

The Vending Machine Model of Undergraduate Education Vs. Interdisciplinary Team-Taught Courses

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After his first experience with an interdisciplinary program at Evergreen State College, a middle-aged, married, African-American man with two children had the following to say about his previous education:

I went to schools that were real traditional. And it was always the same. It was like you went up to a vending machine, stuck in a coin, and out came a biology class. I would get so much information every week. I was expected to know the information for the quizzes, the midterm, and the final. And that was it. There was nothing about how biology applied to other areas. Nothing about studying biology in the United States, and the relationships between science, politics, and racism. You never got that. It was just one dimensional. At the end of the quarter you took your final and two weeks later you'd forget the stuff because you'd never use it again. It was a joke. (McCann, 2001, p. 356)

Vending machine food is perhaps the lowest form of sustenance, but unfortunately has many parallels with undergraduate education. Only one type of food at a time can be obtained from the machine, just as only one subject at a time can be studied. The food is often old and stale, not unlike some courses. If you walk away with nothing, you can get your money back (withdraw), just choose another machine (enroll with a different teacher), or come back later and try again. No matter where the machine is located, you can count on exactly the same product. Your selection of the product is the only active part you play

in the process; otherwise, you're a passive consumer.

Of course, some standardization in courses is necessary so that students are provided with the skills and techniques necessary to succeed, and there must be criteria for applying credit towards a degree or transferring credit for courses to other universities. As a teacher, I honestly believe that I am not providing a vending machine education, even though my course material is prescribed by standardized syllabi. I try to deliver a gourmet meal that reflects the personality and skill of the chef (me), as well as the special preferences of the customer (student), while at the same time delivering the required balance of meat, carbohydrates, and vegetables (skills and knowledge). I've often delivered finely concocted meals in the form of what I perceive as eloquent lectures, or even carefully planned assignments and series of hands-on activities, only to find later that the students came away with a vending machine education. They're not even quite sure of what it was they ate. I'd expect that most, if not all of the teachers of the student quoted above also earnestly delivered what they thought were gourmet meals.

The greatest weapon I've found against the vending machine education is a high quality, interdisciplinary, team-taught course. Perhaps such courses cannot be offered throughout the curriculum as a standard diet. A team of chefs cannot be assembled for every meal; a vending machine meal is sometimes necessary because of time constraints. However, vending machine education cannot be the

model that drives all courses in the curriculum.

There is evidence that students in high quality, interdisciplinary, team-taught courses develop exactly the skills that faculty long to develop in their students – ability to engage in critical thinking, skill in written and verbal communication, the ability to evaluate arguments, an appreciation for different perspectives, awareness of ethical issues, even increased interest in specific disciplines. William H. Newell, Executive Director of the Association of Integrative Studies and Director of the Institute in Integrative Studies at Miami University in Oxford, Ohio, describes the benefits of interdisciplinary courses in the following manner.

Students in high quality interdisciplinary courses are consistently reported to develop the traditional liberal arts skills of precision and clarity in reading, writing, speaking, and thinking; to confront challenges to their assumptions about themselves and their world; and to develop the habit of asking why instead of merely memorizing accepted facts.

Other educational outcomes seem to be a product of the interdisciplinary process itself: an appreciation for perspectives other than one's own; an ability to evaluate the testimony of experts; tolerance of ambiguity; increased sensitivity to ethical issues; an ability to synthesize or integrate; enlarged perspectives or horizons; more creative, original, or unconventional thinking; increased humility or listening skills; and sensitivity to disciplinary political or religious bias. (Newell, 1994, p. 35)

An example of a course that provides evidence for such student outcomes was presented at the 10th Annual Georgia Conference on College and University Teaching and is published in this issue of *Reaching Through Teaching*. Kenneth

Saladin, Distinguished Professor of Biology at Georgia College and State University, described a team-taught interdepartmental Honors Seminar built around the controversy over evolutionism and creationism. Saladin was the designated leader of the course and he engaged in debates with proponents of creationism. The students were assigned to teams and required to participate in a series of four debates, alternating as proponents of creationism and proponents of evolutionism. In describing the students' performance, Saladin said:

We did not teach them what they ended up knowing about evolution; we gave not a single lecture that laid out the theory or evidence of evolution. They learned that on their own, through the research that they deemed necessary to avoid embarrassment and defeat in debate. We on the faculty called ourselves *facilitators*, and indeed that is what we did—we did not dispense information, but facilitated and guided their learning. I think we succeeded in producing students who were scientifically and historically better informed, and spiritually more self-aware. (Saladin, 2003, p. 28)

Two other benefits of interdisciplinary team-taught courses that are often cited in the literature include the opportunity for faculty development and the opportunity to experiment with innovative pedagogy (Cornwell & Stoddard, 2001; McNeal & Weaver, 2001; Wineburg & Grossman, 2000). The intense collaboration across disciplines required by high quality interdisciplinary courses has been shown to be a rich means of faculty development. The collaboration not only enhances faculty members' understanding of their own disciplines and its influence on other disciplines, but can also significantly change faculty members' views on teaching and learning. Interdisciplinary team-teaching also promotes better teaching and experimentation with innovative pedagogy.

In all references to the benefits of interdisciplinary team-taught courses, authors are careful to refer to “high quality” versions of such courses. The term “high quality” refers to courses with the following characteristics (Newell, 1994; Wineburg & Grossman, 2000):

- There is a firm and rigorous basis in the disciplines. Such courses do not sacrifice disciplinary content or water it down, but serve to reinforce it and enhance it. The courses often stimulate increased interest in and appreciation for the disciplines.
- The faculty members involved must come to know and respect each other as scholars and thinkers before working together on the course.
- The interdisciplinary team must engage in extensive planning and ongoing revision of the course and its materials.
- The course must have a hook, a focus that may take the form of a book, an issue, or a question that cannot be fully understood without an interdisciplinary perspective.
- Most of all, there must be a dialog among faculty from different disciplines. “What lends interdisciplinary study much of its challenge and delight is the creative tension that arises from contrasting disciplinary insights” (Newell, 1994, p. 39). Many courses named “interdisciplinary” or “team-taught” are actually small versions of the vending machine model of education in which faculty lecture in a serial fashion, independently of each other. No interaction, debate, or synthesis of views occurs in such an environment. The term “multidisciplinary” is often reserved for such courses.

The key to designing and delivering high quality, truly interdisciplinary courses, according to Newell (1994) and others

(Davis, 1995; McNeal & Weaver, 2001; Wineburg & Grossman, 2000) is the faculty team.

As it turns out, collaboration on an interdisciplinary team is a lot like marriage. One must ask whether the particular mix of personalities proposing a course will work together appropriately. Are the prospective partners discreet as well as knowledgeable? They will learn where the other is most vulnerable or deficient. At least half of the course will deal with material outside one’s expertise, which means that one runs the risk of exposing some cherished assumptions as incomplete and misleading if not actually wrong. Values as well as facts become the focus of discussion and debate, so that a partner must be trusted as well as respected. Love is optional. (Newell, 1994, p. 38).

The catalyst for the establishment of effective interdisciplinary teams is usually some form of interdisciplinary faculty seminar. “At the intellectual heart of many successful interdisciplinary programs,” writes Newell (1994, p. 36), “we find an interdisciplinary faculty seminar” in which a particular book or issue is discussed on a regular basis from a variety of perspectives. These seminars “promote an intellectual community, expand faculty perspectives, develop interdisciplinary skills” and then spawn new interdisciplinary courses. Adler (2001) agrees:

Essential to any faculty member’s transformation from purveyor of specialized knowledge to facilitator of interdisciplinary learning is his or her active participation in faculty cadres where courses and themes are formulated and through which the process of continuing interdisciplinary faculty education occurs. (Adler, 2001, p. 157)

A major part of CETL’s mission is to provide such opportunities for faculty.

High quality, team-taught interdisciplinary courses have no place in the vending machine model of education. They require very active and time-consuming participation by both faculty members and students, and the experience is one of growth and learning for both faculty and students. Students participate in the preparation of the gourmet meal, led by a team of chefs, and emerge with a set of complex skills that can be transferred to a variety of situations. Participation in a high quality, team-taught interdisciplinary course, particularly one that pulls together very different disciplines, can be a profound opportunity for faculty renewal and student learning in the deepest sense. We can begin moving toward the design and delivery of more team-taught interdisciplinary courses for all students by engaging with other faculty in discussions around substantive intellectual works or issues. As faculty, we can model the passion for learning, critical thinking, and respect for colleagues that we desire to see so much in our students.

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