NEFDC EXCHANGE

www.nefdc.org

New England Faculty Development Consortium

Volume 26 • Number 5 • Spring 2013

"Because of us or despite us?"

I was reading through a new magazine that came across my desk called Chief Learning Officer (April, 2013) and found a quote that really got me thinking. The editor of the magazine, Norm Kamikow was highlighting the work of Albert Bandura who wrote the book on Social Learning Theory in 1977. Kamikow states "Bandura was on to something. People will learn what they want when they want, either because of or despite our best efforts to design and deliver learning." This really struck me for both its truth and its simplicity. When people want to learn it can be a truly amazing process to watch. They will put in whatever time it takes to gather the material, read and process it and turn it into "learning". I have seen it happen with students and I have experienced it myself as a learner. But, the second half of the statement is the important part for us now: "…because of or despite our best efforts…" should be our call to action to make sure that our students are never forced to learn "despite our best efforts".

The theme of our spring conference is "Engaged Learning: Impacts and Implications". Our keynote speaker, Dr. John Saltmarsh, will explore what happens to students when they are engaged as experiential learners in their local communities. The keynote and the breakout sessions will also examine the implications for faculty practice and the institutional changes needed to support this type of teaching.

As always, we try to coordinate the theme of our next conference with the theme of The Exchange. It is a challenge, but we usually succeed and this edition has indeed succeeded too. Karen St. Clair from Emerson has a great article: "Service Learning: An Unexpected Benefit to Teaching Teamwork" that recalls a serendipitous find during a research project that she and her partner recently completed. Dorothy Osterholt's article "Changing Needs of Today's College Students: Implications for Teaching Faculty" discusses how we as teachers need to change what we do in order to reach today's students. "Studio Physics: No Student Left Unnoticed," by Bradley Moser and James Vesenka, introduces us to a different way of teaching physics that increases student engagement in the process. In the article "The 5 Immutable Laws of Teaching For Student Retention" Bill Searle, Heidi Fitzgerald, Joseph Finckel propose a common sense foundation for keeping students in college. And finally in , "Confabs: A rejoinder to Arum and Roksa's *Academically Adrift: Limited Learning on College Campuses*" Jessica B. Schwarzenbach and Paul M.W. Hackett propose a solution to the problems exposed by Josipa Roksa, (the keynote speaker of our last conference) and Richard Arum in *"Academically Adrift"*.

and making a terrific impact on what we have been able to accomplish. Dr. Gouri Banerjee from Emmanuel College has edited The Exchange and worked on several conference committees, Dr. Mei Shi from UMASS Amherst has chaired several conference committees, Dr. Ken Wade from Champlain College has worked on both The Exchange and a few conference committees and Michelle Barthelemy has managed our website and worked on conference committees. Their dedication to the NEFDC will be missed greatly and their service has been greatly appreciated. Fortunately, reinforcements have arrived. Please check out the article on our new members in this issue. I firmly believe that we will all move forward because of the efforts of the NEFDC and I look forward to learning with you at our conferences. Please keep up all of your great work at your institutions!

Tom Thibodeau
NEFDC President

The 5 Immutable Laws of Teaching For Student Retention

Bill Searle, Heidi Fitzgerald, Joseph Finckel
Asnuntuck Community College

A great deal has been written about how to keep more students in college until they graduate. Committees and task forces have studied the issue, and report after report has been issued. How are we doing? Must be retaining many more students than ever, right? Not really.

There may be a simple reason why attrition numbers have remained stubbornly high. The problem is, despite all the discussions about retention, not much has changed in the average classroom. Unfortunately, the classroom is precisely the place where we lose many of our students.

The task, therefore, becomes helping teachers engage in behaviors that we know will tend to encourage students to "stick" to the college. Unfortunately, college faculty members have a great many demands on their time, and complex analyses and detailed behavioral notes simply will not fit in. Worse yet, many of our colleges use large numbers of part-time faculty who really do not have the time to study and learn esoteric instructional research (nor are they paid to do so).

How can we reach the people who interact the most with students? It is not easy. Nevertheless, to change the dynamic of students dropping out of college, we must reach the people most likely to impact retention. How can colleges accomplish this? We propose that each institution develop its own "Immutable Laws of Teaching For Student Retention."

Some guidelines in the development of these "immutable laws" are in order. From human behavior research, we know that most people cannot concentrate on many different activities at one time. Also, the more complex a concept is, the more people do not study or follow it. We therefore submit that all laws should share the following essential characteristics:

- ✓ *Easy to understand*
- ✓ *Few in number (5 seems right!)*
- ✓ *Have an aspect that is observable, that a person can know she/he is doing or not doing*
- ✓ *Easy to implement*
- ✓ *Have considerable "face validity" – that is, seems accurate or right to people*
- ✓ *Have potential for immediate impact*
- ✓ *Relatively easy to gather information concerning success when using*

So, what are the absolute key behaviors for faculty to engage in, in order to maximize the chance of student retention and success? How do we fit instructional behaviors into the paradigm above?

1 *Make Students Deal With You As a Person*

Young students entering college today tend to personalize everything (think Twitter, Facebook, the constant texting to each other about personal matters), so make it personal. Make students feel that if they skip class, don't do their homework or slack off, then they are doing that to you. How? Know their names; talk about them and with them. Make your relationship professional but personal, like an excellent doctor or lawyer does.

2 *Give Weekly Assignments That Make Students Produce Something to Hand In*

Have a short assignment based upon the week's readings due each week. This keeps students focused and on track with your course weekly, and gives both of you a quick shot at correction should their focus wander. A colleague gives "open note quizzes" to reward students for taking notes on the readings; easy questions to answer (and grade) provided a student has notes. Instant good grades are the reward for taking good class notes.

3 *Make an E-mail Connection*

Many faculty members are justifiably leery of using social networks to connect with students, but old fashioned email works well. Give an early assignment where they must connect with you via email so you have a preferred email address. Make certain they know they should email you if they are going to miss class, or have a problem. Require students to email you when they miss class, and attach their homework. It is amazing what some students will share via email, and the more connected they are, the more likely they are to stick with us.

4 *Our Students Are Alive, So Our Classes Should Be Too*

A lecture, even a lively lecture/PowerPoint presentation, basically keeps students in a passive learning mode. Those students most likely to drop out do not function well in that mode. Vary what happens in class, and reconsider delivering any mode of instruction for more than fifteen or twenty minutes before changing things up. Develop exercises where students compare ideas, compare notes, interview each other, develop team responses to issues or questions, or even pair up to develop questions on the lesson. Getting them to physically move never hurts either.

5 *Students Must Feel Like They Belong in Your Classroom and Can Succeed*

During the first few classes of a semester, we often harp so much on our course expectations in the hopes of scaring our students into hard work that we get what we ask for: we scare them off. Read your course syllabus: is it a sustained brow-beating before the class even begins? Raise the bar only after they've relaxed a little in the chairs. Make your excitement for your subject palpable, entice them into your world -- Robert Frost's line in The Pasture comes to mind," I sha'n't be gone long. -- You come too." Grab them first with your empowering belief that they have what it takes to be successful students in your class, then challenge them and move them out of their comfort zones. You will have instilled in them a fledgling belief in themselves and a sense of belonging in your classroom that will be a life raft here. Self-efficacy is a powerful belief that leads to harder work.

6 *Be Deliberately Vulnerable*

It's not easy standing in front of a room. We want to sound smart, we want to communicate clearly and effectively, we want to have the answers to every question, we want to maintain control of the room, and we want respect. We therefore put a great deal of pressure on ourselves to be invulnerable in our classrooms, and in doing so we risk building walls of infallibility around ourselves as teachers that intimidate and alienate our students. Instead, try projecting a confident and secure vulnerability. There are things you don't know. There are things that students will teach you. You will make mistakes. Model the humility and openness to growth that we're trying to foster in our students.

Whoops. If you can count, you've no doubt realized that there are six immutable laws here, not five. What did you expect with three faculty authors? Fifteen? No one is perfect. Now, as you read the laws above, did one or more seem not that significant to you? Perhaps you have ideas about other laws that you feel are more important. Perhaps several of the laws above do not seem important to your students. Great.

Engage your faculty colleagues in conversation to develop a short list of "Immutable Laws of Teaching" aimed at retention that fit your students and your institution. Most importantly,

once done, publish them everywhere. Include the laws with employment packages for everyone who teaches at the institution. Review them regularly with part-time faculty. Tell students. Engage the college community in making sure that your "laws" remain in focus and significant.

Good luck!

For information on the efficacy of involving students in their learning, review studies on "cooperative learning" or "collaborative learning" or "active learning". Some of the best research is actually not new, although newer studies are more sophisticated. Also, consider studies that directly involve your particular students. For example, some studies are finding that many community college students find it easier to learn in a very active mode, which may be different from students attending research institutions.

Save the Date!

NEW ENGLAND FACULTY DEVELOPMENT CONFERENCE

NOVEMBER 15, 2013

The College of the Holy Cross
Worcester, MA

Speaker: ***Dr. Eric Mazur***, the Balkanski Professor of Physics and Applied Physics at Harvard University and Area Dean of Applied Physics. He is interested in education, science policy, outreach, and the public perception of science. In 1990 he began developing Peer Instruction a method for teaching large lecture classes interactively. Dr. Mazur's teaching method has developed a large following, both nationally and internationally, and has been adopted across many science disciplines.

Changing Needs of Today's College Students: Implications for Teaching Faculty

Dorothy A. Osterholt - Associate Professor First Year Studies Department
Landmark College

Although the lecture model still holds important value for distributing content, particularly to large groups of students, there are many forces at play in today's college classroom that are causing college faculty to re-examine this pedagogical practice. Time for quiet concentration, needed for the consolidation and construction of new knowledge, and active dialogue, important for expanding knowledge and building social skills, is often sacrificed in the face of the traditional lecture delivery system. With aggressive massification efforts that are bringing more students into higher education, the college classroom has become more diverse than ever before in history. Given the wide range of skills and challenges entering the classroom, we must find additional avenues for creating communities of learning that offer all students opportunities to think, speak and listen to what other students have to say in order for them to grow not only academically, but socially as well. This is particularly true for students who are in their first semester of college. Higher education is now broadening its focus from what students are being taught in terms of content to include how students are learning. This shift in perspective from teaching to learning requires the implementation of new approaches that provide promising positive results.

Selecting the right approaches that meet the needs of the diverse students attending college today is no easy task. When thinking about such a selection process, Lisa Delpit's story about a Navajo elder comes to my mind. In the 1966 scenario anthropologists Sol Worth and John Adair approached the elder and asked if they could conduct research on his reservation, the elder asked the researcher two important questions. First, would the study hurt "the sheep"? To this the researchers answered "No" with great confidence and clarity. Next, the elder asked, "Will it do them any good?" This question required much more consideration, and when the researchers finally answered "No," the elder replied by saying, "Then why do it?" (Delpit, 2012) These important questions can easily apply when considering new pedagogy.

A growing number of students are being accepted to college, but fail to demonstrate their academic potential. New pedagogies, learning technologies and support programs are being put in place with the hope to attract more students to college. Even with such monumental efforts, there is a growing realization that the array of strategies being implemented may not actually be doing students, "the sheep", any substantial good. For many students, such programing is still falling short. This awareness is now causing colleges to re-examine their approach in the classroom.

Recognizing the difference between sound pedagogical practice and a promising hunch is important when you are considering student learning. Faculty need to first examine the challenges that students are facing and then select teaching practices to address those specific barriers directly.

As faculty, we are always striving to identify the barriers that students may be struggling with, and we usually focus on the foundational academic skills that are required to be successful in college. Offering extra help with the comprehension of reading assignments, the construction of writing assignments, or the critical analysis of course content, however, this type of support may not always yield the results we want. Although many well-intentioned students, for example, continue to struggle to complete the work required, they may never make it to office hours to get support. Given the myriad of possible reasons that cause academic failure, it leaves us wondering how we could possibly address all of them adequately.

Addressing students in a more holistic way may help the students develop their emotional, social, self-regulatory, and academic skills. Identifying what students are most concerned about and how those concerns may be affecting their learning is best done by asking the students directly. Steven Brookfield (2006) recognized the importance of student feedback to get an accurate understanding of the emotional overtones that may be present in the classroom. He suggests the frequent use of student questionnaires to solicit this type of feedback, rather than waiting for the end of the semester evaluations. Whatever method faculty use to understand how their students are experiencing learning, it is important to value this practice as

a means for identifying either individual or collective concerns that may be preventing students from achieving greater academic success. Furthermore, having a clear understanding of the students' perspective throughout the semester provides opportunities to validate their concerns and address the issues as they arise.

Following this suggestion, I have used the following questions to help students not only think about the content they are learning, but also think about how they feel about their learning process.

1. In what way have you felt successful in this class?
2. In what ways have you struggled?
3. Do you feel the instructor has offered and delivered adequate support to you?
4. What additional support would you like?
5. What part of the curriculum have you enjoyed?
6. When have you felt frustrated or lost?

Addressing curriculum needs by acknowledging emotions will send an important message to students that they are perceived as thinking, feeling individuals. If the feedback is collected periodically throughout the semester, then concerns can be addressed directly. Emotions shared by many students can be discussed openly in class and content that students are struggling to grasp can be the focus in class before students are asked to display their knowledge on exams or papers. Other, more individual, concerns can be addressed during office hours.

Once the barriers are exposed, the process of addressing the needs becomes intentional. No longer are the pedagogical or content shifts we choose to make relying on our best guess. Of course one concern for all college faculty in making changes in the classroom is to be sure that the academic rigor is not sacrificed for the sake of increased student engagement. It is, therefore, critical to find ways to support the concerns of the students while they are building their understanding of the course content.

There are specific high impact practices that have shown positive results for creating supportive learning environments. Building a classroom climate of inclusion and intellect is at the forefront of such practices. All of these practices have one aim in common and that is to engage students directly in the learning process. If this is the only goal for selecting such practice, then chances are the goal would be met. If such practices are not yielding results in terms of improving student performance, then there needs to be a closer look at the practice being used.

Examination of student needs should be the primary vehicle for selecting and evaluating teaching practices. In my own classroom, when students were asked to identify what they felt were the primary barriers that were having a negative impact on their academic performance, the majority of students said that social/emotional issues and motivation were of most concern to them. Although these domains are often seen as "off limits" for teachers, there are viable ways to address these concerns within the academic work students are doing in class. Carefully designed collaborative activities that increase content knowledge may also offer opportunities for students to get to know their peers better, alleviating any social misconceptions or feelings of intimidation. As the students' comfort level for working with other students increases, they are more likely to seek each other's help outside of class by forming study groups or partners. I found that this kind of informal class atmosphere also offers students the opportunity to connect with me in ways traditional lectures do not allow. If they have more of an opportunity to talk to me in class, this increases the likelihood that they will come to office hours. Both of these outcomes improve the chances that students will persevere when they are experiencing difficulty and will apply new strategies that will result in greater academic success. In terms of motivation, I have increased students' motivation to complete work by making sure they understand why the work that they are being asked to do is useful within a larger context and how the course content may relate to their own academic goals. In addition to helping students understand why they are doing the work, carefully crafted activities, such as a collaborative project that asks students to design an original product suitable for a particular market, with clear objectives and expectations also increases the students' ability to set reasonable goals and plan out their work, individually as well as within the group.

Students who are challenged by the ability to manage their time and materials effectively can also be supported if the instructor has an opportunity to observe their struggle in class. Modeling strategies like breaking down tasks, prioritizing and setting long and short term goals is beneficial. During in-class small group activities peers who are competent with such skills

can also become peer role models for students who are struggling. Having students accountable to their peers in small group activities can be a great motivator to complete assignments.

Recognizing and supporting a range of skills that encompass more than the attainment of content material distinguishes the fact that many students, especially those just entering college, are still maturing both socially and academically. What is different about teaching in higher education today? Our teaching practices must bring forth measurable achievement. Therefore, the teaching practices we choose to use must be selected not only because they are not harmful, but they must actually do them good.

Resources

Brookfield, S.D. (2006). The skillful teacher: on techniques, trust, and responsiveness in the classroom (2nd ed.). San Francisco, CA: Jossey-Bass.

Delpit, L. (2012) Multiplication is for white people: Raising Expectations for Other People's children. New York: The New Press

Confabs: A rejoinder to Arum and Roksa's *Academically Adrift: Limited Learning on College Campuses*

Jessica B. Schwarzenbach, Ph.D. - Independent Researcher
Paul M.W. Hackett - Professor of Research Methods: & Consumer Behavior
Emerson College, School of Communication

Introduction

In their book, *Academically Adrift,* Arum and Roksa (2011) forward the idea that American colleges are failing to help students develop the critical thinking abilities, complex reasoning and communication skills expected of college graduates. Research indicates that ninety percent of employers in the U.S. value critical thinking, problem solving, and appropriate writing skills for job success, yet employers conclude few college graduates perform well in these areas. Industry has adapted to the lack of these proficiencies at entry level by hiring from graduate schools and foreign sources to fill positions needing sophisticated expertise while relegating U.S. college graduates to less demanding situations (Adelman, 2006). The International Organization of Economic Co-operation and Development (OECD) has established worldwide measures of learning quality which reveal the U.S. performance in high school and higher education are below leading countries with advanced, market-based economies (Wagner, 2006). Why are students not learning critical and analytical skills in U.S. colleges?

Confabbing is a possible way for students to practice complex reasoning skills, to engage with the effects of college life on learning and personal growth, and to address their feelings of purposelessness associated with being academically adrift. The term confabbing here is used in place of "tutorial" due to associations of the word tutorial with Oxford University courses of independent study. Tutorials are regular courses taken for credit, while confabs are alternatively structured office hours. Since students rarely take advantage of these scheduled meeting times, confabs would be a more efficient format for these allotted time slots and would not require further compensation to faculty. Confabbing connotes regular informal talks or discussions. A confab includes the development of collaborative approaches between faculty, staff, and students to advance an integrated and mutually supportive in- and out-of-class college experience while ameliorating poor academic performance.

Factors contributing to U.S. Students' Poor Critical/Analytical Skills

Students

Arum and Roksa (2011) found U.S. secondary school education does not prepare students well for college life. Students defined college as social development rather than academic achievement and though students perceived college to be important, they considered college a part-time activity (Brint & Cantwell, 2008).

Students reported devoting less time to studying than previous generations and spending three times longer on socializing and recreation than studying. Students stated they had high expectations of college but these expectations were not grounded in realistic study habits or sense of values. Students reported minimal interaction with professors and expressed feeling unconnected, aimless and without purpose. Students were found to be burdened with financial debt and to perceive the attainment of a degree as instrumental to entering the work force, not as a deepening understanding of themselves and the world. Students recounted that they spent more time at jobs than studying in order to pay high tuition costs and practiced the art of "college management" (choosing classes for convenience and enrolling in low demand courses) in order to gain their qualifications with the least time and effort (Arum and Roksa, 2011).

Peer Culture

Although extant literature (Pace, 1979; Kuh, Kinsie, Shuh, Whitt & Associates, 2010; Pascarella & Terenzini, 1991, 2005) supports the positive influence of academically-oriented peer cultures at colleges, Arum and Rosca (2011) do not report peer culture to effect a positive change in learning. Students rated their peers for high expectations of academic outcomes, hard work and helpfulness but the research does not indicate that these qualities influence students' development of complex thinking and writing skills. In fact, Arum and Rosca find social activities, including unstructured time spent studying with peers, are of either no consequence, or have actual negative effects on student learning.

Institutions

In *Academically Adrift* (2011) the authors suggest the U.S. financial aid system empowers students as consumers and encourages administrators to compete for applicants by focusing on student services and organizational goals associated with college rankings rather than learning. Due to the consumer-driven character of U.S. higher education, many college administrators and faculty do not prioritize undergraduate education. Yet, the rigorous academic demands of high-performance institutions demonstrate that campus culture does affect student gains in critical thinking, complex reasoning, and writing skills. Studies indicate that institutions attended and college experiences are almost as influential as prior academic preparation on student outcomes. Too many colleges today are achieving their social function by conferring credentials to students without appropriate skills yet do not recognize academic learning as a core institutional goal (Arum & Rosca, 2011). College cultures are often unwilling and difficult to change as deeply held belief systems are entrenched in well-established institutional practice and faculty tenets (Kuh, Kinzi, Cruce, Shoup, & Gonyea, 2007). Revising higher education will take time and may be best accomplished through small increments of systemic modification.

Faculty

Data from Arum and Rosca's study (2011) indicate that the approachability and high expectations of professors are paramount for student engagement and shaping college experience. However, the authors find professors prioritize students of high-ability over poorly prepared students and that non-white-students and/or students with parents with little education are less likely to seek out professors socially or for academic assistance. Colleges generally assess the quality of undergraduate teaching through student course evaluations, yet institutions are inclined to reward research productivity of faculty through salary raises and decreased workloads. When professors require more rigorous assignments of students, they create a greater workload for themselves with less time for research and career development, as well as, risk greater student dissatisfaction. Demanding more work of students has been found to have a direct relationship with poorer course evaluations.

In Summary

Improving the poor academic performance of U.S. students is the responsibility of secondary school preparation, college administrations, college faculty, and the students themselves. Studies show greater college workloads along with higher faculty expectations of students are associated with improved student reasoning skills and learning: when students study more, they learn more. If faculty invest more time with students, take more responsibility for them, infuse meaning and purpose into their exercises, and provide and receive feedback, students do better. When institutions develop organizational climates that encourage student academic engagement and effort, these structured socializing environments are able to foster specific skills, attitudes, and values.

A Possible Solution: Confabs

The above student outcome deficiencies may be addressed through the initiation of a confab system in which students would be required to gather for weekly meetings in an interactive peer group of approximately 6-8 students under faculty guidance. These gatherings might be in faculty offices or in less

formal everyday settings and serve as an interchange for questions, reflections, and ideas pertaining to academic studies, personal philosophy, and social life. Students enrolled in confabs may be asked to sign a contract to ensure all participants understand the purpose and benefits of working together with the professor. Students would be graded and receive credit for their work. This practice of structured, relaxed student gatherings aims to integrate in-class and out-of-class experiences to support peer learning while enabling professors to better understand and shape student goals.

As the structures of educational institutions differ, matching students with professors for confabs may vary from college to college. Freshman students may have a specified duration within which to choose professors based upon their profiles of interest but if a student is unable to decide, or if the preferred faculty's confab list is full, student advisors will assist students to choose from the remaining pool of faculty. Whilst the faculty skills associated with running a confab are similar to those involved in more general teaching, in-service training to become confab leaders could be provided as part of the faculties' professional development. Oxford University argues that professors ought to offer confabs (which they call tutorials), not only in subjects they know, but in areas also out of their disciplines of interest: Professional scholars challenged by new subject areas would model the critical thinking, reflection and methods of inquiry expected of students. Students and professors could develop greater bonds when working together as learners (Palfryman, 2008).

Confabs will be organized as small structured group interactions that engage all student members. In these intimate settings, participation becomes unavoidable as students are required to take risks through a supportive exchange of ideas. Professors will be able to design confab activities that cultivate their students' intellectual creativity, autonomy, and resilience. Students would be exposed to a community interested in the comprehension and tolerance of diverse ideas encompassing intellectual breadth as well as specialized knowledge (Axelrod, 2002).

Each week confab faculty and/or students would select a topic for discussion or a short essay for the coming week's gathering. These sessions might also be used to consider student assignments from regular classes prompting detailed face-to-face feedback and group debate. Therefore, confabs could be a means to assure faculty/student contact and inculcate high expectations and proficient study habits. Through creating, presenting and defending arguments, students would expand their understanding and practice of complex reasoning skills. Confabs are expected to positively impact learning by providing a structured peer environment, which emphasizes academic learning under the guidance of involved faculty. These regular gatherings will support students who are at high-risk both academically and emotionally; students who have had little exposure to college culture; academically unprepared students; international students with poor English skills (through emphasizing clear and precise speaking, writing and reading); and the unengaged and under-engaged high-ability student (by tailoring challenges to keep high ability students involved and lowering dropout rate due to boredom). A strength of the proposed confab system is that it enables tutors and both high and low ability students to participate in a dialogue that insists on deeper levels of understanding. Both students' and professors' conceptions of learning will be enhanced through the creation of new structures of meaning, the expansion of interpretations of reality and an increase in personal growth (Shale, 2008).

Confab gatherings might also be a way to reorganize institutional structures and students' college experiences by only requiring moderate increments of change. Since students infrequently make use of professor's office hours, a part of these scheduled hours might be allocated to confab sessions. Providing an enhanced academic environment through the use of confabs may also be less taxing in terms of administrative organizational modifications or faculty responsibilities. Federal grants might be made available to support faculty and student participation in these confabs for research purposes. Data gathered in these discussions could supply information about students' ways of learning and help to develop teaching strategies to enhance student success.

References

Adelman, C., (2006). The toolbox revisited: Paths from high school through college. Washington DC: US Department of Education.

Arum, R. & Roksa, J. (2011). Academically Adrift: Limited learning on college campuses. Chicago: University of Chicago Press.

Axelrod, P. (2002). Values in conflict: The university, the marketplace, and the trials of liberal education. Montreal, Quebec: McGill-Queens University Press.

Brint, S. & Cantwell, A.M. (2008). Undergraduate time use and academic out-comes: Results from UCUES 2006. Research and Occasional Paper Series Center for Studies in Higher Education, University of California, Berkeley.

Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., and Associates (2010). Student success in college: Creating conditions that matter. San Francisco: Jossey-Bass.

Kuh, G., Kinzie, J., Cruce, T., Shoup, R., Gonyea, R. (2007). Connecting the dots: Multi-Faceted analyses of the relationships between student engagement (Revised final report for Lumina Foundation). Bloomington, Indiana: Center for Postsecondary Research, Indiana University.

Pace, C. R. (1979). Measuring outcomes of college: Fifty years of findings and recommendations for the future. San Francisco: Jossey-Bass.

Palfryman, D. and Contributors (2008). The Oxford tutorial: Thanks you taught me how to think. Oxford: Oxford Center for Higher Education Policy Studies (OxCHEPS).

Pascarella, E. T., & Terenzeni, P.T. (1991). How college affects students. San Francisco: Jossey-Bass.

Pascarella, E.T., & Terenzeni, P.T. (2005). How college affects students: A third decade of research. San Francisco: Jossey-Bass.

Shale, S. (2008). The Oxford Tutorial in the Context of Theory on Student Learning: "Knowledge is a wild thing, and must be hunted before it can be tamed." In D. Palfryman (Ed.), The Oxford tutorial: Thanks you taught me how to think. Oxford: Oxford Center for Higher Education Policy Studies (OxCHEPS).

Wagner, A. (2006). Measuring up Internationally: Developing skills and knowledge for the global knowledge economy. San Jose, CA: The National Center for Public Policy and Higher Education.

Service Learning: An Unexpected Benefit to Teaching Teamwork

Karen L. St.Clair - Director, Center for Innovation in Teaching and Learning
Emerson College

There are some workplace tasks that demand only one person's knowledge and skills. But, when you combine work's complex nature with what currently seems like continuous information expansion, teamwork becomes necessary for effective and efficient task completion (Wheelan, 2010). When teamwork is incorporated into higher education courses, students' future teamwork skills can be enhanced. There are millions of resources on teamwork in higher education (a Google search for teamwork in higher education yields over four million hits) that could be useful as faculty prepare students for future teamwork. Nevertheless, sometimes teams work well in higher education courses; sometimes they do not (Hansen, 2006; Vik, 2001). When they do not work well, faculty and students complain about uncooperative team members, conflicts, unequal participation, poor quality of team products, and more. The reasons behind the complaints are also found in the workplace.

There are, however, pedagogical interventions that can promote productive teamwork, thereby reducing the frequency of team-related complaints. Learning goals (often referred to as learning outcomes) related to teamwork can guide appropriate pedagogical selection (Fink, 2003). A learning goal might be that students will acquire knowledge about teamwork by studying the literature. Another might be that students will acquire teamwork skills by practicing teamwork.

Providing students with information on effective teams and teamwork, i.e. team member roles, team development stages, and team functioning, will help prepare students to work in teams. But, if faculty want students to also practice teamwork to acquire certain skills, there may not be enough time during class sessions for both. DiCarlo (2009) recommended that faculty forego attempting to "cover" all the content. Instead, faculty can incorporate active learning pedagogies, rather than lectures, in order to increase the chances that students will be able to transfer useful processes to life after college. The recommendation can transfer to teamwork. If students read the literature on teamwork outside of class, more time could be devoted to practicing teamwork through active learning pedagogies. This is often called flipping the classroom; a term attributed to Baker (2000).

Fishbowl is an active learning pedagogy that can be used during class sessions to enhance learning. White (1974) traced the introduction of fishbowl to various group dynamics formations developed in the 1940s. Kurt Lewin is frequently credited with developing the formations, in which group members contemplated and spoke about their experiences and received feedback from the group members (Kayes, Kayes, & Kolb, 2005). Within the classroom, approximately six students form a circle and discuss a topic or work on a task, while another six students surround the circled group and silently observe the discussion or work.

Thus, the configuration resembles a fishbowl. Following the discussion or work, the student observers switch places with the students who discussed or worked on the task. Now the observers discuss and analyze their reflections about what they observed. The feedback is received by the original circled group, even though the groups do not directly interact. The roles for these groups can be exchanged during other fishbowl sessions.

The fishbowl exercise can be a mechanism for team members to contemplate and speak about their teamwork experiences, as well as receive feedback from others. Fishbowl pedagogy variations have been used in college courses to teach about group process and leadership (Hensley, 2002), encourage peer collaboration (Miller & Benz, 2008), facilitate communication skills (Smart, 2006), train group counselors (Cox, Bañez, Hawley, & Mostade, 2003; Kane, 1995), and motivate students to participate in class (Dutt, 1997).

At my institution, two visual art graduate students and I explored how reading about teamwork outside the classroom, and how incorporating fishbowl pedagogy during class sessions, would affect students' knowledge about teamwork and the students' perceptions about their own teamwork experiences. These pedagogical interventions were applied in a target course. Several other courses that required teamwork served as controls, which did not incorporate the interventions.

It would not be possible to determine if the pedagogical interventions in the target course would affect the students' teamwork in the future. But, the expectation was that the students' written responses before and after the readings would refer to their knowledge about teamwork. Also, because of the assigned readings, students might report that they contributed to resolving any conflicts related to their teamwork. From their teamwork experiences and the feedback from fishbowl sessions, adjustments in students' perceptions of several teamwork aspects were expected to emerge from the data: teamwork development, team functioning, member contribution, and team task completion. Changes were not expected for the control courses.

Method

Participants

The target course was an undergraduate visual and media art course. Sixteen students were enrolled, but complete data was available on 12 students. There were five courses enlisted as controls. Data was available on approximately 11 students from each of those courses, totaling 58. Four of the five control courses were visual and media art courses; one was a marketing communication course. All courses incorporated teamwork which lasted at least several weeks. Students gave informed consent to participate, as required by the Institutional Review Board.

Procedure and Measures

During the first week of the fall 2010 semester, students in all courses completed a four-item, open-ended questionnaire on their knowledge of and experiences with teamwork: team development over time, characteristics of high performing teams, ways to be an effective team member, and the number of times the student had participated in teamwork while in college. Instructors in the control courses established student teams according to their own course designs. Five teams were established in the target course.

Students in the target course were assigned selected chapters from Wheelan's (2010) book, *Creating Effective Teams: A Guide for Members and Leaders.* The selected chapters summarize the developmental stages that teams undergo, present the characteristics of high functioning teams, provide advice for effective team membership, and discuss conflicts and conflict resolution. In addition, each of the five teams in the target course held three team meetings in the fishbowl format. Those fishbowl sessions were scheduled across the semester. Students wrote brief reflections about the fishbowl sessions, and teams conducted additional meetings, as needed, outside of class sessions.

Near the end of the semester, students in all courses responded to a four-item, open-ended questionnaire that was similar to the one administered at the beginning of the semester. The topics focused on the students' experiences in their own teams: changes in their team's functioning over time, their perceptions of the team's performance, how they contributed to the success of the team, and conflict instances and how they contributed to conflict resolution.

Results

Although rich in language and potentially meaningful, open-ended responses are not easily condensed into results that can be subjected to tests of significant differences. Nevertheless, trends and key phrases were extracted, sorted, and examined for relevance. There were no obvious differences between the target responses and the control responses, and no obvious differences between the responses early in the semester and those late in the semester. The responses suggested that students believe that unequal workloads, relationships, and

team members' roles are teamwork functions that change over time. Equal workloads and working together contribute to high performing teamwork; unequal workloads and not working together contribute to poor performing teamwork. Team members' contributions for success include being responsible, doing one's share, and taking the lead.

The questionnaire item about conflict and conflict resolution was asked only late in the semester. There were 48 reports of conflict. Those conflicts included disagreements over schedules, personalities, team products, communication, and unequal workloads. The prompt for reporting contributions to conflict resolution yielded a wide range of responses. For example, students made light of a personality problem, tried to compromise on the team product, used a variety of communication strategies to reach team members, or asked the instructor to mediate. In one control section there was no mention of conflict among team members. That course was a service learning course; the others were not.

Discussion

For the target course, the students' responses to the open-ended questionnaire items before and after the readings did not suggest any changes in their knowledge about teamwork, or in their ways of resolving teamwork-related conflicts. Students' perceptions did not change with respect to teamwork development, team functioning, member contribution, and team task completion. Although the specific expectations did not bear out, the advantage of using an open-ended questionnaire is that meaningful findings can be revealed through a close and broad inspection of the data.

The most interesting finding from inspection of the data was that the control course with the service learning component reported no conflicts among the team members or about team functioning. Teams in the service learning course developed promotional films for external clients. External community agencies wrote proposals to be accepted as clients in order to receive the students' film-making services. At my institution, service learning refers to pedagogy and learning experiences that involve students engaging with community partners in order to promote mutual learning. Students then relate their experiences to the academic course. For these partnerships, students often provide their expertise to solve problems or otherwise support the community partner. This definition and model are not unlike many found in the service learning literature (Dallimore, Rochefort, & Simonelli, 2010; Eyler & Giles, 1999; Falk, 2012; Moore, 2010). The unexpected benefit of no conflicts prompted a literature search for an explanation related to service learning.

Like the literature on teamwork in higher education, the literature on service learning is robust. A Google search for service learning in higher education yields about 126,000,000 hits. An article by Vaughn (2010) provided insight into the surprising finding in the study reported here. Vaughn reported that service learning projects increased students' affect for teamwork. In particular, Vaughn found that "because the projects were connected to a community agency, group members tended to take their roles more seriously, and their effort was more evenly distributed" (p. 8). Students' reflections supported Vaughn's notion. One student wrote, "Having the goal being a presentation for young students gives me so much more motivation and excitement than for just a class" (p. 9). Another student wrote that the project allowed for "accountability unlike preparing a 'ghost' project" (p. 9).

Thus, several aspects of service learning contribute to enhanced teamwork. A real-life project, rather than a 'ghost' project, motivates students to contribute responsibly to teamwork. Working directly with people who have needs, rather than indirectly suggesting ways people can be helped, motivates students to ensure productive teamwork. And, I propose that having an external audience of people who depend on the teamwork product, rather than production for only fellow students, motivates students to engage in teamwork efficiently and effectively. Perhaps when student teams are preparing materials for audiences outside the institution, they perceive their teamwork as having higher stakes when compared to teamwork for an imaginary client or a course-based topic.

Although the data did not support the original expectations, the unexpected difference in conflict incidences between the service learning course and the others prompted consideration of the study's methodological shortcomings. The two interventions were one too many. If only the reading was an intervention, more time could have been spent discussing it in class and assessing students' knowledge along the way. If only the fishbowl pedagogy were used, that intervention could have been expanded to include longer or more frequent sessions, which might have prompted more elaborate responses about the benefits of feedback. There were too many variables of interest, as well. The collected responses to several aspects of teams and teamwork suggested that our questionnaire items

may have been too broadly posed, thus prompting broad responses that were not specific enough to provide meaningful information. Furthermore, if the target course had four times the number of students enrolled, perhaps any effects of the interventions could have been evident. Many uncontrolled variables also contributed to the inconclusive nature of this study. For example, the courses were not the same, each instructor had different learning goals, and the way teams were formed was different from one course to another. This study prompts future exploration into teams and teamwork differences between courses that involve service learning and those that do not.

References

Baker, J. W. (2000, April). The 'classroom flip': Using web course management tools to become the guide by the side. Paper presented at 11th International Conference on College Teaching and Learning, Jacksonville, FL.

Cox, J. A., Bañez, L., Hawley, L. D., & Mostade, J. (2003). Use of the reflecting team process in the training of group workers. Journal for Specialists in Group Work, 28(2), 89-105. doi:10.1177/0193392203252180

Dallimore, E., Rochefort, D. A., & Simonelli, K. (2010). Community-based learning and research. In D. M. Qualters, (Ed.), Experiential Education: Making the Most of Learning Outside the Classroom, no. 124, (pp. 15-22). New Directions for Teaching and Learning. San Francisco: Jossey-Bass. doi:10.1002/tl.416

DiCarlo, S. E. (2009, December). Too much content, not enough thinking, and too little FUN! Advances in Physiology Education, 33, 257-264. doi:10.1152/advan.00075.2009

Dutt, K. M. (1997, Fall). The fishbowl motivates students to participate. College Teaching, 45(4), 143-148. doi:10.1080/87567559709596217

Eyler, J., & Giles, D. E. (1999). Where's the learning in service-learning? San Francisco: Jossey-Bass.

Falk, A. (2012). Enhancing the team experience in service learning courses. Journal for Civic Commitment, 18, 1-16. Retrieved from http://www.mesacc.edu/other/engagement/Journal/Issue18Spring/falkfinal.pdf

Fink, L. D. (2003). Creating significant learning experiences: An integrated approach to designing college courses. San Francisco: Jossey-Bass.

Hansen, R. S. (2006, September/October). Benefits and problems with student teams: Suggestions for improving team projects. Journal of Education for Business, 82(1), 11-19. doi:10.3200/JOEB.82.1.11-19

Hensley, L. G. (2002, September). Teaching group process and leadership: The two-way fishbowl model. Journal for Specialists in Group Work, 27(3), 273-286.

Kane, C. M. (1995, September). Fishbowl training in group process. The Journal for Specialists in Group Work, 20(3), 183-188.

Kayes, A. B., Kayes, D. C., & Kolb, D. A. (2005, September). Experiential learning in teams. Simulation Gaming, 36(3), 330-354. doi:10.1177/1046878105279012

Miller, R. L., & Benz, J. J. (2008, March). Techniques for encouraging peer collaboration: Online threaded discussion or fishbowl interaction. Journal of Instructional Psychology, 35(1), 87-93).

Moore, D. T. (2010). Forms and issues in experiential learning. In D. M. Qualters, (Ed.), Experiential Education: Making the Most of Learning Outside the Classroom, no. 124, (pp. 3-13). New Directions for Teaching and Learning. San Francisco: Jossey-Bass. doi:10.1002/tl.415

Smart, K. L. (2006, September). Developing effective interpersonal communication and discussion skills. Business Communication Quarterly, 69(3), 276-283. doi:10.1177/1080569906291231

Vaughn, M. S. (2010). Finding the value in group projects: Service learning in a group communication course. Journal for Civic Commitment, 15, 1-13. Retrieved from http://www.mesacc.edu/other/engagement/Journal/Issue15/Vaughn.shtml

Vik, G. N. (2001, December). Doing more to teach teamwork than telling students to sink or swim. Business Communication Quarterly, 64(4). doi:10.1177/108056990106400413

Wheelan, S. A. (2010). Creating effective teams: A guide for members and leaders. Los Angeles, CA: Sage.

White, K. R. (1974). T-groups revisited: Self-concept change and the 'fish-bowling' technique. Small Group Behavior, 5(1), 473-485.

Studio Physics: No Student Left Unnoticed

Bradley Moser, Ph. D. and James Vesenka, Ph. D - Department of Chemistry and Physics
University of New England

Introduction

Teaching styles such as "studio physics" (NCSU, 2007) and "Modeling Physics Instruction" (American Modeling Teachers Association, 2013) have been around for decades. While the number of universities that have adopted the studio approach has grown to nearly 100 U.S. institutions (Beichner, 2013), many more are needed. Almost none have implemented Modeling Physics Instruction, a style predominantly used in high school. At the University of New England (UNE), we feel that the combination of the studio and modeling instruction makes a powerful pedagogy. Drawing on the example of our physics classrooms at UNE, we demonstrate the benefit of these methods to student retention and academic success. We also suggest that these methods can and must be adapted for courses beyond physics.

Studio Physics

Studio Physics is the generic name given to an instructional format in which lecture and lab activities are merged into a single room and a single curriculum. This integrated learning environment couples hands-on lab measurements with active student problem-solving. The goal is to lecture less and have more guided student participation; taking to heart the well-known fact (Hake, 1997) that learning by discovery is better than passive listening.

Studio instruction has shown (Beichner et al., 1999) that students learn more in classes when they:

1. *Interact often with a familiar faculty guide,*
2. *Collaborate with peers on interesting tasks, and*
3. *Are actively involved with the material.*

The traditional science classroom at the university level involves three 1-hour lectures and an associated 2 to 3-hour lab. The lab is typically out-of-sync with lecture and is often taught by a different instructor. Additionally, lecture spaces are usually not conducive to group work. Studio classes replace the lecture/laboratory format. At UNE, students have six hours of activity-based instruction per week, either in two 3-hour blocks or three 2-hour blocks. Each classroom holds up to 24 students and there are eight workstations each with a group of three students. We have five full-time physics instructors, all of whom instruct using the Modeling style (described shortly) within 13 studio classrooms totaling around 300 students per semester.

The distinction between lecture and lab is removed, and the studio class may flow as each physical concept or model requires according to the students' needs. One instructor oversees the entire course providing consistent instruction. Studio Physics provides an environment for guided inquiry, but is not a curriculum in itself. In 1999 we adapted and implemented the use of Modeling Physics Instruction, a high school curriculum, to the introductory college classroom (Vesenka et. al., 2002). The labs were taught separately using a studio model and the lecture infused with guided inquiry in a traditional large class format.

Modeling Instruction

In Modeling, students are actively engaged in understanding the physical world by constructing and using scientific models to describe, explain, and predict phenomena. There are multiple ways for students to convert a physical observation into a mental picture. The students are then asked to communicate their results through multiple representations: graphical, mathematical, diagrammatic and verbal. The Modeling Cycle guides students to learn science by DOING science using the following approach:

1. *Observation of a paradigm demonstration.*
2. *Identification of measurable quantities.*
3. *Identification of a problem statement.*
4. *Planning and performing experiment(s).*
5. *Linearization of data into a form of $y = mx + b$.*
6. *Multiple representations*
7. *Discussion, consensus and model deployment.*

Emphasis is placed on procedural knowledge above factual knowledge. Physics is not done by recalling the right equation and plugging in the proper numbers. Physics is about communicating observed phenomena with relevant models. Only once the proper model has been identified and the surrounding concepts understood would numbers and equations have value.

The most challenging part of the course for most students is that there is no textbook. Students build their physics foundation from the ground up. Instead of a textbook, the students are given a workbook with outlines of in-class experiments, workbook problems and deployment activities. Each unit begins with a paradigm experiment that is fully dissected before having students undertake an associated lab experiment. Utilizing the modeling cycle, students effectively build a physics textbook based on evidence collected and analyzed. Incredibly important in the modeling process is building student confidence in the evidence they have gathered through successful problem solving and deployment activities that are analyzed during "whiteboard discussions." Whiteboards are a common feature in Modeling Instruction classrooms. These are used to help generate discussion around presentation of lab results and workbook problems. Whiteboarding is a teaching tool that provides formative assessment of students' physics comprehension. It facilitates free exchange of ideas, not criticism. The process aims to be as stress-free as possible, since the best learning takes place in a nurturing environment.

Research Findings

The Force Concept Inventory (FCI) is one of many tools developed to evaluate the effectiveness of physics instruction (Hestenes, Wells, & Swackhamer, 1992). In a study performed in the mid-90's (Jackson, Kukerich & Hestenes, 2008), a nationwide sample of 7500 high school students was selected and assessed. Pre- and post-test scores were recorded for students who took traditional lecture (non-guided inquiry) and compared against students who took interactive engagement Modeling Instruction. The results were impressive (Figure 1).

"After their first year of teaching with the Modeling method, post test scores for 3394 students of 66 novice modelers were about 10 percentage points higher. Students of expert modelers do much better. For 11 teachers identified as expert modelers after two years in the program, post test scores for 647 students averaged 69%. This corresponds to a normalized gain of 56%, considerably more than double the gain under traditional instruction."

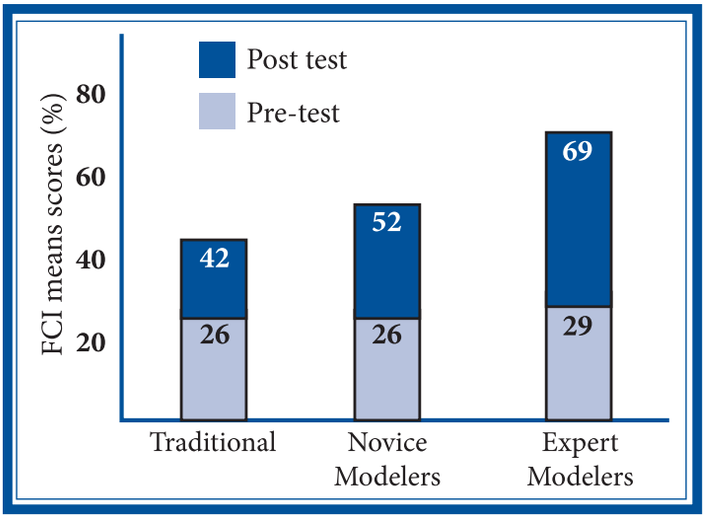

Figure 1

David Hestenes compiled data on 20,000 students over six years and confirmed these results in a follow-up study (Hestenes, 2000). The evidence is quite compelling: Modeling instruction is extremely effective. Not only does it encourage students to think like scientists and help the instructor see where students are struggling, but it also improves conceptual physics understanding.

Results at UNE

The medical, pharmaceutical, and dental programs at UNE have experienced significant growth in the past seven years. For this reason, student enrollment in required physics courses has nearly doubled and as a result we now have four full-time and one half-time physics instructors. Prior to 2006, all students were taught in two sections of lecture physics (Vesenka). In the interim from 2006-2009, two instructors taught three sections of lecture. Data collected from UNE's Institutional Research and Assessment Office highlighted in Table 1 refers to first semester physics, the course that typically has the greatest challenge in retaining students, measured by grades of D, F (D/F) or withdrawals. Also found are outcomes from the FCI, before and after the studio model was deployed. The final column of Table 1, "gain" = (Post test-Pre test)/(100% - Pre test), enables meaningful comparison against the national metric for traditional instruction (gain = 20%) and accounts for different initial understanding of students as measured by pre-test scores.

In the decade before 2010, withdraw rates from physics were 10.4% and D/F rates were 5.3%. In 2010, the physics pro-

Table 1: General Physics I results at UNE

	Grade Distribution					FCI Results		
	<A>%	<B>%	<C>%	<D/F>%	<W>%	pre-test %	post test %	gain %
Prior to 2010:	14.0	30.5	39.7	5.3	10.4	26.5	53.7	37.4
2012-2012	27.5	40.0	21.0	3.7	7.8	25.3	49.3	31.7

gram made sweeping changes: four instructors would now offer small studio classes, exclusively using Modeling Physics Instruction. In 2011, an additional instructor was added to account for continued enrollment growth. The net result: physics withdrawal rates in the past three years dropped to 7.79% (a 25% decrease) and D/F rates dipped to 3.7% (a 29% decrease). This decrease in D/F rates is more notable in conjunction with the decline in withdraws; we kept students in the class AND they passed with a C or better. These results did not happen all at once.

Challenges

Now in our third year of studio physics there is evidence that our experience is leading to promising results. In the first year of studio physics format 7.3% of students withdrew while 8.8% received a D/F in the fall semester. These results were no better than the previous lecture and lab format, indicating we had not yet learned out how to assist struggling students. The following year, 10.9% of students were identified as withdraw candidates, and only 2% remained to receive a D/F. This past fall, withdrawals dropped to 5.2%, and only one student in 271 received a D/F. We are slowly learning to identify students who are at-risk and either provide them with appropriate academic interventions or guide them to withdraw if necessary. We also note that final grades of A (33.2%) and B (42%) were the highest in the past 13 years. This leads to further questions. Is grade inflation at play? Are we lowering our expectations? Or have we made a real difference in physics comprehension and raised the bar leading to improved student outcomes? The latter can be addressed by examining outcomes from research-based assessments.

Our FCI scores, one of three ways we assess effectiveness of our courses, have slipped a little compared to ten years of lecture and lab format (Table 1). In the six years prior to the studio era, post-test scores were 54%, with an average gain of 37±20%. In the three years since FCI post-tests are at 49%, with a gain of 32±22%. The large standard deviations reflect the wide ranging physics capabilities of our students. Two other assessments used with both forms of instruction (no data presented) include the Test for Understanding Graphs in Kinematics (Beichner, 1994) and Mechanics Baseline Test (Hestenes and Wells, 1992). Gains and post-test scores from these assessments remain constant and appear unaffected by the transition to studio physics. We have not yet been able to tease out what the slippage in FCI scores is the result of. Several factors could be at play such as student ability, instructor ability, or teaching to different norms. As with most dilemmas, it will likely be a combination of those factors and others. However, it is clear that student retention and in-class success have improved with only a small loss in assessment results.

At-Risk Students

In a lecture room filled with 30 or 300 students, where an instructor rarely interacts one-on-one with students, how does the instructor gauge student ability or class understanding? Strategies such as Peer Instruction (Mazur, 1997) with the use of clickers and Just-in-Time teaching (Novak, 1999) are powerful. But a barrier between student and instructor persists. In addition, few strategies address the significant issue that different instructors often lead lecture and lab, and that labs may be ahead of or behind the lecture. The standard instructional environment has many disadvantages.

Studio physics and Modeling instruction set up a dynamic classroom where at-risk students can be identified and helped to stay on course through college. Students are engaged and on-task with frequent labs and activities. Class size is small and attendance is nearly 100%. Due to many interactions between students and instructors, weaker students cannot hide. Increased course flexibility and block scheduling (2 and 3-hour sessions) gives the opportunity to assess more often, increasing the likelihood of identifying at-risk students early, rather than mid-semester after poor performance on one or more exams.

Once at-risk students have been identified instructors can work with students one-on-one in class. The brightest students help their lower achieving colleagues via peer instruction, freeing

the instructor to help the weakest students. At-risk students are incentivized to attend office hours. No longer a sea of unknown faces as with lecture, each student is known and can be easily approached. In the case of severely struggling students, they can address challenging decisions earlier. Not all students are cut out for majors with heavy science pre-requisites. Early detection helps students make better career decisions without the consequence of low grades. Again, we point to our 95% retention in the fall of 2012. We recognize the many complicated interpretations are buried within our results, such as the possibilities of grade inflation and changing norms. However, these issues are present in all institutions of higher education, regardless of instructional technique. We cannot help but look favorably at our new ability to meet students where they are struggling, i.e. leaving no student left unnoticed.

References

American Modeling Teachers Association (2013). Retrieved from: http://modelinginstruction.org/

Beichner, R. (1994). Testing student interpretation of kinematics graphs. American Journal of Physics, 62(8), 750-762.

Beichner, R., Bernold, L., Burniston, E., Dail, P., Felder, R., Gastineau, J., Gjertsen, M. & Risley, J. (1999). Case study of the physics component of an integrated curriculum. American Journal of Physics, 67(S1), S16-24.

Beichner, R. (2013). SCALE-UP Adopters Retrieved from: http://scaleup.ncsu.edu/wiki/projects/adopters/Adopters.html

Hake, R. R. (1997). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. American Journal of Physics, 66(1), 66-74.

Hestenes, D., Wells, M., & Swackhamer, G. (1992). Force Concept Inventory. The Physics Teacher, 30(3), 141-151.

Hestenes, D., & Wells, M. (1992) A Mechanics Baseline Test. The Physics Teacher, 30(3), 159-162.

Hestenes, D. (2000). Findings of the Modeling Workshop Project. Retrieved from: http://modeling.asu.edu/R&E/Research.html

Jackson, J., Dukerich, L. & Hestenes, D. (2008). Modeling Instruction: An effective model for science education. Science Educator 17(1), 10-17.

Mazur, E. (1997). Peer Instruction: A User's Manual. Boston, MA: Addison-Wesley.

NCSU Physics Education R&D Group (2007). Retrieved from: http://www.ncsu.edu/per/scaleup.html

Novak, G., Gavrin, A., Christian, W. & Patterson, E. (1999). Just-in-time teaching: Blending active learning with web technology. Boston, MA: Addison-Wesley.

Vesenka, J., Munoz, G., Judd, F. & Key, R. (2002). A comparison between traditional and "modeling" approaches to undergraduate physics instruction at two universities. Journal of Physics Teacher Education On-line, 1(1), 3-7.

Upcoming Conferences

Friday, June 14, 2013
NEFDC Spring 2013 Conference

Engaged Learning: Impacts and Implications

The New England Faculty Development Consortium holds its Spring Conference on Friday, June 14, 2013. It will be held at the Westford Conference Center, Westford, Massachusetts from 8:00 a.m. to 5:00 p.m.

Our keynote speaker, Dr. John Saltmarsh, the Co-Director of the New England Resource Center for Higher Education (NERCHE) at the University of Massachusetts, will explore what happens to students when they are engaged in learning, particularly when they are engaged as experiential learners and participate in experiences in local communities. He will also explore the implications for faculty practice to create engaged teaching and learning environments and the institutional changes needed to support engaged teaching and learning.

Please register at www.NEFDC.org

Friday, November 15, 2013
NEFDC Fall 2013 Conference

Peer Instruction and Collaborative Learning

Speaker: Dr. Eric Mazur, the Balkanski Professor of Physics and Applied Physics at Harvard University and Area Dean of Applied Physics. He is interested in education, science policy, outreach, and the public perception of science. In 1990 he began developing Peer Instruction a method for teaching large lecture classes interactively. Dr. Mazur's teaching method has developed a large following, both nationally and internationally, and has been adopted across many science disciplines.

Please register at www.NEFDC.org

NEFDC Board Members 2012-2013

President
Tom Thibodeau
Assistant Provost
New England Institute of Technology
2500 Post Road
Warwick, RI 02886
Phone: 401-739-5000
tthibodeau@neit.edu

President Elect
Deborah Clark
Professor of Biology
Director
Faculty Collaborative for Excellence in Learning and Teaching
Quinnipiac University
275 Mount Carmel Ave., EC-BIO
Hamden, CT 06518-1908
Phone: 203-582-8270
Deborah.Clark@quinnipiac.edu

Clerk
Keith Barker
Associate Vice Provost and
Professor of Computer Science
and Engineering
University of Connecticut
Institute for Teaching and Learning
Room 333
Center for Undergraduate Education
Phone: 860-486-2686
kb@uconn.edu
http://itl.uconn.edu/

Treasurer
Paul J. Charpentier
Assistant Dean of Academic Affairs
Director, Center for Teaching Excellence
Southern Maine Community College
2 Fort Road
So. Portland, ME
Phone: 207-741-5503
PCharpentier@smccme.edu

Michelle Barthelemy
Coordinator,
Distance Learning/Instructional Technology
Greenfield Community College
1 College Drive
Greenfield, MA 01301
Phone: 413-775-1481
barthelemym@gcc.mass.edu
http://web.gcc.mass.edu/instructional-technology/

Linda L. Beith, Ph.D.
Director, Instructional Design
Roger Williams University
One Old Ferry Road
Bristol, RI 02809
Phone: 401-254-3134
lbeith@rwu.edu

Marc Boots-Ebenfield
Director, Center for Teaching Innovation
Salem State University
MH115
352 Lafayette Street
Salem, MA 10970
Phone: 978-542-6718
marc.bootsebenfield@salemstate.edu

Dakin Burdick, Ph.D.
Director, Center for Teaching Excellence
Assistant Professor of History
Endicott College
376 Hale Street
Beverly, MA 01915
Phone: 978-232-2294
dburdick@endicott.edu

Deborah J. Hirsch, Ed.D.
Vice President for Development and
Director of External Relations
Mount Ida College
Holbrook Hall
777 Dedham Street
Newton, MA 02459
Phone: 617-928-4640
dhirsch@mountida.edu

Gouri Banerjee, Ph. D.
Associate Professor Math and Technology
Emmanuel College
Boston, MA 02115
Phone: 617-735-9724
banerjee@emmanuel.edu

Mei-Yau Shih, Ph. D.
Associate Director, Center for Teaching
University of Massachusetts Amherst
301 Goodell Building
140 Hicks Way
Amherst, MA 01003-9272
Phone: 413-545-5172
mshih@acad.umass.edu

Karen St. Clair Ph.D.
Director, Center for Innovation in
Teaching and Learning
Emerson College
120 Boylston Street
Boston, MA 02116
Phone: 617-824-8246
karen_stclair@emerson.edu

Cindy Tobery
Associate Director
Dartmouth Center for the
Advancement of Learning
102 Baker-Berry Library, HB6247
Hanover, NH 03755
Phone: 603-646-9750
cindy.tobery@Dartmouth.EDU

Ken Wade
Associate Professor, Interdisciplinary CORE Division
Champlain College
209 Aiken Hall
163 S Willard Street
Burlington, MA 05401
Phone: 802-865-6481
Wade@champlain.edu

Susan C. Wyckoff, Ph.D.
Vice President
Colleges of Worcester Consortium
484 Main St., Suite 500
Worcester, MA 01608
Phone: 508-754-6829 x3029
swyckoff@cowc.org

New Student Member Elected Spring 2013

Kris Conmy
Lesley University, Graduate Student
PhD Student, Lesley University
Adjunct Professor, Rivier University
Lecturer, New England College
Phone: 603-930-9645
krisconmy@comcast.net

New Board Members Elected Spring 2013

Marcel F. Beausoleil Ph. D.
Assistant Professor
Behavioral Sciences
Fitchburg State University
160 Pearl St.
Fitchburg, MA 01420
Phone: 978-665-3853
mbeauso1@fitchburgstate.edu

Lily S. Hsu, Ph. D.
Associate Provost for Faculty and Professional Affairs
MCPHS University
179 Longwood Avenue
Boston, MA 02115
Phone: 617-732-2064 (office)
617-680-4802 (cell)
lily.hsu@mcphs.edu

Kimberly Monk, Ed. D., CHE
Professor
Department of Hospitality Business
School of Business
Southern New Hampshire University
2500 North River Road
Manchester, NH 03104
Phone: 603-629-4612
k.monk@snhu.edu

Eric Matte
Associate Professor of Communication
WLMC Station Manager Landmark College Radio
Phone: 802-387-1675 Office
www.landmark.edu/wlmc
EMATTE@landmark.edu

Gloria Saddler, Ed. M.C.
Taunton Satellite Coordinator
Bristol Community College
500 Norton Ave
Taunton, MA 02780
Phone: 508-678-2811 Ext 3767 or 3550
508-222-7638 Fax; 910-273-6792 Cell
Gloria.Saddler@bristolcc.edu

NEFDC EXCHANGE
Gouri Banerjee, Ph. D
Department of Math and IT
Emmanuel College
400 Fenway
Boston, MA 02115