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Mapping AECT Standards Framework:

Implications for Instructional Technology programs

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ABSTRACT

Program alignment with professional standards ensures that students gain competency-based skills that can be transferred to the workplace environment. Employers continue to place a greater value on these skills. Establishing curriculum alignment with professional standards can assist with annual program evaluations, student learning outcomes, and competencies. This article focuses on aligning a graduate-level Instructional Technology program curriculum with the professional standards of the Association for Educational Communications and Technology (AECT). Provus' Discrepancy Evaluation model was implemented to identify gaps and adjustments to the program curriculum. The program evaluation assisted in identifying areas where the curriculum needed to be updated, coherence and organization needed to be adjusted in the program, and students and key stakeholders needed to be addressed. The recommendations and suggestions provided in this study can assist other programs in planning and implementing similar alignment processes, thereby contributing to the advancement of the understanding of assessment and evaluation practices in higher education.

KEYWORDS

assessment, competency, curriculum mapping, professional standards

Graduate-level programs in higher education institutions are often developed based on the needs and demands of the workforce, which calls for specialized professionals. These programs are supported and funded by sponsors, including legislators, donors, and university leaders (Arrington & Darabi, 2018). Establishing such programs can result in the creation of new and emerging careers (Maratovna et al., 2021). However, conducting systematic reviews and evaluations of these programs is crucial for ensuring their relevance, impact, and attractiveness to potential students (Mardis et al., 2018; Wright et al., 2014). Given the current changes in the workforce and the demand for new job positions and skills, graduate programs must adapt their curricula to address societal changes and remain competitive in the job market. For instance, the World Economic Forum's 2020 Future of Jobs report predicted that by 2025, half of the global workforce would require reskilling (Schwab & Zahidi, 2020). Reskilling may require academic and workplace-relevant curricula that programs should provide (Tan et al., 2018).

There are certain controversies regarding whether this applies to all programs. Certain industries and professional organizations have debated whether graduates are adequately prepared to enter the workforce, leading organizations to invest additional resources, such as time and money, to train new employees (Stavredes & Herder, 2014). Moreover, prior studies on Educational and Instructional Technology (EIT) programs have indicated that curricula may be decontextualized from professional environments and may not provide adequate opportunities for practical experience (Howard & Benedicks, 2020; Larson, 2005; Larson & Lockee, 2004). Consequently, it is essential for programs to design and update their curricula to equip graduates with skills readily applicable to their employment (Tan et al., 2018).

According to some scholars, an essential metric of a program's efficacy is its ability to equip graduates with applicable skills in the job market (Arrington & Darabi, 2018). Prospective students generally seek programs that align their curricula with the current job market or industry standards, thus equipping them with relevant competencies and ensuring their preparedness to excel in the workforce (Fong et al., 2017). Preparing graduates with such skills involves realigning the curricula with professional organizational standards and adjusting the program of study, goals, and courses to address them. Efforts to revise and enhance EIT programs (and courses) have been made to cater to interdisciplinary needs, online modalities, and learners' practical field experiences (Richardson et al., 2020).

To foster curriculum relevancy, student preparedness for the workforce, and alignment with professional organization standards, a graduate-level program in EIT at a 4-year public institution has undergone a comprehensive curriculum review and mapping process to ensure alignment with current professional standards in the field. A specialized curriculum evaluation model was implemented to identify gaps in and adjustments to the program curriculum. This curriculum evaluation aims to align the program with industry practices and ensure that the course of study builds on competencies for the workforce. Furthermore, this evaluation can reveal discrepancies in curriculum design, such as gaps and/or misalignment with professional standards, which provide areas for

the improvement and strengthening of the curriculum. The outcomes of this process can benefit the main stakeholders (e.g., department chairs, program coordinators, advisory boards, faculty, etc.), who may consider conducting similar evaluations of their programs to strengthen and improve their curriculum.

Standards for EIT Programs

Professional organizations often establish standards to guide the curricula and instruction of professional and educational programs. The standard criteria state the competencies expected of future employees or recent graduates as they transition from the academic sphere to workspace. Different standards are in place for EIT programs. Some standards are more K-12 oriented, such as the International Society for Technology in Education (ISTE); others are broader, such as the Association for Educational Communications and Technology (AECT), encompassing higher education and corporate settings. The AECT is a well-known organization in instructional design and technology. Established in 1923, AECT has grown to become an international organization in the field, guiding and shaping current trends and curricula in instructional design and technology. AECT's focus has also been on enhancing skilled educators, trainers, and proficient personnel in instructional technology (Earle, 2000). As a leading organization, AECT has defined and redefined the field over the years to respond to changes in emerging technologies, curricula, and instruction, as well as the theories and functions of instructional technology professionals in the field.

With a collaboration of the Professors in Instructional Design and Technology (PIDT), the AECT's Committee revised the definition of the Instructional Technology (IT) field in 1994 to reflect the contribution of each domain in the field to the theory and practice of designing, developing, using, managing, and evaluating processes and resources for learning (Seels & Richey, 1994; Seels & Richey, 2012). This definition has served as the official political stance of both the organization and the field for a long time. However, with the evolving nature of IT domains and professional roles in the workplace, AECT has felt the need to redefine the field. The fifth formal field definition was approved in 2008, replacing the 1994 definition. This new definition describes the ethical application of technology-driven processes and resources such as creating, using, and managing to foster learning and enhance performance (Richey et al., 2008). The term *study* included in the definition refers to the knowledge base that comes with the research and reflective practices; meanwhile, the ethical application refers to "an approach or construct from which to work" (Januszewski & Molenda, 2008, p. 3). In 2023, a task force team from AECT established the latest definition of IT, defined as the "ethical study and application of theory, research, and practices to advance knowledge, improve learning and performance, and empower learners through strategic design, management, implementation, and evaluation of learning experiences and environments using appropriate processes and resources" (AECT, 2024, para. 1).

Similar to the IT definition, field standards have undergone multiple iterations. AECT standards were introduced in the 1970s to guide professional programs and have been updated several times to meet the evolving demands of the field (AECT, 2012). The 2008 definition of the field, as defined in the previous paragraph, played a significant role in the development and approval of the 2012 AECT standards, which are currently the most up-to-date for guiding educational and professional IT programs (AECT, 2012). For a considerable period, the AECT standards acknowledged that ethical considerations are intertwined with appropriateness (Januszewski & Molenda, 2008). However, according to the 2008 definition, ethics became more explicitly emphasized in standards.

Ensuring that students acquire competency-based skills transferable to the workplace environment may be significantly facilitated by aligning programs with professional standards. Employers continue to place a greater value on these skills. Establishing a curriculum alignment with AECT professional standards can also assist with annual evaluations of a program, as well as student learning outcomes and competencies.

Curriculum Mapping

A curriculum can be defined as a program of study in a school or college that includes a series of courses that guide learners to complete a degree or certificate (Kopera-Frye et al., 2008). The term is comprehensive enough to encompass everything a student encounters throughout their educational journey, such as instructional materials, teaching methods, activities, and assessments necessary to achieve the intended learning outcomes (Siyam & Hussain, 2022). Program stakeholders often conduct reviews, assessments, evaluations, and analyses to ensure that the curriculum's learning outcomes are met. Curriculum mapping can be one of the techniques that stakeholders can implement to determine whether the curriculum components (e.g., goals, course objectives, instructional materials) are aligned and whether adjustments need to be made (Kopera-Frye et al., 2008).

A misalignment between program standards, outdated curricula, and courses may lead to a lack of coherence in teaching (Gashi, 2021), teaching practices overcoming the curriculum, a curriculum ill-suited to meeting course objectives (James & LaDue, 2021), and limitations in determining whether students meet curriculum standards (Wallace & Ke, 2023). Instructors can include updated and relevant content in their courses to improve student learning and meet educational needs. When this occurs, it is important for program coordinators and faculty to engage in curriculum mapping, a systematic process designed to use a data-driven approach to make informed decisions and changes to the curriculum (Altmiller, 2023). This process can assist departments and programs by reviewing and updating their curricula to address student requirements based on industry and organizational standards (Wang, 2015). Curriculum mapping is a valuable tool that can aid in overcoming obstacles and maintaining programs, particularly in situations of rapid growth (Khailova, 2021). Many programs use curriculum mapping for quality assurance, compliance, and renewal (Watson et al., 2020). However, the quality and effectiveness of curriculum mapping can vary significantly across different programs depending on factors such as the depth and complexity involved (Holmes et al., 2018). By aligning its outcomes with professional standards, a program can enhance its capacity to generate the requisite evidence to substantiate intended outcomes (Henri et al., 2017) and customize learners' professional aspirations.

Those responsible for program development and revision in higher education must conduct ongoing systematic reviews and evaluations of programs, identify potential areas of expansion, and adjust where possible to change professional needs (Perera & Pearson, 2013). Additionally, curriculum mapping (a) demonstrates the individual-level standards required by students to meet the goals of individual courses and (b) demonstrates program-level standards, which ensure that the courses meet the goals set forth by the

program. Moreover, curriculum mapping supports program evaluations. Programmatic assessment is crucial for evaluating program effectiveness and planning improvements (Clements & Cord, 2013). Although research has concentrated on curriculum mapping (Oliver et al., 2007; Sumsion & Goodfellow, 2004) and program-learning outcomes (Lawson et al., 2013), standardized approaches to professional standards are lacking. If professionals endorse and encourage the use of standards, program assessments should adhere to these practices. According to Finney and Horst (2019), academics "are unaware of the assessment-related competencies of professionals" (p. 311) in their field, and this unawareness can compromise students' academic and professional success. EIT is a complex field that encompasses diverse student career opportunities. Given this complexity, learners' knowledge and experience of a program can be divergent. While students in a program may be on the same journey, their destinations may differ. For example, two students from the same program could land in two different positions (e.g., multimedia developers and instructional technology specialists) and two different settings (e.g., higher education and K-12). Therefore, a program's curriculum must be well mapped to guide faculty and learners along their educational journey, providing the content to be taught and career paths to be taken within the curriculum. As a result, program mapping should be transparent (Harden, 2001), aligned with professional outcomes, and challenging learners' subjectivity (Hale, 2008; Jacobs & Johnson, 2009). Therefore, it is essential to include both content and professional standards. This allows learners to connect the dots in their journey toward completion.

The Graduate Program

The program analyzed for curriculum mapping was an EIT graduate program located in a college of education at a public university. This program was first introduced to the college in 1998 and established to meet the demands of local and state-level communities. Based on archival data from 2004, the program curriculum was designed according to a set of documents and competencies critical to the field of instructional technology, including the task force in the instructional design certification of the AECT in 1981. The program was originally delivered face-to-face, moving to a hybrid model in 2009 and shifting to asynchronous online delivery mode in 2019. The program goals were created based on several sets of documents that identified key competencies in the field of EIT, including the following:

- Core competencies for instructional/training development were generated by the Task Force in Instructional Design Certification of the Association for Educational Communication and Technology (AECT) Division of Instructional Development in 1981,
- competency lists generated in a study conducted at Florida State University concerning academic program requirements in 1993,
- competencies developed by the AECT Definition and Terminology Committee in 1994, and
- professional standards by National Council for Accreditation of Teacher Education (NCATE).

Since its inception, the program has undergone significant development by creating new courses designed to address industry needs, certifications required for job qualifications, and incorporation of additional faculty members as a result of the program's growth. These changes have occurred slowly over the years; however, no formal or comprehensive curriculum mapping of the program has been conducted. Currently, this program offers a master's degree in which some courses are cross listed with the doctoral program in the college. The Doctor of Education (EdD) program at the college is housed under the Educational Leadership department, and there are a few concentrations within their program such as higher education, curriculum and instruction and others. The cross-listed courses provide the master's students with the unique opportunity to engage with advanced coursework and collaborate with doctoral students, enriching their academic experience and broadening their perspectives. Moreover, due to the practitioner-orientated nature of most EdD programs, the master's program in EIT offers an opportunity for doctoral students to use evidence-based research to solve authentic challenges and issues in educational settings. For instance, doctoral students can identify practical problems in educational settings, conducting research and developing instructional technology and design solutions to solve and address the needs of their school or educational setting.

The initial goals of conducting curriculum mapping for this program include keeping the curriculum modern and relevant to the field by updating and aligning it with the most current AECT standards, identifying any gaps or discrepancies in the curriculum and verifying whether the curriculum program supported student learning. An example of the necessity for curriculum mapping in this program is a course focused on web-based instruction, which is also the course title. Over the past few decades, web-based teaching has transitioned to focusing on course design from the web to a learning management system (LMS), which means that students must exhibit proficiency in designing within an LMS rather than creating content for the web.

Thus, a thorough program evaluation is needed, in which the program goals are mapped and aligned with the most current standards in the field. In addition, mapping all courses and aligning them with competencies from industry standards can benefit the annual program evaluation process. For this curriculum mapping, the most current AECT (2012) standards are used as a framework to update the program goals and map the curriculum to ensure a tight connection between instruction, assessment, and student learning, consequently supporting program evaluation. By aligning course goals with program goals and AECT standards, program coordinators and evaluators can accurately track student progress throughout the program. Furthermore, the ability to determine whether students meet course and program goals is clear, as student artifacts can be linked to specific program criteria.

Although the program discussed in this article values and adopts the use of professional standards since its inception, mapping to the most current standards in the field with courses and alignment with assessment-related competencies can be beneficial in strengthening and supporting the program's effectiveness.

CURRICULUM EVALUATION FRAMEWORK

Curriculum evaluation is a systematic process of studying the merits and effectiveness of a curriculum in achieving its intended outcomes (Makanya, 2019). This is essential for improvement, renewals, and long-term achievements (Bazrafshan et al., 2014). The focus of curriculum evaluation may include curriculum design, the learning environment, the instruction process, and resources and materials. For curriculum mapping in this program, our focus is on

curriculum design, resources, and materials. According to Bharvad (2010), two common categories for evaluation models that align with curriculum evaluation are (a) Curriculum Product Evaluation and (b) Curriculum Program Evaluation. The Curriculum Product Evaluation category, which focuses on the course of study, syllabi, text, and assessment, was selected to guide this realignment as the aforementioned course items were identified and realigned with the new AECT (2012) Standards. Within this category, there are two models: (a) The Eight Year Study Evaluation Model and (b) Provus' Discrepancy Evaluation Model. The latter model has been used as a conceptual framework to analyze the program in this study through "constantly judged in terms of fixed standard criteria already established" (Bharvad, 2010, p. 73).

The Provus' Discrepancy Evaluation Model involves identifying any dissimilarities among the components in a standard and determining whether there are divergences (Bulkani et al., 2022). The model emphasizes the existing gaps. Any discrepancies identified can be resolved "between a pre-determined set of standards and what actually the current status of a particular area being studied" (Ambida & Cruz, 2017, p. 94). Following Provus' Discrepancy Evaluation Model, we analyzed the following: (a) determined program standards, (b) determined program performance, (c) the performance was compared with that of the standards, and (d) determine whether a discrepancy exists between performance and standards.

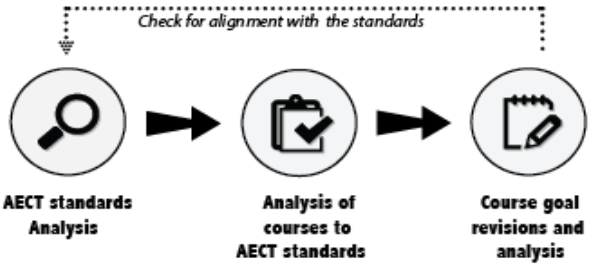
For the first step, the program standards are determined previously (i.e., AECT standards) but need to be updated according to the AECT 2012 version. In the second step, program performance is determined not only by the program goals or outcomes, but also by the learning outcomes established for each of the core courses in the program. The 2012 AECT standards and program performance were compared to determine whether there were any discrepancies or gaps in the curriculum. In this model, the operation program is constantly judged in terms of fixed standard criteria already established (Bharvad, 2010). The evaluation process commences with an examination of the courses' assessments to determine their compliance with AECT standards. Subsequently, the learning outcomes from each course were scrutinized to determine whether they corresponded to the summative assessments. Next, each course instructor assessed whether the instructional materials and formative assessments aligned with the summative assessments and the course learning outcomes. If any inconsistencies or gaps are detected between the standards and the actual course status (e.g., learning outcomes and assessments), the subsequent step involves identifying the reasons for these discrepancies (e.g., a missing link to a particular standard, outdated objectives, etc.). Discrepancies were rectified by modifying and adjusting the identified curriculum areas.

Moreover, the faculty acting as an action researcher, is another approach implemented. This form of evaluation evolves from the implicit aspects of reflective pedagogical practices to a more explicit research plan, wherein faculty members can specify and execute a research agenda of immediate relevance to their practices. This approach involves pursuing change and improvement at the course level (Leathwood & Phillips, 2000).

APPLYING PROVUS' DISCREPANCY EVALUATION MODEL

The Provus' Discrepancy Evaluation model was applied to assess and refine the program's curriculum (Uysal, 2022). The curriculum mapping process systematically examined program objectives, student learning expectations, AECT standards and indicators, and program course materials (e.g., syllabi, LMS course content, course assessments, and activities). Initially, we scrutinized the AECT 2012 indicators for each standard. We also assessed whether these indicators were implicitly integrated into the curriculum or not. Although this may seem simplistic, it is crucial to determine what is already in place to evaluate a curriculum at a more profound level. Subsequently, we identify the performance criteria for the remaining indicators. Finally, we aligned the courses' learning sources and assessments with each indicator, enabling instructors to identify discrepancies and gaps in the program. Figure 1 depicts the phases of the analysis, review, and curriculum alignment process.

Figure 1. Phases of the Process of Analyzing, Reviewing, and Revising Curriculum Alignment with AECT Standards



Phase I - Analyzing the AECT Standards

During the analysis of the AECT 2012 indicators, we determined whether they were appropriate at the program level. Since this is a master's level program, we focused on practical applications for practitioners moving into the field of instructional design in a variety of sectors (e.g., K12, corporate, higher education, and non-profit). Although the Ethics indicator was included in all five standards, for the purpose of our program, we removed Ethics from Standards 1-4 and combined Ethics under Standard 5. Additionally, Standard 5 focused on research, which was not the basis of this program; therefore, the indicators of Method and Assessing/Evaluating were removed. The final Standards were as follows:

Table 1. List of Standards and Components

List of Standards	Standards' Components
Standard 1 - Content Knowledge	• Creating • Using • Assessing/Evaluating • Managing
Standard 2 - Content Pedagogy	• Creating • Using • Assessing/Evaluating • Managing
Standard 3- Learning Environments	• Creating • Using • Assessing/Evaluating • Managing • Diversity of Learners
Standard 4 - Professional Knowledge and Skills	• Collaborative Practice • Leadership • Reflection on Practice • Assessing/Evaluating
Standard 5 - Research	• Theoretical Foundations • Ethics

Subsequently, we established the criteria for each indicator. A rubric was developed for each indicator since the intention was also to evaluate the program outcomes. The objective was to formulate the criteria for outstanding performance. Following approval from all faculty members, proficiency and revision performance criteria were drafted. For instance, criteria were devised for academic products under Standard 4, Professional Knowledge and Skills: Leadership (see Table 2).

Table 2. Criteria for Professional Knowledge and Skills: Leadership

Indicator	Outstanding	Proficient	Revise
Leadership (4.2)	Candidates apply leadership styles to an instructional context and reflect on the effectiveness of their leadership skills in a thorough and well-written reflection.	Candidates apply leadership styles to an instructional context and reflect on the effectiveness of their leadership skills in a partial reflection. While the style applied is clear, the impact is not made explicit or sufficiently justified.	Candidates apply leadership styles to an instructional context and reflect on the effectiveness of their leadership skills in an incomplete and poorly written reflection. The leadership style and impact are insufficiently discussed.

Phase II - analyzing courses to AECT standards

By defining each indicator, we can evaluate each course based on the course goals from the syllabi and apply the standard indicators to the course goals. An Excel framework was used to apply these indicators (see Table 3). This was an iterative process. First, we analyzed and aligned the course goals with the AECT standards. Next, we held program meetings in which we revisited the course goals and revised the alignment.

Next, using a backward approach, we mapped all course assessments with the learning outcomes, indicators, and AECT standards. Summative assessments were conducted to determine the close alignment of components. Finally, we analyzed the matrix for gaps and addressed any overlap of indicators or areas where AECT indicators were not addressed.

Phase III - course goal revisions and analysis

While evaluating courses and aligning them with AECT standards, it was crucial to ensure transparency by involving all faculty members in the process. Each faculty member teaching a course was asked to examine the course goals created by the instructor to confirm that they were comprehensive and broad enough to serve as a course-learning outcome rather than a module objective, which was attained by completing a course module. Following this, the faculty discussed and reviewed the assessments for each indicator to ensure that the assessment aligned with each course goal and AECT standard. In many instances, faculty members had to review the rubric for the course project to guarantee alignment with the course goal and AECT standard. Some projects aligned with multiple standards. For instance, in one course, the final project was extensive and aligned with three AECT standards (Table 5.

The goal of mapping was to align program outcomes with the 2012 AECT standards. In this process, verifying a holistic alignment with the program and ensuring a deep alignment with each course and its components (e.g., learning objectives, instructional materials, and assessments) are also important. During the initial mapping of the courses, learning objectives were revised by updating the wording or removing extraneous learning outcomes based on alignment with AECT standards. The objective was to review, revise, remove, and change the statements for this project. The objectives were designed to create appropriate instruction, devise approaches to evaluate student learning, and guide the learners into knowledge and skills to be mastered as part of a course or program (Morrison et al., 2007). The revision or deletion of these course objectives was based on an analysis and comparison of the components used for mapping or alignment. During this process, researchers/reviewers noticed that some learning objectives were not high level or designed to assess the learning gained upon course completion. These learning objectives were designed to be module objectives but were used as course objectives. Then, those objectives were revised to module objectives given the following: (a) content presented was specific to a module or (b) content presented was assessed in one module of the course only via a low-stakes activity/assignment. For example, in one of the courses, the following learning objective Demonstrate an understanding of accepted standards for website design, including style and accessibility, was removed and placed as a module objective because it was covered in only one of the modules of the course, that is, the web design module. Other higher-level objectives in the course will still be aligned with this content. Moreover, in the same course, the original number of learning objectives in the syllabus was nine, which was higher than the usual recommendation when designing online courses, that is, 3-5 learning outcomes (Stavredes & Herder, 2014). In addition, other revisions were made to remove objectives that were not explicitly assessed in a course and to combine or modify them to make them higher level or broader to address the content being built and assessed in the course.

While mapping and aligning courses, researchers and reviewers typically compiled a spreadsheet containing all existing course learning objectives. They meticulously evaluated each assessment and activity included in the course to determine whether they aligned with the learning objectives. If an alignment was not found, the learning objectives were revised to enhance their clarity and precision and were deleted or modified if they were outdated or did not adequately address a specific assessment item. Additionally, the assessments can be revised to align more effectively with learning objectives.

After this process, each faculty member had a list of revisions to their course. Course revisions were made after each meeting by the individual faculty members. This process not only strengthened the individual courses and the alignment of the outcome assessment with the course goal, but also ensured that the course goals were aligned appropriately with the AECT standards. Thus, the courses were also sequenced to build students' knowledge throughout the duration of the program and ensure that there was no overlap in learning outcomes between courses and no gaps in knowledge acquisition.

Table 3. Degree Framework Matrix Example

Course Prefix	Course Name	Course Description	Course Learning Outcomes	AECT Standard	AECT Indicator	Course Assessment
MIT 101	Trends and Issues	Course Description	Analyze Instructional Design Models	AECT Standard 2 - Content Pedagogy	Creating	Final Project

Table 4. Course Alignment Analysis Example

	500	510	511	520	530
Creating - Candidates demonstrate the ability to create instructional materials and learning environments using a variety of systems approaches.	x				
Using - Candidates demonstrate the ability to select and use technological resources and processes to support student learning and to enhance their pedagogy	x		x		
Assessing/Evaluating - Candidates demonstrate the ability to assess and evaluate the effective integration of appropriate technologies and instructional materials.	x				x

Table 5. Degree Framework Matrix Example

MIT 110	FEA	Course Description	Describe and apply procedures for assessing performance problems within operating systems (systems environment)	AECT Standard 1 - Content Pedagogy AECT Standard 2 - Content Pedagogy AECT Standard 2 - Content Pedagogy	Managing Creating Managing	Front end analysis project - students are to analyze a system and use multiple methods of data collection to determine a problem and determine a solution.

DISCUSSION

Program evaluation can help stakeholders identify the strengths and weaknesses of a program by providing data-driven evidence to guide program improvements. Additionally, engaging in a curriculum-mapping process can structure a program based on data-driven and competence-driven information (Wang, 2015). In our case, the program evaluation assisted in identifying areas where the curriculum needed to be updated based on the realignment between program outcomes and the current organization standards. Updating a program's curriculum is an important process as knowledge is dynamic and evolving, i.e., "knowledge that is currently considered true might be considered false 10 years from now" (Wang, 2015, p. 1556). The program evaluation process also establishes coherence and organization in the program curriculum, facilitating connections between disciplinary knowledge, practice, and assessment, as well as industry and organizational expectations. Through this process, the program can become more responsive to the needs of the students, faculty, institutions, and society.

Moreover, curriculum mapping can aid the analysis of expected student competencies based on industry or organization standards at the curriculum level. The advantages of conducting this type of program analysis include better understanding of students' skill progression in the curriculum, identifying potential discrepancies to improve the curriculum, and determining competencies for a new course (Gottipati & Shankararaman, 2018). For the evaluated program presented in this case, it is crucial to ensure that learning objectives, instructional materials, and assessments are aligned but also lead to students' competencies based on AECT standards. This was performed throughout the course of the study to ensure sequence and progression. Analyzing any discrepancies has improved the program's curriculum, especially in identifying redundancy across learning objectives and courses, which may jeopardize the program sequence and the mastery of skills necessary to build across courses (Kopera-Frye et al., 2008). Finally, based on this curriculum evaluation, the program has identified competencies for new and future courses. Based on this experience, other programs can learn the importance of curriculum mapping and alignment to strengthen their courses and goals. A common side effect when designing and teaching our own courses is to experience a "tunnel vision" (Stavredes & Herder, 2014, p. 174) effect in which we cannot perceive any problem with our courses. Therefore, it is essential to have other faculty members or external reviewers assess courses for alignment and provide suggestions for improvement.

Curriculum mapping and alignment can also be important in helping students to connect what they are learning, how they are being assessed, and how they are tied and connected to industry standards, which consequently builds the competencies that learners need to be practitioners in the field. This corroborates with similar practices and studies (Lam & Tsui, 2016), in which the anticipated Students Learning Outcomes (SLOs) "can be achieved in the study program by the list of courses offered, and whether actions need to be taken to adjust or modify the course curriculum" (pp. 1385-1386). Additionally, students can track their progress throughout the program to determine whether they are meeting program goals and at what level they are meeting them (e.g., entry-level courses).

Program evaluations can also provide data demonstrating program effectiveness for both internal and external stakeholders.

The data can be used to inform accreditation processes, demonstrate compliance with institutional goals, and provide a case study of program funding. In addition, program evaluation can provide valuable data for faculty scholarships and research. One note for programs to consider is that standards, including AECT standards, are usually broadly written. It is important for other programs to consider their outcomes and write criteria for standards in their fields that would align with their program outcomes. The criteria written for the AECT standards of this program focus on practitioner-based outcomes. This was one of the most time-consuming steps in the process, but it ultimately ensured that the student outcomes could be tracked.

Best Practices for Curriculum Mapping

Our program is relatively small compared with others in larger institutions in the field. A small number of faculty members are associated with the program, which can facilitate the tracking of courses, syllabi, and course materials. However, the curriculum mapping process can be arduous, as curriculum reviewers must constantly compare and contrast learning objectives, instructional materials, and assessments with industry or organization standards within and across courses to ensure alignment. Thus, gaining faculty buy-in and support in this process can be challenging because of time, effort, and concerns regarding how a course evaluation for curriculum mapping can reflect and be used for faculty evaluation (Kopera-Frye et al., 2008). To mitigate these issues and secure faculty support, program coordinators or chairs may plan for multiple meetings with program faculty and discuss and explain the purpose of this process, which is to improve the curriculum and students' outcomes leading to the required competencies in the field. Faculty incentives may also be important for ensuring faculty support. Depending on the program budget and time allocation, small stipends or course releases may be offered as incentives to support faculty.

Another practice that can decrease faculty work and increase student involvement is to invite senior graduate students to participate in the curriculum mapping process. Programs that implemented this practice have indicated the invaluable contributions of students, and students have reported the experiences gained from a better understanding of educational theories, the development of interpersonal skills through the collaboration process with faculty, and practical experiences for the career and profession (J Kapadia & Al-Nusair, 2022). Although this practice has not been implemented in our curriculum-mapping process, we see this benefit. For instance, our program has recently begun to implement new initiatives, such as vodcast sessions with our alumni, to highlight their work and engage them in our program. We shared these sessions with current students in the program to expose them to practical experiences in our field, thus addressing the necessity of EIT programs (Howard & Benedicks, 2020; Richardson et al., 2020). The alumni and students in the program provided positive feedback on this initiative and areas for improvement. Their feedback has been essential in shaping future sessions and topics for the vodcast but also in areas in which the program can better address their needs in meeting industry standards.

FUTURE DIRECTIONS

The evaluation and review of a program involves iterative and reflective processes. Transparency is important to ensure that each course in the program is aligned with the program goals and to build knowledge as students progress through the program. Additionally, conducting periodic program reviews can help to avoid potential knowledge gaps, content overlaps, and/or inconsistencies across courses. Faculty need to be open to change and constructive feedback from their peers or students as well as flexible in revising their online courses, whether the changes are small (e.g., adjusting the course goals) or larger (e.g., revising assessments or course concepts). These changes and revisions can not only improve course organization and facilitation but also student success in achieving the required competencies in their field. As McDavid and colleagues stated (2019), "program evaluation is not a one-time event but rather an ongoing process of monitoring and feedback to ensure that a program is achieving its goals and objectives" (p. 2). By continually assessing program effectiveness, the program can adapt to the changing needs and trends in higher education, ensuring that it remains relevant and effective.

The next steps for this program include: (a) conducting a more thorough evaluation of the program with further data collection and analysis to verify whether the changes and revisions to the program curriculum have been successful or effective, (b) designing and developing program assessment instruments to be implemented throughout students' progress in the program (e.g., these assessments could be included toward the end of each course in the program), (c) program goals into a system to track student progress and streamline reporting, and (d) digitizing all documents from past, current, and future courses to ensure digital curriculum mapping for future program coordinators and faculty. Further evaluation of this program may include surveying students to determine their level of comfort or ability to track their progress toward the program goals. In addition, the continuing program evaluation process may determine any gaps in the curriculum, which can lead to the design of new courses to address industry standards. Further studies in this area should include students' and instructors' reflections and feedback on the alignment of learning outcomes with the delivered and learned curriculum (Lam & Tsui, 2016). Currently, the program is implementing a survey in the exit course to collect data from key stakeholders (i.e., clients in students' final project and faculty) assessing students' competencies in the program according to AECT 2012 standards. The aforementioned strategies will be implemented in the next phase to determine the effectiveness of this process. Finally, in the future, the program plans to design and develop an instructional technology and design concentration within the current EdD program at the college. This concentration will aim to equip educational leaders with skills necessary to integrate technology and instructional design practices into diverse educational settings.

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