A Centralized Course e-Portfolio Repository for Fostering Continuous Improvement and Strengthening Teaching Community of Practice in Higher Education

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Abstract

Course portfolios in higher education are much more than a collection of teaching and assessment materials. When created properly, they could provide a clear anatomy of the offered courses depicting the details of the teaching and learning practices in classrooms. Making course portfolios available to other colleagues promotes the best and most effective teaching practices and fosters strong faculty ties with the teaching community. Despite the many advantages of course portfolios, their adoption in higher education is still limited. This paper introduces a case study of the design and deployment of a centralized course portfolio repository at (removed for blind review). The aim of the repository is to promote teaching effectiveness and continuous improvement of offered curricula, while providing faculty with autonomy, flexibility, and data privacy control.

Keywords: Teaching technologies; course portfolio; community of practice; continuous improvement.

1. Introduction

Educating the next generation of students and preparing them for the job market has always been the core business of higher education institutions (HEI). With the emergence of the fourth industrial revolution and the ubiquity of internet technologies and applications, higher education institutions are currently facing several novel challenges such as i) the increasing need for life-long learning; ii) the evolving needs and expectations of students; iii) the emerging technologies and business models; iv) and the transition towards a "skills over degrees" model (Østergaard & Nordlund, 2019). Other major challenges include global competition, the increasing social and geographical diversity of the student body, and the reduction in state and federal funding. A study by IBM's Institute for Business Value found that only 43% of surveyed industry and

academic leaders believed higher education equipped students with necessary job market skills, and only 41% thought it met industry needs (Morrison, 2015).

Therefore, there is currently considerable pressure from governments and academic accreditation agencies on HEI to improve the effectiveness of their teaching practices to overcome the above challenges and shortcomings. Measuring teaching effectiveness in higher education environments, however, is not as easy as measuring research and service effectiveness. Evidence of research and service activities are usually publicly available, which make them easier to locate and evaluate. Teaching activities, on the other hand, take place behind closed doors, where only students and faculty are usually involved. Hence, many universities rely on tools such as student evaluation of teaching, peer evaluation of teaching, and course portfolios to collect evidence regarding the effectiveness of the teaching process (Aylett & Gregory, 1996; Buckridge, 2008; Cerbin, 1994; De Rijdt et al., 2006; Melland & Volden, 1996). Other evaluation tools such as achievement of learning outcomes, teaching related publications, and teaching awards are also mentioned in literature (Berk, 2005).

Out of these tools, course portfolios stand out for their potential to improve teaching and learning processes. They serve as quality assurance tools, allowing faculty to reflect on pedagogies, analyze learning outcomes, and provide recommendations for continuous improvement. Their ability to document and share teaching experience and provide details on the best practices to implement in classrooms makes them an excellent tool for strengthening the ties of faculty to the teaching community of practice (CoP).

Despite these benefits, creating comprehensive course portfolios is not widespread due to a lack of understanding, awareness of their potential benefits (Swart, 2018), or perceived time commitment. A study by Griffith University (Buckridge, 2008) emphasized the need for institutional commitment to the scholarship of teaching to encourage portfolio development.

This paper introduces a case study of the design and deployment of a centralized course e-portfolio repository at (removed for blind review). The aim of the repository is to foster teaching effectiveness and continuous improvement of offered curricula. The repository is deployed online, which facilitates the sharing of e-portfolios within a department, across the campus, and externally (with accreditation agencies) if needed. It also strengthens the teaching community of practice, as faculty can easily share their developed e-portfolios for peer feedback, evaluation, and recognition. The paper discusses the repository's structure and the flexible access permission scheme that was adopted to provide faculty with full autonomy of their e-portfolios, while satisfying the requirements of national and international accreditation agencies.

2. Course Portfolios

A fundamental question that is facing all professions is how to generate, exchange, and build on existing knowledge to enhance their respective practices. In higher education, course portfolios

have been utilized for several years to assess student learning and enhance teaching practices. They provide faculty with as effective way to showcase their instructional strategies, teaching philosophy, and course objectives (Barton & Collins, 1997). They can also be used to reflect on instructional practices, identify areas of strength and weakness, and make informed changes to the course materials. Research has shown that course portfolios are effective in promoting reflection on teaching practices and improving faculty member self-awareness (Klenowski et al., 2006). Faculty who create course portfolios have a better chance to evaluate the effectiveness of their teaching strategies and identify areas for improvement.

Pat Hatchings studied how course portfolios could help faculty investigate and document what they know and practice as teachers in ways that will contribute to the improvement of student learning (Hutchings, 1998). He defined course portfolio as the collection of teaching, assessment materials, and artifacts that focus on the unfolding of a single course, from conception to results. William Cerbin described the course portfolio as a scholarly manuscript, which focuses on how both teaching and learning occur in a specific course (Cerbin, 1994). Edgerton et al. (1995) also defined course portfolios as "a coherent set of materials, including work samples and reflective commentary on them, compiled by a faculty member to inquire into and represent his or her teaching practices as related to student learning and development".

2.1. Benefits of Course Portfolios

Several benefits could arise from the implementation of course portfolios including using them as a formative tool to enhance the faculty teaching competencies and facilitate the attainment of CLOs. They streamline the documentation of the most effective teaching techniques identified by faculty and highlight the discovered deficiencies and the major challenges that affect the teaching and learning processes. By doing so, faculty can share their knowledge with colleagues and promote the adoption of best practices across the institution.

Having an up-to-date course portfolio gives faculty more time to focus on innovating their teaching techniques and considering curriculum revisions. They could also share their course portfolios with others for discussion, feedback, formal review, as well as gaining peer recognition of teaching excellence.

Sharing course portfolios could provide a head start to new faculty and enable others teaching the same course to continue the improvement cycle and to build on what has been accomplished by their colleagues. De Rijdt et al. (2006) reported that using course portfolios stimulates faculty to reflect on their own teaching, actualize the learning content, improve their course materials, and search for alternative educational methods.

Course portfolios could also be used as a summative tool to document teaching effectiveness for promotion, tenure, and accreditation decisions. Scrutinizing the quality of the course portfolios is a standard practice in many national and international accreditation visits. This is

mainly because the time an accreditation team spends on campus during the accreditation visit is limited. Hence, the team relies mostly on the provided course portfolios to assess the quality of the offered curriculum.

3. Case Study: Developing Course E-Portfolio Repository

Developing course portfolios has always been an integral part of the academic culture of United Arab Emirates University. Prior to 2014, course portfolios were managed locally at the department level. Departments seeking international professional accreditation (e.g., ABET, and AACSB, etc.) mandated that faculty create a paper-based portfolio for each offered course and submit them to the department office by the end of each semester. Other departments requested faculty to create and submit course portfolios for evaluation purposes when annual evaluation, contract renewal, or promotion consideration is due.

While preparing for initial ABET accreditation for the BSc in Information Technology program, an initiative was launched in Fall 2009 to substitute the paper-based portfolios with their e-portfolios counterpart. Subsequently, in 2013, the university administration decided to pursue multiple institutional and programmatic accreditations from national and international accrediting bodies. Consequently, having up-to-date course portfolios for all courses offered by the university became a necessity.

However, creating a course portfolio for the first time could be an overwhelming task for many faculty members. They often lack the knowledge about where to begin and what artifacts to include. Consequently, providing faculty members with no guidance would result in inconsistent portfolio structures that might overlook critical content. Therefore, to ensure consistency, a comprehensive e-portfolio manual was drafted and made available on the University's Intranet. The manual stipulates the course portfolio directory structure and specifies the artifacts that must be included in each folder, along with their file naming convention. Despite the predefined directory structure, faculty retain complete independence in terms of the content they incorporate into their portfolios.

Implementing a stipulated directory structure for faculty portfolios brings about several advantages:

- Provide a head start and clarity: Faculty members are given a clear starting point and guidance on what specific items to include in their portfolios.
- Serve as a quality assurance mechanism. By specifying the files and artifacts that must be included in each folder, it helps ensure that the portfolios are comprehensive and meet the required standards.
- Streamline review and quality assurance processes,
- Ensure compliance with accreditation requirements.

3.1. E-Portfolio Directory Structure and Content

In order to meet the criteria defined by various accreditation agencies, it is essential for the e-portfolio directory structure to include comprehensive information about each course offering. This content should clearly demonstrate the range of teaching activities and provide evidence of the achievement of Course Learning Outcomes (CLOs). However, to minimize the time and effort involved in creating and updating the course e-portfolio, the e-portfolio structure is divided into two primary folders, categorized based on the frequency of updates they require as shown in Fig. 1.

3.1.1. Syllabus and Teaching Materials

The folder titled "Syllabus and Teaching Materials" contains subfolders dedicated to storing various components essential for the course. These components include the course syllabus, lecture notes, handouts, lab instructions, lab manuals, videos, links to forum discussions and blogs, recommended readings, and online materials. It may also include any other teaching materials developed or adopted by the faculty member.

The teaching materials typically remain consistent from one semester to another, eliminating the need to save new copies each time the course is offered. Instead, faculty members are required to initially store a complete copy of the teaching material during the creation of the course portfolio. As these materials evolve over time, the stored versions are revised to reflect the latest updates and changes. The objective is to maintain only the most up-to-date version of the teaching material in the course portfolio, ensuring its accuracy and relevance.

The "Syllabus" subfolder stores all revisions of the course syllabus to track the significant enhancements aimed at improving the students' learning experience. This organization of the "Syllabus and Teaching Materials" folder, with its subfolders and revision tracking, facilitates effective management and documentation of the course materials. It ensures that faculty members have access to the most current and accurate teaching materials while also preserving a record of the evolution and improvements made to the course syllabus. This systematic approach supports continuous enhancement and refinement of the teaching materials, contributing to an improved learning experience for students.

3.1.2. Assessment Instructions & Reports

In contrast to the "Syllabus and Teaching Materials" folder, which is updated when needed to incorporate course improvements, the "Assessment Instruments & Reports" folder is updated regularly each semester the course is offered. A new folder is created for each offered section to store copies of all the assessment tools utilized throughout the semester such as assignments, quizzes, exams, projects, lab reports, and other evaluation materials. Moreover, the folder also includes other important components such as the model answer or solution, the marking scheme

or grading rubric used for evaluating the assessments, and samples of graded students' work, usually representing various performance levels (e.g., A, B, C, and D grades).

Creating a new folder for each offered section facilitates the organization and accessibility of assessment materials. It also allows faculty members and relevant stakeholders to easily locate and retrieve the needed assessment artifact. This systematic approach streamlines the assessment process and ensures consistency and transparency in evaluating student performance across different sections of the course.

3.2. Centralized Online Repository

Despite the numerous advantages of course e-portfolios, storing them locally on individual computers limits their effectiveness. To overcome this limitation, the second phase of the project established an online central repository for maintaining the created e-portfolios for all courses offered by the University. The structure of this online repository is outlined in Figure 1. Having a centralized repository is crucial for promoting collaboration between departments and facilitating the development of multidisciplinary programs. It also simplifies academic quality assurance and provides convenient access to e-portfolios during accreditation visits. However, transitioning course portfolios to an online platform introduces concerns regarding data security and privacy, especially for sensitive files such as final exams and SET reports.

To ease the concerns regarding the security and privacy of the online e-portfolios, the management of e-portfolio directories is decentralized at the department level. Each academic department has full control over its own folder within the repository and is expected to adopt the directory structure depicted in figure 1. To facilitate effective management of e-portfolios at the department level, a repository lead is appointed by each department. The repository lead is
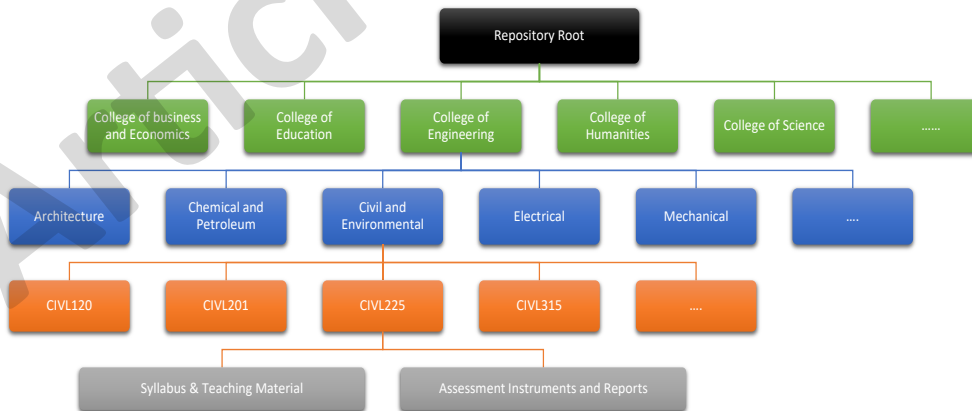
Fig.1. Centralized Online Repository Structure.

granted comprehensive access permissions for the department's folder, including initiating the creation of the department's repository structure and providing faculty with appropriate permissions to upload and update their course e-portfolios. Additionally, the lead is responsible for enforcing the access permission scheme approved by the department.

4. Conclusions

Since the deployment of the centralized repository in fall 2014, its size has grown to more than 300 GB, and it currently hosts e-portfolios for more than 3000 courses. The e-portfolio repository has significantly contributed to the successful accreditation of more than 100 graduate and undergraduate programs. Having the repository available online allowed academic programs to easily share their course portfolios with review teams even before the start of the accreditation visit. This was also instrumental during COVID 19 pandemic, as all the university accreditation visits were administered online.

The latest collected statistics indicate that 8026 remedial actions have been created by faculty so far. Out of these recommendations, 2929 are already implemented and closed, 602 have been implemented but not closed yet, 698 actions in progress, while the remaining are still pending. Out of the closed action items, 933 actions had positive impact on students' performance.

One of the key factors that contributed to the success of the project was the strong support received from the administration. Their commitment and willingness to revise existing policies and procedures played a pivotal role in promoting the adoption of the new repository.

Involving faculty members from the project's early stages was crucial. By integrating them into decision-making and facilitating open discussions, the project addressed concerns effectively. Faculty apprehensions, such as perceived maintenance overhead and technical literacy challenges, were considered during design and implementation, resulting in user-friendly features. While emphasizing academic freedom and data privacy further garnered faculty support. The repository aimed not to restrict autonomy but to serve as a platform for showcasing teaching effectiveness. To incentivize adoption, evaluation criteria for promotions and contract renewals were adjusted to consider the completeness and quality of e-portfolios. This linkage directly tied the use of course portfolios to faculty career advancement.

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