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# IM:PACT: Supporting faculty innovation in course redesign

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# INNOVATIVE APPROACHES TO LARGE ENROLLMENT COURSES from lecture to...

## Dr. Karen Chang

NUR 223

Redesigned as a hybrid course with 2 credits online and 2 credits in class, the class integrates information technology to promote active learning, problem-solving, and online collaboration. Students engage in a variety of online activities, use Adobe Connect for group presentations, and work on problem-solving during class.

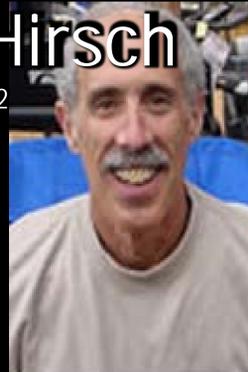


sign cohort:  
rates over time  
2010

## Dr. Andy Hirsch

PHYS 172

Students watch pre-lecture videos that contain quiz questions with feedback to prepare them for the upcoming lecture and to allow Hirsch to employ just-in-time-teaching based on student responses to the quiz questions. In lecture, students participate with iClickers. In future semesters, Hirsch plans to increasingly move towards a "studio model" similar to SCALE-UP.



## Dr. Mark French

MET 213

Traditional lectures are supplemented with videos of Prof. French working out problems related to dynamics and other phenomena. French's course culminates in a hands-on project wherein students build catapults to show the practical application of core principles learned throughout the course.



## Dr. Tim Newby

EDC127

While we would expect a course on educational technology to include use of a variety of technologies, Tim is using a combination of case-based projects and technology in a unique way. He groups his students and asks the groups to develop lesson plans for a teacher in a foreign country. At various points during the project, the teacher is interviewed via Skype. The best lesson plans are forwarded to the teacher for review and possible use.



## Ellen Gundlach

STAT 113

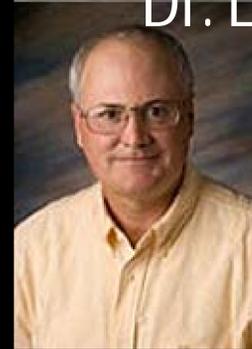
Online lectures using Adobe Presenter, online homework, Mixable discussion assignments, and proctored pencil-and-paper exams are available for students in all 3 versions of the course. The online students have the flexibility of doing everything except the exams online. The "flipped" class students do not have formal lecture or recitation classes, but they attend discussion/active learning sections once a week in a room designed for that purpose to incorporate more peer-to-peer learning and better conversations with the instructor.



## Dr. Larry Nies

CE 355

Gaining a global perspective and improving student's information literacy skills are goals for this course. Students work in teams on real-world problems. Facilitated group problem solving, discussion and presentations, educational game play, research writing and reflective writing are components of the redesigned course. Students become active engaged learners and improve their ability to work and communicate within a team.



## HOW DO WE ENCOURAGE INSTRUCTIONAL INNOVATION? the IMPACT project...



### Keys to success:

- Provost sponsored & funded
- Interdepartmental collaboration
- Dean/Department Head approval for faculty participation
- Support individualized to faculty approach and needs
- Workshops provide significant time for faculty discussion

### Approach:

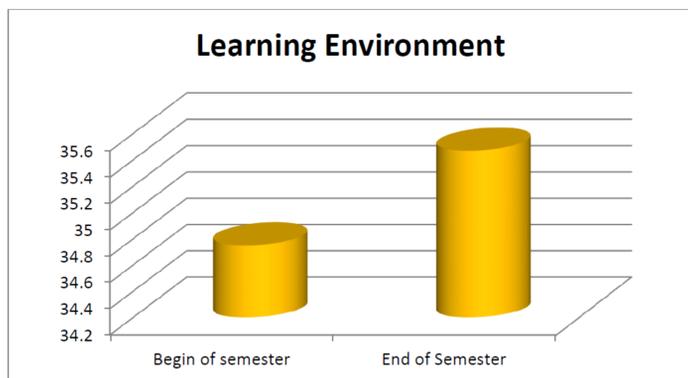
- Faculty apply & are screened based on both the impact of their course (size, level, etc.) and the faculty members' attitude toward change.
- Accepted faculty receive funding of \$10,000
- Faculty are required to attend workshops
- Workshops focus on providing instructional theory and its immediate application
- Workshops are sequenced to provide a full, well-rounded approach to course design
- Faculty have a support team comprised of Center for Instructional Excellence members, Teaching and Learning Technology Educational Technologists, and Librarians.
- Support team meetings continue for at least 1 year, based on faculty progress and need.
- Faculty are encouraged in iterative redesign
- A heavy focus on tying course outcomes first to Blooms Taxonomies then to both assessments and lesson plans
- SoTL emphasis provides faculty with indications of changes in student learning and perceptions
- Resources available to the IMPACT faculty fellows includes research-based articles on application of theories, focused tools that are targeted at solving faculty problems, answering faculty questions as opposed to a laundry list of services



# DOES IT WORK?

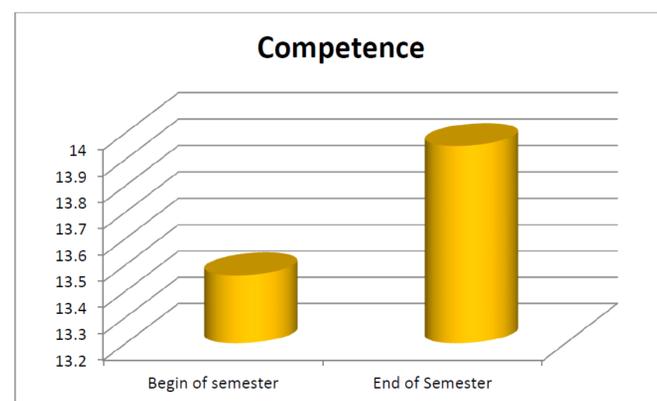
## INITIAL ASSESSMENT RESULTS...

In a comparison of concurrent IMPACT and traditional sections eight of the nine 2011 redesigned courses demonstrated an increased course GPA, and seven demonstrated the highest course grades in 4 years (From IMPACT Annual Report, 2012)

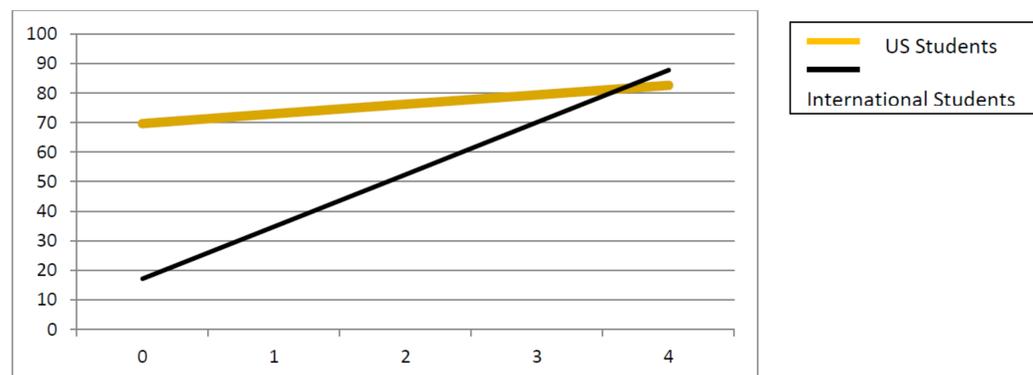


Students in courses taught in the Fall 2012 (N = 492), reported the learning environment as significantly more engaging and student centered (autonomy supportive).

In a comparison of her hybrid flipped section to her traditional section, end of semester course evaluations showed the following reactions to the technology incorporated in her redesign course: "The students liked the redesigned lectures with the funny videos and stories (only one person thought there was too much "fluff"). They liked the incorporation of iClicker questions for content and effort. They liked having the lectures available online (and in shorter chunks) as backup resources. In sum, the hybrid students were generally happy with the format" (From IMPACT Annual Report, 2012)



Students in IMPACT courses, show significant gains in competence and confidence (lowering of self-doubt) over the course of the semester.



POL 101: A large service course with a significant proportion of international students. The redesign of the course made use of active learning mini-research projects. Successful completion of the active learning mini-research projects improved performance. The size of the relationship between active learning research projects and Performance on final exam was positive and significant ( $\beta = .28, p < .001$ ). Furthermore, this effect was qualified by a significant interaction. As seen below, the learning "payoff" from successfully completing the active learning mini-research projects was positive for all students, but even greater for international students.

In reviewing **retention rates** of courses in first redesign cohort:

- Five of the nine courses show increases in their rates over time
- Six of the nine courses show increases from fall 2010
- Five of the nine courses have shown their highest retention + graduation rates over the last four years.

## FACULTY IMPACT...

In IMPACT assessment surveys faculty self-reported that their teaching and student learning at Purdue was improved by IMPACT and their implementation of one or more instructional technologies such as HotSeat, online instructions, Echo 360, clickers, Blackboard, Huddleboards, etc. (From IMPACT Annual Report, 2012)

### Impact on non-participating faculty

21% of respondents who were aware of IMPACT had considered changing their teaching practices as a result of their awareness.

### Impact of participation: Faculty reported that they learned about:

- The backward design process for course design,
- The SCALE-UP model for implementing active learning in the classroom,
- Educational technology available on campus, and their applications
- The importance of FLCs as platforms for sharing common experiences and gaining appreciation of one's own field.

### Impacts of the professional development on teaching practices:

- Adoption of new teaching strategies learned
- Enhanced knowledge of new strategies
- Continued use of previously known or previously implemented strategies

Reference: IMPACT 2012 Annual Report