

Developing a Hybrid Course in Information Technology

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Introduction

Over the past few years there have been several presentations focused on hybrid courses at the ASCUE conference. Hearing the benefits of hybrid courses I decided to try it on our campus with one of the classes in our curriculum. I enlisted the help of one of our veteran adjuncts who had experience in development and delivery of online courses. In this paper we will discuss what hybrid courses are, our local campus environment that led to development of a hybrid course, the course development, course delivery, and lessons learned from our first effort.

Hybrid Course

We will use a definition from the University of Wisconsin Milwaukee for hybrid class that states in hybrid classes much of the course learning is moved online which in turn makes it possible to reduce the time spent in the classroom. The difference between hybrid class and an online class is that in an online class the face-to-face component is eliminated or is virtually eliminated (some institutions have varying definitions for online classes where face-to-face time is only used with testing for example) and in a hybrid class the face-to-face component is merely reduced and still a significant part of the learning environment. Another popular term for hybrid course is blended course or mixed-mode course. In this paper we will treat these names interchangeably.

Proponents of hybrid courses list many potential benefits. The benefits of hybrid classes include:

- Reach new markets
- Less time for students to commute
- Students can complete degrees sooner
- Ability to accommodate additional students without need for additional classrooms
- Additional ways to interact and hold discussions (to engage) students
- Increased student learning
- New pedagogical approaches

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- Blend the best of online and face-to-face instruction

Hybrid courses also present challenges to the instructor since it requires redesigning a traditional face-to-face course. Some of the challenges of a hybrid class include:

- Instructors must rethink the course design to incorporate online activities to meet the needs of the class
- Instructors must make the transition to a more active learning environment
- Instructors need to use technology to facilitate discussions, and group activities
- Instructor must manage a dual environment of online and face-to-face and not overload students
- Instructors must be able to help students understand their role in a hybrid course
- Instructors may need to learn new technologies to deliver the course

Background for Developing a Hybrid Course at Purdue

Computer and Information Technology (C&IT) is part of the College of Technology. Purdue University's College of Technology offers different programs around the state of Indiana including Columbus Indiana. In Columbus we offer an AS and BS in C&IT. A degree in C&IT prepares students for careers in the application of information systems and technology to plan, analyze, design, construct, maintain, and manage software development, systems integration, data management, and computer networks. At each of the statewide locations Purdue partners with a local university to offer the non-technology courses such as English, Business, Communications, etc. In Columbus our partner is Indiana University-Purdue University Columbus (IUPUC). Our partnership provides that we can offer C&IT classes for other departments. In most cases these service courses are used to fulfill degree requirements for a computer/technology class.

Like many Computer Science, Management Information Systems, and Information Technology programs around the country, C&IT has seen declining numbers in enrollment over the past five years. There are many reasons, ranging from students being scared off by offshore outsourcing to increased competition from online degree programs, new competing programs at IUPUC and a push by the state of Indiana to promote community colleges. In the current environment it is important for C&IT to be able to compete for new students and to retain the students that we have. This involves using new and innovative measures to attract and retain students while still maintaining the integrity of a world class program. The C&IT courses we offer in Columbus are the same classes we offer at our main campus in West Lafayette with the same goals and objectives.

Hybrid courses offered several benefits for our campus. As a commuter campus with slightly more than half of the student population non-traditional, we constantly hear from students about the desire not to be on campus three or four nights a week. A hybrid class would reduce the student seat time. Also, evening time presents the most challenges for scheduling. With limited lab space a hybrid would make more classroom space available. Hybrid offers the best of both worlds in providing the benefit of using technology to reduce seat time but also providing a means for students to still have the face-to-face time with instructors which we feel is important in technology courses. Finally, we think if successful in a pilot mode, we can expand the use of hybrid classes in our curriculum and use as an aid in marketing and student retention.

C&IT 107 Computers and Software Packages is an introductory course in the basics of computers. The lecture component discusses basic computer hardware and software components and issues that affect computer users in society along with a lab component that includes an introduction to Microsoft Excel and Microsoft Access. This is a service course for several departments on the IUPUC campus but the majority of students are Business majors who are required to take the class. Typically we offer at least five sections of C&IT 107 each semester.

We chose to develop a hybrid version of C&IT 107 for several reasons. First, the Business Department has been very supportive of offering different forms of this class including condensed and online. Second, since the class is not taken by our majors we had a little more flexibility in delivering it in a hybrid format. Finally, since we offer four other sections of the course students would have the option of enrolling in the traditional face-to-face class.

We offered our first version of C&IT 107 in the Spring 2008 semester. The class had a face-to-face component that met once a week for 100 minutes.

C&IT 107 – Online Components

Following we will look at the development of the C&IT 107 hybrid class. The first consideration was what to put online. Primary communication outside of the classroom was through electronic sources. Each student enrolled in the course was required to have an active e-mail account. Students provided their instructor with a current e-mail address. All students are given a school account to use or they may use their personal e-mail account. All Microsoft Access and Microsoft Excel lab submissions used the Blackboard assignment drop box function. All assignment drop boxes were opened at the beginning of the semester and closed at midnight on the due date. All quizzes, exams and the final exam were taken via Blackboard's online assessment feature. Since the class did not meet face-to-face on Tuesday evenings, the use of online discussions through a whole host of electronic formats was designed. The online discussions were designed to give the students contact with their peers and instructor during the course and experience emerging technology used by local business companies. An Online Discussion is defined as "a conversational exchange; dialogue; or conference." An electronic medium was developed to compliment the course textbook "Discovering Computers 2008" by Gary B. Shelly, Thomas J. Cashman, Misty E. Vermaat ISBN 13: 978-1-4239-1204-0 © 2008. The book provided a current and thorough introduction to computers by integrating lectures of the printed text with the World Wide Web. However, by integrating this portion of the class into an online portion, the students have the opportunity to interact with their peers and instructor around computer hardware and software concerns and/or questions. It also allowed the students the opportunity to demonstrate their emerging knowledge of computer hardware and software. In class, some students will not share their knowledge because of fear of public speaking. The discussions seem to remove the communication barrier for those students.

There were eleven chapters in the textbook and there were eleven corresponding online discussions scheduled for the course. These occurred through the electronic discussion board. Each online discussion spanned for a one-week period and closed on the night the week's discussion was due and was conducted as such:

There were ten questions or definition type topics about the current chapter of the week posted in the Discussions section.

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Each student POSTED two journals, blogs and/or discussion topics, so to have all topics covered. The purpose of the online discussion portion of the class was to demonstrate that the students have read the related chapter and to connect with their classmates on discussions relating to the focus for the week. Points were awarded simply for participation, not on the content of responses, as long as they were related and showed some reflection and attempt.

Peer Reviews were used. The purpose of these feedback responses were to demonstrate that you have paid attention to the work of your peers and to provide helpful, constructive feedback.

Then, each student made two replies to another peer's remarks. [They were not limited to only two responses.] The idea behind this aspect of the course was to provide the student a chance to talk about current technology issues they were studying and to speak about their own prior knowledge of the subject.

There was a certain etiquette that was expected of all students in the class in relation to electronic messages. Since they did not physically speak to each other, it was important to remind them that irony and humor do not readily come across as they may be intended. For class purposes, student electronic messages MUST confine themselves to discussion, debate, and even disagreement on the points under discussion. They were not to engage in personal attacks through the online discussion. In that vein, they were encouraged to re-read their responses again before they hit the "send" button. The instructor made it absolutely clear that there was NO toleration for personal attacks.

The instructor made comments to some, but not all of the discussions. The instructor's role was to moderate the discussion, resolve any discrepancies and encourage student feedback.

C&IT 107 – Face-to-Face Components

On Thursday evenings, the class met in a computer lab on campus to learn Microsoft Access and Microsoft Excel. Solid instructional lab design adapted from the textbook *Microsoft Office Excel 2007: Complete Concepts and Techniques* Shelly Cashman Quasney (ISBN 10: 1-4188-4343-1) and *Microsoft Office Access 2007: Complete Concepts and Techniques* Shelly Cashman Pratt (ISBN 10: 1-4188-4340-7) meets the instructional goals and objectives for the course.

The instructor has adapted the use of Adobe Connect to record audio and video media of all Microsoft Excel labs in advance of the lab night. There were some students who used these as a review after the in-class lab and others that used it as a base for catching up when they missed an in-class lab. Adobe Connect was used simply because it was available despite the fact that it may not be the best method to serve the needs of the CIT 107 students and meet course goals and objectives, but it compliments the needs of students in the learning process.

Instructor Observations of Class

Some students have grown accustomed to hardcopy material. When they pull up an electronic quiz and submit it, they do not grasp what happens to the captured information. Some students would always print off their quizzes or labs, even though they were asked to submit them electronically. Some students were very eager to participate in the discussion forums, blogs or journals at the beginning of the semester and would post their readings and findings during the first

half of the semester. However, they would forget to go back and respond to other student's postings when the chapter was actually due.

All students liked the flexibility with the online portion of the class. Having approximately one week to respond per chapter helped students balance their personal and academic priorities. All students liked the immediate response to quiz and exam grading. Most students still took advantage of the in-class labs. Most students e-mailed or instant messaged the instructor at least once a week, in lieu of meeting the instructor during office hours on campus. The instructor carried a Blackberry, which enabled quicker responses to troubled or confused students.

Instructor Feelings about Teaching a Hybrid Class

I spent more time prepping than ever, because I moved to the new version of Blackboard, used Adobe Connect and moderated the discussion forums holding all students accountable for posting and replying. Comparing it to a completely online class is difficult. I have taught career exploration and planning class for seniors. Typically, seniors participate without any hesitation. Since this is a beginning level class with mainly freshman, it took some coaching on the first and second week to get students accustomed to taking online quizzes, posting and responding. I met some students early and stayed late to make sure they felt confident. The career class was more student / instructor driven. This class was student to student, student to instructor, instructor to student driven. I typically just moderated discussions, encouraged or commented.

I really liked the class, because I felt like the time the class and I were together was very productive. We focused on the labs and learning about the multiple ways of accomplishing the same task. The lab books usually only show one or the most frequently used method. Also, my class seemed to enjoy my elaborating personal experiences of using different parts of Excel and Access in a real-life environment. I really loved the online portion of the class which was based on overall software and hardware topics. Many of the students would see a more recent article or website than in the book and they could add the link for reference. Those same individuals might be considered geek-like in class by bringing it up without material to back up the topic. This way, the reader can see exactly what the student meant.

Student Feelings about Hybrid Class

The students in the class were surveyed about a variety of things concerning taking a hybrid class. Following in Table 1 are the results of the survey.

1. What student status are you considered?	
FRESHMAN	64%
SOPHOMORE	21%
JUNIOR	7%
SENIOR	7%
2. What is your major classification?	
BUSINESS	86%
GENERAL STUDIES	7%
EDUCATION	7%
3. What format would or do you prefer for class?	
HYBRID	86%
ONLINE	14%
FACE-TOFACE	0%
4. How much content would you prefer online?	
1%-33%	29%
34% - 66%	43%
67%-100%	29%
5. I learn best with this type of learning:	
WRITTEN COURSE CONTENT	21%
VIDEO LECTURES	21%
AUDIO LECTURES	21%
POWERPOINT	7%
OTHER	29%
6. Blackboard has enabled my learning by:	
MAKES NO DIFFERENCE	29%
MAKING IT EASIER	64%
MAKING IT HARDER	7%

7. Adobe Connect for video and audio lab recordings has enabled my learning by:	
MAKES NO DIFFERENCE	43%
MAKING IT EASIER	57%
MAKING IT HARDER	0%
8. I spend approximately _____ hours online for class.	
1-2 hours	57%
3 – 5	21%
6 – 10	14%
MORE THAN 10	7%
9. I have missed _____ class(es) over the semester.	
0	29%
1	29%
2-3	21%
4 OR MORE	21%
10. I have asked the instructor to meet me before class or after class _____ time(s) this semester.	
0	71%
1	21%
2-3 times	7%
11. What electronic tools have you found useful in this class?	
ONCOURSE	86%
BLACKBOARD	86%
E-MAIL	79%
ONLINE GRADEBOOK	71%
DISCUSSION FORUMS	57%
ADOBE CONNECT	43%
ONLINE DROPBOX	36%
ELECTRONIC CALENDAR	29%
INSTANT MESSAGING	14%

Table 1

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Lessons Learned from First Hybrid Class

First what worked in the hybrid class? The online discussions were a big success. They were easy to moderate and the students enjoyed bringing in their personal experiences to the chapters. The Adobe Connect recorded meetings were a big success. The instructor only planned to test the recording of the Microsoft Excel labs, but was requested to do so for the Microsoft Access labs. What needs to be reworked? Blackboard has an issue with forwarding e-mails to primary e-mail accounts. The technical team has informed the software company of this issue, but it is a known bug at this time. Therefore, it must be a requirement on the first night of class that the students e-mail the instructor from another e-mail package until this bug is fixed. It would be helpful if the Blackboard test banks need to be purchased, so the professors will have the ability to put multiple copies of the quizzes and exams online. The instructor detected that a few students worked the quizzes together. For now, this could be considered creative teamwork, because they are both reading and learning.

Conclusion

As a department we have been very pleased with the first offering of a hybrid class. It has proven to be successful and popular with the faculty and students who participated. For the students it allowed more flexibility and less driving to campus. We think this type of class is a great way to utilize current technology in the classroom. The class provided the department more flexibility in scheduling available lab space and could be very helpful if we deliver more classes in this format especially in the evening when lab space is extremely tight. We plan to approach our Computer and Information Technology Department to enlist their support in offering additional classes within the next year to develop a plan to increase our hybrid offerings.

References

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