Flipped and Blended:

Using Blended Faculty Development to Increase the Use of Technology Among Health Science Faculty

by

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ABSTRACT

This study reviews the effectiveness of a faculty development program to prepare faculty members in the health related fields to design and develop flipped and blended learning courses. The FAB Tech workshop focuses on flipped and blended learning technologies as a method to increase the use of active learning in the classroom. A pre/posttest was administered to the participants on their use of technology and their course delivery strategies. In addition, interviews were conducted with a purposeful sample of the participants based on level of engagement in the workshop and their change in the pre/posttest. The program was effective in increasing the use of technological tools and their purposeful integration into courses. However, faculty workload and institutional support issue served as barriers to overcome. The findings of this study will help address how to over come some of these barriers and to develop more effective faculty development programs that encourage the use of flipped and blended learning.

DEDICATION

This dissertation is dedicated to all of people that have helped me grow as a person. While that list is long, I must thank my parents for instilling in me the value of an education, my wife for supporting me on this journey, and my children for whom I hope I have instilled in them the importance of an education. I want to thank Terri Buckner, Andrew Casiello, and Dr. Richard Overbaugh for introducing me to the role of an instructional designer and the path I have followed. Also, I am appreciative of all the people who have provided me new challenges to grow into and become the person I am. Finally, I dedicate this work to all of the higher education faculty members, and the professionals that support them, who strive to continually improve the learning experience for their students.

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Chapter 1: Leadership Context and Purpose of the Action

Over the past ten years, online education has grown in popularity. During this time more academic leaders have recognized the importance of online education as a critical long-term strategy for their institution. Whereas just under 50% of academic leaders held this view ten years ago, this number has since grown to 69.1% (Allen & Seaman, 2013). The number of students taking at least one online course has grown from 1.6 million in 2002 to 6.7 million in 2011. As of 2011, online enrollments represent 32.0% of all enrollments, including face-to-face, in higher education institutions in the United States (Allen & Seaman, 2013). However, this trend in online education has not left the residential experience unaffected.

As online learning technologies have been introduced into the online learning environment, face-to-face courses have similarly benefitted from these online technologies, including the learning management system, electronic readings, and email. Faculty members have begun to use the technologies to enhance their residential face-to-face courses in order to meet the demands of the increasingly tech savvy student body (Dahlstrom, Walker, & Dziuban, 2013). In some cases, courses that were originally offered as face-to-face courses were later offered only as online courses. This forced students who lived in on-campus dormitories to participate in online courses designed for non-residential students (Moskal, Dziuban, & Hartman, 2013). However, administrators are looking for solutions to deal with a lack of classroom space, without resorting to offering certain courses online as that would potentially reduce the number of students that choose to live on-campus.

One solution is the advent of mixing online education with face-to-face learning. This blending of learning has the initial benefit of reducing the amount of time spent in the classroom and replacing it with online learning, thus reducing the demand for classroom space. Other benefits of blended learning include providing students with more flexibility in their personal schedules due to the reduced time spent in the classroom, while potentially improving student outcomes.

Context

I am the project manager in a service unit responsible for providing instructional design and educational technology support to faculty in two colleges that focus on the health related disciplines. I lead a team consisting of two instructional designers and two multimedia developers who support faculty teaching face-to-face courses. While we encourage the use of online technology tools, a separate organization within the university is responsible for providing support to programs that are taught fully online.

Increasing the use of online technologies by faculty in face-to-face instructional environments is a timely goal that offers potential solutions to the challenges faced by the university as well as the broader U.S. healthcare industry. First, there is a growing demand for more individuals that are trained in health care related occupations such as nursing, exercise and wellness, and nutrition. By 2020, it is estimated that 13.5% of all jobs in the United States will be health care related, up from 11.5% in 2010 and 8.7% in 2000 (Henderson, 2012). Second, the University has a goal to increase student enrollment to 100,000 students by 2020. In order for the two colleges to fulfill the projected employment needs by the healthcare industry while meeting the University's enrollment targets, the colleges would need to increase enrollment from 4,700 students to 13,500

students by 2020 (*Enrollment Summary*, 2012). There are currently no construction projects underway that would add enough classroom space to accommodate an increase of nearly three times the currently enrolled number of students.

As a former instructional designer of online degree programs, I am in a position to assist academic programs and faculty members to optimize their classroom space utilization through the blending of face-to-face and online learning. By moving some of the classroom activities to the online learning environment, classroom usage for a course can be reduced. This reduction of classroom usage will allow for additional courses to be taught without having to acquire more classroom space.

However, one barrier to the reduction of classroom seat time is that the scheduling of courses can occur up to eight months prior to the start of the course. Therefore the administration and faculty must plan ahead for a course to have reduced seat time and thus be able to effectively schedule the space for other courses. One strategy that some faculty members have implemented is to invert or "flip" the classroom, a model in which online technologies are utilized to deliver lectures online and use the classroom time for conducting various learning activities.

When courses are moved to the online learning environment, either completely or partially, faculty members or administrators often question the quality of the course. The Quality Matters™ Program rubric for higher education is based on accepted best practices, accreditation standards, and research for measuring the quality of the design of online and blended courses. This rubric contains forty-three specific standards that are used by a team of peer reviewers to determine the quality of the course design and to suggest improvements (*Quality Matters rubric workbook for higher education*, 2014).

Faculty members who are supported by the online division of the university during the development of their online courses will utilize a process that integrates the design principles of the Quality Matters™ Rubric into their course. However, there has not been an organized effort by the university to apply these principles to blended learning courses.

Issues in the Development of Blended Learning Courses

There are three common issues that influence the development of flipped and blended learning courses: faculty knowledge of pedagogy and technology, faculty workload, and the administrative planning of course schedules.

Faculty members are often hired for their content knowledge within a specific subject area and assigned courses to this area. In higher education settings, there exists a common assumption that faculty members will be able to teach these courses due to their previous experiences as a student. This often means that faculty members are not provided specific technological or pedagogical support that can enhance their teaching.

Traditional faculty workload models allot 40% of a faculty member's time to research, 40% to teaching, and 20% to community and university service (Mancing, 1994). At some institutions, the effort required by faculty members to prepare a course is not recognized until the first day of the term that the course is taught; therefore the time and effort required to prepare a course prior to the start of the semester is not accounted for nor compensated.

A third issue is that academic course schedules are often planned more than six months in advance without consideration of which faculty members will be teaching the courses and using which course delivery modality. This situation can lead to difficulties if a course is scheduled to have reduced seat time, but the assigned faculty member is not

familiar with blended learning. The inverse is also true when a faculty member wants to teach a blended learning course, but their students are informed that it is a face-to-face course.

As academic administrators look for both alternatives for better utilizing existing classroom space while increasing enrollments and improving student learning, they should consider blended learning as a viable option. Administrators may use the findings in this study to provide an appropriate faculty development program to support faculty members who are assigned to or are interested in teaching blended learning courses. Additionally, faculty members who want to experiment with online activities as a supplement to their face-to-face course before reducing seat time may apply these findings toward determining the importance of participating in a faculty development program for developing flipped learning courses which can be easily be converted to blended learning courses.

Purpose

The purpose of this study is to evaluate the effectiveness of a faculty development program for designing and developing flipped and blended learning courses. This study will implement a faculty development program to orient participants to the design of flipped and blended courses, and support the development of their course based on accepted best practices and the Quality Matters™ Rubric for Higher Education. In order to determine if the course meets established quality standards, an individual who has completed the Quality Matters™ Program's Peer Reviewer Certification workshop will review the course.

Chapter 2: Review of Supporting Scholarship

Defining Blended Learning

There are many faculty members that have enhanced their face-to-face courses with technology. Some faculty members use their campus' learning management system to supplement their face-to-face course with technology. However, these faculty members are only augmenting their face-to-face course with online technologies, rather than blending the two modalities of face-to-face learning and online learning to create a new learning experience.

Garrison and Vaughan (2013) state that "blended delivery courses combine the best features of classroom-based teaching and learning with the best features of online learning in order to enhance the educational experience and give students added scheduling flexibility" (2013, p. 27). While studies show that online learning is as effective or more effective than face-to-face learning (Means, Toyama, Murphy, Bakia, & Jones, 2010), students enrolled in fully online courses have indicated that they would prefer to have some face-to-face interaction with their instructors (Dahlstrom et al., 2013). The University of Central Florida began developing blended learning courses in 1997 after discovering that three-quarters of their distance learning students resided on campus (Moskal et al., 2013). Administrators are concerned that if students who reside on campus are taking online courses, then they may choose to remain at home. However, if the students find the online courses to be more engaging than face-to-face courses, then blending the two course types seems to be the logical solution.

Various authors define the term "blended learning" differently. Some definitions of blended learning focus solely on the amount of seat time that has been reduced in the

classroom. Allen and Seaman define blended learning "as having between 30% and 79% of the course content delivered online" (2007, p. 67). In another definition, Garrison and Vaughan define blended learning as having a 25% to 50% reduction of seat time (2013). Yet another institution states "to meet the definition of blended, faculty must reduce seat time by at least 20%" (Graham, Woodfield, & Harrison, 2013, p. 10). However, defining blended learning solely on the amount of seat time that has been reduced ignores the other positive benefits of blended learning (Graham, 2007).

Garrison and Kanuka (2004) point out that "blended learning inherently is about rethinking and redesigning the teaching and learning relationship" (2004, p. 99). Picciano describes an effective blended learning design as "when two cans of different colored paints are mixed, the new paint will look different from either of the original colors. In fact, if the new paint is mixed well, neither of the original colors will continue to exist" (2007, p. 8). Therefore, an effective blended learning design would include more than just "flipping the classroom" by shifting lectures and materials to the online learning environment (Strayer, 2012). The course must effectively integrate the face-to-face and online elements, as opposed to just "bolting on" online components to a face-to-face course (Garrison & Kanuka, 2004). Picciano provides the generally accepted definition of blended learning that recognizes the role of pedagogy: "1. Courses that integrate online with traditional face-to-face class activities in a planned, pedagogically valuable manner; and 2. Where a portion (institutionally defined) of face-to-face time is replaced by online activity" (2006, p. 97).

While there are various definitions for blended learning, even the term is not universally utilized. Some institutions refer to their programs as a "hybrid" or "mixed-

mode" course (Picciano, 2007). However, the terms and definitions are a minor issue when an institution begins to implement blended learning in a programmatic way. Instead, institutions must define blended learning in a way that fits with their needs and can be easily explain during the implementation phase (C. Dziuban, Hartman, & Moskal, 2007).

Defining the Flipped Classroom

Lage, Platt, and Treglia initially used the term "inverted classroom" to describe a method where the "events that have traditionally taken place *inside* the classroom now take place *outside* the classroom and vice versa" (2000, p. 32). They describe the rise of multimedia technologies as an important factor for distributing course lectures to be viewed outside the classroom; thus allowing for the classroom time to be used for discussions and group activities.

As online technologies have become more prevalent, interest in this model increased (Tune, Sturek, & Basile, 2013) and the term became "flipped classroom". The instructional difference afforded by this model is often characterized by the use of online lectures; however, the use of classroom time for active learning represents an important factor since this allows for a faculty member to observe their students working through any difficulties they may have with the concepts being taught (Critz & Knight, 2013; McLaughlin et al., 2014; Roehl, Reddy, & Shannon, 2013; Sams & Bergmann, 2013; Strayer, 2012; Tune et al., 2013). In a typical flipped classroom scenario, students are expected to prepare for class by completing assigned readings and viewing prepared lectures online. Faculty members may often open class by asking if there are any questions and then presenting a "minilecture" to address any misconceptions the students may have (Lage et al., 2000; McLaughlin et al., 2014) and then participate in a larger

course discussion (McLaughlin et al., 2014). The majority of the classroom time is focused on student-centered, collaborative learning activities (Critz & Knight, 2013; McLaughlin et al., 2014). Critz and Knight also suggest that the flipped classroom model should include the use of online learning technologies such as discussion boards and quizzes as a way to help prepare students for the classroom activities (2013). When comparing the commonly accepted definitions of blended learning with the flipped classroom, the key difference is that with the flipped classroom model seat time is not reduced (Lage et al., 2000).

Implementation of Flipped and Blended Learning

Graham, Woodfield, and Harrison have proposed a framework for measuring an institution's level of implementation of blended learning that is based on Roger's diffusing of innovation (2013). In the first stage, there is an institutional awareness of blended learning where a small number of faculty members have explored and implemented blended learning courses with little to no support. During the second stage, the institution is beginning to systematically adopt blended learning by developing policies and creating a support structure for faculty members. The third stage is characterized by an institution with a mature implementation and growth of blended learning courses throughout the institution (Graham et al., 2013). Institutions reach this stage by developing and implementing a strategic plan that integrates the support structure necessary for blended learning into the normal operations of the institution. In order to move from an exploration stage to a formal implementation, an institution must have a support strategy in place to facilitate the transformation that is instigated by blended learning.

The design of the instructional delivery of a course can be measured on a two-dimensional continuum, as depicted in Figure 1, with the one axis measuring the percentage of the course that is conducted online and the second axis measuring the amount of classroom seat-time that has been reduced by utilizing online activities. This model represents a combination of several definitions of blended learning (Allen & Seaman, 2007; Picciano, 2006) and the inverted classroom (Strayer, 2012). As shown in Figure 1, a course in which lectures are the primary activity in the classroom and has reduced seat time by 50% through the use of online readings and videos is considered a blended learning course. However, a similar course that does not have the seat time reduced would be considered a technology-enhanced course. However, if a course without a reduction of seat time features active learning activities in the classroom that carry over into the online learning environment, it would be considered a flipped learning course. The way student learning is assessed is not included in this conceptual model.

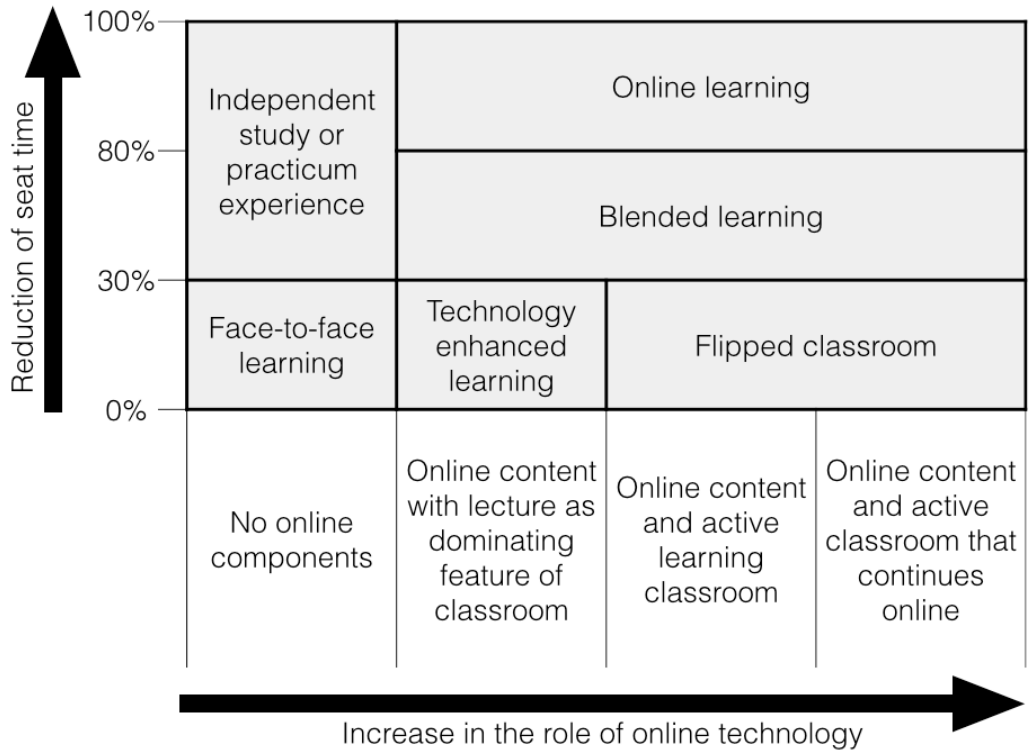

Figure 1. Matrix showing course type as determined by amount of seat time reduced and role of technology in course.

Pedagogical transformation.

Flipped and blended learning courses tend to be student-centered and thus require faculty members to shift their teaching style to provide guidance and support as opposed to directive (Kaleta, Skibba, & Joosten, 2007, p. 124). In many traditional collegiate classrooms, the faculty member will stand in the front of the room and lecture the students as to what they need to know (Keyser, 2000; King, 1993). The classroom pedagogy of a flipped or blended learning course tends to rely more on active learning techniques since the knowledge transmission component occurs through the online learning environment (McGee & Reis, 2012; McLaughlin et al., 2014).

Although Dewey first used the term active learning in 1924, a consistent definition has not been established in the literature (Baepler, 2010; Bonwell & Eison, 1991). The more common definitions of active learning in the literature recognizes that students need to be engaged in learning activities that involve higher-order thinking skills such as analysis, synthesis, and evaluation (Bonwell & Eison, 1991). This definition indicates that students do more than just listen to a lecture; they should also be involved in exploring the meaning of what is being learned. Students may do this through reflection, discussions, problem-solving activities, writing and speaking, role playing, case-studies, peer teaching, and collaborative learning activities (Keyser, 2000; Prince, 2004; Rotgans & Schmidt, 2011b).

For a blended learning classroom that uses active learning techniques, a faculty member must transition from being a *sage on the stage,* or the purveyor of knowledge, towards a facilitator of learning (King, 1993; McLaughlin et al., 2014). Faculty members tend to acknowledge that active learning techniques are more effective for student learning; however, they avoid using them because of the tradition of lecturing in higher education and the belief that they possess information that students cannot otherwise obtain (Bonwell & Eison, 1991). A concern that faculty members sometimes raise is that facilitating active learning is more time consuming and thus there is less time to cover the content. The opposite is generally more the case however. When they explore on their own, students retain more content, and cover more with a great depth and breadth (Keyser, 2000). Another concern faculty members present in relation to the facilitation of active learning is that they feel a lack of control of the classroom (Bonwell & Eison, 1991). This perception may in part be attributed to faculty members traditionally setting a

schedule of when to cover certain topics, but the nature of student-centered learning encourages a faculty member to address the emergent needs of the students regardless of when a topic is scheduled.

As an institution begins to systematically implement flipped and blended learning, a strategic faculty development program should be offered to support the pedagogical transformation that needs to occur in order to realize an effective implementation. This program needs to assist faculty members in developing a student-centered learning approach that relies on active learning, facilitation, student self-regulation, reflection, interactive discussion, and teamwork using a variety of tools that are available in both the face-to-face classroom and the online learning environment (Carbonell, Dailey-Hebert, & Gijselaers, 2013; Kaleta et al., 2007).

Furthermore, focusing faculty development only on technology tools or procedural elements such as inverting or flipping the classroom to disseminate raw content may prevent faculty members from considering how to change the pedagogical approach to their course (Garrison & Kanuka, 2004; Graham, 2007; Strayer, 2012). This may lead to faculty members creating "shovelware," uploading lectures as quickly as possible without consideration to the length, appearance, or organization of the content being provided to their students, which can detract from the online experience (Morrison & Anglin, 2006).

New roles for instructors.

Faculty members fulfill four dimensions as an instructor: pedagogical, social, managerial, and technical (Berge, 1995; Bonk, Kirkley, Hara, & Dennen, 2001; Liu, Bonk, Magjuka, Lee, & Su, 2005; Morris, Xu, & Finnegan, 2005; Verneil & Berge,

2000). Liu, Bonk, Magjuka, and Lee (2005) have described the technical role for faculty members as referring students to appropriate technical support, developing multimedia, and integrating online tools to support interaction. While faculty members teaching flipped and blended learning courses will not have to solely rely on the online learning environment, they will need to embrace these roles in order to effectively to transform their teaching style into a facilitator of learning. This transformation may be the hardest for those who are comfortable with the traditional model of lecturing in the classroom. Faculty members must consider how this transformation will impact themselves, their course, and their students (Kaleta et al., 2007).

New roles for students.

One of the obvious advantages to students in blended learning courses is the reduced time spent in the classroom. Students have indicated that they prefer blended learning courses due the ability to have more control of their time (Albrecht & Pirani, 2007; Dahlstrom et al., 2013; C. D. Dziuban, Hartman, & Moskal, 2004). Students value the reduction of time in the classroom as it provides them more availability for employment or flexibility to manage personal family needs such as childcare arrangements (Shea, 2007). However, the reduction of seat time sometimes leads students to incorrectly believe that a blended learning course is easier (C. Dziuban et al., 2007; Kaleta et al., 2007) or potentially take less overall time from their schedule.

With flipped or blended courses, the need for students to become responsible for their own learning is critical. No longer will students be able to just memorize content for the purpose of passing exams for the course (King, 1993). Students must come to the classroom prepared to participate in activities that emphasis higher order thinking skills

through active learning instead of expecting to be told what they should know (Rotgans & Schmidt, 2011a). When students participate in the in-class discussions, they develop problem-solving skills and retain more of the content than if they just listened to a lecture or read the material on their own (Bonwell & Eison, 1991; Prince, 2004). This shift in learning style supports the students in exploring their academic goals within the context of the course (Bonwell & Eison, 1991; Snodin, 2013) and in developing a deeper understanding of the content of the course.

Students have an expectation that faculty members will use technology for the instruction of their courses (Dahlstrom et al., 2013). As more technologies are deployed, where a student learns will become less important and the emphasis will be placed on how a student learns (Mazoué, 2012), especially as in-class activities such as discussions can be continued in the online portion of the course.

Use of technology.

While the use of technology is a critical part of flipped and blended learning, the technology must not drive the pedagogy of the course design nor should technology become a barrier to the adoption of flipped and blended learning (Garrison & Vaughan, 2013; Shea, 2007). Faculty members that do not have experience using technology can be intimidated due to their lack of familiarity with the tools and the lack of training in using the tools.

While the use of learning management systems such as Blackboard's Learn, eCollege's LearningStudio, and Instructure's Canvas are common, many faculty members never use these systems for more than just distributing documents to students (Woods, Baker, & Hopper, 2004). There are several technologies that faculty members

routinely have available to them through their learning management system, yet have never used. Faculty members who deliver fully online courses are typically familiar with many of the assessment features of a learning management system; however, faculty members who use learning management systems to supplement their face-to-face courses rarely use the platform to administer exams and quizzes, collect and return assignments, facilitate question and answer discussions between classes, or extend a classroom discussion beyond the classroom (Woods et al., 2004). Faculty members must consider how the learning management system can be used to support collaborative work among students between the limited number of face-to-face course meetings (Eddy & Garza Mitchell, 2011). In order to facilitate a pedagogical change towards active learning in the face-to-face portions of a blended learning course, faculty members will need to consider the adoption of these tools.

Faculty members are aware that adopting new technologies that are unfamiliar to them can be a limiting factor for implementing flipped and blended learning; therefore, they often will start small (Kaleta et al., 2007). Novice faculty members may be tempted to only use the learning management system to distribute documents and videos, so they need to be supported in utilizing collaboration and communication tools such as course email and threaded discussion boards (Tang & Byrne, 2007). Thus an effective faculty support system that includes both faculty development programs and just-in-time support can assist faculty members in implementing larger changes when designing and developing blended learning courses.

Support mechanisms.

Since flipped and blended learning is likely to present a new teaching and learning approach for both faculty and students, there is a need to provide support to both groups. Faculty members will need assistance implementing new pedagogical strategies and technologies; whereas students will need assistance in developing strategies to take control of their own learning and to use the technologies being used in the course. Therefore it is important that support structures are put in place for both faculty members and students.

Faculty support.

Faculty members need to interact with other professionals, such as instructional designers, as they begin to shift the pedagogy of their course to one that emphasizes active learning (deNoyelles, Cobb, & Lowe, 2012; Orr, Williams, & Pennington, 2009; Vignare, 2007). Instructional designers can assist faculty members by providing faculty development workshops to address the various pedagogical changes that are required to implement flipped and blended learning. In addition, they can serve as consultants to faculty members and assist in design of multimedia presentations, the implementation of various learning technologies, and connecting faculty members to other instructional services such as library and student support services.

Student support.

Students who are new to flipped and blended learning need to have the expectations of the course explained to them. Faculty members should provide students with a clear description of the online and face-to-face components of the course, and their relationship, in the course syllabus (McLaughlin et al., 2014). As students are encouraged

to become independent learners, they will need to be provided manageable assignments with clear instructions when outside the classroom in order to understand what their responsibilities are and how to prepare for the next class sessions (McGee & Reis, 2012).

The technologies that are chosen by the faculty member for the students to be used should be the simplest available that matches the course goals while allowing for student choice of which technologies to use (McGee & Reis, 2012). It is often the case that when students encounter unfamiliar technologies required for coursework, they expect the faculty member to be the individual to train them on how to use these technologies (Dahlstrom et al., 2013). As a faculty member chooses appropriate technologies for their course, higher education institutions will need to expand their support of these technologies to allow for student choice (Carbonell et al., 2013). This means that an institution will need to provide faculty members a diverse "buffet" of course tools so that they may choose the tools that meet their pedagogical needs and be confident that the institution will provide support for students with using the tools. Since many institutions allow students to use whatever computing platform they prefer, these tools must also be available across these multiple platforms as well.

Strategic planning for blended learning.

While there are faculty members who are developing blended learning courses without institutional support, these individual efforts do not allow for the institution to capitalize on increases in efficiency, such as utilizing the classroom space that has become available due to the reduction of seat-time (Carbonell et al., 2013). In order for an institution to implement appropriate technology infrastructures and tools, support systems, faculty development programs, and reconfigure classroom scheduling so that the

rooms are used more efficiently, there must be one or more visionary leaders that coordinate the implementation of blended learning at an institutional level while navigating the bureaucratic process (Carbonell et al., 2013; C. Dziuban et al., 2007; Garrison & Vaughan, 2013).

When an institution considers whether to create a blended learning program, it is important to recognize that every blended learning course and degree program will be different; therefore the resources and policies developed will need to be flexible to allow for these differences (C. Dziuban et al., 2007). Often administrators will focus on the ability to scale blended learning programs to increase enrollments; however, the focus of the program should be the nature of how the courses will blend online and face-to-face learning (Graham, 2007). As administrators consider which courses to redevelop first as blended learning courses, they need to be strategic and select courses methodically based on criteria such as increasing student enrollments and linking the courses to the institution's goals for increasing student engagement (Garrison & Vaughan, 2013).

Multiple processes have been proposed for implementing a blended learning initiative. One process suggests beginning with an initiative to inform faculty members about the benefits of blended learning, followed by a faculty development program that prepares faculty members to design and develop blended learning courses. A stipend and instructional support should be offered to compensate faculty members who adopt blended learning to offset the workload generated by the course design and development process (Kaleta et al., 2007, p. 137).

These processes must be considered in relation to the framework proposed by Graham, Woodfield, and Harrison (2013). This framework, as seen in Table 1, places

institutions on a continuum based on Rogers' theory of diffusion of innovation according to the maturity of the institution's blended learning initiative. Institutions with no formally adopted definition, policies, or governance of a blended learning program are not able to effectively communicate about blended learning. The impact to students is that they may not be aware they have enrolled in a blended learning course until the first day of the class. This situation may also lead institutions to have classrooms go unused since there would not be a systematic way to take advantage of the reduced classroom time.

Table 1

Matrix representing the categories and stages in the blended learning (BL) adoption framework used to organize the findings of this study.

Category	**Stage 1—Awareness/ Exploration Strategy**	**Stage 2—Adoption/ Early implementation**	**Stage 3—Mature implementation/ growth**
Strategy			
Purpose	Individual faculty/administrators informally identify specific BL benefit	Administrators identify purposes to motivate institutional adoption of BL	Administrative refinement of purposes for continued promotion and funding of BL
Advocacy	Individual faculty and administrators informally advocate	BL formally approved and advocated by university administrators	Formal BL advocacy by university administrators and departments/ colleges
Implementation	Individual faculty members implementing BL	Administrators target implementation in high impact areas and among willing faculty	Departments/colleges strategically facilitate wide-spread faculty implementation
Definition	No uniform definition of BL proposed	Initial definition of BL formally proposed	Refined definition of BL formally adopted

Policy	No uniform BL policy in place	Tentative policies adopted and communicated to stakeholders, policies revised as needed	Robust policies in place with little need for revision, high level of community awareness
Structure			
Governance	No official approval or implementation system	Emerging structures primarily to regulate and approve BL courses	Robust structures involving academic unit leaders for strategic decision making
Models	No institutional models established	Identifying and exploring BL Models	General BL models encouraged not enforced
Scheduling	No designation of BL courses as such in course registration/ catalog system	Efforts to designate BL courses in registration/ catalog system	BL designations or modality metadata available in registration/ catalog system
Evaluation	No formal evaluations in place addressing BL learning outcomes	Limited institutional evaluations addressing BL learning outcomes	Evaluation data addressing BL learning outcomes systematically reviewed
Support			
Technical	Primary focus on traditional classroom technological support	Increased focus on BL/online technological support for faculty and students	Well established technological support to address BL/online needs of all stakeholders
Pedagogical	No course development process in place	Experimentation and building of a formal course development process	Robust course development process established and systematically promoted
Incentives	No identified faculty incentive structure for implementation	Exploration of faculty incentive structure for faculty training and course development	Well-established faculty incentive structure for systematic training and implementation

Note. Table is from "A framework for institutional adoption and implementation of blended learning in higher education," by Graham, Charles R., Woodfield, Wendy, and Harrison, J. Buckley, 2013, *The Internet and Higher Education*, 18, p. 7.

Faculty members at institutions in the first stage of implementation who are attempting blended courses on their own may run into a number of barriers such as institutional policies and support structures that do not support blended learning. These barriers can frustrate the effort to develop blended learning courses and possibly prevent the new course design from being implemented. As the blended learning implementation matures and enters the second stage, organizational changes are made to provide an increased support structure for faculty members. Often these supports include access to instructional designers to assist faculty in implementing new pedagogical methods and technological tools. Institutions at the third stage are collecting and evaluating data related to their blended learning programs as a way to ensure that their technological and instructional supports are meeting the needs of the faculty members. Further, they are committing to use this information to improve their programs.

Faculty Development Programs

The first faculty development unit was established at the University of Michigan in 1962 (Baepler, 2010). Since that time, organizational units dedicated to faculty development for the improvement of teaching and learning have become fairly commonplace. These organizational units offer development programs of varying lengths and types to support faculty members in developing new skills The success of faculty development programs has been cited as a critical aspect for implementing institutional change, such as developing a blended learning program (C. Dziuban et al., 2007). Faculty

development programs are important since most doctoral programs do not provide courses to prepare or train their graduates for roles as university teachers (Vignare, 2007).

Faculty development programs have been shown to be increase the abilities of faculty members, regardless of experience level (Horvitz & Beach, 2011). These programs are able to assist faculty members with little to no experience gain a familiarity in using a new technology or pedagogy. Faculty members with more experience with these concepts will often be self-directed to increase their knowledge and abilities through interaction with peer faculty members and experts on these topics. These interactions can help faculty members identify new techniques to try that they had not previously considered before and provide motivation to use them (Kaleta et al., 2007; Kaminski & Bolliger, 2012). Faculty development programs also offer the opportunity for faculty members to participant in an educational experience, just as their students will. For example, programs designed to assist faculty in developing blended learning courses should be offered using a blended learning format (C. D. Dziuban et al., 2004; Kaleta et al., 2007).

When a faculty member is deciding to participate in a program, the faculty member must believe that the development program will help them immediately in their daily activities (Kaminski & Bolliger, 2012). Also, faculty members are often concerned with how students will perceive the implementation of new techniques developed in the program. However, one of the most commonly cited barriers to participation in faculty development programs is the lack of time to participate in the programs (Berk, 2010; Kaminski & Bolliger, 2012; Ryan, Tynan, & Lamont-Mills, 2014; Santo, Engstrom, Reetz, Schweinle, & Reed, 2009). Other barriers that impact a faculty member's decision

to participate in a program include the delivery format of the program, the location of the program, and the level of technical support they will receive (Berk, 2010). To offset these concerns, some institutions compensate faculty members by offering release time, stipends, and/or new technologies such as laptops, smartphones, or tablet computers (Herman, 2012; Orr et al., 2009). There are times when an institution will choose to compensate faculty members for participating in these programs; however this is typically when the faculty development program is a lengthy one or part of a larger initiative (Herman, 2012).

When planning a faculty development program to assist faculty members in the redesign of courses for flipped and blended learning, it is important to offer the program in a timeframe sufficient enough to allow for the faculty member to fully develop their course. Kaleta, Skibba, and Joosten (2007) recommend beginning this program so that a faculty member has six months to develop their course. The program should include workshops on curriculum design, teaching strategies, and educational technology integration (deNoyelles et al., 2012; Garrison & Vaughan, 2013).

Faculty Workload

University faculty members are described as serving in a meta-profession, a profession that is built on top of another profession (Theall & Arreola, n.d.). The evolution of these roles has led to a delicate balance between the professions of teacher and researcher. This balance appears to be more easily maintained at elite institutions due to funding models and reputation; however Prineas and Cini (2013) point out that most institutions do not have the resources necessary to follow these models.

Faculty members at research universities typically fulfill three roles: teaching, research, and service (Paulson, 2013; Santo et al., 2009). The teaching role is often characterized and measured by the time the faculty member spends in the classroom. However, there are other activities associated with this role such as course design, lecture preparation, assessment of student work, and holding student-accessible office hours. Additionally, many faculty members advise graduate students on an individual basis (Mancing, 1994).

According to Mancing (1994), the research role is categorized into three areas: scientific research, humanistic scholarship, and artistic creativity, depending on the faculty member's professional discipline. Scientific research is often viewed as research that occurs in the lab or as a type of fieldwork, whereas artistic creativity manifests itself through the arts: music, sculpture, painting, the written word, and other mediums. Mancing describes humanistic scholarship as "the sort of study that most language and literature faculty members engage in—usually involves library research and writing" (1994). Often the success of a faculty member's research activities is measured by the number of papers published and the number of dollars generated through grants, patents, or some other monetary representation. However, these measures do not accurately account for the time that is required to reach those measures.

The third role a faculty member fulfills is service, which includes service to the institution and service to the profession. This role can sometimes be difficult to measure because of how it merges with the teaching and research roles. Institutional service such as serving on committees and other administrative duties appear to stand on their own; however, student advising or participation in outreach activities can also serve as

opportunities to teach as well as represent the institution. Mancing (1994) describes professional service as serving the profession by participating in professional conferences, serving in professional organizations, and assisting with journals. Some of these activities can correlate with some of the tasks a faculty member undertakes in their role as a researcher.

The generally accepted ratio for a faculty member's workload is 40% to teaching, 40% to research, and 20% to service (Mancing, 1994). This ratio generally holds across different institutions and disciplines with a small amount of variance. An exception to this ratio occurs at liberal arts colleges where there is a strong emphasis on teaching as opposed to research. In many cases, the traditional faculty promotion and tenure process does not reflect a balance of teaching and research, but instead places a heavier emphasis on research above teaching (Mancing, 1994).

When a faculty member is assigned a teaching load, the time represented by the credit hours does not reflect the true time investment per week spent preparing and developing a course (Ehrlich, 2003; June & Mangan, 2011). A teaching load of three 3-credit hour courses per semester requires more time than the nine hours spent per week in the classroom. Dennison (2011) found that faculty members at research institutions spend up to 60 hours per week in order to fulfill all of the expectations of their roles. He states "with 9 hours per week in the classroom, 16–18 hours per week in preparation and consultation with students, 10–15 hours per week in research or creative activity, and 5 or more hours engaged in committee and other service and governance work, the faculty member clearly has a full load" (2011, p. 301). Gerolamo found that nursing faculty members work an average of 56 hours per week (2011). Many nursing faculty members

are classified as clinical faculty members and therefore are not required to engage in research. However, these faculty members are often required to work a second job in order to remain eligible to renew their professional license as an advanced practice nurse (Gerolamo & Roemer, 2011).

With such a demanding workload, faculty members find it difficult to voluntarily attend faculty development or to make substantial changes to their courses. McLaughlin found that when faculty members were preparing their flipped learning courses, they needed 127% more time than they did when preparing the course for a traditional format the year prior (McLaughlin et al., 2014). Therefore faculty members are likely to find it difficult to develop a high quality, engaging flipped or blended learning course prior to the semester that the course will be taught. They simply do not have the time to develop the course ahead of time.

Quality Blended Learning Standards

Course quality has been difficult to define and the Quality Matters™ Rubric for Higher Education is one such attempt to provide a standardized and evidence-based system for identifying indicators of quality. The Quality Matters™ Rubrics have been developed and regularly updated through a rigorous process that examines relevant research, data, and practitioner perspectives. They consist of Standards supported by detailed Annotations explaining the application of the Standards and are intended to support the continuous improvement of courses with constructive feedback provided. The Quality Matters™ Rubric has been widely adopted throughout the United States and several other countries for quality assurance in online courses and the online components of a blended learning courses (Budden & Budden, 2013; Legon & Adair, 2013; Shattuck,

2010). There are eight general standards defined by the rubric: 1) course overview and introduction, 2) learning objectives, 3) assessment and measurement, 4) resources and materials, 5) learner engagement, 6) course technology, 7) learner support, and 8) accessibility (Legon & Adair, 2013; Shattuck, 2010). These standards are used to assess the quality of a course design, rather than instructor performance or course delivery techniques (Sener, 2006). When a course is reviewed using the Quality Matters™ Rubric, the reviewers are prompted to consider it from the perspective of a student so that they can make recommendations to faculty course developers on how to improve the course (Budden & Budden, 2013).

Chapter 3: Research Design

Introduction

This action research study (Mills, 2011) was conducted in two phases. In the first phase, a faculty development program was implemented as a pilot to determine its viability for designing blended learning courses. The second phase implemented a revised faculty development program for developing blended learning courses. During the second phase, the research questions of this study were:

1. As a result of the faculty development program, to what extent do the participants purposefully integrate online technologies into a redesigned face-to-face course?
    a. To what extent have the participants increased their knowledge of available online tools?
    b. To what extent is the redesign consistent with quality course technology standards?

Timeframe

This study consisted of two phases of implementation. The first phase occurred in the fall of 2013 and the second phase occurred primarily in the fall of 2014. The first phase of the study focused on the how the pilot faculty development workshop affected faculty workload. The second phase of the study focused on how the faculty development program assisted the participants in developing quality flipped and blended learning courses and included improvements based on the effectiveness of the pilot workshop. This phase took place between September 1, 2014 and February 1, 2015.

Setting

This action research study was conducted at a large metropolitan university in the southwest United States within two colleges that that are home to the programs related to health care professions. The study was conducted from an educational support unit that provides instructional design and multimedia services for the over 350 faculty members of these two colleges. The intervention took place in both a mediated conference room on the campus and through the institution's learning management system.

Phase 1

The researcher created a five-week faculty development program to introduce faculty members to blended learning and was designed to assist the participants in designing blended learning courses. The learning objectives for the program are for the participants to be able to: 1. identify the key issues related to blended learning, and 2. design and develop their own blended learning course. Parts of this workshop were developed using open educational resources prepared by the University of Central Florida (UCF) and the American Association of State Colleges and Universities (AASCU) with funding from the Next Generation Learning Challenges (NGLC).

In an effort to blend both the online and face-to-face learning environments, optional face-to-face meetings were provided each week for the participants to meet and have informal discussions about the program. During the fifth week of the program there was a face-to-face meeting where the participants had an opportunity to share their course design with other participants and to participate in a discussion with the presenters.

Participants

The participants in the first phase were divided into two groups. The first group consisted of six faculty members that were recruited by advertising the program at faculty meetings and asking program directors to encourage participation. The second group consisted of eight participants from a single program that was planning to transition an entire degree program from face-to-face courses to a blended learning format.

What we did

During the pilot faculty development workshop, data were collected via a Pre-Workshop Survey and workshop artifacts. The Pre-Workshop Survey, as provided in Appendix A, asked the participants about their experiences teaching online and with blended learning, their future plans for teaching blended learning courses, and any concerns that they may have regarding the workshop. The workshop artifacts included discussion board posts that reflected the participants' reactions to the reading and activities, assignments related to developing a blended learning course, general activity in the program, and weekly polls. The weekly polls, as listed in Appendix B, asked the participants to describe the types of activities they plan on using in their blended learning courses, to ask questions, and to indicate the number of hours they have spent on the course.

Results used for developing second phase

There were three results that emerged during the pilot that needed to be addressed prior to beginning the second phase. The results were related to participant attrition, the amount of time participants spent completing workshop activities, and themes identified during the face-to-face session during the final week of the workshop.

Participant attrition.

The participants (*n*=14) had generally not previously taught a fully online course (64.3%), but had previously taught a blended learning course with reduced seat time (64.3%). Most of the participants planned on teaching a blended learning course within the next year (92.9%). After the participants had viewed the course introduction: 50% of the participants had indicated that they were very comfortable in participating in the program, 35.7% of the participants had indicated that they were somewhat comfortable, and 14.3% of the participants were somewhat uncomfortable. However, only one participant (7.1%) completed all of the activities in the workshop, a 92.9% attrition rate. Despite this attrition rate, ten participants (71.4%) attended the face-to-face session during the final week of the workshop. Some of the reasons for the rate of attrition included mid-semester changes in faculty teaching assignments, traveling to conferences, and their current course load.

Time spent by participants on the workshop.

Each week, the participants were asked to estimate how much time they had spent on each portion of the workshop. As shown in Table 2, participants dedicated 14.40 hours to completing the activities in the workshop.

Table 2

Faculty Workload Generated by Pilot Faculty Development Workshop

Week	n	Mean	Std. Deviation
1	9	4.11 hours	1.69
2	7	4.29 hours	1.38

3	4	2.50 hours	1.00
4	2	2.50 hours	0.71
5	1	1.00 hours	N/A

Emerged themes from face-to-face meeting.

The purpose of the face-to-face meeting, during the final week of the workshop, was for the participants to present the course they had designed for advice and feedback from the presenters and their fellow participants.

Two participants from Group 1 (33.3%) attended the face-to-face session and all eight participants of Group 2 (100%) attended their face-to-face session for their workshop. The only participant to complete all activities of the workshop was a member of Group 1; whereas, none of the participating in Group 2 completed all of the activities of the workshop.

During the session for Group 1, the participants discussed their courses as expected and the conversation focused on improving their course designs. However, the participants in Group 2 did not have course designs to present during the session; therefore the discussion focused more on their workshop experience. The Group 2 participants used the opportunity to explore some of the various tools that was introduced in the online portions of the workshop and asked the facilitators to demonstrate the tools. These tools included both those embedded within the learning management system and third party technology tools support by the institution. Many of these tools were considered commonly available by the facilitators; however, the participants had either

not been exposed to these tools prior to the workshop or they had not had the ability to explore their usage. Another theme that emerged from the session with the Group 2 participants is that despite the fact that the participants did not complete the workshop, they felt that the workshop had met their needs.

Phase 2

Based on the results from Phase 1, several changes were made to the faculty development program (see Table 3). These changes were focused on the scope of the program, the number of face-to-face sessions, and the length of the program.

Table 3

Faculty Development Program Changes from Phase 1 to Phase 2

Phase 1 Faculty Development Program	**Phase 2 Faculty Development Program**
Blended learning courses	Flipped and blended learning courses
Activities focused on designing a course	Activities focused on developing a course
Five-week workshop	Nine-week workshop
One organized face-to-face session during final weeks	Five face-to-face sessions occurring every other week
No planned "workshop milestones" for participants to exit the workshop	"Workshop milestones" points setup for participants to facilitate a targeted exit from the workshop
No recognition for completion	Certificate award for completion

The first change was to expand the focus of the program from blended learning course to include flipped learning courses as well. This change in scope is because course

schedules are created as much as eight months in advance and faculty members may not have the ability to reduce the amount of seat time for a course; however, they can establish educational practices in a course through the flipped classroom model. By using the flipped classroom model, they can become familiar with developing online content and using online learning technologies to supplement their face-to-face course prior to requesting the course be scheduled with a reduction of seat time.

The second change to the workshop was to change the focus of the activities from designing a blended learning course to developing a flipped or blended learning course. The activities in Phase 1 focused on designing how a blended learning course would link online activities to the face-to-face portions. These activities asked participants to consider which portions of the course could be moved to the online learning environment and how they would utilize the seat time in the course. During Phase 2, the participants were asked to develop online components and to build out a course shell in the development area of Blackboard. They were asked to create content presentations and integrate online learning tools to meet their course's learning objectives. As the program became more focused on developing a course, it was anticipated that the participants would be more engaged and place a higher value on their participation. When they have completed the program, the participants would also have a course shell that is ready for them to deploy as their course. This shell would assist in conducting a partial Quality Matters™ course review (see Appendix C for specific standards, the reprint of the QM Standards document does not imply the endorsement or support of this research by Quality Matters) of the course that the participants have developed.

The third change was to expand the workshop from five weeks to nine weeks in order to spread the time the participants needed to complete the workshop over more weeks; therefore, allowing the participants to better adjust their various responsibilities and participate. In addition, some of the modules spanned more than a week to allow for the participants to have more time to complete the activities that are directly related to the development of their courses. The additional time also allowed for the participants to have more time to explore new technology tools that they can integrate into the courses they are developing. Another purpose for expanding these modules was to minimize the need for participants to feel it necessary to leave the workshop due to falling behind.

The addition of more face-to-face sessions was to increase the contact with the participants and more closely model a blended learning course. In the first phase, there was only one organized face-to-face session in the final week; therefore the workshop was mostly online. In the second phase of the study, the workshop had a face-to-face session occurring every other week (Weeks 1, 3, 5, 7, and 9) in order to help maintain contact with the participants and provide motivation to continue in the program. These sessions were designed to model active learning techniques that are commonly used in flipped and blended learning courses.

To anticipate that participants may need to cease their active participation in the faculty development workshop for various reasons, “workshop milestones” were designed so that these participants were able to leave the workshop after key modules. These “workshop milestones” allowed participants to select a point where they felt that their needs have been met and can easily stop actively participating the program. These milestones occurred at the end of modules two, three, and five. When a participant

decided to stop actively participating, they still had access to all of the resources of the workshop so that they could review the materials at their own pace.

The final change was to award participants that completed the entire program, the faculty development workshop and participated in a partial Quality Matters™ course review, a certificate of completion from the deans of both participating health related colleges.

Participants

A total of eight faculty members were recruited to participate in the program. The participants did not receive compensation for participating in the program, except for a certificate of completion for completing the entire program.

Instruments and data collection

One of the primary artifacts of the program was a course that the participants developed for their use during the following semester. The artifacts created by the participants during the faculty development workshop were evaluated qualitatively. Prior to the course being used a quantitative score on the quality of the course design was obtained through a limited Quality Matters™ course review and qualitative feedback that included suggestions for making improvements to the course. Finally, some of the participants were interviewed as they began using the courses they had designed during the program. Therefore, this study used the instruments as listed in Table 4.

Table 4

Research Instrument Tools

Instrument	Data type	Reviewed by researcher	Timing

Design of Course Delivery Survey	Quantitative	At the conclusion of the faculty development workshop	Week 0 (pre-test) Week 9 (post-test)
Institutionally Supported Tool Usage Survey	Quantitative	At the conclusion of the faculty development workshop	Week 0 (pre-test) Week 9 (post-test)
Faculty development workshop artifacts	Qualitative	As the data were collected	Week 1 to 9
Participant interviews	Qualitative	As the data is collected	After the participant's course had begun
Quality Matters™ Rubric - General Standard 6	Quantitative and qualitative	As the data were collected	After the participant's course had begun

Design of course delivery survey.

The Design of Course Delivery Survey is a questionnaire that was designed to determine how much experience the participants have in teaching courses that are partially or fully online. In addition, the questionnaire was used to discover the types of instructional activities the participants are using in the face-to-face and online portions of their courses. The instrument, as found in Appendix D and E, is primarily a multiple answer questionnaire listing various activities that a faculty member may use as part of their course design. The researcher developed this instrument based on a review of the literature on active learning in the classroom (Hora, Oleson, & Ferrare, 2013; King, 1993). The purpose of this instrument was to identify the types of learning activities that participants are using in their courses prior to the faculty development workshop. It then was re-administered at the conclusion of the workshop to determine how the participants have changed regarding the instructional activities that they are using within their courses.

These data from this survey shows how the participants typically deliver their course, the type of learning activities they typically employ, and how they utilize the online and face-to-face learning environments.

Institutionally Supported Tool Usage Survey.

The Institutionally Supported Tool Usage Survey is a questionnaire designed to determine which tools of the Blackboard Learning Management System (LMS) the participants are using and how often. In addition, the questionnaire identified which of the tools the participants had no knowledge of. The instrument, as found in Appendix F and G, is primarily a Likert-scale questionnaire listing the various tools within the system that a faculty member may use within their course shell. This instrument is based on the work of Woods, Baker, and Hopper (2004) and a review of the tools currently available within Blackboard Learn version 9.1.140152.0, also known as Blackboard Learn 2012 Service Pack 14 V7. The purpose of this instrument is to discover which tools the participants are using as part of their courses prior to the faculty development workshop. It was re-administered at the conclusion of the workshop to determine if they had become familiar with more tools and were utilizing them in their course shell. These surveys yielded data on which LMS tools the participants typically use within their course shell, allowing for the triangulation with the Design of Course Delivery Survey regarding how they use the online learning environment.

Faculty development workshop artifacts.

As participants completed assignments within the faculty development workshop, they created artifacts that can be qualitatively analyzed. These artifacts were recorded through the course shell's grade book and included discussion boards, reflections, polls,

and assignments related to the development of a course. In addition, the level of participation by participants was recorded by the learning management system. This data allowed for the research to determine the level of engagement the participants had within the workshop.

Quality Matters™ course review.

The fifth edition of the Quality Matters™ Rubric for Higher Education is an instrument that has been designed to determine the quality of the course design for online and blended learning courses. In the case of blended learning courses, only the online elements of the course can be reviewed with the rubric. This instrument provides a quantitative score and qualitative feedback for improving the course design. The rubric yields a score of up to 99 points, and a course is considered to meet quality expectations when all 21 of the essential standards are met and a total score of at least 84 points has been achieved.

For this study, only the portion of the rubric relating to course technology was used. This part of the rubric, General Standard 6 – Course Technology, focuses on the appropriate integration of technology to support student learning. Within this general standard, there are five specific standards that provide a measurement on how well the participants selected and integrated online technologies into the flipped and blended learning courses. This limited course review was conducted by a Quality Matters™ certified Master Reviewer when the participants have indicated that they have completed the development of their course and prior to the course being used by the participant.

Interviews

After the completion of the workshop, some of the participants were asked to participate in a semi-structured interview. As outlined in Appendix H, the interviews focused on how they viewed the faculty development workshop and how this program assisted their integration of online technologies into their other face-to-face courses.

A purposeful sample of up to four participants was selected to be interviewed (Plano Clark & Creswell, 2010). One participant was chosen from each of four groups, as illustrated in Figure 2: 1) participants who did not complete the faculty development program and reported no change or a decline in the tools and techniques they use in their courses, 2) participants who completed the program and reported no change or a decline in the tools and techniques they use in their courses, 3) participants who did not complete the program and reported an increase in the tools and techniques they use in their courses, and 4) participants who completed the program and reported an increase in the tools and techniques they use in their courses. These category designations were based on the extent of program completion and pre-post test results obtained from the Design of Course Delivery Survey and the Institutionally Supported Tool Usage Survey.

	Completed less than 50% of the activities in FAB Tech	**Completed 50% or more of the activities in FAB Tech**
No change in technology use	Interview Group 1	Interview Group 2
Positive change in technology use	Interview Group 3	Interview Group 4

Figure 2. Matrix showing the categories for purposeful sampling interviews.

Procedure

Participants were recruited to participate in the faculty development program through two different methods. First, the researcher asked the various program directors to identify faculty members to participate in the faculty development program. The program directors were asked to take into consideration faculty members that are teaching courses that could benefit from the inclusion of more technology into the courses, faculty members that will more than likely teach the course for the next several semesters, and faculty members that have the time available to participate in such a program. To fill remaining openings for participants, the researcher posted announcements through the colleges' intranet communication tool and made announcements at faculty meetings.

The faculty development program consisted of two parts. The first part is the Flipped and Blended Learning Technology (FAB Tech) Workshop where they participated in a blended learning experience. The second part is a period of course development time where the participants finished the development of their flipped and blended learning course.

The researcher and his staff participated as facilitators of the FAB Tech Workshop in this faculty development program. A pair of instructional designers served as co-facilitators of the workshop with the researcher. In the role of facilitator, the staff provided the participants with feedback on the completeness of the artifacts turned in as assignments, provided tips for improvement, and provided a follow-up on any questions

the participants had. Two multimedia specialists provided support to the participants to develop online content presentations.

The week prior to the beginning of FAB Tech, the participants were asked to complete the Design of Course Delivery Survey and the Blackboard Course Tool Usage Survey. After they completed these two pre-test surveys, they were able to access the course shell for the workshop in the Blackboard learning management system.

The workshop portion of the program was designed as a nine-week workshop with five face-to-face meetings. As shown in Appendix I, the first week of the program focused on defining blended learning and blended/hybrid learning. The term "hybrid learning" was used due to the institution's classroom scheduling office using that term for blended learning courses. The participants also determined which parts of their course they would shift online, which was discussed during the face-to-face session to be held the first week.

Module two of FAB Tech focused on developing online course content, a staple of both flipped and blended learning. During this two-week module, the participants worked with the multimedia staff to develop online course content using software to create voice over slide presentations and video presentations. The presentations they developed were to be placed in their course developmental shell and shared with their colleagues during the face-to-face session during the second week of the module. The end of this module was a workshop milestone for participants that wanted to only shift content to the online learning environment and not change their assessment and classroom practices.

Module 3 of the workshop focused on developing active learning techniques. During this two-week module, the participants explored various ways to promote active learning and were to redesign their courses to integrate these techniques. The facilitators guided the participants through this process and model active learning process during all of the face-to-face sessions. The end of this module is a milestone for participants that are focused on developing flipped and blended learning courses, but do not feel the need to modify their assessments or encourage online interactions.

The fourth module of FAB Tech focused on fostering online interactions in a flipped or blended learning course. The facilitators modeled various ways to foster online interactions throughout the workshop; however, during this module, the participants were to explore other methods through online activities. Participants also were to design online interactions into their courses as appropriate through the development shell they have been working in.

Module five had the participants exploring the alignment of their assessments with their course's learning objectives. This module also set up the discussion on quality standards, as assessment alignment is a key part for the standards. This module also included a face-to-face session where the participants were able to explore various ways to implement authentic assessments in their course. The end of this module was the third and final milestone for participants. This milestone signals the end of course development and a shift to focusing on quality standards and wrapping up the workshop.

The sixth module of FAB Tech explored the standards for online and blended learning as defined by the Quality Matters™ Program. The participants were to review the course technology standards and consider how the course they have been developing

matched up to these standards through a self-review. The goal of this module was to prepare the participants for the limited Quality Matters™ course review that was to occur at the end of the faculty development program.

Module seven was designed for the participants to reflect on the activities they have been engaged in and determine the parts of their course that needed to be completed during the remainder of the faculty development program, and prior to delivering the course. During this final week, the participants met in a final face-to-face session to share and discuss their course designs. Participants who had chosen to stop participating in the workshop at prior milestones were also encouraged to participate in this final week.

As the final week ended, the Design of Course Delivery Survey and the Blackboard Course Tool Usage Survey was administered to all of the program participants, including those who may have chosen to stop actively participating the FAB Tech workshop after one of the milestones.

After the end of the faculty development workshop and the end of the program, the participants were encouraged to work with the staff of instructional designers and multimedia developers to continue developing any elements of their course that were not yet complete. When the participant determined that their course has been completed, the researcher conducted a Quality Matters™ course review.

After the start of the following semester, up to four participants (as described above) were interviewed to measure the effect that the faculty development program had on their teaching practices.

Data Analysis

Design of course delivery survey.

The Design of Course Delivery Survey was analyzed to determine the shift, if any, that a participant made regarding the techniques they were using in their course. Due to the small sample size, only descriptive statistics were reported.

Institutionally Supported Tool Usage Survey.

The Institutionally Supported Tool Usage Survey was analyzed to determine if participants became more familiar with the various tools of the learning management system. This was determined by self-report of the tools they stated they are using prior to the faculty development workshop and plan to use after the conclusion of the workshop. Due to the small sample size, only descriptive statistics were reported.

Faculty development workshop artifacts.

As participants completed activities associated with the faculty development workshop, these artifacts were recorded in either FAB Tech's course shell or a course developmental shell that the participants used to develop their course.

Within FAB Tech's course shell, the completion of activities were recorded in the grade book. When a participant completed an activity, it was recorded in the grade book. The quality of a participant's discussion board post or assignment submission was not assessed; however, the facilitators provided feedback. This section of Blackboard provided information on the extent to which a participant had completed the faculty development workshop. Other data that was recorded within the course shell included basic participant usage statistics. This included the frequency and timing of when a participant logged into the workshop and which sections of the workshop they utilized.

Most of the flipped or blended course development was to occur within the participants' course developmental shell that was provided for building their course. In some cases, they may have posted a sample that they have developed to FAB Tech's discussion boards to obtain peer feedback; however, a majority of the work they completed was placed within their course developmental shell. The final result of this shell underwent a limited Quality Matter course review, to be used the following semester.

Limited Quality Matters™ course review.

After the limited Quality Matters™ course review conducted, the results were shared with the participant so he or she could use the qualitative feedback to improve the course. The data yielded from the limited Quality Matters™ course reviews of the participants' courses were analyzed to provide data for how to improve future iterations of the faculty development workshop.

Descriptive statistics were reported for each specific standard and for the review as a whole. The qualitative data were to be read and coded using axial coding to identify central themes that emerged from the data. A description was developed for each theme and the data were re-read and divided into segments. Then the researcher analyzed the data and combined redundant codes. Afterwards, the researcher developed a narrative and draw conclusions based on the data (Plano Clark & Creswell, 2010).

Interviews

The researcher transcribed the interviews as soon as possible after the conclusion of the interview. After the data had been transcribed, it was read and then coded using axial coding by the researcher to identify central themes that emerged from the data. A

description was developed for each theme and the data were re-read and divided into segments. Then the researcher analyzed the data and combined redundant codes. Afterwards, the researcher developed a narrative and conclusions based on the data (Plano Clark & Creswell, 2010).

Chapter 4: Analysis and Results

Participant Demographics

The eight participants that began this study were comprised of seven females (87.5%) and one male with half of the participants between the ages of 36 to 45. Five of the participants (62.5%) had not taught a fully online course prior to the study. While only two (25.0%) of the participants reported having taught a blended course prior to the study, six of the participants (75%) anticipated teaching a blended learning course within the next year. Seven of the participants (87.5%) currently use the Blackboard learning management system to supplement their face-to-face courses. In regards to faculty rank, seven participants (87.5%) held the rank of assistant professor and one was an associate professor; however five of the participants (62.5%) held a clinical faculty position. The participants represented five different programs in the health related fields and two colleges.

Participants were asked to explain why they were participating in FAB Tech. They indicated interest in learning more about the flipped classroom model, the blended learning model, and the technology used for teaching courses in general learning. Other reasons included interest in active learning techniques and technology used specifically for blended and online courses.

Analysis of Participation in FAB Tech Workshop

Analysis of how the participants were engaged and active in FAB Tech was reviewed from several different sources. The learning management system provides access logs for the workshop shell that contained the contents and activities of the

workshop. In addition, participants interacted with the facilitators of FAB Tech during the face-to-face sessions, via email, the workshop shell, and other online tools.

Levels of participation

While eight participants began the workshop, only five (62.5%) actively participated in the workshop for the entire duration. However, none of the participants completed all of the activities. A participant was considered as "actively participating in the workshop" if they had not indicated to the lead facilitator that they were unable to continue actively participating in the workshop. Participants were allowed to maintain access to the resources of the workshop and their involvement was counted through the end of the week that they notified the lead facilitator that they were ceasing active participation. The researcher made this choice because the participants may have reviewed the expectations of the week, the resources, and some of the activities prior to deciding that they would not be able to complete the activities of the week. As shown in Figure 3, participants ceased active participation in the workshop prior to the start of weeks three, four, and six. The reason for ceasing was due to workload relating to their faculty duties, which included their teaching load, research, and conference attendance.

A participant was considered to have participated in the face-to-face (F2F) session if they attended any part of the session. F2F sessions were held at the end of first, third, fifth, seventh, and ninth week of the workshop. As shown in Figure 3, the only weeks where all of the active participants attended the F2F session were the first, third, and the ninth weeks.

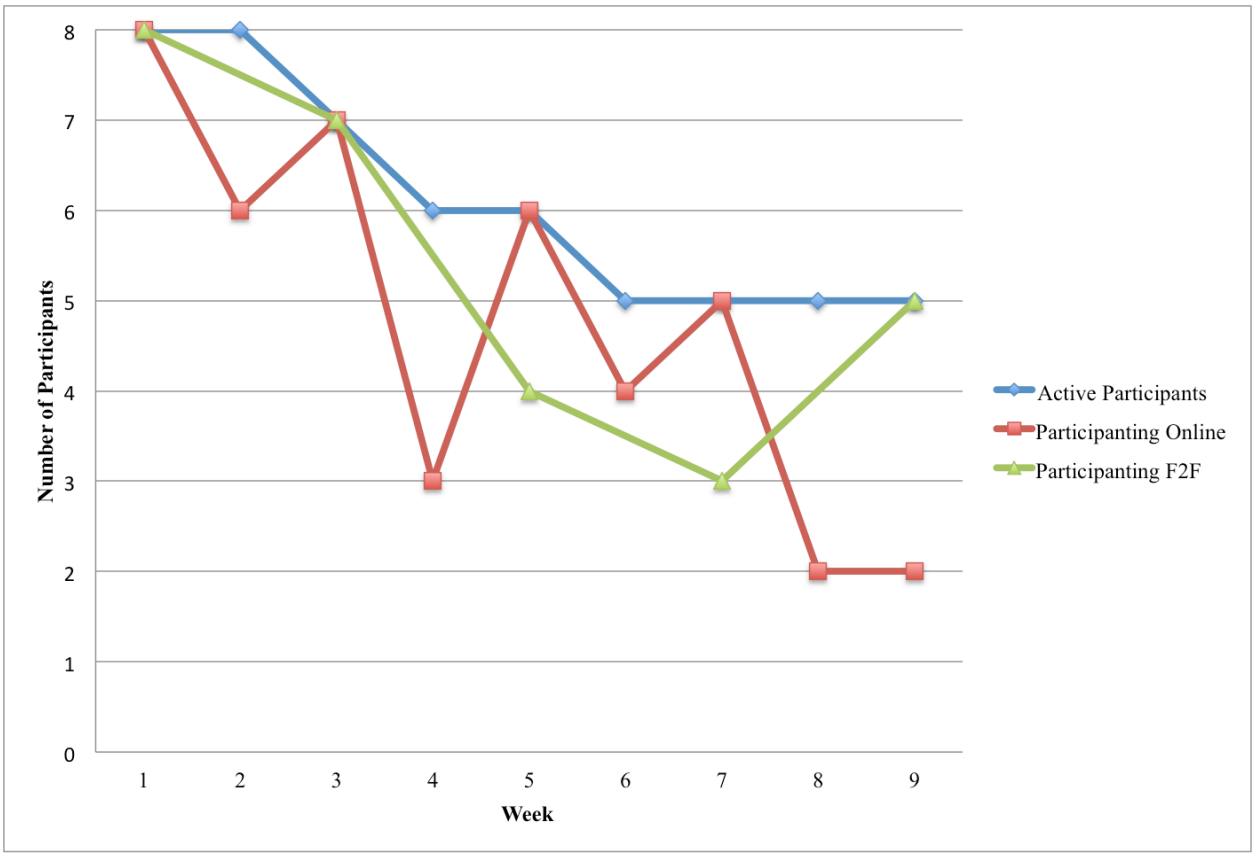

Figure 3. FAB Tech participation.

Participants who logged into the online course shell in the learning management system during a particular week were considered to have been participating in the online activities for the week. The learning management system records all user activities and these logs can be used to determine when a participant accessed the workshop and for how long they were on a particular webpage within the workshop shell. A limitation of the log is that the system was not able to determine what the participant is doing while viewing the page.

As shown in Figure 1, all of the participants logged into the course shell when a F2F session was scheduled with the exception of the final week. Not only did the number of participants accessing the workshop shell decrease during the weeks when there was

not a F2F session, but also the mean and total hours logged into the workshop shell decreased. As shown in Table 5, the mean hours the participants were logged into the workshop shell exceeded two hours during the weeks with F2F sessions (weeks one, three, five, seven, and nine) whereas the weeks without a F2F session (weeks two, four, six, and eight) peaked at 1.77 hours. The participants were logged into the workshop shell for a total of 84.25 hours; however 67.44 of those hours occurred during the weeks when a F2F session was held and the remaining 16.81 hours occurred during the weeks that were fully online. The decision to have a face-to-face session every other week had an effect on the level of engagement with the participants. The participants were more engaged, by a factor of four, with the online materials the weeks when a face-to-face session was held than they were during the weeks when there was not a face-to-face session.

Table 5

Participant Hours in Online Workshop Shell (*n*=8)

Week	Online Participants	Mean Hours	Minimum Hours	Maximum Hours	Total Hours
1	8	2.82	0.37	6.04	22.52
2	6	1.49	0.07	4.82	8.91
3	7	2.24	0.56	5.55	15.66
4	3	1.77	0.52	3.17	5.32
5	6	2.11	0.01	6.42	12.65
6	4	0.36	0.04	1.08	1.42

7	5	2.02	0.13	6.25	10.10
8	2	0.58	0.24	0.92	1.16
9	2	3.26	0.60	5.91	6.51

By reviewing the learning management system logs, the day and time that the participants accessed the shell can also be determined. Activities for the modules were generally due on Mondays and F2F sessions were held on Fridays. As indicated in Figure 4, these were also the two days with the most online activity. Participants logged into the workshop shell for a total of 21.92 hours on Mondays and 29.80 hours on Fridays. No one logged into the system on Saturdays; however three participants logged into the workshop shell for a total of 1.74 hours on Sundays.

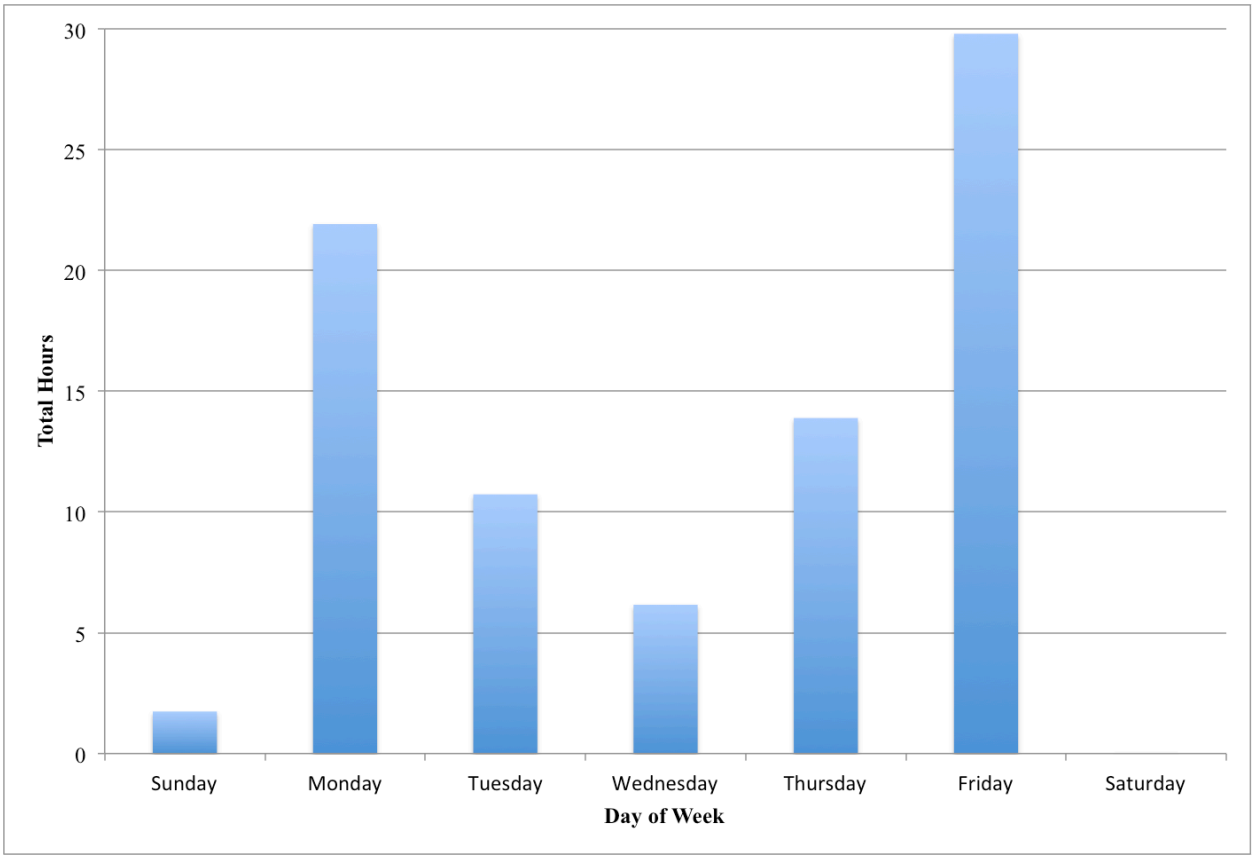

Figure 4. Total participation online by day of week.

Analysis of assignments

FAB Tech included eighteen activities that the participants were expected to complete during the nine weeks of the workshop, four discussion boards, seven written assignments/projects, and seven module polls. As shown in Table 6, all participants completed the first activity, but the rate of completion for activities quickly decreased until none of the participants completed the final four activities during the final two weeks of the workshop.

Table 6

FAB Tech Activities and Completion Rate

Module	Week Due	Activity Title	Activity Type	Participants Completed
1	1	Self Introductions	Discussion Board	9
1	1	Designing your flipped or blended course	Written Assignment	6
1	1	Module 1 Poll	Poll	6
2	2	Matching Pedagogy to Presentation Type	Discussion Board	6
2	3	Creating Your Own Micro & Minilectures	Project	3
2	3	Module 2 Poll	Poll	2
3	4	Active Learning Strategies	Discussion Board	4
3	5	Evaluating Strategies	Discussion Board	5
3	5	Active Learning	Written	2

		Implementation Plan	Assignment	
3	5	Module 3 Poll	Poll	3
4	6	Crowdsourcing: Implementation Ideas for Online Interaction	Written Assignment	1
4	6	Module 4 Poll	Poll	2
5	7	Course Assessment Plan	Written Assignment	0
5	7	Module 5 Poll	Poll	2
6	8	Limited QM Self Review	Written Assignment	0
6	8	Module 6 Poll	Poll	0
7	9	Course Completion Plan	Written Assignment	0
7	9	Module 7 Poll	Poll	0

Muddiest points

During the workshop, the participants raised various issues regarding the implementation of flipped and blended learning in the Hallway Conversations discussion board and during face-to-face sessions. These concerns were captured in a shared document titled “muddiest points” (see Appendix J). During the face-to-face sessions, the facilitators collected some of the questions and concerns raised and listed possible solutions or follow-up ideas. During FAB Tech, the participants had access to this document and had the ability to add their own questions/concerns or possible solutions to existing questions/concerns.

Participants noted eleven concerns during the course of the workshop, which are categorized as course design, course delivery, course technology, and institutional support. The course design category includes items such as the use of formative and summative assessments, how to cover large quantities of content, how to design online discussion boards for courses with over 80 students, and how to meet the Quality Matters™ standards. The course delivery category included topics such as managing courses with large enrollments, managing the student perceptions of self-directed and active learning techniques, time management issues with implementing active learning techniques, and managing teaching assistants so that they provide appropriate feedback to students. The course technology category included how to embed online presentations into their courses and a request for more exemplars of tools for conducting online interactions. The final category related to requesting information on the institutional support available to faculty members to be successful in implementing flipped and blended learning.

The concerns identified early in the workshop were addressed by highlighting which module would address it. Other concerns were addressed by providing tips based on experience or a link to an article on the practice of teaching and learning.

Analysis of the Design of Course Delivery Survey

The Design of Course Delivery Survey focused on how participants design and deliver their courses. The pretest survey asked the participants to consider the courses they have recently delivered and the posttest survey asked the participants to consider what they plan to do in their upcoming courses.

During the pretest, participants identified the teaching methods they use in the face-to-face portion of their courses (see Appendix K for glossary of terms). As shown in Table 7, by the time of the posttest survey, they demonstrated a shift decreasing use of face-to-face time for disseminating information through various lecturing techniques and a shift toward using active learning. They planned to decrease the use of passive learning techniques, such as non-interactive lectures, and increase active learning techniques. Active learning techniques most mentioned included: interactive lecture, small group work/discussion, think-pair-share, deskwork, whole class discussion, multimedia, student presentations, simulations/lab activities, and developing rebuttals. Two participants identified two other face-to-face teaching techniques during the posttest and in both cases they identified case studies, an active learning technique.

Table 7

Face-to-Face Teaching Techniques Selected by Participants (*n*=8)

Technique	Number of participants using technique (pretest)	Number of participants planning to use technique (posttest)	% Change
Lecture (without visuals)	2	1	-12.5%
Lecture with pre-made visuals	8	7	-12.5%
Lecture with handwritten visuals	3	2	-12.5%
Lecturing with demonstration of topic or phenomena	4	3	-12.5%
Interactive lecture	4	6	25.0%

Small group work/discussion	6	8	25.0%
Think-Pair-Share	1	4	37.5%
Deskwork	0	2	25.0%
Whole class discussion	7	8	12.5%
Multimedia	3	3	0.0%
Student presentation	5	7	25.0%
Simulations/lab activity	1	2	12.5%
Concept mapping	1	1	0.0%
Flowcharting	0	0	0.0%
Developing rebuttals	0	1	12.5%
Constructing tables/graphs	1	1	0.0%
Other	0	2	25.0%

Participants identified the types of online activities they used in their courses (pretest) as well as those they would plan to use (posttest). Table 8 displays these changes. The most common activities during the pretest were content presentations, discussions, quizzes/exam, and assignment submissions. Posttest results show that participants planned to increase online activities such as instructor Q&A, case studies, and project-based learning.

Table 8

Online Techniques Selected by Participants (*n*=8)

Technique	Number of participants using technique (pretest)	Number of participants planning to use technique (posttest)	% Change
Content presentations	6	7	12.5%
Discussions	5	7	25.0%
Quizzes/exams	6	8	25.0%
Assignment submission	6	8	25.0%
Instructor Q&A	2	4	25.0%
Simulations	0	0	0.0%
Case studies	1	4	37.5%
Project-based learning	2	4	25.0%
Concept mapping	0	1	12.5%
Flowcharting	0	0	0.0%
Developing rebuttals	0	1	12.5%
Constructing tables/graphs	0	0	0.0%
Other	0	0	0.0%

When asked to identify how they present content to their students, prior to the workshop, the predominant techniques were textbook readings, face-to-face lectures, and links to external websites, as shown in Table 9. While these techniques were still used after the workshop, the participants also planned to use instructor-produced media and student presentations.

Table 9

Techniques for Presenting Content Selected by Participants (*n*=8)

Technique	Number of participants using technique (pretest)	Number of participants planning to use technique (posttest)	% Change
Textbook readings	8	8	0.0%
Face-to-face lectures	7	8	12.5%
Links to external web resources	5	7	25.0%
Instructor-produced media (audio and/or video)	3	7	50.0%
Publisher-produced media (audio and/or video)	3	2	-12.5%
Student presentations	1	5	50.0%
Other	0	0	0.0%

The participants were asked to identify how they foster student-to-instructor interaction. They indicated that they generally planned on using the same interaction methods when comparing pretest to posttest, as shown in Table 10. The participants showed no change in face-to-face techniques such as activities they would use in the classroom or office hours; however, there was a small increase in some of the online tools. One participant indicated that he/she intended to use discussion boards as another method to foster student-to-instructor interaction.

Table 10

Student-to-Instructor Techniques Selected by Participants (*n*=8)

Technique	Number of participants using technique (pretest)	Number of participants planning to use technique (posttest)	% Change
Face-to-face question and answer sessions	6	6	0.0%
Face-to-face questionnaires/comment cards	3	3	0.0%
Office hours	7	7	0.0%
Online questionnaires/comment cards	4	6	25.0%
Email	7	7	0.0%
Video/web conferencing	0	1	12.5%
Chat rooms	1	2	12.5%
Other	0	1	12.5%

Regarding participants' beliefs in the importance of student-to-student interaction in both the face-to-face and online environments, there was a shift. As indicated in Table 11, by the end of the workshop, a majority of the participants felt that student-to-student interaction in both the face-to-face and online environments was very important.

Table 11

Participant Perception of the Importance of Student-to-Student Interaction (*n*=8)

	Face-to-Face	Online

	Pretest	Posttest	% Change	Pretest	Posttest	% Change
Very important for student success	3	5	25.0%	2	5	37.5%
Somewhat important for student success	4	2	-25.0%	5	3	-25.0%
Somewhat unimportant for student success	1	1	0.0%	1	0	-12.5%
Very unimportant for student success	0	0	0.0%	0	0	0.0%

As shown in Table 12, more participants indicated that they were planning to use techniques such as face-to-face discussions and face-to-face collaborative activities/assignments to facilitate student-to-student interactions. There also was an increase in participants planning to use online tools such as online discussions, online collaborative activities/assignments, and email.

Table 12

Techniques Selected by Participants to Support Student-to-Student Interaction (*n*=8)

Technique	Number of participants using technique (pretest)	Number of participants planning to use technique (posttest)	% Change
Face-to-face discussion	5	8	37.5%
Face-to-face collaborative activities/assignments	5	7	25.0%
Clickers	1	1	0.0%

Online discussion	5	6	12.5%
Online collaborative activities/assignments	2	3	12.5%
Email	2	3	12.5%
Video/web conferencing	0	0	0.0%
Chat rooms	1	0	-12.5%
Other	0	0	0.0%

Analysis of the Institutionally Supported Tool Usage Survey

The participants' familiarity with the institution's learning management system (LMS) was surveyed both prior to the FAB Tech Workshop and after its conclusion using the Institutionally Support Tool Usage Survey.

The eighty tools of the LMS were categorized into six groupings: content, assessment, interactive, publisher, content box, and miscellaneous. These groupings were developed based on where these tools were located within the learning management system. The participants responded to their level of usage for each tool using a Likert scale where 1 = I do not know what this tool can do, 2 = I know about this tool, but do not use it, 3 = I use this tool occasionally, 4 = I use this tool frequently, and 5 = I use this tool extensively. Using these responses, all of the tools were grouped and a composite median was calculated for each grouping. As shown in Table 13, the median pretest value for each grouping ranged from 1 to 3 whereas the median posttest value ranged from 2 to 4. The median of all but one tool grouping had an increase of 1, and the exception was the assessment tools grouping where the change was 0.5.

The tools that the participants were most unfamiliar with were the Interactive Tools and the Publisher Tools as the median for these groupings was 1. The participants began the workshop with at least some knowledge of the remaining tools as indicated by their median scores. At the end of the workshop, the participants indicated that they were planning to use more tools from the following groupings: content tools, content box tools, and miscellaneous tools.

Table 13

Participant Responses – Pre-post Test Median by Tool Grouping (*n*=8)

Grouping	Number of Tools	Pretest *Mdn*	Posttest *Mdn*	Change
Content Tools	20	2	3	1
Assessment Tools	8	2	2.5	0.5
Interactive Tools	17	1	2	1
Publisher Tools	22	1	2	1
Content Box Tools	8	2	3	1
Miscellaneous Tools	5	3	4	1

A more detailed view further demonstrates these changes. As indicated in Tables 14-19, participants' increased their knowledge of most tools within each category.

Content Tools Grouping

There was an overall shift in the participants' knowledge and use of the twenty tools that are part of the content tools. Three tools used extensively prior to the workshop

and afterwards were document, syllabus, and content folder tools. There were also three tools that the participants had no knowledge of both prior to the workshop and afterwards, these were: content package (SCORM), blank page, and ShareStream mashup tools. As shown in Table 14, the tools that participants had the greatest increase in were the image, lesson plan, module page, NBC content, and Voice Authoring tools. Of these five tools, the participants began the workshop with no knowledge of the NBC content and Voice Authoring tools. Curiously, the median score for knowledge of the web link tool decreased by .5, and its range of responses also decreased from 2 - 5 to 3 - 4.

Table 14

Participant Responses for Specific Tools in the Content Tools Grouping (*n*=8)

	Pre		Post		
Tool	*Mdn*	Range	*Mdn*	Range	Change in *Mdn*
Document (PDF, Word, PPT, etc.)	5	4 - 5	5	4 - 5	0
Package file (Adobe Presenter, SoftChalk, etc.)	3	1 - 5	4	2 - 5	1
Audio file	2.5	1 - 5	3	2 - 4	0.5
Image	2.5	2 - 5	4	3 - 4	1.5
Video file	3	2 - 5	4	2 - 4	1
Web link	4.5	2 - 5	4	3 - 4	-0.5
Learning Module	4	1 - 5	4	2 - 5	0
Lesson Plan	2	1 - 4	3.5	1 - 5	1.5

Syllabus	5	2 - 5	5	4 - 5	0
Course Link	2	1 - 5	2.5	1 - 5	0.5
Content Package (SCORM)	1	1 - 1	1	1 - 2	0
Content Folder	5	2 - 5	5	2 - 5	0
Module Page	2	1 - 4	3.5	1 - 5	1.5
Blank Page	1	1 - 2	1	1 - 2	0
Flickr Photo	1	1 - 3	2	1 - 4	1
SlideShare Presentation	1	1 - 2	1.5	1 - 3	0.5
YouTube Video	3.5	2 - 5	3.5	2 - 4	0
NBC Content	1	1 - 4	2.5	2 - 4	1.5
ShareStream Mashup	1	1 - 1	1	1 - 3	0
Voice Authoring	1	1 - 2	2.5	1 - 3	1.5

Assessment Tools Grouping

The participants' knowledge and use of the eight tools that are part of the assessment tools grouping shifted during the program as well. More participants had indicated that they were not sure what a tool could do prior to the workshop; however, this had shifted to where they were at least aware of the tool or planned to use it occasionally. After the completion of the workshop, they indicated the greatest increase in the response category for using these tools occasionally; however, there was also a slight decrease in using the categories of using the tools extensively and frequently.

There were no tools that the participants were using extensively prior to the workshop and afterwards. There were two tools the participants had no knowledge of prior to the workshop and also afterwards: mobile compatible test and ShareStream Media assignment tools. As shown in Table 15, the tools that the participants had the greatest increase in were the survey and McGraw-Hill Assignment tools. While the posttest median indicates that the survey tool was more likely to be used occasionally by the participants, the participants only became aware of what the McGraw-Hill Assignment tool could do. The test tool was the only tool that had a decreased in usage; however the posttest still indicated that the tool would be used frequently and its range had decreased from 2 - 5 to 3 - 5.

Table 15

Participant Responses for Specific Tools in the Assessment Tools Grouping (*n*=8)

	Pre		Post		
Tool	*Mdn*	Range	*Mdn*	Range	Change in *Mdn*
Test	5	2 - 5	4	3 - 5	-1
Survey	2	1 - 4	3	2 - 3	1
Assignment	4.5	1 - 5	4.5	3 - 5	0
Self and Peer Assessment	2	1 - 4	2.5	2 - 5	0.5
Mobile Compatible Test	1	1 - 2	1	1 - 3	0
ShareStream Media Assignment	1	1 - 1	1	1 - 2	0
SafeAssignment	3	1 - 5	3.5	2 - 5	0.5

McGraw-Hill Assignment	1	1 - 2	2	1 - 2	1

Interactive Tools Grouping

Many of the participants were unfamiliar with most of the seventeen tools in this grouping prior to the program. After FAB Tech, there was an increase in the knowledge of what the tools could do and the usage of these tools.

As shown in Table 16, none of the seventeen interactive tools had a pretest median score of five; however, eleven of them had a median score of one. Of these eleven tools, nine of the tools also had a median score of one in the posttest. The two tools that the participants indicated that they had gained knowledge of were the voice email tool and the voice presentation tool. The voice presentation tool was also the tool that had the greatest median increase and its range shifted from 1 - 2 to 1 - 4. There was one tool, the discussion board, that had a decrease in its median but its range of 3 - 5 was unchanged.

Table 16

Participant Responses for Specific Tools in the Interactive Tools Grouping (*n*=8)

	Pre		Post		
Tool	*Mdn*	Range	*Mdn*	Range	Change in *Mdn*
Discussion Board	4.5	3 - 5	4	3 - 5	-0.5
Blogs	2	1 - 3	2.5	2 - 3	0.5

Journals	2	1 - 3	2	2 - 3	0
Wikis	2	1 - 3	3	1 - 4	1
Groups	3	2 - 5	3.5	2 - 5	0.5
Tools Area	2.5	1 - 3	3	2 - 4	0.5
Piazza	1	1 - 1	1	1 - 2	0
Pearson's MyLab & Mastering (Content)	1	1 - 2	1	1 - 3	0
Chegg Textbook Solutions Links	1	1 - 1	1	1 - 2	0
Echo Content	1	1 - 1	1	1 - 2	0
Bookshelf by VitalSource	1	1 - 1	1	1 - 2	0
Search for Bookshelf eTextbooks	1	1 - 1	1	1 - 2	0
Voice Email	1	1 - 3	2	1 - 4	1
Voice Board	1	1 - 2	1	1 - 3	0
Voice Direct	1	1 - 2	1	1 - 2	0
Voice Presentation	1	1 - 1	2.5	1 - 4	1.5
Voice Podcaster	1	1 - 3	1	1 - 3	0

Publisher Tools Grouping

The participants were generally unfamiliar with the twenty-two tools within the publisher tools grouping. However, after the FAB Tech workshop, the participants indicated that they were now familiar with the tools and planned to use the tools occasionally or frequently.

The participants indicated that they had no knowledge of fifteen of these tools prior to the workshop; however, as shown in Table 17, they showed an increase in their knowledge for the course messages, glossary, NBC Learn, NBC Learn playlist, and Pearson's MyLab & Mastering tools. During the pretest, there were three tools that the participants indicated they used extensively and these were the announcement, email, and My Grades tools. However, the participants indicated a planned decreased in their use of the email and My Grades tools after the workshop. The courses messages tool had the greatest increase in median change and its range increased from 1 - 4 to 1 - 5. The greatest decrease in the median responses was observed in the email tool; however its range remained constant at 2 - 5.

Table 17

Participant Responses for Specific Tools in the Publisher Tools Grouping (*n*=8)

	Pre		Post		
Tool	*Mdn*	Range	*Mdn*	Range	Change in *Mdn*
Announcements	5	1 - 5	5	4 - 5	0
Blackboard Collaborate Voice Board	1	1 - 1	1	1 - 2	0
Blackboard Collaborate Voice Email	1	1 - 1	1	1 - 3	0
Blackboard Collaborate Voice Podcast	1	1 - 1	1	1 - 2	0
Blackboard Help	3	1 - 4	3	2 - 5	0

Calendar	2	1 - 4	3	1 - 5	1
Cengage Learning MindLinks Tools	1	1 - 2	1	1 - 3	0
Commercial Content Tools	1	1 - 1	1	1 - 4	0
Contacts	2	1 - 5	3	1 - 4	1
Course Messages	1	1 - 4	3	1 - 5	2
Email	5	2 - 5	3.5	2 - 5	-1.5
Glossary	1	1 - 2	1.5	1 - 2	0.5
Manage Pearson Custom Grades	1	1 - 1	1	1 - 2	0
McGraw-Hill Higher Edcuation	1	1 - 1	1	1 - 2	0
My Grades	5	2 - 5	4.5	1 - 5	-0.5
NBC Learn	1	1 - 2	2	1 - 3	1
NBC Learn Playlist	1	1 - 2	1.5	1 - 3	0.5
Pearson Custom Integration	1	1 - 1	1	1 - 2	0
Pearson's MyLab & Mastering (Tools)	1	1 - 2	1.5	1 - 3	0.5
Tasks	1.5	1 - 2	2	1 - 4	0.5
Turning Technologies Registration Tools	1	1 - 2	1	1 - 2	0
WebAssign	1	1 - 1	1	1 - 2	0

Content Box Tools Grouping

The participants began generally not knowing what the eight content box tools were or knowing what they were and was not using them. Seven of the eight tools in this group had an increase in the median from pretest to posttest, as shown in Table 18. The only tool to decrease was the attach a file tool, which was also the only tool to be extensively used prior to the workshop. The participants indicated that they did not know what the format text, embed a mashup, and create a table tools were prior to the workshop. The format text tool had the greatest increase in the median; however the range for the tool remained 1 - 5. Another tool with a similar increase in its median was the embed an image tool and its range shifted from 1 - 4 to 3 - 5.

Table 18

Participant Responses for Specific Tools in the Content Box Tools Grouping (*n*=8)

	Pre		Post		
Tool	*Mdn*	Range	*Mdn*	Range	Change in *Mdn*
Format text	1	1 - 5	3	1 - 5	2
Create a web link	3	1 - 4	3.5	3 - 5	0.5
Record from Webcam	1.5	1 - 4	3	1 - 4	1.5
Attach a file	5	3 - 5	4.5	3 - 5	-0.5
Embed an image	2	1 - 4	4	3 - 5	2
Embed a YouTube Video	2.5	1 - 5	3.5	3 - 5	1
Embed a Mashup	1	1 - 2	2.5	1 - 4	1.5

(Slideshare, Flickr, etc.)					
Create a table	1	1 - 3	2	1 - 3	1

Miscellaneous Tools Grouping

The participants were generally more familiar with the five tools included in the miscellaneous tools grouping. Of the five miscellaneous tools, the grade book tool was the only tool with a median of five in both the pretest and posttest; however its range did decrease from 2 - 5 it the pretest to 3 - 5 in the posttest. As shown in Table 19, the course calendar had the greatest increase in its median and its range shifted from 1 - 4 to 2 - 5. None of these tools had a decrease in their medians.

Table 19

Participant Responses for Specific Tools in the Miscellaneous Grouping (*n*=8)

	Pre		Post		
Tool	*Mdn*	Range	*Mdn*	Range	Change in *Mdn*
Adaptive Release	3	1 - 4	3	1 - 5	0
Course Calendar	2	1 - 4	3	2 - 5	1
Grade Book	5	2 - 5	5	3 - 5	0
Rubric Tool	3	1 - 3	3.5	1 - 5	0.5
Send Email	4	3 - 5	4.5	2 - 5	0.5

Review of All Tools

When reviewing the tools overall, the participants generally indicated that they became more aware of the tools available from the pretest to the posttest. The results from the pretest of Institutionally Supported Tool Usage Survey indicated that the document tool was the most frequently used, followed by the syllabus, content folder, grade book, announcement, attach a file (from within a content box), My Grades, test, email, assignment, discussion board, and web link tools. There were thirty-nine learning management tools that the participants had no knowledge of prior during the pretest; this number was reduced to twenty-four by the posttest. The number of tools most frequently used declined in the post-test from twelve to nine tools, but this could be explained as the participants were indicating they planned to use more tools more often. The three tools that had the greatest increase in their medians from the pretest to posttest were the course messages (publisher tools grouping), format text (content box tool grouping), and embed an image (content box tool grouping) tools. The tool with the greatest decrease in its median was the email tool in the publisher tool grouping. The participants identified twenty-four tools that they were still not familiar with at the end of the workshop; down from thirty nine tools at the beginning.

Participants were exposed to the various tools available in the learning management system or other third party tools using various methods throughout the workshop. Selected tools were introduced either as part of the workshop for the participants to use, as a focus of a "Tools on Parade" section within various modules designed to highlight these tools, or both. For example, the survey, video everywhere, wiki, and voice podcaster tools were used in the workshop and were described in an

appropriate "Tools on Parade." Other tools such as the blog, journal, peer/self review, and rubric tools were described, but not used, in the workshop.

Analysis of Participant Interviews

Selection of participants for interviews

Participants were grouped according to (1) participant completion and (2) change scores from the Institutionally Supported Tool Usage Survey. Those who completed more than half of the activities in the workshop were grouped in one group; those completing less than half were in the other. Change scores constituted the second dimension. These scores were obtained by assigning a numerical value to the Likert scale used in the Institutionally Supported Tool Usage Survey and generating sum for a total score. The total score for both the pretest and posttests were compared to determine change in use of technology during the study. Participants who had an increase were grouped together; those with a decrease or no change in usage comprised a second group.

These groupings resulted in four possible categories, as shown in Table 20. Each participant was assigned an identification number and one participant was selected from each category using the random number generator at *Random*. Because there were no participants in one of the categories, a total of three participants were selected interviews.

Table 20

Matrix showing number of participants in each pool for purposeful sampling interviews (*n*=8)

	Completed less than 50% of the activities in FAB Tech	Completed 50% or more of the activities in FAB Tech

No or negative change in technology use	2	0
Positive change in technology use	3	3

Interview Analysis

Themes identified during the analysis of the participant interviews were: motivations for participating in FAB Tech, the knowledge gained by participating in FAB Tech, how the participants approached course design and development, how the participants approached technology use, their students' reaction to the approach used by the participants, faculty acceptance of flipped and blended learning, barriers encountered, and possible solutions to resolving barriers encountered.

The participants had various reasons for participating in the faculty development program, but the common reason was to improve the educational quality of their courses. There was a desire to "design courses that are less lecture-heavy, lecture dependent, and more interactive in the classroom." The participants in some cases have been teaching using flipped or blended course models previously with varying degrees of success. One participant specifically described walking away from the model, despite hearing how good it was, due to frustration with the details on to how to implement successfully. Another had experienced online lectures as a student and felt that "there's got to be a better way to do this" and was driven by wanting "to figure out a better way to do this."

Two areas that the workshop assisted participants the most were improving the presentation of online content and a better awareness of the tools available. For example, the workshop helped show them how to approach online presentations, "if I hadn't taken

the workshop, I probably would have lots of long lectures." The model for presenting online content made sense. One asked, "Why would I not do it this way?" but had never considered using the minilecture format prior to the workshop. Most felt confident that they could now "integrate technology and to use it effectively" in their courses.

FAB Tech also changed how the participants approached the design and development of their course. They placed emphasis on developing new content presentations that used the minilecture format, focused readings, and other online resources for content that were not duplicated by the online presentations. The goal for developing content in this manner was so that they could use more active learning techniques, especially during face-to-face classroom time. To encourage the students to review the content online prior to class, one participant implemented a ticket-in assignment where the students were asked to be ready to answer questions at the beginning of a class session or to bring questions to be used to quiz the other students in the class. Despite having their courses fully mapped out and designed, two participants indicated that they have created only enough online presentations that they are only a week ahead of the students.

Participants expanded their use of technology in various ways as a result of FAB Tech. One reorganized a course within the learning management system using some of the content organization tools he/she discovered; another adopted content from various content libraries. A participant that was newer to blended learning now uses iPad apps to develop minilectures, and cited VoiceThread as a more creative way to facilitate student discussions for case studies.

In gauging the students' reaction to their courses, participants stated that it was too early to tell. They were concerned about student acceptance of the flipped and blended course models, especially since other courses the students were taking may not have used the model. One participant stated that students felt that if the model had "been the way we were taught from the very beginning, it would be a lot easier." To address this concern, this participant developed an introductory presentation designed to prepare his/her students for the model. Another indicated that students have been appreciative of how the blended course model focuses on content and avoids unnecessary redundancy. Although students appeared to be coming to class prepared and ready in the first weeks of the course, "it requires a little bit of a change in culture."

All participants indicated that faculty workload and time were a substantial barriers to their full participation in FAB Tech and for developing flipped and blended learning courses. They had to balance their workload and time between participating in the workshop, preparing their future courses, teaching their current courses, conducting research, and attending conferences. One participant stated, "we don't have the time necessary to be able to fully develop a course because we have such heavy course loads with high enrollment." In one case, a participant did not receive the new edition of the course textbook until two weeks prior to the start of the course, delaying preparations. As for not completing the all of the activities in the workshop, one participant referred to the workload stating, "there are times that it is heavier than other times, but sometimes it's very hard to determine when those are," and "if you got behind, you were perpetually behind." This situation led the participant to fall behind in the workshop and not complete all of the activities.

Other barriers that would potentially prevent faculty from adopting the flipped and blended course models related to beliefs regarding effectiveness. Some of their colleagues felt the model was not appropriate for their program, had heard concerning stories from others that had poorly implemented the model, or had themselves implemented the model with negative results. Another identified concern related to lack of administrative support, recognition, or compensation for completing the development work required to effectively flip or blend a course and the lack of funds to purchase the software and technology that would make the development process easier. Finally, one participant identified a concern that even if the model were more effective, if the students had a negative perception of the course and its workload then that could negatively impact course evaluations.

As solutions to these barriers, the participants suggested two strategies: to be provided course release time to allow them to have time to develop the necessary resources for flipped and blended learning courses, and to share stories of courses that have been successfully flipped or blended. One participant stated, "My experience with faculty members is that if somebody is willing to try something and it goes well, the word gets out that it went well, and other people want in." Another factor for encouraging other faculty to adopt the models is for them to see students performing at a higher level because of a flipped or blended course. Another participant suggested a team approach to developing the content of a course, spreading the workload over multiple faculty members with different sections of the same course. Although this approach to development would require coordination and agreement among the faculty, a team

approach could be supported through a mentoring model, especially if the mentor received credit or compensation for his/her effort.

The participants also suggested possible changes to the workshop to encourage completion of all of the activities. They suggested the workshop be expanded and to "a whole semester, either lengthen the period of the workshop, perhaps by spreading out some of those modules over a longer period of time." By doing this, one participant indicated that he/she then could spend just a few hours a week working on the workshop while developing his/her course in parallel. Another option that was suggested was to break up the workshop in to smaller parts, while still spreading it over a longer period. Other suggestions included providing more hands-on experience, especially when introducing new technologies, and offering the workshop over the summer "when there isn't all of these other obligations."

Analysis of Limited Quality Matters Review

Three courses were selected for a limited Quality Matters course review. These courses were currently being developed and delivered by the participants that were part of the interview process. Of the ten standards being reviewed: one course met nine of the standards, the second met seven of the standards, and the third course met six of the standards.

As shown in Table 21, the participants did not generally prepare their students for using the course technology as shown in Standards 1.5 and 1.7. These standards ask participants to clearly state what the minimum technology that the students will need to have access to for the course and the minimum technical skills the students should possess prior to starting the course. Standard 7.1 directs students as to how to obtain

technical support during the course and a majority of the courses (66.6%) did provide this information in the course syllabus. Only one course (33.3%) was utilizing a standardized resource that directs students as to how accessible the course technologies are for students with disabilities, as required by Standard 8.2. However, all of the courses met Standard 8.5 that encourages the use of technology in a manner that is not distracting to student learning.

General Standard 6 focuses on using course technologies in a way that supports student achievement. The first two standards focus on aligning the course technologies to support the course's learning objectives and promote active learning. All three courses reviewed met this standard. The third and fourth standards focus on technologies that are available on multiple computing platforms and are current. All three courses met these standards. However, all three courses could improve their availability on mobile devices such as smart phones and tablets. While two of the three courses (66.6%) met Standard 6.5, the reviewer suggested that the courses include more information to make the students aware of what data were being collected by third-party tools such as YouTube.

Table 21

Percentage of courses that met technology related Quality Matters standards (*n*=3)

QM Specific Standard	% of courses that met the standard
1.5: Minimum technology requirements stated	33.3%
1.7: Minimum technology skills stated	0.0%
6.1: Tools support learning objectives	100%
6.2: Tools promote learner engagement	100%

6.3: Technology is readily obtainable	100%
6.4: Technology is current	100%
6.5: Privacy policies for 3rd party tools provided	66.6%
7.1: Directions for technical support provided	66.6%
8.2: Information provided about the accessibility of tools	33.3%
8.5: Course multimedia facilitate ease of use	100%

Summary of Analysis

The research questions of this study were: as a result of the faculty development program to what extent do the participants purposefully integrate online technologies into a redesigned face-to-face course?

a. To what extent have the participants increased their knowledge of available online tools?
b. To what extent is the redesign consistent with quality course technology standards?

Effectiveness of the Design of FAB Tech

When FAB Tech was designed, the issue of faculty workload was of a great concern. The workshop was designed to support faculty members who may feel that they could not complete the program due to other time commitments, but still receive valuable information and resources for designing and developing flipped and blended courses. A modular approach was taken where information on how the online and face-to-face environments could be effectively integrated was presented followed by how to move

lectures to the online environment and then dedicate the face-to-face time to active learning techniques. Because these elements were considered critical for creating a successful flipped or blended learning course, the topics of assessments, online interactive tools, and course quality were presented in the second half of the program. The consequence of this design was that three participants (37.5%) were no longer active during the second half of the program and participants that were active were less engaged with the online materials and completed fewer activities; therefore the effectiveness of these modules was limited.

FAB Tech was also focused on assisting faculty members to design and develop flipped and blended learning courses. An aim of the program was for the participants to redesign a course for flipped or blended learning during the program. The participants did not complete this objective and a common theme was related to a lack of time due to faculty workload. In addition, the participants that withdrew from active participation in the workshop also cited faculty workload and the need to balance teaching, research, and family as a barrier to full participation.

Effectiveness of FAB Tech in Providing an Overview of Tools

A primary goal of FAB Tech was to introduce to the participants the plethora of technology tools available to them in both the learning management system and a selection of third party technology tools that can be used to supplement the learning management system. Woods, Baker, and Hopper had found that most faculty members only use the learning management systems basic functions for content distribution (2004). The results from the pretest of Institutionally Supported Tool Usage Survey indicated that this was the case with our participants.

For an example, the wiki tool was recognized as a tool that the participants were familiar with but did not use according to the pretest; however the posttest indicated that they now planned to use the tool occasionally. One participant indicated that they were specifically attempting to reduce their usage of discussion boards and using tools such as the wiki tool. Also during the interviews, one participant confirmed the success of the design stating that the workshop "made me more aware of the various types of technologies that are available."

To supplement the features of the learning management system, selected third party tools were introduced and in some cases used in the workshop. FAB Tech featured a "Tools on Parade" section in various modules in order to introduce a selection of third party tools. Some of the tools that were both presented and used in FAB Tech were Adobe Presenter™, Adobe Voice™, Techsmith Camtasia™ and VoiceThread™.

Barriers to adopting these tools include the participants' ability to obtain the tools and learn how to use them. Not all of the third party technology tools are uniformly available to all faculty members. Some departments will purchase a license for some of the tools, such as Adobe Presenter™ and Techsmith Camtasia™, but not other tools such as VoiceThread™. Another barrier to the participants adopting some of these tools was a lack of hands-on training available within FAB Tech. Despite these barriers, the participants were adopting third party tools. In one case, a participant was using the tools that were installed in a faculty resource lab and another choose to use the free Adobe Voice™ and purchase Doodlecast Pro™ so that he/she could have the needed technology tools on a iPad™, thus allowing he/she to record anywhere and anytime.

Overall, FAB Tech was effective in providing an overview of the technology tools available and increased the participants knowledge and use of the tools in the learning management system and in using third party tools to supplement the learning management system.

Effectiveness of FAB Tech in Assisting Faculty to Purposefully Integrate Technology

A goal of FAB Tech was to assist faculty to purposefully integrate technology into their flipped and blended courses. In addition, the design of the program was to mimic a blended learning course where there were a number of items were to be completed online prior to a face-to-face session. This was accomplished by utilizing the pre-class/in-class model in the design of FAB Tech as a way to effectively integrate the online and face-to-face portions of a course and by asking the participants to design an integration plan in the first module of the workshop. The intent was to have the participants lecture less in the face-to-face portions of their course and instead use more active learning techniques while using the online portion of the course to deliver content presentations.

The analysis of the Design of Course Delivery Survey shows that there was a shift in the participants' approach to how they designed their courses by the end of FAB Tech. There was a decrease in the lecture approaches used in the face-to-face portion of the course and an increase in the various active learning techniques that the participants planned to use instead. This coincided with an increase in the use of content presentations in the online portion of the course, as well as a number of active learning. The posttest documented that all of the participants were planning to utilize textbook readings and

face-to-face lectures; however, there was also a 50% increase in the planned use of instructor-produced media in the online portions. There was also an increase in the perceived importance of student-to-student interaction in the face-to-face and online portions of the course; in both cases 62.5% of the participants believed that this interaction was very important.

The change in course design was confirmed by the qualitative data where some of the participants indicated that they were using more active learning techniques in the classroom. One participant was using the ticket-in approach for the flipped learning course to emphasize the importance of the pre-class activities and their impact on what happens in the face-to-face portion.

Effectiveness of FAB Tech in Assisting Faculty to Meet Quality Standards

While the sixth module of FAB Tech focused on meeting a limited selection of the Quality Matters™ standards related to course technology, the workshop also modeled how to implement these standards. Due to a lack of participation by the participants during this next to last week of the workshop, FAB Tech may not have been effective in assisting the participants in meeting the selected standards. During this module, there were only five active participants (62.5%). In addition, there was not a face-to-face session during the module; therefore online participation was at one of the lowest points for the entire program with only two participants (25%) logging into the workshop shell for a mean time of 0.58 hours during the module.

There are five standards designed to prepare students and make them aware of the various technologies being used in the course: 1.5 - minimum technology requirements stated, 1.7 - minimum technology skills stated, 6.5 - privacy policies for third party tools

provided, 7.1 - directions for technical support provided, and 8.2 - information provided about the accessibility of tools. None of these five standards were met by any of the courses reviewed. However, the five standards that address technology integration, tool selection, and multimedia quality were met by all three of the courses.

This discrepancy in meeting standards may be due to the emphasis placed on purposefully integrating technology into courses and creating quality online presentations in the first half of the program. Based on these results, the effectiveness of FAB Tech to assist faculty to meet a limited set of quality standards is considered mixed.

Overall Effectiveness of FAB Tech

While the participants did not complete all of the activities of the faculty development program, the participants were active for the first part of the workshop that focused on purposefully integrating technology into a flipped or blended course and creating online presentations. 75% of the participants, including the three that completed at least 50% of the activities, demonstrated an increase in their knowledge and planned use of technology as determined by the Institutionally Supported Tool Usage. When these results are triangulated with the results of the Design of Course Delivery Survey, it is possible to see that not only have the participants increased their knowledge of the tools available, but they also changed their approach to the design of their courses by planning to include a greater variety of activities than they did prior to the program. In addition, the participants that were interviewed uniformly confirmed the survey's finding that they are more purposefully integrating technology into their flipped and blended courses. Therefore, it appears that the faculty development program successfully expanded the

participants' knowledge of the available tools and encouraged them to purposefully integrate more of these tools into their flipped and blended courses.

When addressing the issue of course quality, the courses reviewed met the key Quality Matters technology standards, standards 6.1 and 6.2, that address using tools that support the course learning objectives and support learner engagement. The participants also used technologies that were current and readily available to their students, as well as using multimedia that facilitated the ease of use. However, the participants did not meet the standards related to communicating to their students what the minimum technologies requirements and skill needed for the course. Therefore the results are mixed in regards to if the redesigned courses are consistent with quality course technology standards.

Chapter 5: Discussion and Conclusion

Overview and Summary of the Study

FAB Tech was successful in assisting faculty members to design and develop flipped and blended courses; however the extent of the success was limited by factors external to the faculty development program. While a faculty development program can be used to prepare faculty to provide innovative educational strategies, the institution must have an infrastructure in place that provides opportunities for faculty members to learn and implement these strategies and reward them for doing so.

The academic programs represented by the faculty members in this study were increasing student enrollments, but faced issues concerning the lack of available classroom space. Even though using a blended course model could help to alleviate these concerns, the administration was not leading an organized effort to adopt this model at the time of this study. While some faculty members were considering moving to blended learning, they wanted to make a slower transition. Under these circumstances, the flipped course model served as an intermediate step towards blended learning.

FAB Tech was developed to support these innovative faculty members. The primary purpose of the faculty development program was to encourage participants to purposefully integrate flipped and blended learning technologies into their courses in a manner that was consistent with standards for course quality. However, the program had a secondary goal to assist the participants in transforming the classroom experience into one that was more active. This study sought to determine the effectiveness of both the design for the workshop and the results of the faculty development program.

Validity and Limitations

There are several limitations to the results of this study that need to be acknowledged. The first limitation relates to the small sample size of the population. The participants in this study were not randomly selected to participate. Instead, they were motivated to participate in FAB Tech by a variety of factors, only some of which are known. The instruments used should undergo further review to establish their validity beyond their use in this study. Finally, the participants were aware that the lead facilitator and developer of FAB Tech was also the action researcher for the study. Due to these limitations, the study is not generalizable to a larger population.

Discussion

The success or failure of a faculty development program is dependent on its alignment with the goals and priorities of the institution, college, and academic program. Recalling that in Chapter 2, Graham, Woodfield, and Harrison identified several factors that can be used to classify a blended learning implementation as exploratory, early implementation, or mature implementation (2013).

An implementation that is in the awareness/exploration stage is characterized by not having an institutional strategy regarding blended learning while providing limited support for individual faculty members exploring how they may utilize these strategies in their classes (Graham et al., 2013). For the most part, study participants are implementing blended learning without a programmatic strategic plan and without an incentive structure in place. As described in Chapter 2, these two characteristics are indicative of an implementation that is in the exploratory stage of a blended learning implementation. Participants that ceased actively participating in the program cited an imbalance in their

faculty workload. Those that remained active participated only as their time and workload priorities allowed. The participants placed an emphasis on the lack of an incentive structure, especially in regards to providing time to develop a flipped or blended learning course, and have suggested that the creation of an incentive structure that provided a course release to develop a course or compensation during the summer months would be an improvement. The absence of available time negatively influenced FAB Tech participants.

Despite these issues, the institution is showing signs of mature implementation in several categories. A mature implementation "is characterized by well-established BL strategies, structure, and support that are integral to university operations"(Graham et al., 2013, p. 7). In this study location, the university administration provides a definition for blended learning courses. Courses meeting this definition are communicated to faculty and potential students through the course scheduling system.

FAB Tech is indicative of categories that demonstrate an early implementation. During an early implementation stage, new policies and practices are being implemented to support blended learning (Graham et al., 2013). FAB Tech demonstrated this stage by increasing the focus on the available technical and pedagogical support for faculty, assisting with the course development phase, and attempting to formalize the course development process.

Lessons Learned from the Literature

Lessons from the literature had a substantial influence on the design of FAB Tech. Several researchers cited factors such as the use of active learning, faculty use of technology, faculty workload issues, and a strategic plan to implement flipped and

blended learning as important factors in implementing these programs. As the study unfolded, each of these areas held a special lesson for the design of future FAB Tech programs.

Despite the fact that the phrase "active learning" has appeared in the literature for over ninety years, there is not a consistently accepted definition for what the phrase means. As highlighted in Chapter 2, there has been a focus in the literature for the past twenty-five years as some faculty members have attempted to move away from a lecture centric classroom. While the research has shown the effectiveness of various active learning techniques, Chapter 2 provides evidence that there has been some resistance by faculty members to adopt these techniques. For these reasons, FAB Tech focused on the purposeful integration of technological tools that would allow for more active learning to occur both in the classroom and online. The data from this study supports this need. The participants were very interested in active learning techniques, but needed guidance in overcoming their concerns that they would not be able to cover all of the content of their course or that they might lose control of the class. As a result of the workshop, participants appear to be ready to adopt some active learning techniques such as case studies, student presentations, and project-based learning.

The adoption of new technologies by faculty members has been a slower process than was assumed. With the proliferation of online learning, there is an assumption that faculty members have increased their use of technology tools for teaching. As Woods, Baker, and Harper (2004) identified, faculty members primarily used only the basic features of the learning management system, a finding that was also supported in this study. But as the data further showed, instructional designers can positively influence

faculty members in their adoption of new technologies and tools to support their teaching. As stated in Chapter 2, instructional designers can encourage faculty members as they shift their pedagogical strategies and provide support for implementing learning technologies that support flipped and blended learning.

A barrier to adopting active learning techniques and new technologies is that faculty members have a unique workload where teaching is only part of their role. The meta-profession of faculty members consists of three separate roles of teaching, research, and service. Most institutions prioritize these roles so that a faculty member typically spends 40% of their time teaching, 40% researching, and 20% to professional and institutional service; therefore faculty members often do not have the time to plan ahead for a future course due to both their other duties and their focus on the current courses they are teaching. Faculty members at research institutions may work up to 60 hours a week to fulfill their assigned duties. In addition to this workload, faculty members in the health related fields might have additional time requirements to fulfill in order to maintain their professional licenses and certifications. These factors also influenced participation in FAB Tech. Even though the institution strategically and actively encouraged the adoption of flipped or blended learning, there was awareness that many participants might have less time to actively participate in the program as the semester progressed. Therefore, the most important elements of FAB Tech occurred in the first half of the program. This decision was made so that participants would have an exposure to these important elements should they need to cease active participation due to the workload of their current course, research, or administrative responsibilities.

When an institution places an emphasis on flipped and blended learning, they often provide resources to spur the development of courses to utilize the model. These resources may include a stipend to motivate faculty members to develop flipped and blended courses, or a reduction in a faculty members teaching load to allow them to have the time to develop courses. An institution that has a mature implementation will provide these resources, as well as pedagogical and technical support, overall structure, and a programmatic strategy for implementing blended learning. This study was implemented with these resources partially in place.

The use of technology can be a tremendous motivator for faculty members to participate in a faculty development program. There is recognition by faculty members that technology is always changing and evolving whereas pedagogy is not viewed in a similar way. Therefore, to assist faculty members to evolve their pedagogy, technology workshops can be used to encourage pedagogical development. A best practice would be to not only provide assistance in using a technology tool, but also provide assistance in purposeful integration of the tool through new pedagogical techniques. It is essential that for faculty development programs to be more successful they must integrate the approach to develop both technological and pedagogical skills simultaneously. As this workshop modeled, the pre-class/in-class approach to blended learning can be highly effective to demonstrate how to integrate technology into a course prior to a face-to-face session using online presentations and collaboration tools followed by an in-class session that utilizes a different pedagogical strategy using active learning techniques to increase student engagement.

However, the type of program that is presented must match the stage of blended learning implementation of the institution. While the literature contains examples of programs such as the University of Central Florida's IDL 6543 (Chen, Sugar, & Bauer, 2012), the context of the program needs to be considered prior to developing a similar program at another institution. As Graham, Woodfield, and Harrison has identified, the University of Central Florida is a mature blended learning implementation stage and therefore has policies and technological support structures that have been in place for over ten years (2013). Therefore, if an institution is in the exploratory or early adoption stage of a blended learning implementation, the infrastructure of policies and technology support may not be present to allow such a faculty development program to be fully successful.

Recognizing that faculty workload can be unpredictable, a faculty development program needs to consider the impact of participant attrition. Therefore a program needs to have as much immediate value as possible so that faculty members who need to leave a program after it begins can feel that they have gained some new knowledge. By providing this immediate value, a participant in the program may also choose to remain in the program longer because they see participating as a good use of their time.

Lessons Learned from the Results

While the lessons learned from the research were beneficial in increasing the effectiveness of the design of FAB Tech, during the course of the study, several other important lessons were learned that influenced the effectiveness of the program and could have implications on future practice and research.

Faculty members have often been told about the benefits of flipped and blended learning, but they are not always presented a model of how to implement these models. By participating in a faculty development program that utilized both flipped and blended learning, they were able to see how the models work and how their students might react to these techniques. The participants were able to see how the pre-class/in-class model can be implemented and had an opportunity to design their courses to utilize the same model. This model allows for faculty members to integrate technology into their courses by recording lectures for students to view prior to class and then utilize the in-class time for active learning techniques.

Pretest data from the Institutionally Supported Tool Usage Survey indicated that many of the participants were only using the basic tools of the learning management system. They indicated a desire to use more technology but they cited a lack of support, training, and access to the tools as barriers to using more technology in their teaching. In addition, faculty members lacked the time they need to become familiar with and appropriately integrate new tools. There was also a concern that if their students were not properly prepared to use the technology themselves, this might have a negative impact on course evaluations. Posttest results indicated that the participants were more likely to use more technologies; however the interviews indicated that the participants were still concerned about a lack of access to the tools and students preferring a more traditional approach to courses. This concern about a negative student reaction is due to the fact that introductory courses often do not use these technologies; therefore a future strategy may include focusing on flipping and blending introductory courses prior to the rest of a program.

While the workshop design was valued for providing a model of a flipped and blended course, clearly more face-to-face sessions would have been beneficial. While FAB Tech was designed to have a face-to-face meeting every other week, with online activities occurring every week, the amount of participation during the weeks that were "online only" were substantially lower than the weeks with a face-to-face session. A more successful model may include weekly face-to-face sessions in order to promote more consistent participation.

If an institution has a desire to increase the number of courses offered as blended learning courses in order to reduce the demand for classroom space, this must be done strategically. The institution needs to provide resources to support flipped and blended learning by making technology tools readily available and incentivize development by providing for time to develop courses. For a faculty development program to be highly successful in increasing the number of participants as well as the completion rate, the program must be part of an integrated strategy by the administration. As long as a program such as FAB Tech is an optional resource at an institution that is in the exploration stage of implementing blended learning, then only highly motivated faculty members will participate and complete the faculty development program as their workload allows.

Finally, faculty members must be allowed the time to design and develop flipped and blended learning courses. While supporting participants to develop a flipped or blended learning course was a goal of FAB Tech, this was not realized due to the time restrictions the participants had as a result of their workload.

Implications on Practice

A faculty development program such as FAB Tech is useful for assisting faculty members to implement flipped and blended learning courses. While the program itself would benefit from several modifications, there are several other programs that could be derived from FAB Tech and offered in other settings.

The FAB Tech program was designed to last nine weeks so that it could occur several weeks after the start of a fifteen-week semester and conclude several weeks prior to the end of the semester. If the program was to be expanded, this should be done with careful consideration of the constraints of faculty workload, especially regarding how the activities related to teaching load can be at the highest at the beginning and end of a semester. Regardless of the length of the program, weekly face-to-face sessions should be conducted to encourage consistent participation from week to week. These additional sessions could be useful for conducting hands-on training with specific technology tools. If the program was offered during the summer or between semesters, as suggested by one participant, then the face-to-face sessions could be longer than one hour and potentially conducted in less than nine weeks.

Another possibility would be to reuse some of the online resources developed for FAB Tech to create a just-in-time online workshop that faculty members would utilize when they express an interest in flipped and blended learning. The content from first three modules that focus on the topics of flipped and blended course design, purposeful integration of technology, online presentations, and active learning could be made available as an independent resource. This resource could be coupled with a "flipped

clinic" where faculty members review the modules and then participate in a clinic where they meet with an instructional designer to discuss their specific course and needs.

Creating online lectures is a key component of flipped and blended learning and a series of in-person workshops that focus on this topic could be of use to faculty members. A potential series would include: an introduction to creating online presentations, creating voiceover slide presentations, creating screencasts, planning and designing a video, creating your own video, and using YouTube to host videos. Such a series would focus on providing assistance on how to use specific tools and guided activities to develop online presentations.

In order for the FAB Tech program to realize its full potential, college and program administration must prioritize blended learning in their strategic plans. As noted earlier, on-campus enrollments are projected to increase while classroom space will remain constant; therefore blended learning is a solution that can potentially increase student performance while allowing the colleges and programs to expand enrollments. However many faculty members will not voluntarily adopt this model of learning unless the administration shifts towards a planned implementation that recognizes the need to incentivize the development of flipped and blended learning, provide the technological tools to develop courses, and actively support the pedagogical shift.

Until there is a strategic plan to implement flipped and blended learning, it is important for faculty support centers that provide faculty development programs to avoid focusing on outputs and instead focus on the outcomes of a program. When focused on output, the fact that only eight participants in FAB Tech, a number that represents approximately 2% of the total faculty that could have participated in the program, brings

into question the usefulness of the time and effort that a center utilized to implement the program. A more useful emphasis is on the outcomes of the program, such the improvement of the quality of teaching, as that may encourage more faculty members to participate in future offerings of FAB Tech.

Implication on Research

This study has highlighted the need to revisit the research on the use of technology by faculty members in the teaching of their courses. Whereas ten years ago the focus of this research was on faculty members teaching online courses, this research needs to now focus on all teaching faculty members, regardless of their course modality. This is important as students are wanting more technology to be used in their face-to-face courses (Dahlstrom et al., 2013).

While the literature includes several faculty development programs for blended learning where the effectiveness of the program is studied, an element that seems to be missing is the context for which the program was conducted within an accepted framework. Providers of faculty development programs would be mistaken to adopt one of these programs without first considering the institution's current stage of blended learning implementation as described by Graham, Woodfield, and Harrison (2013). Therefore, it is recommended that more research be conducted to identify faculty development models for supporting blended learning is appropriate for each of the three stages. This will allow centers to maximize their time and effort and achieve a high level of effectiveness.

Future Directions

There are several directions that the research from this study could move towards. These potential areas of research includes student and faculty satisfaction of flipped and blended learning, changes in use of technology and pedagogy by faculty members, improving the framework for blended learning adoption, and an additional action research cycle for FAB Tech.

An immediate need is to review how the students have accepted the initial flipped and blended learning courses developed by the participants of the FAB Tech program. This research will need to focus not just on student achievement in their final grades, but also if student achievement improved in the courses that followed the flipped and blended course. While immediate student success is important, it is critical to know if the students entering subsequent courses are better prepared and succeed at a higher level than previously. In addition, student attitudes toward flipped and blended learning courses would be an important area to review. The results of this research could be compared to the existing research and presented to faculty members to highlight that the model would also work within their programs.

Another important direction is to monitor the satisfaction levels of the participants in the program. When the first courses that the participants developed are coming to an end, it would be important to measure and review how they feel about using the flipped and blended course model. In addition, it would be important to see how they approached course design over the course of the next several semesters to determine if they are using the model in other courses and/or continually improving their courses. As some participants indicated that they were planning to slowly implement the strategies

presented, further studies to see how successful they are in eventually making the full conversion may be of interest.

Faculty use of technology is a key issue that needs to be researched further. As institutions continually invest resources to provide technology tools, a review should be conducted as to which tools have widespread adoption. A college or program wide survey using an instrument such as the Institutionally Supported Tool Usage Survey could be a central method for collecting this data. If this instrument is used longitudinally, then trends may be detected and the results could provide guidance for both potential topics of faculty support programs and for which tools the institution should focus their investment of resources. A similar approach could also be taken for continued research in the change of pedagogical techniques, as measured by the Design of Course Delivery Survey.

The Blended Learning Adoption Framework as developed by Graham, Woodfield, and Harrison (2013) could be further refined. Further research could provide more details as to what types of faculty development programs are appropriate for each of the three stages. This would serve as a guide to assist institutions as they move from an exploration strategy to a mature implementation. In addition, a more developed model may prevent faculty support centers from implementing programs that are not yet appropriate according to three stages of the framework.

Finally, FAB Tech should be conducted again within the context of a strategic implementation of flipped and blended learning. The results of the program may improve if a college or program strategically adopts this model of learning and provides appropriate faculty incentives and a strategic implementation of redesigned courses.

Within this context, the program may have increased participation and engagement by the participants.

Self Reflection of Action Researcher

It has been my experience that faculty support centers have done an excellent job reacting to the needs of the faculty members and academic programs they serve. However, these centers often develop their programs in a vacuum due to the context of their institutional needs and resources available. The designers of such programs are often willing to share their programs with others through conference presentations and the research literature; however, what I found missing was the context that included the barriers that had to be overcome for the program to be successful.

A result of this study was a broadening of my understanding of the workload of the faculty members that I work with on a daily basis. Prior to this study, I had basic knowledge of various duties of a faculty member, but not a firm understanding of why a faculty member may choose to not participate in a faculty development program or implement new teaching and learning strategies. In my previous role as an instructional designer, I only worked with a faculty member for a limited amount of time to develop a course. I was not provided a complete view of the decisions a faculty member will make in order to achieve a balance in their workload.

In the past, I have been fortunate to work with innovative faculty members willing to experiment with new technologies and pedagogical strategies. Having a group of innovators that can help determine which strategies to continue using an important factor. However, students may reject these successful strategies because they are not similar to the ones being used by other courses in the program. A critical factor to success is for the

administration to develop a strategic plan to implement these innovations either in a college or program wide; otherwise the support for other faculty to adopt these strategies may not be there. In my role as an action researcher, I need to establish a research practice to review the effectiveness of the innovative practices we implement and then recommend the most successful ones to the administration for widespread adoption.

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APPENDIX A

PARTICIPANT AGREEMENT FORM & PREWORKSHOP SURVEY (PHASE 1)

Participant Agreement Form

September 23, 2013

Dear Participant:

I am a graduate student under the direction of Professor Kathleen Puckett in the Mary Lou Fulton Teachers College, Division of Educational Leadership and Innovation at Arizona State University.

I am conducting a research study investigating the impact of developing blended learning course to faculty workload. I am inviting your participation in the program, which will involve a five-week workshop that will be conducted online with one two-hour face-to-face session. Artifacts from the workshop including submitted assignments, polls, and discussion boards will be analyzed. After the conclusion of the workshop you will be asked to complete a series of surveys as you develop your course prior to the start of the Spring 2014 semester. After you have completed the development of your blended learning course, a review of the design will be conducted by a certified Quality Matters Peer Reviewer using the Quality Matters Rubric for Higher Education.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. When completing the surveys, you can skip questions if you wish.

The benefits of participating in this research are that you will gain information regarding how to design and develop blended learning courses, your responses to the survey will assist in the further development of the workshop, and in identifying how developing blended learning courses has impacted your workload. There are no foreseeable risks or discomforts to your participation.

Your responses will be confidential. Confidentially will be maintain by assigning a code to your responses and storing all files on a secure server with the file containing your name and corresponding code being save in a separate and secure location. The results of this study may be used in reports, presentations, or publications but your name will not be used. The results will only be shared in the aggregate form.

This study will be conducted in the days leading up to workshop that begins on September 30 and through the end of workshop on November 1. Follow-up surveys will be conduct after the workshop and until the beginning of the Spring 2014 semester (January 13, 2014).

If you have any questions concerning the research study, please contact the research team at: Steven Crawford (602-496-0969 or steven.crawford@asu.edu).

Sincerely,

Steven Crawford

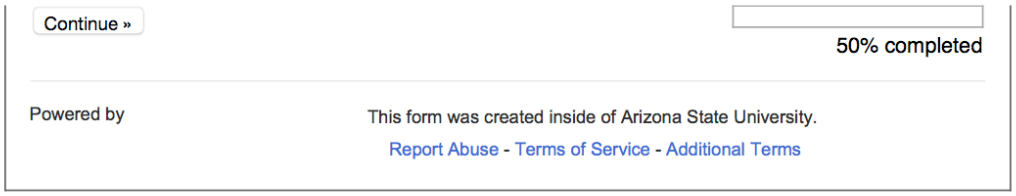
* Required

Please provide your first and last name *

Please provide your email address *

Do you agree to participate? *

- ○ Yes, I agree to participate
- ○ No, I will not be participating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Participant Agreement Form

Pre-Workshop Survey

What is your gender?

- ○ Female
- ○ Male

What is your present age?

- ○ 25 years or under
- ○ 26 – 35 years
- ○ 36 – 45 years
- ○ 46 – 55 years
- ○ 56 – 65 years
- ○ Over 65 years

Have you taught an online course (100% online) before?

- ○ Yes
- ○ No

Have you taught a "blended" (reduced seat time) course before?

- ○ Yes
- ○ No

Do you plan to teach a new blended learning course within the next year?

- ○ Yes
- ○ No

Why are you participating in the Design and Developing Blended Learning Courses workshop?

Which course do you plan on developing as a blended learning course during this workshop?

Based on information contained in the Welcome and Start Here & Course Information areas of

the Design and Developing Blended Learning Courses workshop, how comfortable are you with participating in this program?

- ○ Very comfortable
- ○ Somewhat comfortable
- ○ Somewhat uncomfortable
- ○ Very uncomfortable

What concerns or unanswered questions do you have at this point?

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APPENDIX B

WEEKLY POLLS (PHASE 1)

Week 1 Poll

How much time do you plan to allot to the face-to-face portion of your blended learning course?

- ○ More than 50%
- ○ 50%
- ○ Less than 50%

Which of the following course components do you plan to include in the face-to-face portion of your blended learning course? (select all that apply)

- ☐ Lectures
- ☐ Small group discussions
- ☐ Quizzes/exams
- ☐ Assignment submission
- ☐ Instructor Q&A
- ☐ Other

If you answered "other" above, please describe what activities you are planning.

Which of the following course components do you plan to include in the online portion of your blended learning course? (select all that apply)

- ☐ Content presentations
- ☐ Discussions
- ☐ Quizzes/exams
- ☐ Assignment submission
- ☐ Instructor Q&A
- ☐ Other

If you answered "other" above, please describe what activities you are planning.

What concerns or unanswered questions do you have at this point?

How many hours have you needed to dedicate to the activities of the workshop this week?

- ○ Less than 1 hour
- ○ 1 hour
- ○ 2 hours
- ○ 3 hours
- ○ 4 hours
- ○ 5 hours
- ○ 6 hours
- ○ 7 hours

- ○ 8 hours
- ○ 9 hours
- ○ 10 hours
- ○ More than 10 hours

Week 2 Poll

In my blended course, I believe student interaction will be:

- ○ Very important for student success
- ○ Somewhat important for student success
- ○ Somewhat unimportant for student success
- ○ Very unimportant for student success

In my blended course, I plan to foster student-to-instructor interaction using (select all that apply):

- ☐ Face-to-face question and answer sessions
- ☐ Face-to-face questionnaires/comment cards
- ☐ Online questionnaires/comment cards
- ☐ Email
- ☐ Video/web conferencing
- ☐ Chat rooms
- ☐ Other

If you answered "other" above, please describe what activities you are planning.

In my blended course, I plan to foster student-to-student interaction using (select all that apply):

- ☐ Face-to-face discussion
- ☐ Online discussion
- ☐ Face-to-face collaborative activities/assignments
- ☐ Online collaborative activities/assignments
- ☐ Email
- ☐ Video/web conferencing
- ☐ Chat rooms
- ☐ Other

If you answered "other" above, please describe what activities you are planning.

What concerns or unanswered questions do you have at this point?

How many hours have you needed to dedicate to the activities of the workshop this week?

- ○ Less than 1 hour
- ○ 1 hour

- ○ 2 hours
- ○ 3 hours
- ○ 4 hours
- ○ 5 hours
- ○ 6 hours
- ○ 7 hours
- ○ 8 hours
- ○ 9 hours
- ○ 10 hours
- ○ More than 10 hours

Week 3 Poll

Which of the following general types of learning assessments do you incorporate most regularly into your courses?

- ○ Quizzes/exams
- ○ Essays/other writings
- ○ Projects/other authentic tasks

Which of the following specific assessment methods do you plan to incorporate in your blended learning course? (select all that apply)

- ☐ Online quizzes/exams
- ☐ Face-to-face quizzes/exams
- ☐ Papers
- ☐ Projects
- ☐ Other assignments

If you answered "other assignments" above, please describe what activities you are planning.

Which of the following issues are concerning you as you design learning assessments for your blended course? (select all that apply)

- ☐ Online cheating
- ☐ Face-to-face cheating
- ☐ Difficulty of creating multiple choice items at higher cognitive levels
- ☐ Mechanics of creating online quizzes
- ☐ Mechanics of setting up online submissions of assignments
- ☐ Time commitment of writing detailed assignment
- ☐ Time commitment of grading
- ☐ Other

If you answered "other" above, please describe what activities you are planning.

What concerns or unanswered questions do you have at this point?

How many hours have you needed to dedicate to the activities of the workshop this week?

- ○ Less than 1 hour
- ○ 1 hour
- ○ 2 hours
- ○ 3 hours
- ○ 4 hours
- ○ 5 hours
- ○ 6 hours
- ○ 7 hours
- ○ 8 hours
- ○ 9 hours
- ○ 10 hours
- ○ More than 10 hours

Week 4 Poll

Which of the following types of content presentations are you planning for your blended course? (select all that apply)

- ☐ Textbook readings
- ☐ Lectures
- ☐ Links to external web resources
- ☐ Instructor-produced media
- ☐ Publisher-produced media
- ☐ Other

If you answered "other" above, please describe what activities you are planning.

In which portion(s) of your blended course will you collect student assignments?

- ○ Face-to-face only
- ○ Online only
- ○ A combination of face-to-face and online

Which of the following best describes how you plan to ensure that students experience consistency in your presentation of content, assignments, etc.?

- ○ Online “module” introduction to content and assignments
- ○ Face-to-face introduction to each week’s work

What concerns or unanswered questions do you have at this point?

How many hours have you needed to dedicate to the activities of the workshop this week?

- ○ Less than 1 hour
- ○ 1 hour

- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- 7 hours
- 8 hours
- 9 hours
- 10 hours
- More than 10 hours

Week 5 Poll

What do you see as the biggest potential obstacle to completing your blended learning course?

- Time to complete development of the course
- Dependence on others for tasks out of your direct control
- Not knowing what to do next in development
- Other

If you answered "other" above, please describe what activities you are planning.

Do you have at least one colleague whom you would be comfortable inviting to review your blended course?

- Yes
- No
- I do not know

Have you found written criteria for blended course quality that you could adapt for sharing with colleagues?

- Yes
- No
- I do not know

What concerns or unanswered questions do you have at this point?

How many hours have you needed to dedicate to the activities of the workshop this week?

- Less than 1 hour
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours

- 6 hours
- 7 hours
- 8 hours
- 9 hours
- 10 hours
- More than 10 hours

APPENDIX C

LIMITED QUALITY MATTERS™ COURSE REVIEW (PHASE 2)

Course: _____

Date: _____

Standard 1.5: Minimum technology requirements are clearly stated and instructions for use provided.	**Meets Expectations?**
Recommendation:	

Standard 1.7: Minimum technical skills expected of the learner are clearly stated.	**Meets Expectations?**
Recommendation:	

Standard 6.1: The tools used in the course support the learning objectives or competencies.	**Meets Expectations?**
Recommendation:	

Standard 6.2: Course tools promote learner engagement and active learning.	**Meets Expectations?**
Recommendation:	

Standard 6.3: Technologies required in the course are readily obtainable.	**Meets Expectations?**
Recommendation:	

Standard 6.4: The course technologies are current.	**Meets Expectations?**
Recommendation:	

Standard 6.5: Links are provided to privacy policies for all external tools required in the course.	**Meets Expectations?**
Recommendation:	

Standard 7.1: The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	**Meets Expectations?**
Recommendation:	

Standard 8.2: Information is provided about the accessibility of all technologies required in the course.	**Meets Expectations?**
Recommendation:	

Standard 8.5: Course multimedia facilitate ease of use.	**Meets Expectations?**
Recommendation:	

Standards from the Quality Matters Higher Education Rubric, 5th Edition. In Quality Matters. Retrieved from https://www.qualitymatters.org/node/2305/download/QM%20Standards%20with%20Point%20Values%20Fifth%20Edition.pdf

The reprint of this QM Standards document does not imply the endorsement or support of this research by Quality Matters

APPENDIX D

DESIGN OF COURSE DELIVERY SURVEY (PHASE 2 - PRETEST)

Participant Agreement Form

September 19, 2014

Dear Participant:

I am a graduate student under the direction of Professor Kathleen Puckett in the Mary Lou Fulton Teachers College, Division of Educational Leadership and Innovation at Arizona State University.

I am conducting a research study investigating the how a faculty development program for designing and developing flipped and blended learning courses changes the use of the technology tools used to deliver courses. I am inviting your participation in the program, which will involve a nine-week workshop that will be conducted online with five one-hour face-to-face session. Artifacts from the workshop including submitted assignments, polls, and discussion boards will be analyzed. In addition, a pair of surveys will be administered before and after the workshop. After the conclusion of the workshop you may be asked to participate in an interview conducted by the researcher as you at the start of the Spring 2015 semester. After you have completed the development of your flipped and blended learning course, a limited review of the design will be conducted by a certified Quality Matters Peer Reviewer using the parts of the Quality Matters Rubric for Higher Education.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. When completing the surveys, you can skip questions if you wish.

The benefits of participating in this research are that you will gain information regarding how to design and develop blended learning courses, your responses to the survey will assist in the further development of the workshop, and in identifying how developing blended learning courses has impacted your workload. There are no foreseeable risks or discomforts to your participation.

Your responses will be confidential. Confidentially will be maintain by assigning a code to your responses and storing all files on a secure server with the file containing your name and corresponding code being save in a separate and secure location. The results of this study may be used in reports, presentations, or publications but your name will not be used. The results will only be shared in the aggregate form.

This study will be conducted in the days leading up to workshop that begins on September 22 and through the end of workshop on November 21. Follow-up surveys and interviews will be conduct after the workshop and until the beginning of the Spring 2015 semester.

If you have any questions concerning the research study, please contact the research team at: Steven Crawford (602-496-0969 or steven.crawford@asu.edu).

Sincerely,

Steven Crawford

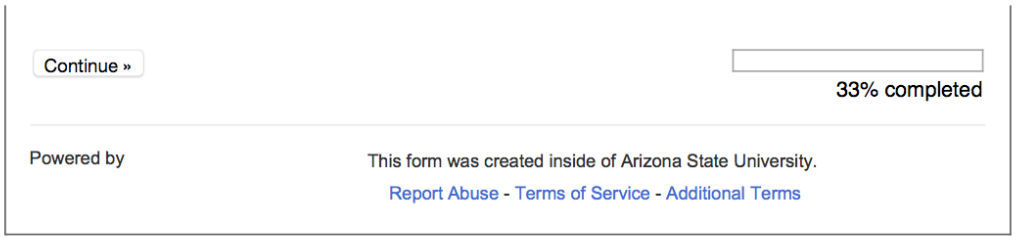
* Required

Please provide your first and last name *

Please provide your email address *

Do you agree to participate? *

- ○ Yes, I agree to participate
- ○ No, I will not be participating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Participant Agreement Form

Demographic & Background Information

What is your gender?

- ◯ Female
- ◯ Male

What is your present age?

- ◯ 25 years or under
- ◯ 26 – 35 years
- ◯ 36 – 45 years
- ◯ 46 – 55 years
- ◯ 56 – 65 years
- ◯ Over 65 years

Have you taught an online course (100% online) before?

- ◯ Yes
- ◯ No

Have you taught a "blended" (reduced seat time) course before?

- ◯ Yes
- ◯ No

Do you plan to teach a new blended learning course within the next year?

- ◯ Yes
- ◯ No

Do you currently use Blackboard to supplement your face-to-face courses?

- ◯ Yes
- ◯ No

Why are you participating in the Design and Developing Blended Learning Courses workshop?

Which course do you plan on developing as a blended learning course during this workshop?

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Participant Agreement Form

Design of Course Delivery Survey

The questions below will address three areas: 1) the face-to-face portions of your courses, 2) online portions of your courses, and 3) general approaches.

If you are planning on redesign a specific course during the FAB Tech workshop, please consider how you currently approach that course.

If you are design a new course (or a course that you have not taught before), Please consider your courses in general.

Face-to-Face Course Activities

The following questions pertain to only the face-to-face portions of your courses. If you do not teach any face-to-face courses, please skip this section.

Which of the following teaching methods do you use in the face-to-face portion of your course?

(choose all that apply)

- ☐ Lecture (without visuals)
- ☐ Lecture with pre-made visuals
- ☐ Lecture with handwritten visuals
- ☐ Lecturing with demonstration of topic or phenomena
- ☐ Interactive lecture
- ☐ Small group work/discussion
- ☐ Think-Pair-Share
- ☐ Deskwork
- ☐ Whole class discussion
- ☐ Multimedia
- ☐ Student presentation
- ☐ Simulations/lab activity
- ☐ Concept mapping
- ☐ Flowcharting
- ☐ Developing rebuttals
- ☐ Constructing tables/graphs
- ☐ Other:

How do you foster student-to-instructor interaction?

(choose all that apply)

- ☐ Face-to-face question and answer sessions
- ☐ Face-to-face questionnaires/comment cards
- ☐ Online questionnaires/comment cards

- [ ] Email
- [ ] Video/web conferencing
- [ ] Chat rooms
- [ ] Office hours
- [ ] Other:

In the face-to-face portion of your course, student-to-student interaction is:

- ( ) Very important for student success
- ( ) Somewhat important for student success
- ( ) Somewhat unimportant for student success
- ( ) Very unimportant for student success

Online Activities in a Flipped/Blended Course

The following questions pertain to only the online portions of your courses. If you do not currently teach a flipped or blended course, please consider your technology enhanced face-to-face courses, but not your online courses.

Which of the following activities do you use in the online portion of your course?
(choose all that apply)

- [ ] Content presentations
- [ ] Discussions
- [ ] Quizzes/exams
- [ ] Assignment submission
- [ ] Instructor Q&A
- [ ] Simulations
- [ ] Case studies
- [ ] Project-based learning
- [ ] Concept mapping
- [ ] Flowcharting
- [ ] Developing rebuttals
- [ ] Constructing tables/graphs
- [ ] Other:

In the online portion of your course, student-to-student interaction is

- ( ) Very important for student success
- ( ) Somewhat important for student success
- ( ) Somewhat unimportant for student success
- ( ) Very unimportant for student success

General Course Activities

The following questions pertain to all portions of your courses.

Which of the following types of content presentations do you use in your course?
(choose all that apply)

- [ ] Textbook readings
- [ ] Face-to-face lectures
- [ ] Links to external web resources
- [ ] Instructor-produced media (audio and/or video)
- [ ] Publisher-produced media (audio and/or video)
- [ ] Student presentations
- [ ] Other:

What tools do you use to foster student-to-student interaction?
(choose all that apply)

- [ ] Face-to-face discussion
- [ ] Online discussion
- [ ] Face-to-face collaborative activities/assignments
- [ ] Online collaborative activities/assignments
- [ ] Email
- [ ] Video/web conferencing
- [ ] Chat rooms
- [ ] Clickers
- [ ] Other:

In which portion(s) of your course do you collect student assignments?

- ( ) Face-to-face only
- ( ) Online only
- ( ) A combination of face-to-face and online

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APPENDIX E

DESIGN OF COURSE DELIVERY SURVEY (PHASE 2 - POSTTEST)

Design of Course Delivery Survey

Now that the FAB Tech workshop has concluded, we would like you to respond to this survey with how you plan to approach your courses next semester, especially the course you were designing and developing during the workshop.

The questions below will address three areas: 1) the face-to-face portions of your courses, 2) online portions of your courses, and 3) general approaches.

* Required

Please provide your first and last name *

Please provide your email address *

Face-to-Face Course Activities

The following questions pertain to only the face-to-face portions of your courses. If you do not teach any face-to-face courses, please skip this section.

Which of the following teaching methods do you plan to use in the face-to-face portion of your course?
(choose all that apply)

- ☐ Lecture (without visuals)
- ☐ Lecture with pre-made visuals
- ☐ Lecture with handwritten visuals
- ☐ Lecturing with demonstration of topic or phenomena
- ☐ Interactive lecture
- ☐ Small group work/discussion
- ☐ Think-Pair-Share
- ☐ Deskwork
- ☐ Whole class discussion
- ☐ Multimedia
- ☐ Student presentation
- ☐ Simulations/lab activity
- ☐ Concept mapping
- ☐ Flowcharting
- ☐ Developing rebuttals
- ☐ Constructing tables/graphs
- ☐ Other:

How do you plan to foster student-to-instructor interaction?

(choose all that apply)

- [ ] Face-to-face question and answer sessions
- [ ] Face-to-face questionnaires/comment cards
- [ ] Online questionnaires/comment cards
- [ ] Email
- [ ] Video/web conferencing
- [ ] Chat rooms
- [ ] Office hours
- [ ] Other:

In the face-to-face portion of your course, student-to-student interaction is:

- ( ) Very important for student success
- ( ) Somewhat important for student success
- ( ) Somewhat unimportant for student success
- ( ) Very unimportant for student success

Online Activities in a Flipped/Blended Course

The following questions pertain to only the online portions of your courses. If you do not plan to teach a flipped or blended course, please consider your technology enhanced face-to-face courses and not your online courses.

Which of the following activities do you plan to use in the online portion of your course?
(choose all that apply)

- [ ] Content presentations
- [ ] Discussions
- [ ] Quizzes/exams
- [ ] Assignment submission
- [ ] Instructor Q&A
- [ ] Simulations
- [ ] Case studies
- [ ] Project-based learning
- [ ] Concept mapping
- [ ] Flowcharting
- [ ] Developing rebuttals
- [ ] Constructing tables/graphs
- [ ] Other:

In the online portion of your course, student-to-student interaction is

- ( ) Very important for student success
- ( ) Somewhat important for student success

- Somewhat unimportant for student success
- Very unimportant for student success

General Course Activities

The following questions pertain to all portions of your courses.

Which of the following types of content presentations do you plan to use in your course?
(choose all that apply)

- Textbook readings
- Face-to-face lectures
- Links to external web resources
- Instructor-produced media (audio and/or video)
- Publisher-produced media (audio and/or video)
- Student presentations
- Other:

What tools do you plan to use to foster student-to-student interaction?
(choose all that apply)

- Face-to-face discussion
- Online discussion
- Face-to-face collaborative activities/assignments
- Online collaborative activities/assignments
- Email
- Video/web conferencing
- Chat rooms
- Clickers
- Other:

In which portion(s) of your course do you plan to collect student assignments?

- Face-to-face only
- Online only
- A combination of face-to-face and online

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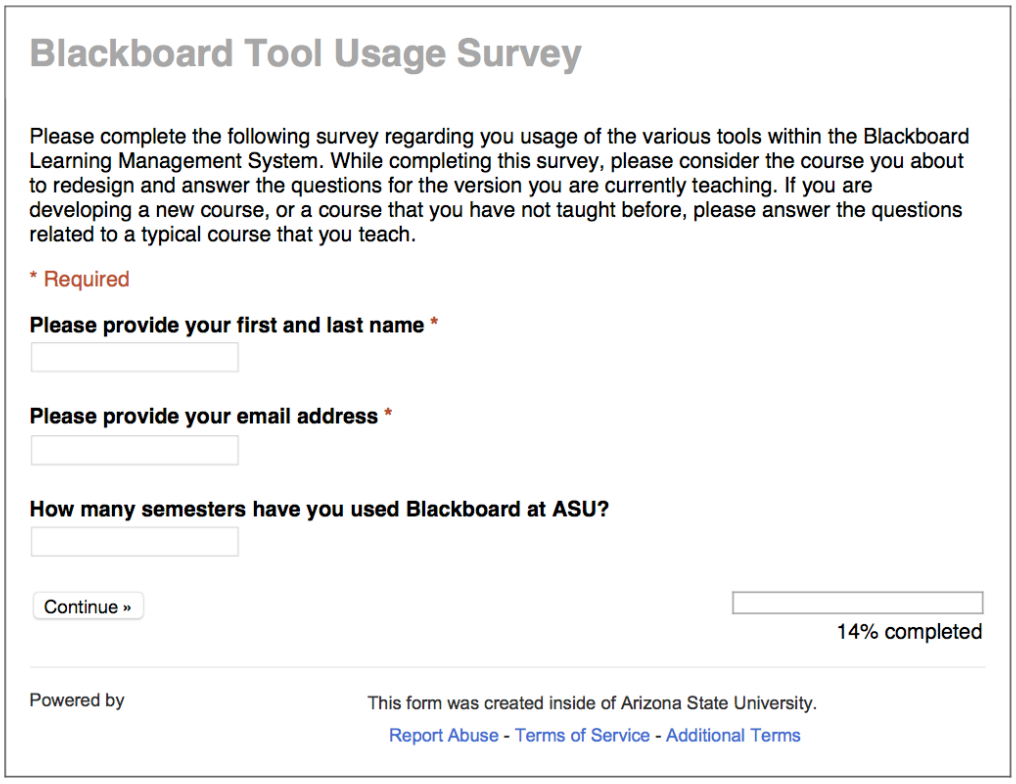
APPENDIX F

INSTITUTIONALLY SUPPORTED TOOL USAGE SURVEY (PHASE 2 - PRETEST)



Blackboard Tool Usage Survey

Please complete the following survey regarding you usage of the various tools within the Blackboard Learning Management System. While completing this survey, please consider the course you about to redesign and answer the questions for the version you are currently teaching. If you are developing a new course, or a course that you have not taught before, please answer the questions related to a typical course that you teach.

* Required

Please provide your first and last name *

Please provide your email address *

How many semesters have you used Blackboard at ASU?

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Blackboard Tool Usage Survey

Part 1: Build Content Tools

How often do you use the following content tools in your course?

	I do not know what this tool can do	I know about this tool, but have not used it	I have used this tool occasionally	I have used this tool frequently	I have used this tool extensively
Document (PDF, Word, PPT, etc.)	○	○	○	○	○
Package file (Adobe Presenter, SoftChalk, etc.)	○	○	○	○	○
Audio file	○	○	○	○	○
Image	○	○	○	○	○
Video file	○	○	○	○	○
Web link	○	○	○	○	○
Learning Module	○	○	○	○	○
Lesson Plan	○	○	○	○	○
Syllabus	○	○	○	○	○
Course Link	○	○	○	○	○
Content Package (SCORM)	○	○	○	○	○
Content Folder	○	○	○	○	○
Module Page	○	○	○	○	○
Blank Page	○	○	○	○	○
Flickr Photo	○	○	○	○	○
SlideShare Presentation	○	○	○	○	○
YouTube Video	○	○	○	○	○
NBC Content	○	○	○	○	○
ShareStream Mashup	○	○	○	○	○
Voice Authoring	○	○	○	○	○

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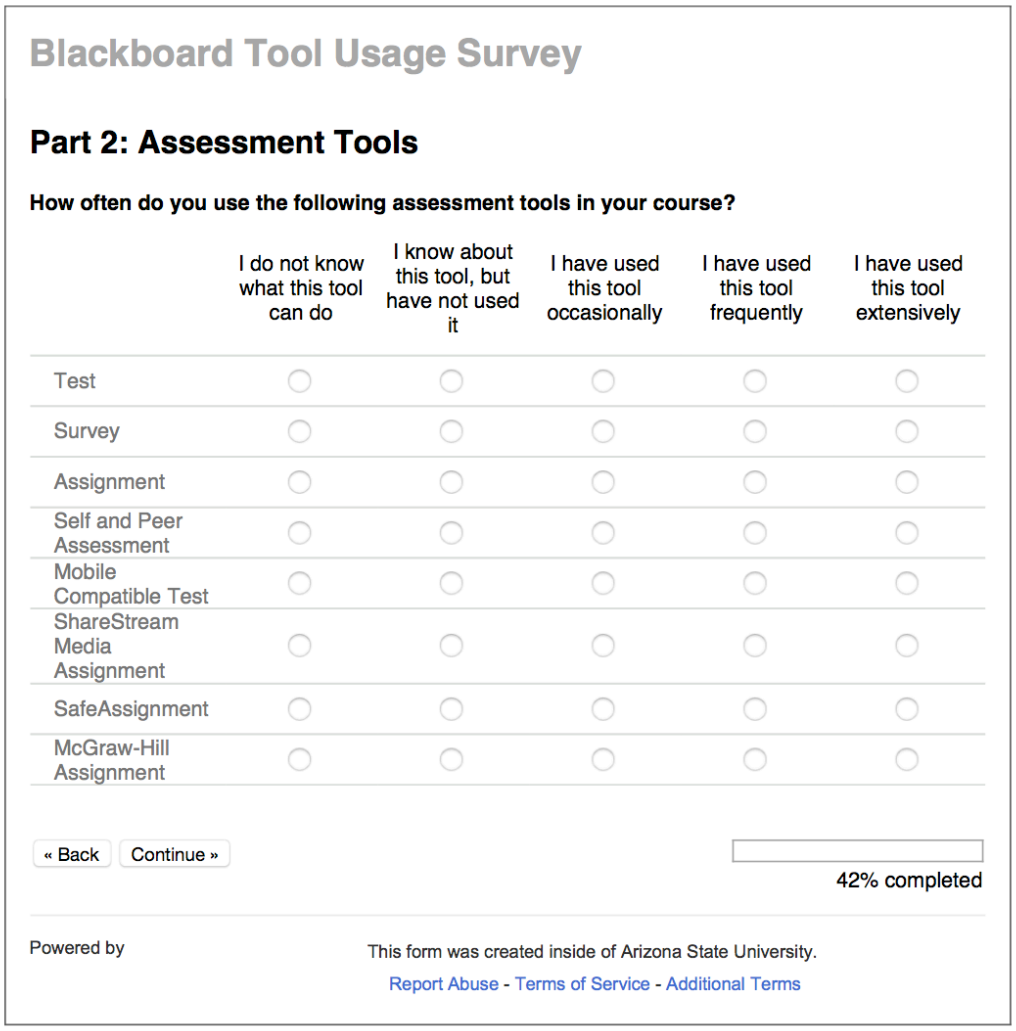

Blackboard Tool Usage Survey

Part 2: Assessment Tools

How often do you use the following assessment tools in your course?

	I do not know what this tool can do	I know about this tool, but have not used it	I have used this tool occasionally	I have used this tool frequently	I have used this tool extensively
Test	○	○	○	○	○
Survey	○	○	○	○	○
Assignment	○	○	○	○	○
Self and Peer Assessment	○	○	○	○	○
Mobile Compatible Test	○	○	○	○	○
ShareStream Media Assignment	○	○	○	○	○
SafeAssignment	○	○	○	○	○
McGraw-Hill Assignment	○	○	○	○	○

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Blackboard Tool Usage Survey

Part 3: Tools

How often do you use the following interactive tools in your course?

	I do not know what this tool can do	I know about this tool, but have not used it	I have used this tool occasionally	I have used this tool frequently	I have used this tool extensively
Discussion Board	○	○	○	○	○
Blogs	○	○	○	○	○
Journals	○	○	○	○	○
Wikis	○	○	○	○	○
Groups	○	○	○	○	○
Tools Area	○	○	○	○	○
Piazza	○	○	○	○	○
Pearson's MyLab & Mastering (Content)	○	○	○	○	○
Chegg Textbook Solutions Links	○	○	○	○	○
Echo Content	○	○	○	○	○
Bookshelf by VitalSource	○	○	○	○	○
Search for Bookshelf eTextbooks	○	○	○	○	○
Voice Email	○	○	○	○	○
Voice Board	○	○	○	○	○
Voice Direct	○	○	○	○	○
Voice Presentation	○	○	○	○	○
Voice Podcaster	○	○	○	○	○

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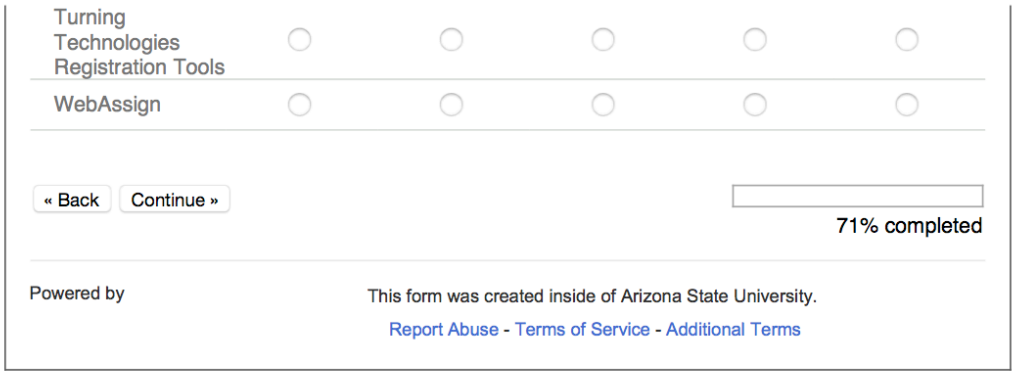
Blackboard Tool Usage Survey

Part 4: More Tools

How often do you use the following publisher tools in your course?

	I do not know what this tool can do	I know about this tool, but have not used it	I have used this tool occasionally	I have used this tool frequently	I have used this tool extensively
Announcements	○	○	○	○	○
Blackboard Collaborate Voice Board	○	○	○	○	○
Blackboard Collaborate Voice Email	○	○	○	○	○
Blackboard Collaborate Voice Podcast	○	○	○	○	○
Blackboard Help	○	○	○	○	○
Calendar	○	○	○	○	○
Cengage Learning MindLinks Tools	○	○	○	○	○
Commercial Content Tools	○	○	○	○	○
Contacts	○	○	○	○	○
Course Messages	○	○	○	○	○
Email	○	○	○	○	○
Glossary	○	○	○	○	○
Manage Pearson Custom Grades	○	○	○	○	○
McGraw-Hill Higher Edcuation	○	○	○	○	○
My Grades	○	○	○	○	○
NBC Learn	○	○	○	○	○
NBC Learn Playlist	○	○	○	○	○
Pearson Custom Integration	○	○	○	○	○
Pearson's MyLab & Mastering (Tools)	○	○	○	○	○
Tasks	○	○	○	○	○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WebAssign
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Blackboard Tool Usage Survey

Part 5: Content Box Tools

How often do you use the following content box tools in your course?

	I do not know what this tool can do	I know about this tool, but have not used it	I have used this tool occasionally	I have used this tool frequently	I have used this tool extensively
Format text	○	○	○	○	○
Create a web link	○	○	○	○	○
Record from Webcam	○	○	○	○	○
Attach a file	○	○	○	○	○
Embed an image	○	○	○	○	○
Embed a YouTube Video	○	○	○	○	○
Embed a Mashup (Slideshare, Flickr, etc.)	○	○	○	○	○
Create a table	○	○	○	○	○

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Blackboard Tool Usage Survey

Part 6: Miscellaneous Course Tools

How often do you use the following miscellaneous tools in your course?

	I do not know what this tool can do	I know about this tool, but have not used it	I have used this tool occasionally	I have used this tool frequently	I have used this tool extensively
Adaptive Release	○	○	○	○	○
Course Calendar	○	○	○	○	○
Grade Book	○	○	○	○	○
Rubric Tool	○	○	○	○	○
Send Email	○	○	○	○	○

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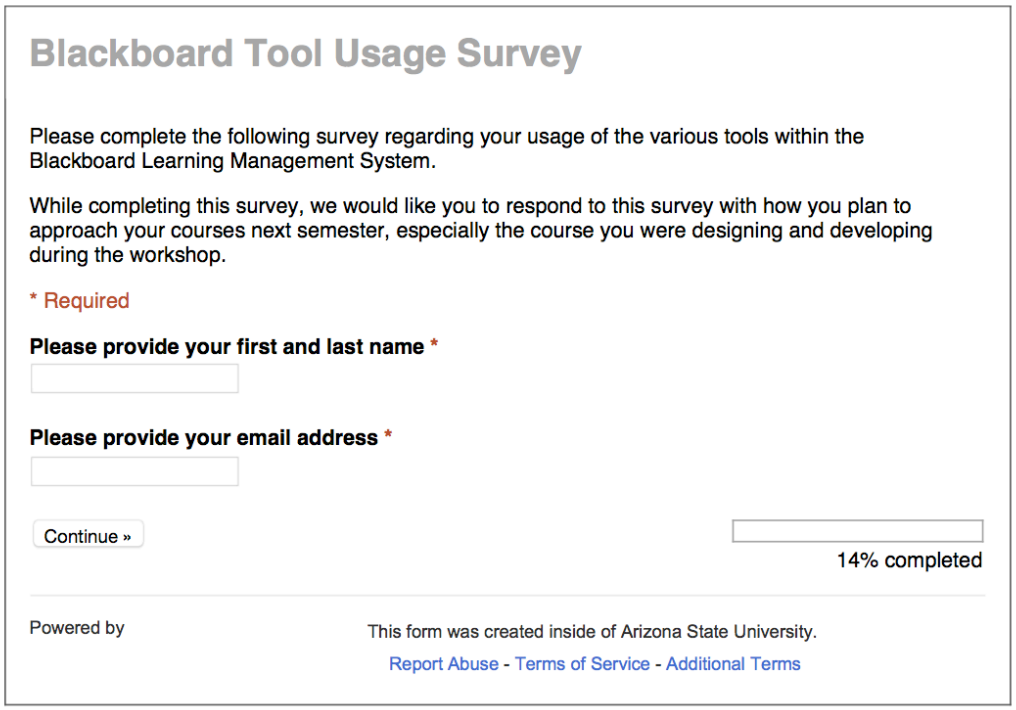
APPENDIX G

INSTITUTIONALLY SUPPORTED TOOL USAGE SURVEY (PHASE 2 - POSTTEST)



Blackboard Tool Usage Survey

Please complete the following survey regarding your usage of the various tools within the Blackboard Learning Management System.

While completing this survey, we would like you to respond to this survey with how you plan to approach your courses next semester, especially the course you were designing and developing during the workshop.

* Required

Please provide your first and last name *

Please provide your email address *

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Blackboard Tool Usage Survey

Part 1: Build Content Tools

How often will you use the following content tools in your course?

	I do not know what this tool can do	I know about this tool, but do not plan to use it	I plan to use this tool occasionally	I plan to use this tool frequently	I plan to use this tool extensively
Document (PDF, Word, PPT, etc.)	○	○	○	○	○
Package file (Adobe Presenter, SoftChalk, etc.)	○	○	○	○	○
Audio file	○	○	○	○	○
Image	○	○	○	○	○
Video file	○	○	○	○	○
Web link	○	○	○	○	○
Learning Module	○	○	○	○	○
Lesson Plan	○	○	○	○	○
Syllabus	○	○	○	○	○
Course Link	○	○	○	○	○
Content Package (SCORM)	○	○	○	○	○
Content Folder	○	○	○	○	○
Module Page	○	○	○	○	○
Blank Page	○	○	○	○	○
Flickr Photo	○	○	○	○	○
SlideShare Presentation	○	○	○	○	○
YouTube Video	○	○	○	○	○
NBC Content	○	○	○	○	○
ShareStream Mashup	○	○	○	○	○
Voice Authoring	○	○	○	○	○

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Blackboard Tool Usage Survey

Part 2: Assessment Tools

How often will you use the following assessment tools in your course?

	I do not know what this tool can do	I know about this tool, but do not plan to use it	I plan to use this tool occasionally	I plan to use this tool frequently	I plan to use this tool extensively
Test	○	○	○	○	○
Survey	○	○	○	○	○
Assignment	○	○	○	○	○
Self and Peer Assessment	○	○	○	○	○
Mobile Compatible Test	○	○	○	○	○
ShareStream Media Assignment	○	○	○	○	○
SafeAssignment	○	○	○	○	○
McGraw-Hill Assignment	○	○	○	○	○

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Blackboard Tool Usage Survey

Part 3: Tools

How often will you use the following interactive tools in your course?

	I do not know what this tool can do	I know about this tool, but do not plan to use it	I plan to use this tool occasionally	I plan to use this tool frequently	I plan to use this tool extensively
Discussion Board	○	○	○	○	○
Blogs	○	○	○	○	○
Journals	○	○	○	○	○
Wikis	○	○	○	○	○
Groups	○	○	○	○	○
Tools Area	○	○	○	○	○
Piazza	○	○	○	○	○
Pearson's MyLab & Mastering (Content)	○	○	○	○	○
Chegg Textbook Solutions Links	○	○	○	○	○
Echo Content	○	○	○	○	○
Bookshelf by VitalSource	○	○	○	○	○
Search for Bookshelf eTextbooks	○	○	○	○	○
Voice Email	○	○	○	○	○
Voice Board	○	○	○	○	○
Voice Direct	○	○	○	○	○
Voice Presentation	○	○	○	○	○
Voice Podcaster	○	○	○	○	○

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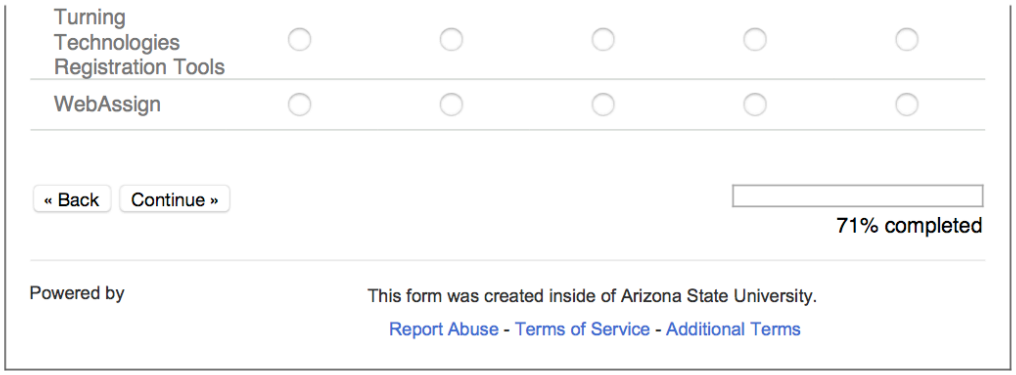
Blackboard Tool Usage Survey

Part 4: More Tools

How often will you use the following publisher tools in your course?

	I do not know what this tool can do	I know about this tool, but do not plan to use it	I plan to use this tool occasionally	I plan to use this tool frequently	I plan to use this tool extensively
Announcements	○	○	○	○	○
Blackboard Collaborate Voice Board	○	○	○	○	○
Blackboard Collaborate Voice Email	○	○	○	○	○
Blackboard Collaborate Voice Podcast	○	○	○	○	○
Blackboard Help	○	○	○	○	○
Calendar	○	○	○	○	○
Cengage Learning MindLinks Tools	○	○	○	○	○
Commercial Content Tools	○	○	○	○	○
Contacts	○	○	○	○	○
Course Messages	○	○	○	○	○
Email	○	○	○	○	○
Glossary	○	○	○	○	○
Manage Pearson Custom Grades	○	○	○	○	○
McGraw-Hill Higher Edcuation	○	○	○	○	○
My Grades	○	○	○	○	○
NBC Learn	○	○	○	○	○
NBC Learn Playlist	○	○	○	○	○
Pearson Custom Integration	○	○	○	○	○
Pearson's MyLab & Mastering (Tools)	○	○	○	○	○
Tasks	○	○	○	○	○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Blackboard Tool Usage Survey

Part 5: Content Box Tools

How often will you use the following content box tools in your course?

	I do not know what this tool can do	I know about this tool, but do not plan to use it	I plan to use this tool occasionally	I plan to use this tool frequently	I plan to use this tool extensively
Format text	○	○	○	○	○
Create a web link	○	○	○	○	○
Record from Webcam	○	○	○	○	○
Attach a file	○	○	○	○	○
Embed an image	○	○	○	○	○
Embed a YouTube Video	○	○	○	○	○
Embed a Mashup (Slideshare, Flickr, etc.)	○	○	○	○	○
Create a table	○	○	○	○	○

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Blackboard Tool Usage Survey

Part 6: Miscellaneous Course Tools

How often will you use the following miscellaneous tools in your course?

	I do not know what this tool can do	I know about this tool, but do not plan to use it	I plan to use this tool occasionally	I plan to use this tool frequently	I plan to use this tool extensively
Adaptive Release	○	○	○	○	○
Course Calendar	○	○	○	○	○
Grade Book	○	○	○	○	○
Rubric Tool	○	○	○	○	○
Send Email	○	○	○	○	○

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APPENDIX H

INTERVIEW PROTOCOL (PHASE 2)

1. What was your motivation for participating in the faculty development program?

2. How did the program affect how you use technology in your courses?

3. If you were asked to teach a hybrid course with reduced seat time, how would you approach the course?

4. As a result of FAB Tech, to what extent did the program help you purposefully integrate online technologies into your course?

5. What are some of the concerns you may have about using a course that is fully designed and developed prior to launch?

6. What advice would you give to other faculty members that were considering used a flipped or hybrid approach to their course?

7. What factors lead you to not be able to complete all of the activities within FAB Tech?

APPENDIX I

FAB TECH WORKSHOP MODULAR STRUCTURE (PHASE 2)

Module #	Topic	Week	Weekly Learning Objectives	Primary Assignments
1	Defining Flipped and Blended/ Hybrid Learning	1	• Identify the general benefits of flipped and blended/hybrid learning • Recognize a range of implementation options possible in developing flipped and blended/hybrid learning courses • Articulate design plans for "flipping" or "blending" one of the courses you teach	• Develop a design plan for a flipped or blended learning course
2	Developing Online Content	2 & 3	• Describe the characteristics of a minilecture • Identify tools available within Blackboard to present course content • Identify software tools and services available for the creation of online content • Develop a multimedia presentation	• Create a minilecture with voiceover slides • Create a course introductory video
3	Active Learning in the Classroom	4 & 5	• Describe active learning techniques • Employ active learning into your classroom	• Develop a plan for a class session using active learning techniques
4	Online Interactions	6	• Identify tools available with Blackboard to support online interactions • Identify software tools and services available to support online interactions • Experiment using online interaction	• Participate in the development of a wiki listing course tools

Module #	Topic	Week	Weekly Learning Objectives	Primary Assignments
5	Assessments	7	• Identify tools available with Blackboard to support online assessments • Describe the characteristics of authentic assessment • Identify areas for assessment redesign in their own courses • Develop a plan for incorporating authentic assessment in alignment with course objectives	• Develop an assessment plan for your course
6	Defining Quality	8	• Recognize standards associated with high quality flipped and blended learning courses • Explore the Quality Matters™ Rubric • Critique your course design using the Quality Matters™ Rubric	• Conduct a self review of your course using the Quality Matters™ Self Review Tool
7	Wrap Up and Showcase	9	• Summarize the characteristics of a quality flipped and blended/hybrid course • Assess the readiness of your flipped or blended/hybrid course	• Reflect on the affect of flipped and blended learning on your teaching practice • Create a plan to complete the development of your course

APPENDIX J

MUDDIEST POINTS (PHASE 2)

Muddiest Points

Question/Concern 1: what should be graded or ungraded

Solution/Follow-up Ideas:

- Formative vs summarize in module 5
- Active learning activities - module 3
- Where do the activities occur - online or f2f, both
- "Salad bar" activity approach so that students can balance required workload

Question/Concern 2: Need to cover content (lots of it)

Solution/Follow-up Ideas:

- Exam blueprints - driving the threshold of content that needs to be covered
- Concept based learning - changing emphasis

Question/Concern 3: large sections - how to manage and assess activities

Solution/Follow-up Ideas:

- Knowledge checks/ pre assessments conducted online for automatic scoring
- Ticket in quiz - low scores, students unprepared - can't participate in class activities until completed
- Ratio of faculty to students for maximizing effectiveness
- Student group configuration and management/engagement strategies
- Students hate groups!!! Collaborative vs cooperative - Module 4

Question/Concern 4: student perceptions of self-directed, active learning

Solution/Follow-up Ideas:

- Faculty preparedness to manage flipped, active learning sessions
- Explaining/marketing the student responsibilities for this modality but not advertising as new or experimental (student perception issues)
- Impact on course evaluations

Question/Concern 5:Online discussions have been brought up. How do we effectively manage them with 2+ sections of a course containing 80+ students each? I have tried breaking the discussion topics into groups with smaller online courses (40 students) and these are still cumbersome to grade.

Solution/Follow-up Ideas:

- Here is a set of practical strategies for managing online discussions, and it also touches on some of the issues with large classes: http://www.facultyfocus.com/articles/online-education/strategies-managing-online-discussions/
- Another strategy I have seen used successfully is to functionally split the full class or even subgroups into halves and rotate the responsibility to act as primary poster vs thoughtful responder. This may reduce the amount of "high intensity" grading you need to do, yet still get the whole class engaging in conversation.
- Most of you may already be familiar with the "inline grading" tool built into Blackboard DBs, but in case you haven't tried it, check out the details here: https://help.blackboard.com/en-us/Learn/9.1_SP_14/Instructor/080_Collaboration/010_Discussions/090_Grade_Discussions

Question/Concern 6: Some of these recorded tools are great. I am technologically challenged. I am not sure how to actually embed some of these presentations into our courses.

Solution/Follow-up Ideas:

- Schedule appt with experts! ESS team members are happy to help get you started and work through your first couple presentations until you are comfortable working with the tools.
- We will post handout guides for recording webcam video directly in content areas, and uploading zip (package files) in Blackboard. ***Done*** *- see the "more information" sections: FABTech course shell > Workshop Modules > Module 2 > Tools on Parade > 'Adobe Presenter 10' and 'Blackboard Video Everywhere'*
- All of the "pay" tools listed in module 2 are available to you through the ESS Idea lab and/or sound booth.

Question/Concern 7: Time management/budgeting for implementing active learning strategies. Can we facilitate the logistics and grading especially in large section courses? No graders/TAs!

Solution/Follow-up Ideas:

- Identifying strategies for determining which activities are graded/assessed (participation??)
- Prep time shifting from lecture development toward facilitation of active learning as course resources are recycled from semester to semester
- Technology tools to support streamlined grading/administration of activities - modules 4 and 5
- Here is a quasi-FAQ style article that addresses a couple of the questions related to the logistics of implementing active learning including the time commitment issue: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/ALpaper(ASQ).pdf

Question/Concern 8: provide more exemplars of tech tools for conducting online interactions.

Solution/Follow-up Ideas:

- Modeling a tech tool for students (participants) might promote usability and alignment to project outcomes.
- Consider introducing technology/communication tools (e.g. Prezi) that may have ongoing application/relevance in students' future professional lives
- Seeing so many possible tools/integration approaches can be very overwhelming!

Question/Concern 9: managing TA workload / oversight for ensuring that grading is conducted in a way that provides appropriate and adequate feedback to students.

Solution/Follow-up Ideas:

- Workload volume issues - streamlining and aligning assessments to create manageable workflow
- Defining expectations for TAs and graders, provide examples and grading support documents
- Administratively overseeing/evaluating grader performance with the support of department leadership

Question/Concern 10: quality matters ... Retrofitting courses / syllabi to attend to as many standards as possible

Solution/Follow-up Ideas:

- ESS/E3 team has recently updated a syllabus template that is designed with QM standards and ASU ACD requirements, will share with you and/or present to departmental meeting

Question/Concern 11: Resources needed to be successful... Institutional & ESS

Solution/Follow-up Ideas:

- More access to the tools from Tools on Parade
- Training on how to use those tools
- Incorporate Quality Matters
- Computer/Technology readiness on the student end
- Meet with ESS/E3 earlier before using new technologies (often there is retrofitting done to make things work)
- More Time
- Outcomes based evaluation
- Need to address issue of current course eval ratings
- Need to integrate innovation into promotion and tenure decisions
- Peer/colleague support and collaboration

APPENDIX K

GLOSSARY OF TERMS

Teaching Methods (adapted from Hora, Oleson, & Ferrare, 2013; King, 1993)

Passive Learning Techniques

- **Lecture (without visuals):** The instructor is talking to the students and not using any visuals or demonstration equipment.
- **Lecture with handwritten visuals:** The instructor is talking to the students while actively writing and presenting notes, creating charts/diagrams, etc. The instructor actively writes or refers to what they are writing.
- **Lecture with pre-made visuals:** The instructor is talking to the students while using pre-made visual aides, such as slides, transparencies, posters, pre-written chalkboard notes, etc. The instructor must be referring to topic contained in the visual within the coded time segment.
- **Lecturing with demonstration of topic or phenomena:** The instructor uses equipment (e.g., lab equipment, computer simulation, or other physical objects other than handwritten visuals) to convey course content. The instructor actively references these objects.
- **Multimedia:** The instructor plays a video or movie (e.g., Youtube or documentary) without speaking and the students watch the presentation.

Active Learning Techniques

- **Concept mapping:** Students draw a concept map (a graphic representation such as a web) depicting relationships principle
- **Constructing tables/graphs:** Students develop a table or draw a graph representing information presented.
- **Deskwork:** Students complete work alone at their desk/chair.
- **Developing rebuttals:** Students individual develop rebuttals for arguments presented in the lecture and then pair up with another student to argue for and against.
- **Flowcharting:** Students sketch a flowchart showing how a procedure or process works.
- **Interactive lecture:** The instructor is talking to the students while asking multiple, successive questions to which the students are responding, and student responses are either guiding or being integrated within the discussion. (2+ rounds of dialogue; a round equals at least one relevant student response to instructor)
- **Simulations/lab activity:** Students participate in a simulation or lab activity scenario where they are able to apply their knowledge in a controlled environment.
- **Small group work/discussion:** Students form into at least 2 groups of 2+ for the purposes of discussion and/or to complete task.
- **Student presentation:** The students are giving presentations to the class or otherwise acting as the primary speaker or instructor in the classroom.

- **Think-Pair-Share:** Students individually think for a moment about a question posed on the lecture, and then pair up with a classmate beside them to share/discuss their thoughts.
- **Whole class discussion:** Instructor initiated/prompted discussion where students are answering and asking questions amongst themselves for a sustained period of time. This is different than an interactive lecture in which the instructor is directing all of the questions. This code is also different from small group work/discussion because conversations are not in groups but involve the entire class in a single conversation.