Analysis of eportfolio data to inform curriculum review and redesign

Practitioner Research
In Higher Education

Online First pages 35-48

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Abstract
The ePortfolio provides an opportunity for faculty within academic programs to use a tool that was traditionally used to show evidence of student learning, to also inform curriculum review and redesign. A descriptive concurrent mixed methods design was utilized to analyze ePortfolios from three cohorts of graduate students (*N* = 39). Quantitative data, qualitative data, and analysis of assignment descriptions in alignment with Bloom's Taxonomy of Cognitive Domains was completed and provided evidence of perceived alignment and misalignment with program goals. Data was used not only to inform meaningful changes within the ePortfolio process but also to improve program curriculum without the need for additional measures. Analysis of ePortfolio data, data that is readily available to program faculty, facilitates responsiveness to student, program, university, and accreditation requirements in a systematized and streamlined process.

Keywords
Assessment; ePortfolio; curriculum review; curriculum redesign.

Introduction

The ePortfolio, a digitized compilation of meaningful artifacts and accomplishments, is a transformative pedagogical assessment tool that serves as evidence of learning and professional development (Lorenzo & Ittelson, 2005; Pitts & Ruggirello, 2012). Best practice principles for ePortfolio development indicate that the compiler (i.e., student) identifies items to include and is afforded opportunities for reflection (Mueller, 2015). However, the ePortfolio is not only beneficial for students to demonstrate professional development. Integration of the ePortfolio into academic programs helps document student learning and track progress towards meeting program goals and standards (Cadd, 2012; Nguyen, 2013). A crucial final component of the program assessment process is using the ePortfolio data to inform curriculum review and redesign. Swan (2009) acknowledges that there are studies outlining how the ePortfolio process is implemented within unique programs and supports student learning outcomes, but research is limited on how ePortfolios can guide program-level review. The case study model presented provides an example of how programs might review, synthesize, and use existing ePortfolio data to make intentional and meaningful curriculum decisions.

Purpose of the ePortfolio

The purpose of the ePortfolio continues to evolve with several studies highlighting the use of the ePortfolio to demonstrate student learning (Buente et al., 2015; Hornor, 2021; Munday, 2017). Other purposes noted in the literature included facilitating academic advising, showcasing employability skills to prospective employers, and demonstrating professional growth over a period of time (Mueller & Bair, 2018; Pitts & Ruggirello, 2012). Parkes and colleagues (2013) proposed that ePortfolios served as more than a collection of artifacts. Rather, ePortfolios that use intentional reflection fostered meaningful engagement and accountability in professional growth (Parkes et al., 2013). As noted in the case study

Citation
Busch, C.M. and Gilbertson, L. (2024) 'Analysis of eportfolio data to inform curriculum review and redesign', *PRHE Journal Online First*, pp. 35-48.

from Richards-Schuester and colleagues (2014), ePortfolios could be used to facilitate professional growth that supported program and university level goals. As noted in the literature, the purpose of the ePortfolio is varied, however, the research is largely focused on the development of the ePortfolio from the student perspective. Having an intentional purpose for integrating the ePortfolio into a program level assessment plan can not only support student achievements but also serve a dual purpose, a crucial component of curriculum review and redesign.

Purpose of ePortfolio for Program Assessment

The ePortfolio literature traditionally focused on learner outcomes. Fewer resources provided practical or effective examples of ePortfolio use for overall program assessment. As noted in the literature, there are challenges with the implementation of the ePortfolio within an academic program and certainly across an entire campus. For example, Reynolds and Pirie (2016) attempted to facilitate an ePortfolio culture across campus but were met with technology challenges and lack of continuity across academic programs. The initial stage of ePortfolio implementation was a challenge but then, developing a process for using that data to make systematic changes presented additional challenges. Akleh and Wahab (2020) discussed auditing student portfolios as a mechanism for ensuring attainment of course outcomes and for program assessment. They found that 60% of the faculty surveyed felt that the ePortfolio could be a useful tool to restructure program curriculum. However, they did not explicitly detail the auditing process and how to use the data to make program level changes. Finally, Ring and colleagues (2015) discussed using the ePortfolio to make programmatic decisions in the general education curriculum but again, focused more on student learning outcomes. They suggested that there needed to be more of a systematic and continuous process to use the ePortfolio data to drive program changes. The case study model presented suggests moving from a traditional student focused process (See Figure 1.) to a program analytic ePortfolio process by adding two additional steps upon student completion (See Figure 2.). Using the ePortfolio in a systematic and continuous process not only measures student learning outcomes but supports efficient use of existing data to make curricular decisions.

Typical Student Focused ePortfolio Process

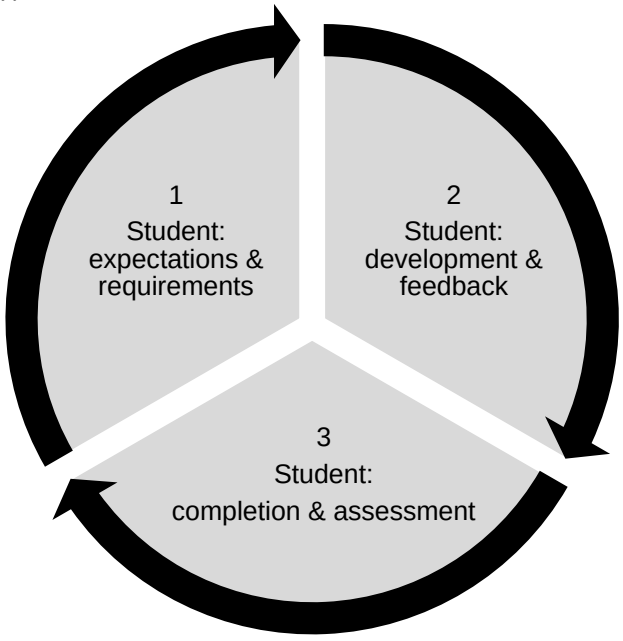

Figure 1. Traditional ePortfolio Process.

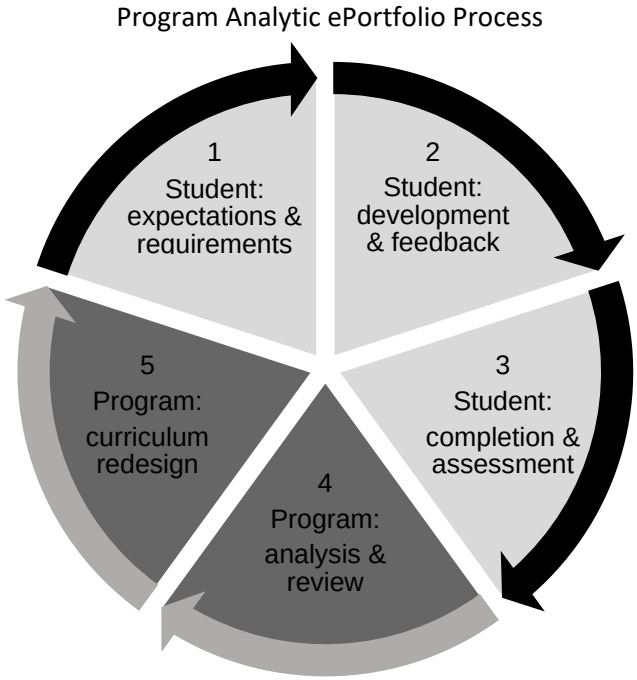

Figure 2. Proposed ePortfolio Process.

According to John Biggs (2003), there are essential components within educational systems that must work together. Components include:

a. students,
b. educators,
c. curriculum,
d. teaching methods,
e. assessment procedures,
f. methods for reporting assessment results,
g. classroom climate, and
h. institutional climate, including policies and procedures.

Biggs emphasised that all critical components must be in alignment to facilitate deep learning for students. Biggs stated, "All components in the system address the same agenda and support each other" (2003, p. 27). The ePortfolio, when used as a program assessment tool for curricular review and redesign contributes to Biggs' idea of constructive alignment. Adding the crucial two additional steps (see Figure 2) to the ePortfolio traditional process may create efficiencies in program assessment plans and afford a metric for tracking program changes and impact.

Components of Graduate Program ePortfolio (Steps 1-3)

Students in the Master of Science speech-language pathology (MS SLP) graduate program provided evidence of meeting state and national standards as well as program requirements to be eligible for graduation and certification. The MS SLP ePortfolio encompassed both formative and summative assignments over the course of a five-semester full-time clinical training program and students were advised to identify their "best work" as representative of meeting all requirements for entry-level professional practice. The scope of practice for speech-language pathologists included five professional

practice domains (i.e., advocacy and outreach, supervision, education, administration/leadership, and research) and eight service delivery domains (i.e., collaboration, counseling, prevention and wellness, screening, assessment, treatment, modalities, technology and instrumentation, and population and systems; American Speech-Language-Hearing Association, 2016). Students were provided with a list of suggested artifacts that could be used to meet program requirements and professional standards; however, the academic program did not dictate artifact selection.

Formative Assignments

The MS SLP program ePortfolio consisted of two sections with supporting components that included: a) an *approach to clinical practice*, which was a written narrative students revised each semester that captured how they used knowledge of relevant theory, key research findings, and effective evidence-based practices (i.e., client/caregiver perspective, internal/external evidence, and clinical expertise/expert opinion) to make decisions as an interventionist and b) a collection of artifacts that represented the student identified "best work" accompanied by reflections explicitly indicating state and national standards met by completing the artifact. Consistent with the best practices for ePortfolio design and implementation outlined by Parkes and colleagues (2013), MS SLP students *collected* academic and clinical artifacts*, selected* their highest quality work to showcase attainment of each of the professional standards*, reflected* meaningfully on their experiences in a written submission*,* and *connected* artifacts to their professional identity as a speech-language pathologist.

Summative Assignments

At the conclusion of the five-semester graduate program, MS SLP students completed the summative component of the ePortfolio by completing an oral presentation on their approach to clinical practice. Students were provided with a scoring rubric that outlined three key aspects which included: a) their approach to clinical practice and integration of relevant theory and research, b) evolution of their approach to clinical practice noting relevant academic and clinical examples, and c) use of professional discourse consistent with the profession of speech-language pathology.

Purpose of This Research

Program level assessment is a requirement in academic programs within higher education settings and may be completed by just a few people within a department. This task might be viewed as "service" to the program with little time afforded to complete this necessary task. Many academic programs require a cumulative project such as the ePortfolio to demonstrate student learning. Not using already existing data seems like a missed opportunity. Further, the existing ePortfolio data, when analyzed in a continuous way by adding two additional steps to the traditional process (See Figure 2.), provided insight and another level of depth into the ePortfolio process that was not present previously and demonstrated a potential opportunity for constructive alignment across all required components (Biggs, 2003). The case study model presented attempted to answer the question: "How can an academic program use existing ePortfolios to inform curriculum review and redesign?"

Program Analytic ePortfolio Process (Step 4)

A descriptive concurrent mixed methods study using secondary data was conducted. Quantitative and qualitative data were gathered, and each student cohort was analyzed separately. Quantitative data on the most frequently used artifacts and the artifacts that captured the most standards was gathered. An inductive approach to qualitative content analysis was used to capture data woven within each artifact reflection. Finally, artifacts were organized into groups using Bloom's Taxonomy to determine cognitive process dimensions of graduate level artifacts across the program.

The analysis process described above constitutes step 4 in the Program Analytic ePortfolio Process illustrated in Figure 2. The generalisable elements of step 4 include:

a. quantitative analysis of ePortfolio artifacts,
b. qualitative analysis of ePortfolio reflections, and
c. categorisation of ePortfolio artifacts using Bloom's Taxonomy.

The following text provides a detailed description of how these three elements were executed in the MS SLP program.

Methodology

Participants

A total of 39 ePortfolios across three MS SLP graduate cohorts were examined (2020 *n* = 13; 2021 *n* = 12; 2022 *n* = 14). Inclusion criteria included completion of the ePortfolio and all graduation requirements. All participants (*N* = 39) attained a Master of Science in communication sciences and disorders degree. This research project was granted full approval from the institutional review board (#00010934) to retrospectively analyze the data.

Procedure

The ePortfolios of three MS SLP graduate cohorts were examined retrospectively. Data was collected at the end of each academic year for each cohort of students (i.e., 2020, 2021, and 2022). Artifacts as data are variable, therefore, the process of synthesizing and analyzing data is unique to each study (Wildemuth, 2009). Researchers started accessing ePortfolios for review in the Fall 2021 semester and completed their analysis at the end of the Fall 2022 semester. All ePortfolios were reviewed online.

Quantitatively, individual student selected artifacts were explored to determine the national accreditation and licensure requirements met by completing the artifact. A spreadsheet of data was created which indicated the artifact name, 14 national standards, and 10 state licensure requirements. Each artifact and reflection were reviewed to identify information. Consistent naming conventions across artifact types and cohorts of students was used to ensure accuracy.

Artifact reflections were analysed via content analysis to gather qualitative data. Qualitative content analysis is, "...a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh and Shannon, 2005, p. 1278). Each reflection was read thoroughly to identify initial responses to the key question, "How did completion of this artifact influence your clinical practice as a speech-language pathologist?" Procedures for analysing the responses followed an inductive approach and the data was hand coded. A key advantage of reviewing written artifact reflections as a way of gathering information is being able to capture thoughtful responses, including the unique ideas and language of each individual participant (Creswell, 2009). Responses helped determine themes and were assigned an explicit code. The initial response to each question was coded and frequencies for each theme was reported (Zhang and Wildemuth, 2009).

Finally, unique artifact assignment descriptions (*N* = 68) were analysed for alignment with Bloom's Taxonomy of Cognitive Domains. Bloom's Taxonomy of Cognitive Domains, which was revised in 1956 to include updated terminology, is a measurement tool that facilitates use of common language to describe learning across subjects and grades (Krathwohl, 2002).

Results of ePortfolio Analysis

Quantitative analysis of ePortfolio artifacts revealed that a limited number of artifacts chosen represented ethics (*M* = 1.4 per ePortfolio), policy (*M* = 1.1 per ePortfolio), basic science (*M* = 1.7 per ePortfolio), and research (*M* = 3.2 per ePortfolio). As a comparison, other standards including having knowledge of disorders and differences and knowledge of prevention, evaluation, and treatment had an average of 7.4 and 6.9 artifacts respectively per ePortfolio. Out of the top five artifacts chosen across three cohorts of students, 65% of those artifacts selected as representative of their best work were clinically based. Further, upon review for the artifacts that represented the most standards, 80% of artifacts selected were clinically based. There were no significant differences with students choosing individual projects (54% of all selected artifacts) or group projects (46% of all selected artifacts) as representative of their best work.

Qualitative analysis of ePortfolio artifacts revealed that none of the students in the 2020 cohort highlighted disposition/professional practice skills. Upon review of the following two cohorts, there was a significant increase in the number of mentions of dispositional and professional growth in both 2021 (*N* = 17) and 2022 (*N* = 24). Diversity, equity, and inclusion did not emerge as a theme for any of the cohorts reviewed.

The Bloom's Taxonomy categorization of the unique artifacts (*N* = 68) revealed that 46% of all selected artifacts chosen by students as representative of their best work fell into the two lowest cognitive domain categories (i.e., *remember* and *understand*) while only 28% of all selected artifacts fell into the two highest categories (i.e., *create* and *evaluate)*.

Program Curriculum Redesign for Improvement (Step 5)

The review and curriculum change process constitutes step 5 in the Program Analytic ePortfolio Process illustrated in Figure 2. The generalisable elements of step 5 include:

a. identifying program goals/outcomes,
b. determining alignment of ePortfolio analysis with program goals/outcomes, and
c. implementing curricular changes for the areas of misalignment. The following text provides a detailed description of how these three elements were executed in the MS SLP program.

Methodology

Participants

Discussions about program goals, ePortfolio analysis results, and changes in areas of misalignment included all MS SLP program members (one tenured faculty, three untenured faculty, two instructional staff, and one non-instructional staff).

Procedure

Faculty gathered for a meeting at the end of each academic year. The meeting included collaborative faculty assessment of the individual student ePortfolio summative assignment using the program rubric. This individual assessment of student ePortfolios aligned with step 3 in the traditional ePortfolio process. However, the discussion continued after the individual student assessment. Faculty debriefed the ePortfolio process from a program-level perspective and derived unique goals and outcomes. During a collaborative reflection of the students' ePortfolio, faculty used quantitative, qualitative, and Bloom's Taxonomy ePortfolio data (from step 4) to objectively determine whether the ePortfolio content was congruent with program goals. Curricular actions were developed for areas of misalignment to support program improvement.

Results of Program Review & Redesign

Program goals were derived from faculty discussions based on two core ideas: a) faculty are responsible for deciding the overall curriculum, and b) the Council on Academic Accreditation (CAA), which accredits speech-language pathology graduate programs, ensured that the academic and clinical experiences embedded throughout the program prepared students for professional practice. Program goals were further divided into six statements:

a. value variety and redundancy of experiences to facilitate knowledge, skills, and competency in scope of practice,
b. value employers in the region by not only focusing on scope of practice but also developing students' ability to work collaboratively with colleagues, clients, and caregivers,
c. value student readiness to engage with individuals from diverse cultural and linguistic backgrounds,
d. value strong foundation in ethical decision making and research foundations for evidence-based practice,
e. value hands on clinical experiences that reinforce, integrate, and apply academic coursework, and
f. value facilitation of higher cognitive domains as students.

Out of the six outcomes of the student artifact analysis (See Table 1), one was aligned with program goals. Data captured in Table 1. demonstrated how ePortfolio analysis provided an objective framework to inform curriculum review and redesign. All six outcomes were discussed by program faculty at various points in the three-year data analysis process and the five outcomes with misalignment resulted in program actions.

Table 1. Comparison of student data with program goals and associated program actions.

Student Data	Program Goal(s)	Alignment	Program Action
Highest number of artifacts utilised to represent prevention, evaluation, and treatment of disorders.	Value variety and redundancy of experiences to facilitate knowledge, skills, and competency in scope of practice.	Aligned	Program continues to provide a variety of opportunities for students to address prevention, evaluation, and treatment standards.
Disposition did not emerge as a theme in initial cohort artifact review.	Value employers in the region by not only focusing on scope of practice but also developing students' ability to work collaboratively with colleagues, clients, and caregivers.	Misaligned	Program needs to explicitly support professional disposition skill development and reflection throughout the program. ● Improvement: Created dispositional resource online module for use throughout program. ● Improvement: Created a mandatory disposition artifact.
Diversity, equity, and inclusion did not emerge as themes.	Value student readiness to engage with individuals from diverse cultural and linguistic backgrounds	Misaligned	Program needs to overtly emphasize the importance of cultural competence and the necessary interaction, self-reflection, and growth. ● Improvement: Created diversity resource online module for use throughout program. ● Improvement: Created mandatory DEI artifact guidelines.
Few artifacts utilized to represent ethics, policy, basic science and research.	Value strong foundation in ethical decision making and research foundations for evidence-based practice.	Misaligned	Program needs to be more explicit and redundant with experiences related to ethics and research foundations. ● Improvement: Created research foundations online module for use throughout program. ● Improvement: Created and revised assignments to highlight ethical decision-making process and research foundation content.
Students chose more experiential or clinically based artifacts to meet standards.	Value hands on clinical experiences that reinforce, integrate, and apply academic coursework.	Misaligned	Program needs to develop experiential learning opportunities in courses to enhance the perceived value and relevance of courses to clinical practice. ● Improvement: Created/revised course- based experiences, such as simulations, role play, and outreach, to facilitate experiential learning. ● Improvement: Reviewed methods of assessment in courses and identified key assignments.
46% of all chosen artifacts were in the two lowest cognitive domains.	Value facilitation of higher cognitive domains as students	Misaligned	Explore strategies to support higher level thinking skills across the curriculum.

Disposition

The decision to integrate an artifact focused on disposition was based on a significant finding during the analytic assessment process. First, analysis of the qualitative data in response to the question, "How does this artifact influence clinical practice?" revealed that none of the students in the 2020 cohort highlighted disposition/professional practice skills. This data point was of interest to the faculty in the program as professionalism and appropriate disposition skills are essential for clinical practice. Further, employers seek recent graduates who demonstrate appropriate problem-solving and communication skills (Lynam and Cachia, 2018). As a result of the qualitative data, the MS SLP graduate program developed a disposition artifact that was consistent with state and national standards. The disposition artifact asked students to reflect on attainment of dispositional skills consistent with professional practice over the course of the five-semester graduate program including specific examples where the skill was *developing* and then *effective.* This is now a required component of the MS SLP ePortfolio with established guidelines that is revisited throughout the program. Further, the program provided resources such as online modules focused on growth-mindset, communication styles, and conflict resolution to support student development.

Diversity, Equity, Inclusion

The quantitative and qualitative data suggested that diversity, equity, inclusion (DEI) did not emerge as a strong theme from the student perspective. This finding was not consistent with the mission of the program, college, or university. Further, the accrediting body reinforces the need to develop culturally responsive clinicians. Therefore, the program implemented two changes: a) the program created a diversity resource module housed in the campus learning management system so that students could access materials and resources for use throughout the program, and b) the program developed a mandatory DEI artifact for the ePortfolio. Students were required to identify two artifacts, one from an academic course and one from a clinical experience, which demonstrated evidence of cultural competence. Further, students completed an associated reflection that highlighted the importance of cultural competence and identified how the artifact served as evidence of growth. This artifact was implemented for the recent cohort, and the current analytic ePortfolio process will help the program determine if the program changes were successful.

Research Methods

The students' inclusion of a limited number of artifacts representing ethics, policy, basic science, and research was not consistent with the program's goal of preparing students with a strong knowledge base in ethical decision making and research foundations. Further, the concept of evidence-based practice is foundational to the profession. According to Finn (2011), students need to be taught how to evaluate evidence, have an awareness of biases, and understand how to apply information to clinical practice. Without education and intentional training on the topic of research methods, students may not develop the necessary skills to think critically about the evidence. As a result of these findings, the program decided to be more intentional, explicit, and redundant with experiences related to ethics and research foundations. Faculty created a research foundations module for students to use throughout the program. Further, faculty co-created assignments that highlighted ethical decision making and foundational research content. Finally, consistent integration of content with assignments each semester and a shared message of importance was emphasized across all faculty in the program.

Types of Experiences

Upon review of the data, it was evident that students chose more clinically based assignments as representative of their best work compared to assignments completed as part of their academic courses. This finding was misaligned with the program goal of using experiential learning that reinforced or applied

academic content. Faculty in the MS SLP graduate program felt that academic and clinical experiences were equally important. Lyman and Cachia (2018) had a similar finding and suggested that students chose assignments that they felt built upon their skillset. As a result of this finding, the program discussed developing even more opportunities for experiential learning, including simulations, role-play, and outreach experiences, to further enhance students' perceived value and relevance of academic content to clinical practice. Finally, the program reviewed individual course methods and identified key assignments for each academic course for greater transparency and intentionality across academic experiences.

Bloom's Taxonomy

Finally, many of the artifacts chosen by students as representative of their best work fell into the two lowest cognitive domain categories (i.e., *remember* and *understand*). This finding was not consistent with the program goal of ensuring students were deep, critical thinkers. Further, Finn (2011) discussed the importance of intentional integration of critical thinking opportunities for students to develop necessary skills for the profession. As a result of this finding, several faculty members within the program set a goal of aiming for higher cognitive domains as students move through the program and are going to explore strategies to integrate higher level thinking skills into the curriculum.

Discussion

There is a strong desire for the identification of new, meaningful, and continuous processes for ePortfolio use. The ePortfolio as an existing data set certainly assesses student learning outcomes, however, by using the data in a different way, programs can demonstrate effectiveness, provide objective evidence, and promote transparency and efficiency of the program review and curriculum redesign process.

Strengths of Process

Effective Use

The ePortfolio can serve a range of purposes from the student perspective to demonstrate evidence of learning and employability to the faculty perspective for evaluation of student learning and curricular review and redesign. According to Chatham-Carpenter and colleagues (2010), 58% of higher education institution survey respondents reported using the ePortfolio for program review and institutional assessment. Although Richards-Schuster and colleagues (2014) utilized the ePortfolio to assess student learning, they recognized the potential for moving beyond this process and mentioned plans to use the ePortfolio for program assessment and innovative curricular modifications. Faculty can use the ePortfolio longitudinally to determine if students are meeting expectations as an entry level professional and then adjust the curriculum and/or overall program as needed (Cadd, 2012). For example, Lowenthal and colleagues (2011) revised their entire portfolio process to seek national accreditation. During their revision process, they identified processes for evaluating teaching effectiveness based on student performance on specific artifacts. Further, they continued to refine their evaluation tools by comparing scores given by independent raters. They determined that this process would allow them to revise courses and their overall program by using data from the ePortfolio.

Accountability Measures

The ePortfolio can be used to demonstrate the value and effectiveness of teaching and learning to universities and external accreditation bodies (Buente et al., 2015; Lowenthal et al., 2011). The graduate program engaged in a self-study report as part of the university-level audit and review process, which is completed every five years. Assessments were completed across eight criteria with several sub criteria under each standard and evidence of meeting each component must be provided. The ePortfolio was used as evidence for the following selected criteria: a) The program has a process for setting and assessing

goals and making decisions about changes to the program goals, b) The program has a clearly articulated, efficient, and purposeful curriculum, complete with a capstone experience, and c) Program faculty consider assessment data in making changes to the curriculum, students' learning outcomes, and/or other aspects of the program.

The ePortfolio also serves as evidence of meeting national accreditation standards. According to Chatham-Carpenter and colleagues (2010), 53.5% of higher education institution survey respondents reported utilizing the ePortfolio to demonstrate professional standards. The Council on Academic Accreditation (CAA), which establishes standards and promotes quality improvement for speech-language pathology and audiology programs in the United States, identified six standards, each with several sub standards, to evaluate the effectiveness of academic programs. Standard 5.0 specifically addresses program assessment and included regular evaluation of student learning, a process for systematic assessment measures, measures to evaluate the quality of the program for continuous improvement, and implementing changes and determining effectiveness (CAA, 2023). Analyzing the data in a more intentional and meaningful manner provided an opportunity to use already existing data as tangible evidence of student, program-level, and national accreditation initiatives.

Transparency and Efficiency

A transparent ePortfolio process is beneficial for students and faculty. Researchers cite the importance of providing clear, consistent processes for better student engagement in the ePortfolio process (Mueller & Bair, 2018; Richards-Schuster et al., 2014). Best practice recommendations include: a) transparent expectations of ePortfolio process, b) provision of evaluation rubric and grading guidelines, c) guidance on choosing artifacts as evidence of meeting standards, and d) regular check-ins to discuss progress and provide feedback (Mueller & Bair, 2018; Richards-Schuster et al., 2014). The program provided ePortfolio guiding documents early in the program which included a comprehensive description of all required components and maintained regular check-ins with consistent feedback using the same rubric across faculty and semesters. By ensuring transparency of the process for students, faculty laid the foundation early on for the proposed ePortfolio process (See Figure 2.) used for curricular review and redesign.

One of the most significant advantages to implementing an ePortfolio process such as the model presented is ensuring efficiency of program assessment practices. The model presented used existing data in a more analytical way to inform curriculum review and redesign. Faculty engaged in discussions on findings at the end of the academic year and recommendations for the ePortfolio and program development occurred at that time. Observations were summarized and revisions were suggested. A record of these collaborative conversations is maintained in a shared document to ensure transparency for changes and allows the program to track the impact of changes each year.

Limitations

Small Sample

A total of 39 ePortfolios across three graduate cohorts were examined. Inclusion criteria necessitated completion of the ePortfolio and all graduation requirements. Therefore, all ePortfolios that were reviewed belonged to a student who earned a Master of Science in communication sciences and disorders degree ($N = 39$). It may be challenging to draw significant conclusions from a small sample size of students, however, the researchers felt that the rich information gathered from the collection of this data neutralized the drawbacks of a small sample size. Finally, despite small sample size, the impact on the overall ePortfolio process and department was significant for the curricular review and redesign process.

Logistical Constraints

The process required buy-in of internal stakeholders (i.e., students and faculty). The process at times was "front loaded" when implementing changes for the next cohort of students. It required commitment to engage in program assessment meetings, content revisions, and following through on key assignments and check-ins. It required dedicated program time to debrief and formulate majority consensus for changes. The process required a team effort, therefore, to initiate the process required group buy-in and willingness to delegate and share responsibilities. This was most successful when both students and faculty could see the intrinsic and extrinsic benefit of the process and alignment with program goals and efficient use of resources.

Conclusion

The ePortfolio is a program requirement with many benefits. The case study presented an example of how ePortfolio data was used efficiently to inform curricular review and redesign, while at the same time preserving the traditional use of assessing student learning outcomes. The analytic process revealed a systematic method for program review that identified overall program level opportunities to improve knowledge, skills, and dispositions across the program's formative and summative assignments. Adding the analytical program review of ePortfolio artifacts rather than developing an additional program assessment tool, assignment, or survey makes a compelling case for faculty within an academic program to use existing data and provides a level of systematized efficiency. Buy-in may be facilitated due to the "multipurpose" function of the analytic process in achieving student, program, college, university, and accreditation requirements.

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