) noted the connection of instructional design with regular and substantive interaction. DETA and WCET's research review further validates the importance of instructional design, observing that students "identifying with traditionally underrepresented racial and ethnic groups are successful with blended and online courses but have even greater success when the courses are well structured" (DETA & WCET, 2021, p. 12). This link between student equity and instructional design gives higher education another avenue to support DEIAA efforts.

### **Instructional Design**

The field of instructional design has existed for decades; however, it went largely unnoticed by postsecondary instructors until the COVID-19 pandemic. The Association for Talent Development (ATD) defines instructional design as a "systems approach to analyzing, designing, developing, implementing any instructional experience" (ATD, n.d., para. 1). This means that basic instructional design principles apply to all learning modalities, content areas, and age groups. Instructional design can support improved student outcomes by ensuring that all courses have measurable SLOs aligned with institutional outcomes and allowing faculty to assess the efficacy of instructional programs (Jordan et al., 2022; Maki, 2004; Savoy & Carr-Chellman, 2014). Curriculum mapping offers a methodical approach to aligning skills and programs, yielding actionable student learning data and providing stakeholders with a visual representation of the alignment. Schutte et al. (2019) advocate for integrating assessment alignment and curriculum mapping at the postsecondary level to add a layer of transparency for students, resulting in increased engagement which may eliminate barriers experienced by first-generation college students. When viewed through a student equity and success lens, instructional design and curriculum mapping are DEIAA initiatives.

**Examination of Findings.** The review of relevant research demonstrated that the misalignment between the program's SLOs and IOs and its impact on the curricula development and course design processes is not unique but rather a systemic issue warranting additional examination.

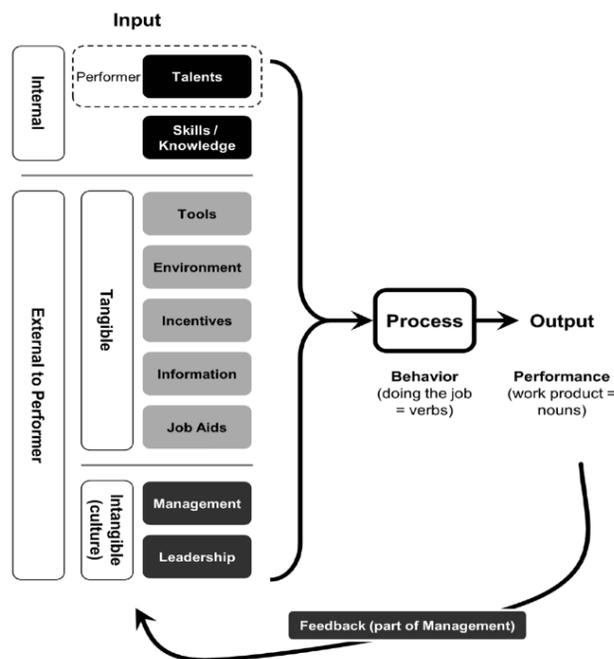
### **Research Approach**

The External Tangibility (E-T) Model of Human Performance provided the framework for analyzing quantitative data generated by curriculum mapping in Ease Learning's Skillways platform (*Skillways*, 2023). Developed in 1996 by David Wile, the E-T Model of Human Performance combined the work of Human Performance Technology's major contributors by

"presenting two separate domains and paths of analysis to use when examining human performance" (Wilmoth et al., 2014).

**Figure 1**

*External-Tangibility Model of Human Performance Technology*



(Wile, 2014, p. 15)

A crosswalk of the Course Outlines of Record (CORs), the California Mathematics framework, and the CASAS Math Competencies determined that most course outcomes aligned with kindergarten through eighth-grade competencies.

## Discussion

The outcomes crosswalk prompted the adult noncredit program to redevelop the content into micro-courses in alignment with CASAS competencies, focused on developing basic math skills. These insights also helped the program determine that the lack of processes to ensure alignment between course, program, and institutional outcomes hindered student learning.

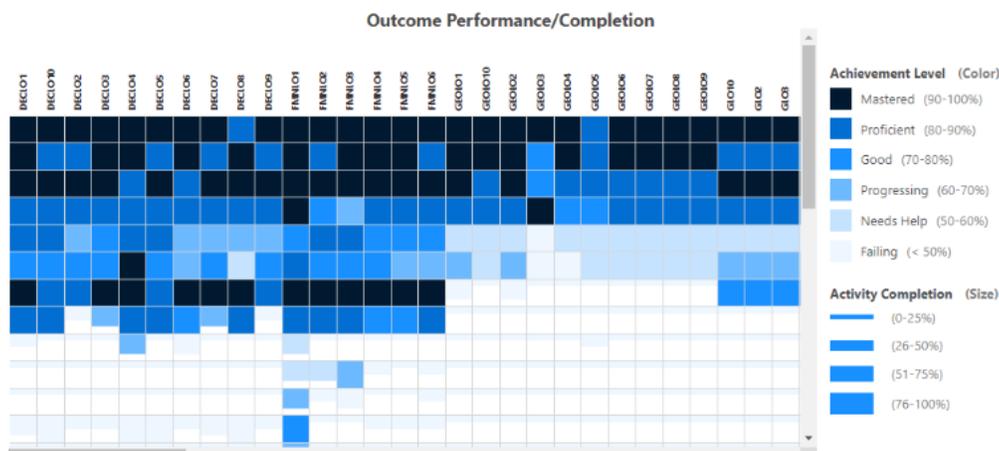
Analyzing aggregate data generated by Ease Learning's Skillways course mapping resulted in three key insights. Learner Performance Completion reports (Figure 2) showed a consistent drop in student engagement after the first instructional module. The students who remained engaged in the courses mastered the content at approximately 80% or higher. However, the individual unit-level reporting (Figure 3) indicated an inconsistent mastery of outcomes (Ease Learning, 2022).

**Figure 2**  
*Learner Performance Completion*



(Ease Learning, 2022, p. 6)

**Figure 3**  
*Skillways Outcome Heatmap*



(Ease Learning, 2022, p. 8)

Wile's E-T Model helped identify potential internal and external factors impacting processes and outcomes, such as faculty understanding of outcome alignment. While faculty are discipline experts, the CCCCO (2022) does not require formal training in andragogy or instructional design as part of its minimum qualifications. Therefore, the faculty members who developed and approved the CORs and converted the courses' content to an online modality may not have had the skills to align the SLOs and IOs or map the outcomes with assessments and instructional materials. Additionally, the courses were converted during the pandemic as faculty served students despite having no prior experience in online instruction or creating online course content. These circumstances combined create a sub-optimal environment for developing this course content. This underlying issue also prompts discussion about academic freedom within online courses. While some faculty may argue that academic freedom is absolute, the Academic Senate for California Community Colleges (ASCCC) defines academic freedom as "the privilege and responsibility" guaranteeing faculty freedom to discuss their discipline in the classroom, conduct research and publish the results, as well as freedom from being censored or disciplined

due to "their extramural speech" (Donahue et al., 2020, p. 1). This definition implies that academic freedom is not absolute; therefore, higher education institutions wishing to develop a student-centered culture must work to balance student success with academic freedom.

The program's Distance Education Faculty Coordinator previously received formal training in andragogy and instructional design, so as an immediate measure, they reviewed the CORs for subsequent courses developed in partnership with Ease Learning to ensure the alignment of SLOs and IOs with the program and institutional outcomes before online content development began. This step expedited the course-build process but did not address the underlying gaps in the curricula development and approval processes. Ascertaining all faculty members' knowledge of andragogy and instructional design will help identify additional interventions, best practices, and processes to ensure all SLOs, IOs, assessments, and instructional materials align with institutional outcomes.

Implementing a CI framework may offer higher education institutions a systematic approach for identifying process gaps as they align course and institutional outcomes and support faculty in creating equitable learning opportunities for students across all instructional modalities. Implications for practice include determining the existing level of andragogy and instructional design knowledge of all faculty and using that information to develop, implement, and evaluate appropriate interventions, such as defining the roles of instructional design and curriculum mapping in the curricula development and approval processes as part of a CI cycle (Bush-Mecenas, 2022; Maxwell & Person, 2016; Savoy & Carr-Chellman, 2014). Institutions wishing to implement a COR review as a best practice may consider involving their instructional designer in the curriculum development process.

An emphasis on student success allows practitioners to shift from teaching to learning, grow professionally, and embody lifelong learning as a model for our students (Tagg & Barr, 1995). Maintaining a student-centered focus when creating new or converting existing courses from face-to-face to online requires intentionality. Continuous improvement can provide a framework for the institution to develop processes that result in a culture focused on student equity and learning. However, these institutions must also continue to nurture and support this culture by developing and maintaining systems to support the alignment of outcomes, consistent data review, and data-driven curricular decisions with diversity, equity, inclusion, anti-racism, and accessibility at the forefront of each step.

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