

## **Hybrid, It's More Than Fuel Efficient**

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### **Abstract:**

At last year's conference, we presented a paper on our first attempt at developing and delivering a hybrid course in our Computer and Information Technology department. The course we used was C&IT 107 Computers and Software Packages, an introductory class used as a service course on campus. In this paper, we will delve into the plans we have developed for implementing hybrid courses at our Columbus campus. We will show how the plan was developed after analyzing pre-tests and post-tests administered in the hybrid and traditional classes. We will discuss what changes need to be made to go from one course offering to a wider availability on campus.

### **Introduction**

Last year we made our first attempt at developing a hybrid course in our Computer and Information Technology (C&IT) department. By hybrid class or blended as it is sometimes called we understand that much of the course learning is moved online which in turn makes it possible to reduce the time spent in the classroom. We differentiate between hybrid class and an online class where the face-to-face component is eliminated and also, traditional course that has added an online component without reducing the face-to-face time. We were interested in developing a hybrid course because of the potential benefits touted by proponents of hybrid classes including: reach new markets, less time for students to commute, allow students to complete degrees sooner, ability to accommodate additional students without need for additional classrooms, additional ways to engage students, and potential increased student learning.

For our Columbus C&IT program which has seen declining numbers in enrollment over the past six years like many Computer Science, Management Information Systems and Information Technology programs adding hybrid course is just another tool to allow us to compete for new students and to retain the students that we have by using new and innovative measures. Specifically, for our campus hybrid courses offer several benefits including: less student seat time which is beneficial as a commuter campus with more than half of the student population non-

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traditional, also, hybrid courses would free up our computer labs which are at a premium in the evening, and finally 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.

### **Experience on Campus with Hybrid Courses**

The past three semesters we have offered one section of our C&IT 107 Computers and Software Packages an introductory course in the basics of computers in the hybrid format. Typically, we offer approximately five sections of this course each semester. After the first semester as we chronicled in our paper from last year we surveyed the students from the hybrid class and found that almost nine out of ten students that enrolled in the hybrid class preferred it to online and traditional face-to-face class. Also, students seemed to like the variety of ways used to engage the students in the class from traditional face-to-face, to video and audio lectures, to discussion sessions.

Last fall we decided to see if there were any differences in learning in the classes. We were not able to get statistics from all of our C&IT 107 classes but we did do some pretest and posttest analysis of both traditional and hybrid courses. In the hybrid class, the scores were more tightly bunched around the mean in the post test than the pretest. In the traditional class, the scores were more tightly bunched around the mean in the pretest than the posttest. This gathering of the scores forms the bell curve. The standard deviation of the pretest for the hybrid class was 6.83. The standard deviation of the posttest for the hybrid class was 5.04. The standard deviation of the pretest for the traditional class was 4.64. The standard deviation of the posttest for the traditional class was 8.46. This statistics tell us that the makeup of the students in the hybrid class had more of the students scoring at one extreme or the other coming into the class, but the class as a whole moved to a more tightly bunched group by the end of the semester. The statistics tell us that the make-up of the students in the traditional class were relatively more tightly bunched as a group coming into the class. The traditional class had a relatively larger variation of the mean per student coming out of the class. The assumption we are making is that the hybrid class has a more consistent nature of learning for the students than the traditional class because the standard deviation margin was narrowed.

Based upon the student surveys, comments, research and findings from using the hybrid format in the C&IT 107 class we would like to continue to use the hybrid format and expand its use in our program and on our campus. We have talked with other faculty members on campus in other departments and feel there is a desire to utilize hybrid classes. People were interested but there were questions including: which classes it would be most effective in, how often should you meet, what content to place in the online component and what content should be placed in the face-to-face component, which technologies to use in the online component and also a need for training in some of the technologies? We had many questions and not all of the answers, so we decided to develop a plan and see if we could find support for it and hopefully financial resources to support it.

### **Initial Implementation Plan for Hybrid Education**

The purpose of a hybrid education implementation plan is to provide a support system for faculty learning to use and implement distance education into their classes in attempt to adapt them in a

hybrid education format. Goals for faculty should be chronological in nature and advance by semester and technology availability. Ultimately the goal of the plan would be to create a hybrid education course(s) collection in an attempt to achieve many of the benefits listed previously.

The foundation of a hybrid education development plan should begin with a hybrid education development team. Each department or college (i.e. Computer and Information Technology or College of Technology) should have a hybrid education development team. The team members should consist of a team chair, the faculty in the department, the technical support person(s) assigned to the department, the library helpdesk person assigned to the department, and at least one subject matter expert faculty member. The responsibilities of each of these individuals would correspond as described in Table 1.

**Table 1: Hybrid Education Development Team**

Administrative Person(s)	Meets with the team to show administrative support and concern for the development of distance education. Responsible for facilitating and guiding monthly meetings. Also, they are responsible for allocating needed funds to support the technological development of the faculty.
Faculty	Should be active in the creation of the hybrid education development plan. Responsible for following the three semester hybrid education development plan. Also, they are responsible for voicing their needs in education development.
Technical Support Person(s)	Informs the team of the equipment and software available. Offers training sessions once a month to instruct faculty on the new hybrid education opportunities. Informs team of professional development opportunities in distance education outside of the three semester plan.
Library Helpdesk Person(s)	Must be well versed in distance education use and implementation into the classroom. Responsible for fielding questions about hybrid education, trouble shooting possible problems, and guiding faculty on software choices/applications for distance education.
Subject Matter Expert Faculty	Responsible for sharing ideas, providing examples of their own hybrid education courses, offering any suggestions, and guiding faculty to strengthen their areas of technological weakness. This individual may be the only individual capable or willing to take on the leadership responsibility of the team.

This team should serve as a guiding and motivating force behind the three semester hybrid education development plan. The team should meet the 4th Friday and last Friday of every semester to discuss any new hybrid education, successful application of hybrid education into the classroom, and concerns about or problems with the distance education/equipment. The team should be guided and facilitated by a team leader so as to keep the team on a positive track (i.e. no distance education bashing sessions).

The first meeting should serve as a kickoff type meeting. The team should review the goals for the current year's plan. Each cluster, like the Computer Information Technology department or College of Technology depending upon how teams are assigned should be assigned as a host to one meeting. They should present how they implemented distance education in their area. The

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last meeting of the hybrid education team should review the milestones started and or completed in the past year, highlighting the goals achieved and setting upcoming goals.

The timeline for the three semester implementation of hybrid education calls for attending workshops, learning to use software and equipment, developing full length courses, team meetings and planning and developing, and faculty blogging. Two workshops should be required each semester. In the first semester of the plan, faculty would learn how to use e-mail effectively. Therefore, the in-house hybrid education workshop should be on e-mail software and using classroom groups. The other workshop, the faculty should be free to choose in their own area of interest relating to their department needs.

Faculty would need to learn course development software and a communication system (i.e. Blackboard, Podcasting, instant messaging, discussion board, etc) each semester. The new software may also involve learning about new equipment, like iPods. The course development software should help them to transform their traditional classes to hybrid education format. The communication system should allow them to talk with their team about the problems they may confront when learning a new piece of software/equipment.

Team meetings should help the faculty voice their concerns/problems with a technical assistant present. In theory, this technical person should have the answers to any problems that may seem impossible to solve to the faculty.

Team planning builds teamwork. Once a semester, each team would present how their team has implemented distance education - even if it is only the beginnings of the development. Blogging is meant to assist the faculty throughout the three semester plan and then beyond. If faculty run into a problem and then find a solution and write about that in their blog, when they confront the problem again, they can search their blog for the answer.

**Table 2: Semester One**

<b>Category</b>	<b>1st 8 weeks</b>	<b>2nd 8 weeks</b>	<b>Vacation</b>
Workshops	In-house e-mail workshop Blog entry on the pros and cons of these workshops	In-house Blackboard workshop Blog entry on the pros and cons of these workshops	Blog entry on the pros and cons of semester one
Distance education	Learn to use e-mail communication software Learn to use a list-serve or e-mail groups Communicate with your team on a list-serv or e-mail group	Learn to use a discussion forum within Blackboard Communicate with your team on a discussion forum	Communicate with your team via email to update on summer activities
Course Development	Develop a one sample course using Blackboard Blog entry on the pros and cons of this software	Conduct the sample course with your team members as your students Blog entry on the effectiveness and ease of delivery of your course and changes you would make to improve your course	Transform one of your traditional classes to a distance education format using Blackboard
Team Meetings	Attend all team meetings	Attend all team meetings	
Team Planning	Plan with your team for presentation	Plan with your team for presentation	

**Table 3: Semester Two**

<b>Category</b>	<b>1st 8 weeks</b>	<b>2nd 8 weeks</b>	<b>Vacation</b>
Workshops	In-house Distance Learning workshop Blog entry on the pros and cons of these workshops	In-house Continuous Improvement workshop Blog entry on the pros and cons of these workshops	Blog entry on the pros and cons of semester two
Distance education	Learn to use iPods Learn to Podcast Use iPods to Podcast at least once during the semester to communicate with your team	Learn to use Adobe Connect Communicate at least once with your team using this software	Communicate with your team via email to update on summer activities

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Course Development	Develop a one week sample course using Blackboard Blog entry on the pros and cons of this software	Audit the sample course with your team members as your students Blog entry on the effectiveness and ease of delivery of your course and changes you would make to improve your course	Transform one of your traditional classes to a distance education format using Blackboard
Team Meetings	Attend all team meetings	Attend all team meetings	
Team Planning	Plan with your team for presentation	Plan with your team for presentation	

**Table 4: Semester Three**

Category	1st 8 weeks	2nd 8 weeks	Vacation
Workshops	In-house distance classroom participation workshop Blog entry on the pros and cons of these workshops	In-house distance classroom promotion workshop Blog entry on the pros and cons of these workshops	Blog entry on the pros and cons of semester three
Distance education	Learn to use webcams and microphones Use webcams and microphones to communicate with other teams at distant sites	Learn to use webcams and microphones for online classroom instruction with Adobe Connect Record online classroom instruction to communicate with other teams at distant sites	Communicate with your team via email to update on summer activities
Course Development	Develop a second sample course using Blackboard and Adobe Connect Blog entry on the pros and cons of this software	Audit the sample course with your team members as your students Blog entry on the effectiveness and ease of delivery of your course and changes you would make to improve your course	Transform second traditional class to a distance education format using Blackboard Compile all of your blog entries in the three-year process and determine which pieces of software/equipment are most effective for you when designing distance education courses. Record this in your blog

Team Meetings	Attend all team meetings	Attend all team meetings	
Team Planning	Plan with your team for presentation	Plan with your team for presentation	

The use of faculty already on contract at the school should be utilized. There should be at least one distance education person, a subject matter expert, four faculty and two library helpdesk persons. It is important to make sure the subject matter expert faculty is computer savvy and people savvy, since the only compensation is many hours of stress. Add an additional technology person to support only this distance education plan before implementing this plan. In its most basic form, this plan should work with existing faculty.

This is meant to be a starting point to develop an implementation plan on our campus. As with any initial plans there are issues and revisions that will need to be made.

**Costs and Time Commitment**

Obviously in tight economic times the cost of implementing is a concern. As mentioned previously in the paper the use of existing staff is useful. There are several ways to save on training costs that might arise for some of the technology. One method we have used on campus in the past is to send one person to a class and that person come back and shares it with others. Also, for much of the common technology both Purdue and IUPUC have some training that is free of charge or relatively inexpensive such as \$35 for a three hour class. Also, the Columbus Learning Center (CLC) offers workshops free of charge to interested faculty on different topics.

A systematic approach to hybrid education development involves long term planning and time commitment. The plan covers the development process for three 16 week academic semesters, and consists of several iterations of hybrid course education development. The iterations are composed of workshops and distance education, course development, team meetings, team planning, and reflection blogging. The iterations also include time between semesters, such as summer breaks. There will be 1 – 3 hour workshop per 8 weeks with a total of 18 hours of face-to-face workshop time. There will be 2 – 30 minute new technology distance education training via on demand computer based training per 8 weeks with a total of 6 hours of new technology distance education training. This totals 24 hours of total commitment of learning new distance education facilitation and technology over the three 16 week academic semesters. For faculty with no prior knowledge of online education or novice, it will take approximately 3 times the number of training and workshop hours for them to develop the course material. This equates to about 90 minutes devoted to the new course development per week and about 10 minutes of reflection blogging per week on top of the workshops and technology education. For faculty with some basic technology background to a tech savvy faculty member, it should take approximately 2 times the number of training and workshop hours for them to develop the course material. This equates to about 60 minutes devoted to the new course development per week and about 10 minutes of reflection blogging per week on top of the workshops and technology education.

**Issues**

Money always seems to be an issue. As with many universities we are looking at cutting the budget. This is especially true at our state funded university where every dollar spent is being

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scrutinized. Typically, training dollars are one of the first areas to be cut and we will need to come up with creative ways to train and save university dollars.

Another issue is selling management on the plan and determining which management to enlist in our efforts. On our campus we work with our department head in West Lafayette who is responsible for our program and curriculum delivered on our campus. We also have our Site Director who is financially responsible for the Purdue site in Columbus, Greensburg and New Albany and answers to the Associate Dean over Statewide Technology. Finally, we have our partner university in Columbus, IUPUC, that delivers all of our support courses for our students. Although we don't report directly to them we interact with the faculty and staff on a day to day basis.

In discussions with our department from the main campus I have found little interest in pursuing hybrid courses. Most classes are delivered in a traditional face-to-face delivery method and there does not appear to be the interest or incentive to pursue a hybrid strategy. At the department level we must deal with our curriculum and interact with the Purdue information systems that handle course registration. Two interesting issues have already arisen. First, our curriculum committee has no written policy for hybrid courses and as far as we know there is no university policy for hybrid courses. For each of our courses we have a section for delivery method and the options are distance and instructor led. This creates a problem in our new university system for registration, if you try to put a three hour class in the system and don't meet the prescribed number of minutes it will kick the class out. Our workaround for the time being is to list the class as distance and in the comments section put the meeting days and times.

At the Purdue Statewide level we have had discussions about hybrid education. One of the issues we have is that again relating back to university efforts to save money they are supporting more distance classes. We have eight statewide sites located throughout the state of Indiana. Statewide is offering more distance education but this is generally in the format of an online class so an instructor in South Bend can teach a class that is utilized by the other campuses. Unfortunately, the hybrid does not lend itself well to that need. There have been some experimentation with having aids at each site and having a face-to-face portion but there have been issues that arise from that such as who should support the class at the other site (in Columbus for a class offered out of Kokomo). If this is staff or adjuncts then they must be paid and if it is a faculty member then there is the issue of how this role would count as contact hours all of which remains unresolved.

Finally, we have our IUPUC partners in Columbus. This may be our best partner, they are at the same location, we can readily share or host training locally and they share many of our same concerns. Also, they could benefit from many of the proposed advantages of the implementation of hybrid courses. At the time of developing this paper we had focused our efforts on working with Purdue at both the department and site level and did not pursue a collaboration with our local partners. However, after discussions IUPUC may be a good fit.

### **Conclusions**

We are very pleased by the success of the limited number of hybrid courses we have offered in C&IT at our Columbus campus. The classes have had positive feedback from the faculty and students and students have performed as well as in traditional face-to-face classes. Also, each section we have offered has been at, or near capacity enrollment. We have had interest from

other faculty about also using a hybrid format. In Computer and Information Technology Department in Columbus we would like to expand its use. We feel increased use of hybrid courses will benefit our department in both recruiting and providing quality classes. For that reason we have developed an implementation plan for hybrid education. This is our first cut at this plan and we expect to make changes as we progress but we feel it is a good start. Although, we didn't find the support we had hoped for at the department and site level we were definitely not discouraged from pursuing this at either level. Our next step in implementing this plan is to approach our partners at IUPUC and possibly our neighbors at Ivy Tech Community College and the Columbus Learning Center, all local entities that share the same resources on our campus and could benefit from a hybrid education implementation plan.

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