Increasing Faculty Efficacy with Targeted Preparation for Teaching Online: A Case Study

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Abstract

College and university professors typically earn a Ph.D. in the subject in which they teach. Yet, many higher education professors have not been taught the pedagogical practices necessary to be successful in the classroom (Boeher & Sarkisian, 1985; Cahn, 1978; Cook, 1965; Ehrlich & Fu, 2013; Mertz & McNeely, 1990; Trautmann, 2008), much less an online classroom (Marx, Garcia, Butterfield, Kappen, and Baldwin, 2016; Jepsen, Varhegyi, and Edwards, 2012; McCoy and Milkman, 2010; McQuiggan, 2007; Varvel, 2007). The purpose of this case study was to examine instructor efficacy after completion of a university-specific online professional development program incorporating both pedagogical and technological best practices, using the TPACK framework. While the online professional development program is applicable to and may be used for both face-to-face and online instructors, the focus of this case study was in preparing faculty to teach online, and thus data collected is specific to online faculty. Although some constructive criticism was offered, the overall feedback collected from participants of the online professional development program was positive and indicated that all faculty teaching online should have to go through this program.

Introduction

College and university professors typically earn a Ph.D. in the subject in which they teach. Yet, throughout the decades' literature indicates that many higher education professors have not been taught the pedagogical practices necessary to be successful in the classroom. (Boeher & Sarkisian, 1985; Cahn, 1978; Cook, 1965; Ehrlich & Fu, 2013; Mertz & McNeely, 1990; Trautmann, 2008). According to Cahn:

> The crisis in college teaching…results from a failure to recognize the crucial principle that intellectual competence and pedagogic competence are two very different qualities. One cannot be an outstanding teacher without the thorough knowledge of subject matter, but to possess that knowledge does not guarantee the ability to communicate it to a student (1978, ix ¶3).

Likewise, as student demand for online course offerings continues to rise, institutions of higher education are asking those same professors to develop new online courses or to convert current face-to-face courses to an online format (Brinkley-Etzkorn, 2018). However, even a good face-to-face course is not guaranteed to work well in an online format when faculty have not been trained on a proper pedagogical framework. "Good online classes cannot be built by simply converting existing face-to-face courses" (Clark-Ibanez & Scott, 2008, p. 36). Smith, Ferguson, & Caris (2002) suggest that to teach online instructors must change their mindset "from being content providers to facilitators of student learning" (p. 62).

Research shows that many faculty feel insecure about teaching online (Marx, Garcia, Butterfield, Kappen, and Baldwin, 2016; Jepsen, Varhegyi, and Edwards, 2012; McCoy and Milkman, 2010; McQuiggan, 2007; Varvel, 2007). The purpose of this case study was to examine instructor efficacy after completion of a university-specific online professional development program incorporating both pedagogical and technological best practices. The pedagogical piece included an alignment map showing how the learning activities and assessments in a course support the learning objectives. The technological piece included specific training for the technologies an instructor may utilize in an online course. While the online professional development program is applicable to and may be used for both face-to-face and online instructors, the focus of this case study was in preparing faculty to teach online, and thus data collected is specific to online faculty.

Literature Review

Conceptual Framework

This study is designed around the Technological Pedagogical Content Knowledge (TPACK) framework. The emphasis is that content knowledge, pedagogical knowledge, and/or technological knowledge are not effective when used in isolation. An effective course delivery will include a combination of these components, including the specific attributes of these intersections, in particular the Technological Pedagogical Content Knowledge (TPACK) where ALL of the attributes intersect (Koehler, 2012).

content.
Faculty in higher education are expected to be subject-matter experts (SMEs). According to iSixSigma, "SMEs are individuals who exhibit the highest level of expertise in performing a specialized job, task or skill within an organization" (2016, ¶1). A glance at any current job posting for an institution of higher education will show that a Ph.D. in the discipline is required, or at least preferred.

Candidates for higher education positions verify their subject-matter expertise with a college transcript and documented publications in their research area.

pedagogy.
Cook (1965) states that a scholar [who plans to teach] should learn not only the subject matter but also the pedagogy in how the subject matter was taught. Unfortunately, many SMEs do not have the pedagogical knowledge to design a course, especially for online delivery (Davey, Elliott, & Bora, 2019). Ehrlich & Fu stated, "A dirty little secret of higher education is that faculty members at most American colleges and universities have never taken a course on how to teach" (2013, ¶1). According to Harris & Hofer (2009), the first step is for faculty to develop a link (an alignment) between the course objectives, student learning needs, and course learning activities.

technology.
Many SMEs lack the technical expertise needed to teach in an online format (Davey, Elliott, & Bora, 2019). TPACK suggests that technology should be chosen based on the type of learning activity. For instance, an activity requiring students to give a speech would require different technology than an activity asking students to take an objective test. The technology chosen should be carefully selected to meet the needs of the course and the students (The Institute for Higher Education Policy, 2000; Colpaert, 2006). An example of this might include providing virtual web-conferencing software to students who will be asked to deliver a speech/presentation as part of a course assessment or providing access to a discussion forum for students who will be asked to interact with peers as part of a course assessment. When selecting technology tools, it is essential that the tools align with the learning objectives and support assessments, instructional materials, and learning activities. The tools should allow for active learning strategies and offer the students an opportunity to obtain accessible information through multiple modalities (Quality Matters, 2018).

Instructor Efficacy and Effectiveness

Instructor efficacy is described as "when a teacher believes in their own ability to guide their students to success" (The Room 241 Team, 2018, ¶2) Efficacy can fluctuate based on the individual experiences of a faculty member. A negative student evaluation, for example, could reduce efficacy while a positive student evaluation could raise efficacy. Research shows that when instructor efficacy is higher, student achievement is higher (The Room 241 Team, 2018). Gorsky and Blau (2009) suggest that student achievement indicates an effective instructor. So, one could argue that higher efficacy produces instructors that are more effective.

Unfortunately, research shows that many faculty feel insecure about teaching online (Marx, Garcia, Butterfield, Kappen, and Baldwin, 2016; Jepsen, Varhegyi, and Edwards, 2012; McCoy and Milkman, 2010; McQuiggan, 2007; Varvel, 2007). Barak (2007) expands on this insecurity by suggesting faculty who have not been properly trained in using technology to support student learning may not deliver an effective online course. As Davey, et al (2019) suggests, the pedagogical and technological skills needed to develop an online course are different from the pedagogical and technological practices used in developing a face-to-face course. Faculty who have been trained in the pedagogical and technological skills needed to teach online may feel more confident about their ability to attribute to student learning in an online environment (Davey et al, 2019), leading to higher instructor efficacy and a more effective online course.

Preparing Faculty to Teach Online

Research suggests that training faculty how to teach their subject matter is critical for student learning (Davey et al., 2019; Marx et al, 2016; Jepson et al, 2012; Wolf, 2006; The Institute for Higher Education Policy, 2000). Research also supports that faculty teaching online courses are more effective and have higher efficacy when they receive appropriate training and continuous support specific to the online environment (Brinkley-Etzkorn, 2018; The Room 241 Team, 2018; Roman, Kelsey, & Lin, 2010). To prepare faculty to teach online, it is recommended that faculty participate *as online students* in a training program so they may engage in reflective practice (Gibbons and Wentworth, 2001). Seeing a course from the perspective of an online student may help faculty better understand the needs of their future online learners. Additionally, training is more effective when taught using the same technology (LMS and other technologies) that the faculty will use in their own online courses so they can learn how to use it from both the student and faculty perspective (Wolf, 2006).

Padmavathi (2017) suggests that for faculty to use technology in their courses, "they need to be competent in all three domains" (p. 1) of TPACK, including content, pedagogy, and technology. For the purpose of this study, it is assumed that faculty are already competent in content since a Ph.D. in the content area is required for employment. Therefore, this case study focuses solely on providing appropriate pedagogy and technology training to faculty for teaching online. The literature supports using both pedagogy and technology in an online course but suggests that the two be related rather than isolated (Davey et al, 2019; Koehler, 2012; Ertmer & Ottenbreit-Leftwich, 2010; Brinkley-Etzkorn, 2018). As quoted by Comas-Quinn (2011), "…the use of new technologies alone cannot ensure learning without a strong pedagogical rationale and appropriate integration with the course" (p. 219).

Methodology

Design

The purpose of this case study was to examine instructor efficacy after completion of a university-specific online professional development program incorporating both pedagogical and technological best practices. The pedagogical piece included an alignment map showing how the learning activities and assessments in a course support the learning objectives. The technological piece included specific training for the technologies an instructor may utilize in an online course. Those who chose to participant in this online professional development program were entered into an online course with student-level access and participated in all course activities as a student. While the online professional development program is applicable to and may be used for both face-to-face

and online instructors, the focus of this case study was in preparing faculty to teach online, and thus data collected is specific to online faculty.

The online professional development program included three primary modules, as shown in the Course Map in Appendix C: 1) Mapping Your Course, 2) Building Your Course, and 3) Delivering Your Course. A fourth module "Enhancing Your Course" was included as an optional module with advanced formatting and design techniques, but was not required and therefore not included in the study. It was simply added as a bonus for those who wished to move on to more advanced formatting techniques.

module 1: mapping your course.
Module 1 was called "Mapping Your Course" and it began with a lesson on how to write measurable course objectives. This lesson pulled concepts from Bloom's taxonomy, Quality Matters, and a workshop provided by Dr. Karen Tarnoff regarding Assurance of Learning for AACSB (Association to Advance Collegiate Schools of Business accreditation). Participants were asked to pick one course they teach and revise their current course objectives to ensure measurability. They were asked to post their revised course objectives to a discussion forum where all participants then commented on each other's objectives with their views on whether the course objectives were measurable and/or how they could be revised to ensure measurability. Participants followed this exercise by creating module-level objectives for one module in their chosen course and mapping those module-level objectives to the course-level objectives.

The next lesson provided resources explaining the difference between assessments and learning activities (primarily using Quality Matters as a guide), and then asked students to use their one module from the previous lesson to chart the learning activities and the assessments for that module, mapping each of them to the module-level objectives. Participants were asked to finish the module by identifying what specific technologies would be needed to complete each of the learning activities/assessments and then map those technologies to the module-level objectives to ensure the technology was capable of supporting the objectives for that module. By the end of this module, participants had a course map that included one complete module from a current course they teach. Participants had to submit their course map to the LMS and then were assigned to peer review each other's submissions.

module 2: building your course
Module 2 was called "Building Your Course" and it incorporated all of the technologies that faculty and students could be exposed to in an online course. It began with a lesson on how to set up a new course in the LMS, including an overview of the LMS, adjusting course settings, adding a profile picture, adjusting notification preferences, creating a homepage, adding course modules, adding a course syllabus, using the course calendar, and using the LMS across platforms (including mobile devices). After reviewing this material, participants were asked to create a course syllabus and course calendar in their course (directly within the LMS) and submit documentation of it to this course for review.

The next lesson covered various modes of communication available to faculty and students, such as LMS announcements, inbox, chat, and web conference technologies. Participants were asked to discuss what communication technologies they have used in the past along with the pros and cons of each. This was followed by a lesson describing various ways to deliver course content, such as LMS pages, video recordings, file uploads, links to external websites, etc. Accessibility was discussed in this module as an ADA requirement that all instructional content provided to students must be accessible to ensure all students have equal access to material. At this point participants were asked to use the video software provided by our institution to create a Welcome Video for their course.

Now that participants have learned how to set up a course, communicate, and provide instructional content, the module moves on to various types of assessments available to faculty, such as assignment file uploads, discussion forums, peer reviews, quizzes, mastery paths, and group work. They have to take part in a group activity to test out all the various types of tools available and then post their critique of the various assessments. The next lesson discusses how to grade assessments and provide feedback using rubrics and LMS tools. Participants are asked to choose an assignment from their own course and develop a rubric to assess that activity. The module concludes with information on how to protect academic integrity with plagiarism detection tools and online exam proctoring. Participants are asked to take a proctored exam as the final activity in that module.

module 3: delivering your course
Module 3 was called "Delivering Your Course" and it included various best practices in teaching online. Information was provided on active learning, chunking lessons/videos, social presence, student support, and committing to continuous improvement. Participants were asked to draft out a plan for chunking a video lecture series, a plan for active learning, and a plan for incorporating social presence in their own class. Additionally, they were asked to consider what types of support students may need in their class (from technical support, to academic support, etc.). The module ended with a Wiki page asking participants to provide comments.

Participants

Volunteers for this pilot study were solicited from business faculty at a mid-sized regional southeast university during the spring 2020 term. Eleven faculty volunteered to participate as online students during the pilot phase of this training program, however only ten of those completed the exit Wiki page (n=10). Participating faculty included full professors, associate professors, lecturers, and adjuncts. About half of the participants indicated they had less than five years of experience with teaching in higher education, while the other half indicated they had more than ten years of experience teaching in higher education. Experience with teaching online ranged anywhere from zero to more than ten years for those participating. The majority of participants had little to no experience as an online student in their own educational career. See Appendix B for complete descriptive statistics.

Data Collection

Participants were asked to comment on a Wiki Page (anonymously) at the completion of the professional development course to discuss improvements that could be made to the course, as well as the effect the course had on their faculty efficacy regarding technology and pedagogy. Informal feedback was also noted throughout the course via discussions and email interaction.

Limitations

Although some anecdotal generalizations may be assumed, this study is not intended to provide broad generalizations but to study the effectiveness of an online faculty preparation course for the college of business at one institution. The small sample size and population of faculty are limitations of the study and therefore data were more appropriately summarized than analyzed through traditional statistical methods (Sauro, 2013).

Results

Data Summary

mapping a course.
While most faculty already had experience writing course-level objectives, creating assessments, and developing learning activities, at least half of those faculty needed help with making those course-level objectives measurable and choosing appropriate assessments to measure those learning objectives. Additionally, the majority had little to no prior experience in writing module-level objectives and drafting course maps.

Results of the data collected show that after completing this course, faculty efficacy improved to 100% comfortability in mapping a course. Some participant comments are below:

The way this material was presented made what has honestly always seemed overwhelming very digestible.

I loved using actual components and building out the course mapping. I think that the instructions regarding course learning outcomes is something that everyone should be introduced to and understand.

Let me say it was much easier to create the course layout today using what I learned in the class.

building a course.
While most faculty indicated they were already comfortable with the LMS prior to taking the course, the areas in which faculty were primarily uncomfortable were using the LMS Guides for assistance, using the LMS mobile app, and making course content accessible for all students. Facilitating groups online, student peer reviews, and mastery paths were also noted as initial weaknesses among faculty.

Results show that after completing this course, faculty efficacy improved to 100% comfortability in *most* of the components of building a course. Using the mobile app, facilitating peer reviews, and implementing mastery paths are still noted as weaknesses. Some participant comments are below:

I really enjoy the student perspective of going through a well-built course. I am already making notes of things to better organize my Canvas pages that I don't think I would have thought of unless going through as a student.

How you laid out the step-by-step process for building a course will be very helpful as I try to create a new one.

I appreciate how we actually built components of our real course. That makes this process not just be hypothetical, but we are making progress toward our real course. I also feel like the things I learned will help make building the remainder of my course much more straightforward.

I like the design of the course. I learned a lot (especially on some of the technical or operational details). Even though I have taught a variety of courses for the online MBA programs since 2009, I am glad that I've taken this course. I was able to improve my two graduate classes along the way.

I also really liked learning about different tools and technologies that others have used.

The ability to see a course from the perspective of a student was very valuable to me and allowed me to consider my courses from a different point of view. As a result, there are several changes I have made to my course that I hope will benefit my students.

I think one of the most powerful aspects of the course was that we actively participated in a well-designed online course from the perspective of a student. This experience made me think about more than just the content of my own course, and to consider the holistic experience from the students' perspective.

delivering a course.
While most faculty were already comfortable with providing communication and feedback, being interactive with students, determining support services needed, and continually improving a course, at least half (in some cases more) of those faculty needed help with chunking, engaging students in active learning, and incorporating social presence.

Results show that after completing this course, faculty efficacy improved to 100% comfortability in all components of delivering an online course. Some participant comments are below:

We need for all faculty teaching an online course to take this. It is soooo needed.

I feel every instructor, new and old, will find things that they can take from this course to improve their courses and teaching.

I think one thing I appreciate most about the course is how it modeled all the best practices we were being taught.

After going through this and having taught online for the first time many years ago with little instruction on best practices, I think anyone teaching an online course for the first time should be strongly encouraged to go through a course like this.

I agree with a previous comment, in that all faculty teaching an online course should be strongly encouraged to take this course!

I feel like I learned quite a few new things, while also gaining a little deeper knowledge on some aspects that I already had some experience in. I agree with the others that all faculty should be strongly encouraged to participate.

This course was extremely helpful to me. I wish that when I taught my first course taking this would have been a requirement. With the growing need for interactive online learning it would be good to keep offering this course.

I thought this course was great and incredibly helpful for anyone teaching online!

Program Improvements and Lessons Learned

Overall, the feedback regarding this course has been very positive. The only suggestions for improvement received were in reference to the course schedule. When this online professional development course was offered, it ran for 4 weeks with homework due every week day (nothing due on weekends). Participants found it challenging to balance the requirements of this course with their other daily responsibilities. Some participant comments regarding this are:

I found the time commitment challenging combined with my other responsibilities.

A typical online course would not require daily assignments, this course should model a typical online course.

I found it hard to keep up with the daily assignment requirements.

Based on this feedback, the course has now been redesigned to require only one or two assignment submissions per week, across a six-week period. A few of the original assignments were removed from the class, and some of the original assignments were merged into a single assignment.

Conclusion and Recommendations

The feedback collected indicated unanimously that the course was useful and should be taken by everyone who will be teaching online. While many of the faculty were already comfortable with the LMS prior to taking the course, they had never been trained on the pedagogy of building and teaching an online course. Participants reported that this course increased their comfortability with mapping, building, and delivering an online course, while experiencing first-hand how it looks and feels to go through a well-built course. Although some constructive criticism was offered, there was no negative feedback.

As we continue to see an improvement in faculty efficacy with teaching online (after being properly trained) future research could look at faculty course evaluations to determine student satisfaction with a course both pre- and post- taking the "Preparing Faculty to Teach Online" course. This would help to determine if there are any improvements in student satisfaction of a course. Additionally, overall student performance could be analyzed both pre- and post- taking the "Preparing Faculty to Teach Online" course to determine if there are any improvements in student performance in a course.

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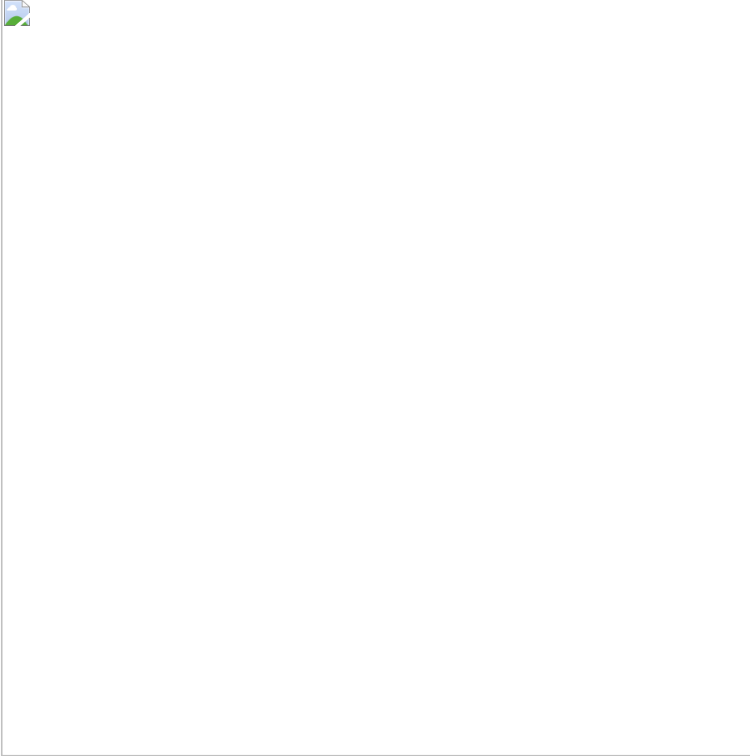
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settings: Moderation or mediation of academic emotions? *International Journal of Environmental Research and Public Health, 17*(7).

Appendices

Appendix A*

TPACK Image

*Image reproduced by permission of the publisher, ©2012 by tpack.org

Appendix B
Descriptive Statistics

Appendix C

Course Map
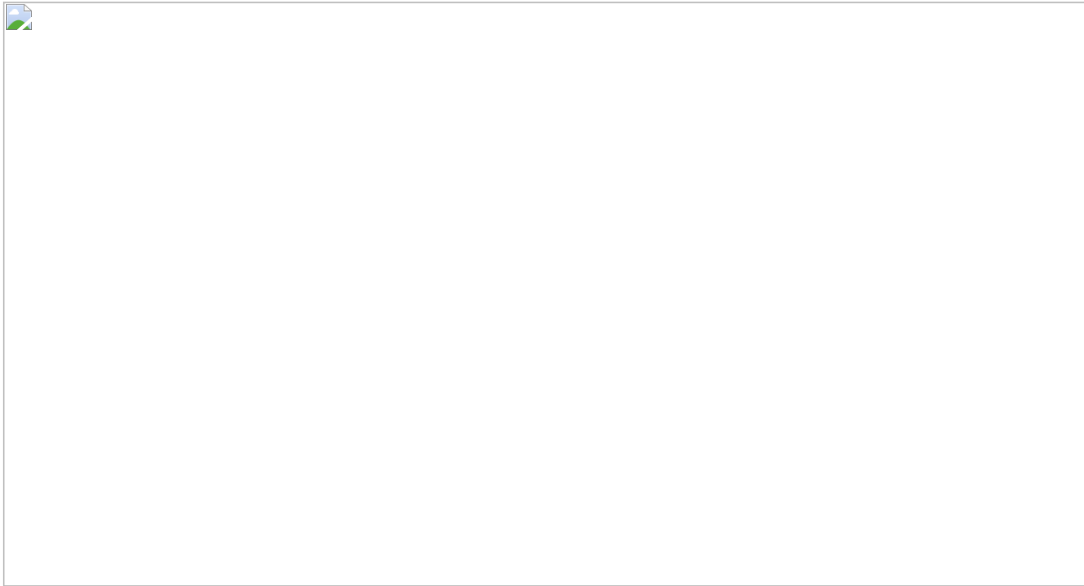
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