Universal Assessment Practices across Traditional and Online Programs: An Explanatory Case Study Analysis of Universal Assessment Programming

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Abstract

This study aimed to provide insight into processes utilized by universities as they implement standardized assessment processes for courses within institutions that offer the same course number with class styles offered in different modalities, often called twin-degree programs. Often standardized assessment practices examine learning through course artifacts designed to measure student learning outcomes. This paper analyzed learning outcomes from twin degree coursework through qualitative case study research.

Keywords: assessment, online learning, student learning, higher education, standardized curriculum, curriculum

1. Introduction

Universities across higher education are mandated to provide unified programming to validate the degree programs' integrity. Often, the bridge between traditional faculty and online faculty can seemingly differ in course content goals and student engagement, causing distrust within institutions and accreditors. There is a need to create buy-in from different stakeholders of the program and coursework assessment. Stakeholders' buy-in from university administration, faculty, accreditors, and students is paramount to ensure that coursework meets the exact standardized requirements of student learning outcomes no matter what modality. One way to create approval is to guarantee that students in twin degree programs or twin coursework are measuring their outcome results precisely in the same way. Twin degree programs offer the exact transcript, degree plan, and course titles but are taught in entirely different modalities. Twin coursework will is coursework with the same course number, prefix, description, and student learning outcomes offered in differing modalities. Strategies to implement assessment processes to measure student learning outcomes can take many forms. Still, schools often struggle to ensure that they are measuring outcomes within coursework that have twin degree programs with shared courses.

Offering twin degree programs (TDPs) and twin coursework (TC) allows for inclusivity of learning styles and engagement with students who may not be physically able to attend a university. Traditional education often has limitations that hinder potential students from accomplishing educational goals. With the integration of technology, many degree programs have emerged within various Learning Management Systems (LMS), displaying creativity and engaging curriculum. Munna (2021) encourages assessment to include inclusive teaching initiatives within this curriculum. As the goal of teaching TDPs aligns with this mentality, the focus of measuring TC should engage with examining student learning outcomes or goals set for student progress within each course.

This study examined universities using LMSs to help automate the measurement of student learning outcomes within TDPs and TCs. There are ethical challenges when working with automated assessment data Holliman (2021). These challenges, such as making sure that the data engages with the student learning outcome accurately, are explored in the study. However, Holliman also emphasizes the value of automation, including the assurance that data will be formatted, after collection, in the same way for review and evaluation for improvement (p. 23).

Universities can engage with automated data and ensure that TDPs and TCs are accurately integrated by implementing a strategically planned assessment integration. Alsuwaiket, Blasi, and Al-Msie'deen (2020) express that it is a positive goal to create academic predictability in coursework which is impossible without a strategic plan. This integration should include an academic department clearly defining the proper learning outcomes measured within their programs. A program map examines how and where each student learning outcome is assessed within the program's offering. Designing assessments, often in direct assignments to students, can engage students with the student learning outcomes

and allow them to be measured in multiple modalities, ideally inaccessible in inclusive ways. Create a measurement tool that functions within the institution across the modalities —a straightforward collection of institutional data. Massa and Kasimatis (2017) stress the importance of implementing strategically planned assessment measurement tools. This must be built and implemented intentionally for assessment validity.

Universal program design provides standardization that will support assessment data collection in TDPs. Specifically, universal program design uses a standardized curriculum to ensure validity in measuring student learning regardless of modality (Romo & Leinen, 2018). Measurement tools in universal program design provide universities with planned assessment measurement tools that are implemented strategically in the program or course. Master course shells allow for program, course, and assignment alignment of assessment tools to provide validity in the assessment process in higher education courses (Romo & Leinen, 2018).

1.1 Purpose Statement

The purpose of this case study qualitative research paper is to analyze standardized assessment practices through assessable artifacts (AAs), which are embedded as part of academic strategic planning and integration by an institution, to accurately measure the student learning outcome accomplishments of students who are accomplishing credit within schools which offer twin degree programs (TDP) or twin coursework (TC). This research will share ideas of program mapping and processes for creating standardized rubrics that assess student artifacts to determine the mastery of learning outcomes rather than the mastery of coursework content. This research will share how assessment coordinators of TDPs examine outcome-based assessments replicated across different modality coursework using institutional tools.

2. Literature Review

A literature review comprehensively evaluates relevant scholarship in assessment, active learning, and exemplary assessment practices. This literature review provides a contextual perspective of the current environment of assessment practices in higher education.

2.1 Assessment Practices in Alternative Learning

Assessments are conducted by strategically planning initiatives using the tools and features in a Learning Module System (LMS). Some institutions simply conduct their assessment by collecting assignments like quizzes (Mondal & Mondal, 2021). Several institutions use an LMS even when offering their courses in traditional formats. Traditional and online learning and other alternative learning options seem to be finding that students like the ability to engage with LMSs to hold announcements, help with storing assignment and institutional information, and communicate individually with their students.

Integrating assessment into an LMS is just as important as designing a course assignment. Exemplary course design presents the material in a way that makes sense to the student. Professors and teachers like for online course designs to be changeable and fluid and thus feel it is more objective than in the classroom (Jensen, Price, & Roxa, 2020). Adding an LMS feature with certain expectations for faculty and students to interact with, a student's course experience can be a tool that institutions use as a foundational bridge of uniformity across modalities and formats.

Online learning is a helpful way of earning degrees and preparing non-traditional students for their professions. Asynchronous engagements in learning environments are not uncommon for many students. Additionally, as digital natives instructors, or professors, infiltrate the workforce and conduct the assessments alongside digital native students organically, institutional assessments will perhaps phenomenologically improve. Institutions will see assessment success (Ndibalema, 2021).

Instructional designers are institutionally engaged with the assessment process to purchase and develop the best tools while considering assessment needs. Overall, instructional designers are concerned about ensuring that cognitive load strategies are considered (Caskurlu, Richardson, Alamri., Chartier, Farmer, Janakiraman, Straight, & Yang, 2021). Instructional designers usually assist the Subject Matter Expert (SME) in creating comprehensible homework and course navigation at a reasonable level to accomplish within the time frame of the offered course. Additionally, the instructional design strives to be aesthetically pleasing. An institution's instructional design team works to design assessments and course shells within an LMS system for any type of course. Collecting assessment strategies may require that academic communities consider expanding and investing support structures in blended and online learning (Borup, Graham, West, Archambault, & Spring, 2020).

2.2 Active Learning Environments

Standardization in higher education has ushered in conversations of academic freedom in classrooms. For decades academia has preserved and regarded academic freedom as a core college experience. Institutions have started to use standardized curriculum and assessment practices to determine program viability and student learning in the classroom. This happens explicitly in online higher education classrooms to ensure student learning is not compromised in asynchronous environments. Academic freedom refers to autonomy in college courses and protects teaching practices from scholars in all areas of the college experience. Many academic circles regard academic freedom as highly valued and should be defended (Rice, 2019).

Student learning manifests as a result of active teaching in the higher education classroom. Active teaching involves instructors that utilize many teaching methods and practices to help students learn course content and materials while mastering student learning outcomes in a course. Meaningful learning experiences help students engage in the learning process in unique ways to involve them in the learning process in higher education courses taught in multiple modalities (Garrison, 2007). Higher education institutions have invested in active learning and teaching to help improve student learning and remove barriers to traditional lecture-style formats in many college classrooms (Stover &Ziswiler, 2017). Active teaching provides students with formal instructional methods to improve their quality of learning in higher education courses.

Effective learning requires students to be active participants in the learning process (Bruner 1986). Instructor-led collaborative learning environments promote student-designed learning experiences. This provides students with autonomy over their own learning experiences and individualized learning experiences (Stover &Ziswiler, 2017). This active teaching environment leads to higher student learning and retention at various universities (Stover &Ziswiler, 2017). The primary function of active learning environments is to have students involved in their learning in the classroom. Active learning brings students together with a unified goal of academic purpose and interest for a specific set of academic goals and learning outcomes within a course (Garrison, 2007). This allows students to participate in a unified manner in the learning process actively.

2.3 Exemplary Assessment Practices

Higher Education accreditors expect the assessment of all modalities and, in the same way, if they offer credit for coursework. Examples of alternative modalities include courses with adjuncts, hybrid components, online, experiential, prior learning assessments, and competency-based courses (Van Os, 2017). Historically, Higher Education institutions have engaged in multiple models in efforts to accommodate learners who have a desire to learn but cannot attend a traditional course. Institutions have used technology, resources, and systems that may consider instructional design and assessment challenges. Historically, institutions that were thinking innovatively about satellite campuses or mail-order courses designed them to consider the needs of learners. Alternative modes of course offerings were possible; however, regional assessment organizations like the Higher Learning Commission (HLC) and or the Southern Association of Colleges and Schools (SACS) demand that institutions provide proof that no matter what modifications institutions have made to traditional learning-that, they are measuring the learning outcomes in the same ways for their programming (HLC, 2022; SACSCOC, 2022).

Collecting summative and formative data is the key to understanding if there is validity and reliability in an institution's assessment measurement process. However, no data collection is perfect, so reviewing and denoting critical elements influencing the data samples is essential. "There is a problem of under sampling or oversampling of content and items do not test students' problem-solving abilities" (Somannavar, p. 8, 2019). Overcoming these problems requires consistent self-studies conducted by the institutions in incremental periods.

Twin programs, or programs that measure traditional coursework outcomes to an alternative course with the same goals, should understand that equal measurements of course outcomes are the minimum expectation for accreditors. There is an expectation that even student services, such as mental health and academic assistance, are offered in multiple modalities and provided to learners (Stefaniak, 2020). Numerous factors can influence a student's success in a course or even on a particular measurement. For example, all students need confidence when completing an online course (Tseng, Kuo, & Walsh, 2020). Accreditors are interested in all the factors that surround a student's ability to meet outcome expectations and believe that knowledge, skill, and ability have to do with self-efficacy.

2.4 Research Questions

The effectiveness of bridging twin degree programs and twin courses manifests with the use of master course shells. Master course shells are the framework for assessment in TDPs. The research questions address the standardization of online higher education assessment practices and how it impacts program growth in multiple modalities.

RQ1: What universal assessment practices effectively bridge online and traditional programs to meet university programmatic and accreditation goals?

This research question will examine the planning and process of assessment in TDPs. It will provide the framework for understanding the effectiveness of the planning and process of assessment.

RQ2: How can assessment effectively bridge similar programs taught in online and traditional modalities?
This research question examines if there are any differences or similarities between the study's teaching modality and assessment results.

3. Methodology

Qualitative research uses a process of naturalistic inquiry that seeks in-depth exploration of social phenomena in a natural setting (Patton, 2002). Multiple systems of investigation are used in qualitative research studies. These inquiry systems seek to answer the why and what of social phenomena in various settings. Qualitative research methods explore phenomena by seeking to explore natural environments. Naturalistic inquiry can occur in interviews, direct observations, artifact and document analysis, and case study research (Patton, 2002). Qualitative research embodies naturalistic inquiry to uncover social phenomena by carefully planned observations (Keyton, 2019).

Qualitative methods explore phenomena by seeking to explore natural environments, which are achieved through the case study as a type of qualitative research. Case study research is an empirical method that examines phenomena in-depth in their real-world context (Yin, 2016). Empirically, case study research provides an understanding of cases that involve critical contextual conditions pertinent to the case (Yin & Davis, 2007). Case studies rely on multiple sources of evidence to triangulate data within the case.

This study uses qualitative research and a case study to analyze twin degree program assessment and student learning outcomes. Case study research is an approach used to generate an in-depth understanding of a complex issue in its real-life context (Crowe, Cresswell, Robertson, et al., 2011). Case studies allow researchers to clearly articulate an analysis of a phenomenon and enable findings to be generalized to theory and practice (Crowe, Cresswell, Robertson, et al., 2011). This type of research provides a logical model of proof to explain a phenomenon (Yin, 2016). A logical model of proof uses an artifact to explain the phenomenon related to the topic of study. Artifacts help explain an in-depth perspective of a phenomenon by using naturalistic inquiry within the study (Yin, 2016).

Explanatory case studies seek to explain a phenomenon and provide detailed analysis drawn from the artifact explanation within a study. The objective of explanatory research is to share the how and why of a phenomenon. To explain a phenomenon is to stipulate a set of casual sequences about it (Yin, 2016). This cause-and-effect model investigates patterns and trends in the data to explain a particular phenomenon and potentially predict more occurrences or establish patterns that can occur again (Crowe, Cresswell, Robertson, et al., 2011). Exploratory case study research methods were used to explain twin-degree program assessment by examining assessment data of twin-degree programs taught across multiple modalities.

This study will explain accessible artifacts in courses taught in traditional face-to-face and online asynchronous formats. The AA will provide the institution with data to determine learning effectiveness in both modalities. This study will evaluate the data gathered from the same course taught in multiple modalities. The data analysis will determine if universal assessment practices are practical and effectively bridge programs taught in two different modalities.

3.1 Case Study Artifact: Assessable Artifacts

This study analyzed data from accessible artifacts in an introduction to business course offered in TDPs in three different modalities at a midwestern college. This study provided the AA in a traditional face-to-face setting, an online asynchronous course, and an alternative education format at a state prison near the college.

An assessable artifact is created to measure student learning outcomes assigned by the institution, college, or department. An AA is distributed to the instructor of record for a course in any modality, course design structure, or format. It should be integrated into every course offered with the same academic catalog, course number, description, or degree plan.

The school studied, in this case, designed their AAs to provide a comprehensive perspective of student learning in various teaching and learning modalities at the institution. Specifically, a standardized set of student assignment instructions required students to produce a project that addressed all the desired learning outcomes in a course. The instructor measured this using a standardized rubric to determine the master of the learning outcome. The students and instructors are aware of the learning outcomes at the onset of the course. The instructor knows that they should provide

the student with instruction to reach mastery of the concepts by the end of the course. Additionally, the institution implemented an AA into every course within their academic catalog to anticipate alternative offerings.

This study analyzed one departmental learning outcome in an introduction to business course. The assessable artifact required students to demonstrate learning of the learning outcome by creating a report of a non-profit organization that analyzed the business practices of the non-profit group. Table one below shows the department-level learning outcome measured in the AA for this study.

Table 1. Department Learning Outcome: Introduction to Business Course

This course is in partial fulfillment of the following Department Learning Outcomes:	
1. The learner will acquire foundational business knowledge necessary to be competent and productive business professionals while demonstrating business acuity through the application of business language, methodologies, and functions in today's business environment.	2. The learner will develop critical thinking skills, oral and written communication skills, analytical skills, and technological skills for business application.

There are three phases in using AAs in the assessment process of TDPs. Those phases are planning, implementation, and evaluating assessment accuracy and effectiveness. These phases provide the framework for the effective measurement of the AA within the TDP.

3.1a Planning

The planning phase happens before an institution implements the AA process into its curriculum. The goal of an institution engaging with AAs is to create program outcome alignment across modalities to answer the question: Is there a difference in the data collected between the online process and the traditional process?

When planning, institutions should consider how many different types of modalities or formats they offer and if there is a commonality of design between them. As stated in the Literature Review, most Higher Education institutions use LMS systems. An AA can be easily added to an LMS system when required for all institutional courses.

The school's planning phase required all departments to create AAs for each course that measured program outcomes. The AAs were developed, formatted, and reviewed to conclude that the output assignment that would be produced by the student, as directed by the AA, would measure the appropriate institutional outcomes. Rubrics measured the students 'work for grading purposes and were created to measure results as required by the department.

The studied university utilizes the Canvas LMS system. The artifacts and rubrics were input into the Canvas Outcomes feature for each course for which data was collected. The artifacts were stored in a Canvas LMS master course shell or a unique Canvas LMS course shell that is considered a perfect copy of the digital documentation. Master shell held all of the AAs, rubrics, and digitally attached Canvas Outcomes. Once a course section was assigned to an instructor, teaching in any modality or method, the module holding the data for that course within the master course shell was to be imported into the instructor's LMS.

Finally, the college created training for instructors and faculty who grade and score the rubrics associated with the AAs in the planning process. The AAs needed to be graded and scored by the instructor or department program director. The grading rubric was specifically designed to help students understand what would impact their grades when they completed the AAs. The scoring rubric was specifically designed for instructors to review the work while considering whether the student was developing toward the programmatic goals.

3.1b Implementation

The implementation phase is the process of putting a plan into effect. In AA implementation, the courses must launch and conclude in any modality or course structure so that data collection can occur. The AA document can be distributed to the students within a course at any point that makes sense to the curriculum of the course itself. Effectiveness in using accessible artifacts requires that the instructor distributes the AA instructions and ensures that the student reads them and understands them. The instructor of the artifact is completed by the student and returned to the instructor for evaluation. The instructor of record should assess students' work produced from the AA using the institutionally assigned rubrics so that the student receives a grade for their course and an assessment score. In the implementation phase, the school analyzed institutionally and ensured that all AAs were imported to the Canvas LMS course shell for accuracy purposes. Faculty services helped engage faculty in any educational model to help complete the electronic grading and scoring.

3.1c Evaluating Assessment Accuracy and Effectiveness

The evaluating phase is determining what value to place on the data collected. Academic departments make sure all data is pulled correctly through their LMS system. Next, the data is sorted by department and course so that a direct comparison of different modalities, and instructors, can be analyzed. Finally, it is essential to close the loop of assessment by noting any variable that may influence the data collected by the AAs.

In the evaluating phase, the school closed the loop of assessment by department. Each department verified that all AAs were imported into the professor's LMSs for accuracy. Some implications influenced the data, including LMS glitches, instructional design errors, faculty misunderstandings, poorly written directions for the AA, and other implications which required documentation and reconciliation.

4. Data Analysis and Results

Assessment should inform institutions whether the learning outcomes they are setting are being achieved. Case study explanatory research analyzes phenomena in a natural setting (Patton, 2022). A natural setting observation is used to analyze assessment data in this research. The assessable artifacts provided uniformity for the institution assessing TDPs in this study. The accessible artifact provided uniformity to the process that increased the validity of the results. It provided parameters for course expectations and worked as a bridge between the twin programming that provided multiple modality options for student consumption—this allowed uniformity in how the data would be collected while still honoring academic freedom in the classroom.

4.1 Data Results: Assessment Collection

The accessible artifact was implemented in three modalities in TDPs for one academic year. Each modality implemented the accessible artifact within the course at the instructor's discretion, and each AA was evaluated at the end of the term by the instructor of record. Eighty-six sections of the introduction to business course utilized the accessible artifact in this study in the fall semester and 42 sections that used the same artifact in the spring semester. This provided a combined total of 128 sections that implement the accessible artifact. The accessible artifact was implemented in 72 traditional face-to-face sections of the introduction to business course, 14 asynchronous online sections, and one hybrid section in the fall semester. There were 21 traditional face-to-face sections, 14 asynchronous online, and two hybrid sections in the spring. This provided 93 traditional face-to-face sections, 28 asynchronous online sections, and three hybrid sections.

4.2 Data Results: Assessment Comparison

When analyzing the evaluation process and comparing if AAs bridged the gap between courses in multiple modalities, instructors, locations, and formats, it is essential to compare courses with the same course numbers and thus the same learning outcomes. This study analyzed the data on the departmental learning outcome. This outcome was the primary focus of student learning for university courses, and it was replicated effectively in all sections according to the university. Additionally, this study focuses on TDPs and the effectiveness of bridging the programs across learning modalities. Thus, using the departmental learning outcome provided significant findings in student learning in the studied program compared to general education learning outcomes taught in many programs throughout the university.

The classes analyzed were a fall-term traditional campus course, a Spring-term traditional campus course, a spring-term hybrid learning course, and a Spring-term online learning course. Institutionally the school has set a standardized rubric scale for grading and assessing "Exceed,""Meet,""Approach," and "Below." Therefore, the goal assessment score for each course is three or higher is a student average of "Meet."

Table two displays the average scores of the assessments collected for each course section. The data indicates that students in online and hybrid sections of the course studied scored higher than students enrolled in traditional courses. Specifically, the average score for students in online and hybrid sections is 3.60 compared to 2.90 for traditional sections. According to the data, students could 'meet' expectations in online and hybrid sections. According to the assessment results, traditional students could 'Approach' expectations in face-to-face sections. The varied scores could indicate standardization in online learning for the asynchronous online and hybrid sections compared to the traditional lecture format of the other sections. The average assessment score for all students assessed was Overall, which shows that students could nearly meet the standard in all areas were 3.10. This demonstrates that, on average, students were able to 'Meet' expectations for the DLO objective assessed in this artifact. The data represents that the accessible artifact successfully evaluated student learning and demonstrated student proficiency in the course used in this study.

Table 2 -Introduction to Business AA Course Section Measurements

Section Format	Semester	# of Assessments Collected	Avg Score: DLO Business 3
Traditional Campus/Lecture	Fall 21	34	2.91
Traditional Campus/Lecture	Spring 22	10	2.90
Online	Spring 22	5	3.60
Hybrid	Spring 22	10	3.00

4.3 Data Analysis

The data demonstrated that students were successful in meeting the expectations of the university in this study. Specifically, it showed that online and hybrid students were more proficient in the standard than traditional students. This could result from a lack of uniformity and standardization in all sections offered for this course. It supports that standardization of courses using master course shells provides more consistency for student learning. The outcome of the assessable artifact for online and hybrid sections of the course demonstrated this increased student learning in this study. Standardization in courses using master course shell models increases student learning and effectiveness of instruction (Romo & Leinen, 2018). This was demonstrated in this study by the results of the accessible artifact. In this study, not all sections utilized a master course shell to standardize learning. This influenced student learning as students enrolled in the sections that did not use the master course shells scored lower than those enrolled in sections that used them.

The data also showed that more students completed the accessible artifact in traditional course sections than in online and hybrid sections. This could have skewed the results slightly since the number of students assessed in each type of modality is significantly different. However, the data represents that TDP using accessible artifacts is successful in students meeting expectations for the departmental learning outcomes at the university. The average of all students assessed using the artifact demonstrated that the method works and that all steps contributed to the overall success of the implementation of this assessment method.

5. *Evaluation of Analysis and Findings*

The data demonstrated that accessible artifacts successfully provided uniformity in TDPs and assessed student learning. In this study, the data represented those students who met the university expectation for the departmental learning outcome used in the study. Specifically, best practices identified in the analysis section explained that master course shell models increase student performance on the accessible artifact assignment compared to traditional sections of the course that did not use a master course shell model. The data determined the following answers to the research questions in this study.

5.1 RQ1: What universal assessment practices effectively bridge online and traditional programs to meet programmatic and accreditation goals in universities?

The data evaluation demonstrates that assessment planning and implementation are vital to the success of accessible artifact implementation in TDPs. Specifically, the data shown on average, students were able to meet expectations for the departmental learning outcome in the study. This is a result of the assessment planning and implementation analyzed in the study. Additionally, the data represented room for improvement in the process. Specifically, there were some issues with implementation in using the university's LMS. This resulted in fewer students participating in the accessible artifact assignment than initially planned for the online and hybrid sections in the study.

Universal assessment practices that effectively bridge online and traditional programs to meet programmatic and accreditation goals are precise planning, communication, implementation, reporting, and evaluation. Each of these areas wascompleted except for the implementation phase. While the data represented that students were able to meet the expectation for student learning in the TDP regardless of modality. Few students were evaluated due to the implementation issues during the study. Effective learning in online and traditional course standardization requires consistent and clear communication in the implementation phase (Romo &Leinen, 2018).

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This aspect could have influenced the effective implementation of the TDP assessment plan. This research question was partially met in the study and demonstrated the need for clear and consistent implementation of the assessment plan.

5.2 RQ2: How can assessment effectively bridge similar programs taught in online and traditional modalities?

The study determined that an accessible artifact can effectively bridge similar programs taught in online and traditional modalities. It was determined that assessment is effective when an accessible artifact is used to measure student learning in a program of study across multiple modalities in TDPs. The data represented that the average of all students was successful in meeting expectations of the departmental learning objectives for the course studied. Additionally, the data demonstrated that sections that used master course shell models showed higher levels of learning through the accessible artifact than those in sections that did not use a master course shell model. Specifically, students enrolled in courses utilizing the master course shell average a 3.6 on the assessment score compared to those not taught in a master course shell model, who earned an average of 3.0 on the accessible artifact. This was an unexpected finding of the study but demonstrates that master course shell models effectively bridge similar programs taught in different modalities. Standardization of higher education curriculum has shown that course shells provide higher levels of learning for students; this was also found (Romo & Leinen, 2018).

6. Discussion

This study demonstrated that the standardized assessment process influences student learning in higher education courses. The research questions showed the effectiveness of bridging TDP in the assessment process and the need for standardization of curriculum in higher education. The bridging of TDP is more successful with the standardization of assessment practices within both programs. This study determined that universities should focus on assessing student learning across multiple modalities. The modality of learning was not an influential factor in the assessment. Students successfully demonstrated knowledge departmental learning outcomes regardless of the modality they were taught at the university. However, the master course shell model influenced the success of student learning more than the modality they received instruction in during the academic year for this study. Universities should emphasize implementing the assessment process among faculty and support staff. This will help increase student achievement in assessment and provide more reliable data for future research.

6.1 Future Research and Limitations.

This study found that accessible artifacts are successful in the bridging of TDPs. It also determines the need for future research in this area. Future research should focus on using master course shell models on the effectiveness of student learning and compare master course shell models taught in multiple modalities. Another consideration is the use of summative and formative assessment practices in accessible artifacts and the effectiveness of those methods in student learning outcomes. This study was limited in the population, and future research needs to focus on a significant increase in the population of students to provide comprehensive perspectives of student learning using accessible artifacts. Future research could help provide a substantial correlation between the results in this study compared to larger institutions using similar models for assessment.

7. Conclusion

Overall, this study determined effectiveness in assessment implementation and planning using an accessible artifact to bridge twin-degree programs. An accessible artifact effectively bridges similar programs taught in online and traditional modalities. Assessment is effective when an accessible artifact is used to measure student learning in a program of study across multiple modalities. This qualitative case study analyzes standardized assessment practices in twin degree programs through assessable artifacts. This research provided a program-mapping process for creating standardized rubrics that assess student artifacts to determine the mastery of learning outcomes rather than coursework content. This research demonstrated the success of accessible artifacts in measuring student learning in twin degree programs taught across multiple modalities.

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