

Faculty Doing More with Less: A Technology Initiative Realized Through a Structured Process

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ABSTRACT

Introduction: Many barriers exist when implementing new educational technologies. Some institutions without specialty support staff or offices may struggle with the necessary steps. In a climate that increasingly asks faculty to do more with less, empowering faculty-driven processes may prove important.

Innovation: When the need for an academic electronic health record (EHR) was identified, a faculty champion followed a structured approach to research available options, garner faculty interest, bring forth a proposal to the administration, implement the academic EHR technology, and perform continuous quality improvement thereby paving the pathway for future faculty-led initiatives.

Findings: A single faculty member followed a structured approach that could be carried out by others to bring meaningful academic technology to multiple programs. This process was subsequently successfully used by another faculty member and the technology implemented was well-received by administration, faculty, and students.

Conclusion: Despite few resources to support or compel technological adaptation or change, faculty can follow steps to introduce these projects and moreover, spark a cultural shift and momentum to embolden faculty to follow a process to bring forth change or initiatives in the future.

Keywords: technology acceptance, technology implementation, faculty-led initiatives

Introduction

The decision to implement new educational technology can be daunting, expensive, and resource-intensive. Many educational technologies exist, and more are being developed to meet ever-changing instructional and assessment needs. It is challenging to choose a tool that fits institutional needs and decide the best way to implement the technology. This process is complicated further when faculty members have limited or no support from educational technology specialists or other support offices. This situation is an impetus for faculty to do more with less.

With limited time, personnel, or expertise, the barriers to bringing forward new technology may seem insurmountable. Technology adoption literature suggests that perception of institutional support is among the most significant factors impacting ultimate technology adoption.¹ Additionally, without a formalized process through which to recommend, evaluate, acquire, or implement an educational initiative, the process may be intimidating to faculty or staff, poorly received by students, and difficult to bring to successful fruition.

A faculty member in a small, private college of pharmacy and health sciences identified a need for academic electronic health record (EHR) technology in the didactic pharmacy curriculum.

As with many small institutions, there was no formal teaching and learning center to aid in implementing novel technologies. Additionally, there was not an existing mechanism to assist with the acquisition and integration of new technology. Processes exist for technology assessment, integration, and evaluation, but no agreed-upon standard is available for incorporating an academic EHR. A structured approach was taken to research available options, garner faculty interest, bring a proposal forward to the administration, implement the EHR technology, and perform continuous quality improvement. Steps included: 1. Problem identification and landscape surveillance, 2. Key stakeholder support and data gathering, 3. Institutional support expansion, 4. Proposal creation and submission, 5. Preparation and implementation, and 6. Continuous quality improvement.

Description of the Innovation

Step 1: Problem identification and landscape surveillance

Students previously had access to a free version of an academic EHR, which was due to sunset. At the time, this technology was in its beginning stages of use primarily in one patient care lab course within the pharmacy program. Based on pharmacy accreditation standards,² core entrustable professional activities for pharmacy graduates,³ pharmacy educational outcomes,⁴ overwhelmingly positive student perceptions of using the current academic EHR in patient care lab,⁵ and literature supporting the use of EHRs in didactic pharmacy education,⁶⁻¹² a faculty stakeholder knew that another academic EHR would be needed to replace the old one. A concurrent culture shift within the college was also in its beginning stages. New leadership had made it clear that faculty would be empowered to own the curriculum, changing the mindset from a top-down administrative-led approach to a

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faculty-driven method. Faculty maturing in their professional development embraced this culture and felt empowered to pursue changes. Without a formal teaching and learning department or designated staff, the work to bring a new EHR became a faculty-driven campaign.

Step 2: Key stakeholder support and data gathering

Initially, the faculty champion brought the issue to the pharmacy program's laboratory course coordinators group whose members would be key stakeholders in the EHR integration effort. The group researched and evaluated available academic EHR options, identifying three potential candidates. One was eliminated initially due to its less robust capabilities. They viewed vendor presentations for the remaining programs and compared product capabilities and resource consumption. One program stood out due to its large quantity of prebuilt cases and task capabilities, such as documentation, patient chart review, and order entry. This academic EHR also allowed students to download work for upload into a learning management system to facilitate faculty review. In addition, the ability to use the EHR interprofessionally was of interest to the group. Consensus on the chosen product was reached and prior to submitting a formal proposal, the group discussed with administration incorporating the cost into existing student fees. Leadership was not in support of this approach and requested additional justification for alternative funding methods given the substantial cost.

Step 3: Institutional support expansion

To expand the perceived value of the product, several steps were taken. All faculty were invited to a product demonstration to showcase capabilities and answer questions. Then, faculty were surveyed to determine courses interested in utilizing an academic EHR and the capacity in which it would be used. Course coordinators of a variety of core and elective classes expressed interest. Most stated the ability to review patient cases, perform documentation (SOAP note, medication therapy management, pharmacokinetic dosing notes), and simulate medication reconciliation were the portions that would be useful. It was important to determine and document how extensively it would be used in the curriculum to further justify cost, payment structure, and ultimate roll-out. This step also helped to foster faculty buy-in and support.

Step 4: Proposal creation and submission

Next, a formal proposal for administration was drafted requesting funding for the EHR platform. This proposal included the statement of need with supporting information and goals and objectives for the academic EHR within the pharmacy curriculum. There was also information included from the full faculty survey about courses interested in using the EHR in each year of the didactic curriculum and anticipated use. A projected timeline of incorporation was provided, as well as cost breakdown for subscription options. The initial proposal requested use of the EHR within the entire didactic curriculum, but cost necessitated a discussion about what courses would

have the largest return on this investment. Ultimately, the administration approved a subscription package that supported the use of the academic EHR in many of the requested courses. It was determined that the college would pay for the subscription without passing fees to students.

Step 5: Preparation and implementation

Following administrative approval, formal planning began related to implementation. A work group of faculty course coordinators who would utilize the academic EHR met monthly to discuss academic EHR use and plan for proactive evaluation of the product. Several efforts were made to ensure implementation was as seamless as possible. The faculty worked with technology support staff of the new EHR to create patient note templates that would suit the needs of courses. The pharmacy program also updated its existing standardized lab value document to align with the values in the new EHR to promote consistency. A data collection form was developed to track the use of the academic EHR throughout the curriculum, which incorporated many data points of interest to the curriculum committee, department chairs, and the executive leadership. The form collected information about each EHR activity, including elements such as therapeutic topics addressed,¹³ steps in the Pharmacist's Patient Care Process captured, programmatic outcomes addressed, interprofessional education, self-care, complementary and alternative medicine components, types of student deliverables, and type of activities performed (pharmacokinetic consult, counseling, error/omission, order processing, etc.). Additionally, a pre-and post-survey were created to administer to student users of the academic EHR to collect information beyond what would be expected in typical course evaluations. Faculty training was completed on a course-by-course basis. Student training on the academic EHR was created.

From conception to first use within the classroom, planning took approximately two years. Need identification to formal proposal approval took about one year. Planning for implementation took ten months. Timelines would vary based on the scale of projects.

Step 6: Continuous quality improvement

Once the EHR was being used in the didactic setting, the workgroup met monthly to discuss successes and difficulties. Though students were not prospectively involved in the initial academic EHR search process, student feedback was sought via committee involvement and evaluations. To evaluate the EHR's effectiveness the committee implemented the Kirkpatrick Model of Evaluation.¹⁴ The survey mentioned in Step 5 was distributed to students to gather reactions. Surveys and course feedback related to the EHR were reviewed regularly and utilized to improve the experience.

One example of quality improvement was the modification of the student orientation to the EHR to a gamified format that students found more engaging. The group identified additional courses that could benefit from using the academic EHR and

sought areas of scholarship related to the work. Data gained from faculty pre-implementation and student surveys were reviewed to guide expansion and integration into the curriculum. The use of the academic EHR was expanded to the Master of Science in Physician Assistant program located on the same campus. Initially, this program was utilizing the academic EHR for documentation during clinical experiences; however, didactic successes in the PharmD program stimulated further discussion of utility in the physician assistant program. The physician assistant colleagues were incorporated into the work group, which encouraged more robust EHR integration into the classroom, including as a tool in interprofessional events.

Critical Analysis

The Technological Pedagogical Content Knowledge (TPACK) model suggests that educational technology can only be properly implemented if it aligns with the pedagogy, content knowledge, and the workplace context of the educator who will be deploying it.¹⁵ This requires thoughtful reflection on how and what it is being taught, and a deep understanding of the culture of the workspace. A faculty member is an ideal candidate to provide insights into these key areas. In this case, a faculty member not only provided insights but used their position to champion the use of new technology across multiple courses and programs within the college. While this is an accomplishment, it may not have been considered innovative unless a process was left for others to follow.

Recently, a faculty member came across an educational technology that they wanted to implement with students across multiple courses. Because of the EHR implementation success, there was now a clear plan to follow. The college recognized that the faculty member was in a uniquely qualified position to determine the appropriateness of the technology. Further research was conducted, relevant faculty involved, a proposal was brought to administration, and quality improvement measures were put into place. Although this educational technology was open-source and without cost, the idea of an individual driving the change was no longer new or subject to perceived barriers. The initial faculty member's clear steps and previous success paved the way for an additional faculty member to bring on educational technology.

Empowering individual faculty members to champion a technology may also encourage others to accept the technology. One core construct of the Innovation Diffusion Theory (IDT) model is 'compatibility', which Moore and Benbasat defined in 1991 as "the degree to which an innovation is perceived as being consistent with existing values, needs, and past experiences of potential adopters."¹⁶ A faculty member who works closely with future adopters is uniquely situated to understand their values, needs, and past experiences.

Additionally, this process may motivate other faculty members to bring on their own educational technology. Another core construct of the IDT model is 'image,' defined as, "the degree to which use of an innovation is perceived to enhance one's

image of status in one's social system."¹⁶ Fortunately, the college celebrated the success of this innovative faculty member. It was made clear that bringing on new educational technology is feasible when approached in a systematic manner.

Utilizing this structured approach is not without limitations. A champion is necessary to ensure continual forward movement and realization of project benchmarks. A reluctant institutional culture may limit the feasibility of large-scale faculty-directed innovations. Organizational change fatigue may lessen faculty acceptance of new technology.¹⁷ Incongruence between curricular or administrative priorities may cause challenges. Awareness of concurrent technology initiatives must be practiced to determine the practicality and balance limited resources. Additionally, not every project has a long lead time, and pieces of the process may need to be performed within tight timelines.

Next Steps

Next steps related to this innovation include encouraging others to take a structured approach when integrating new technology. This is especially applicable for smaller institutions with limited resources. Situations that may benefit could be incorporating technology-based active learning strategies or integrating a new learning management system. Using such an approach helps to ensure resources are maximized, users are satisfied, and potential problems are addressed. As faculty are increasingly asked to do more with less, individual successes create momentum for future faculty-led initiatives.

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