

Student-Centered Learning in Higher Education

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In her book, *Learner-Centered Teaching*, Maryellen Weimer contrasts the practices of teacher-centered college teaching and student-centered college teaching in terms of (1) the balance of power in the classroom, (2) the function of the course content, (3) the role of the teacher versus the role of the student, (4) the responsibility of learning, (5) the purpose and processes of evaluation. She then gives some suggestions on how to implement the learner-centered approach. Using Weimer's five specifications, it has been possible to identify from the pedagogical literature several examples where college teachers are seeking to move toward more student-centered classrooms. This essay reports on innovations used by teachers across the academic and professional spectrum, as well as on their evaluations of their successes.

This essay presents some classroom innovations carried out by various college instructors using the context of Maryellen Weimer's *Learner-Centered Teaching* (2002.) The objective of Weimer's book was to show how the principles discussed in Stephen Brookfield's *Becoming a Critically Reflective Teacher* (1995) can be applied in actual classroom settings. Weimer's working thesis is that classrooms at the college/university level are extremely instructor-centered and that this situation works against students becoming successful, mature learners. She says that many instructors recognize this and try to make changes in the direction of more student-centeredness, even though their level of awareness of the problem varies from those who know what the specific problem areas are to those who simply have a sense that all is not right in the educational process. Weimer identifies five areas where the teacher-centeredness of the classroom is clearly seen: the balance of power, the function of content, the role of the teacher, the responsibility of learning, and the purpose and processes of evaluation. For each area she outlines the evidence and describes examples of alternative approaches for creating student-centered classrooms. Although in the literature or in usage the concept is not always clearly used with consistent meaning (Paris and Combs, 2006), the common concern is to adjust teaching activities in ways that can enhance student learning. There is growing interest in student-centered learning in higher education, and many universities provide on-line resources for their professors at their websites. Weimer's thesis that moving toward learner-centered teaching will lead to greater success for students and increased job satisfaction for teachers is supported in the pedagogical literature: there is recognition that the affective and cognitive domains interact to determine classroom effectiveness. That several college teachers are moving in the direction of learner-centered teaching is evidenced from the examples described in this essay.

The Balance of Power

Weimer (2002) makes the observation, supported by experiences from her own classes, that for the most part decisions about the course are made by the instructor and that this is exactly what students want and expect. She uses the course outline as an example, asking rhetorical questions about who determines the content, the schedule, the conditions for learning, the attendance policies, and the evaluation process. She states that the very language used to communicate this information is in the form of heavy-handed directives which make clear that the teacher is in charge. She describes the students in today's colleges and universities as anxious and tentative rather than empowered, confident and self-motivated, and she recommends that professors begin sharing power with students from the start by, for example, providing them with a list of assignments from which they choose a specified number that they will do.

Tyma's (2009) experience teaching a media literacy class aptly illustrates the shifting of the decision-making in a class to empower the students. On the first day of classes when he posed the question of what they wanted out of the course he was met with stares from the five incredulous students. He was determined that they would be actively involved in the creation of the course, even as he carried out his responsibilities to the university as course manager and evaluator of student achievement. Their first assignment was to return the next class prepared to share ideas on how the class would proceed. At the following class meeting he presented three options, and after discussion one was voted for adoption. One student dropped the course before the next class, and still another before the second week of the semester, and so the three remaining students set about designing the course. The ideas did originate with the instructor, and it was he who identified an external resource person, but by inviting their input he involved them in deciding how the course would be conducted: projects

which would encapsulate the course content and fulfill the course objectives, the format and timetable for course activities, an electronic delivery medium for sharing work and communicating with each other, and the assessment activities and evaluation criteria. It was decided that the students' roles would be primary as project experts while Tyma's would be the advisor for the project, even as he retained ultimate responsibility for monitoring the students and guiding them toward success in meeting the objectives of the course. Thus, while shifting a great deal of power over to the students, Tyma reserved enough to guarantee the integrity of the course.

Maintaining a "subordinate" role in which he functioned as "catalyst," advisor, or facilitator and letting the students be in charge was a challenge to Tyma, a novice college instructor, especially as the students sometimes seemed anxious to cede their power to him and let him make decisions. This is also a challenge to many experienced educators who, according to Estes (2004) and Liu et al. (2006), although claiming to value student-centered learning, were inconsistent in their practices. As Tyma's students carried out their assigned roles many desirable outcomes, which would not have been achieved with the teacher maintaining the traditional position of power, were achieved: each student gained experience functioning both as liaison and as leader; the class took the initiative in suggesting adjustments when it was felt necessary; and they successfully completed a project which benefited a community group.

The Function of Content

The need to "cover" the content of the course has led, according to Weimer, to a neglect of ensuring that the course objectives are being met. It has also led to erroneously equating a good course with a rigorous course, rather than a course in which students learn. In consequence, when faced with an unmanageable amount of course content, students resort to memorization rather than conceptualization, using a "binge and purge" approach to examinations. In such an environment the successful student is the one who has mastered the ability to reproduce information required by the teacher, too often at the lower levels of knowledge. Weimer (2002) appeals to college instructors to "use" course content, not just as an end in itself, but as a means of helping students learn how to learn. The skills to be developed include study skills, time management, the ability to express oneself orally and in writing, and computational skills. She emphasizes that the guidance of the professor is needed to help students use the course concepts to acquire skills of critical thinking and problem-solving. The slower pace required for active-learning strategies will

allow for constructive interaction with the subject matter, producing students who are more mature and self-regulating learners with sophisticated learning skills. The result will be classrooms filled with enthusiastic students and teaching faculty who experience a high degree of job satisfaction.

Brown (2008) describes two student-centered learning models in music education: Comprehensive Musicianship through Performance (CMP) in which, after choosing a piece to be learned, the student investigates everything there is to know the piece, adding to the knowledge of both students and teachers; in another, Arts PROPEL, students are guided step by step toward higher-level learning as they interact metacognitively with the course content. In a course which delivered content both face-to-face and on-line, Cornelius & Gordon (2008) found that student-centered learning was facilitated by flexibility in content delivery and study strategies, and individual student learning needs were accommodated. Teachers who wish to incorporate some web-based learning activities into their courses have access to several commercial course management systems (Deroma & Nida, 2004). In today's society, the implications of globalization, for the United States and world-wide, require life-long learners who are flexible problem solvers and who can select, organize, and use information appropriately in new situations (Pinto & Sales, 2008). Walker (2009) credited a structured case study that required undergraduate students to research and analyze contemporary policy issues over an extended time with helping them meet the course objectives of not only learning policy theory but also developing the skills needed to successfully analyze and apply policy theory. The goal of all these innovations is to produce "self-sufficient, independent, creative thinkers who appreciate and value the subject" (Brown, 2008).

The Role of the Teacher

Students are the center of the educational enterprise, and their cognitive and affective learning experiences should guide all decisions as to what is done and how. Most of the learning activities for the class are traditionally carried out by the instructor: choosing and organizing the content, interpreting and applying the concepts, and evaluating student learning, while the students' efforts are focused on recording the information. Weimer (2002) makes the point that in the student-centered classroom the roles of teacher and student of necessity change, so that the teacher changes from the "sage on the stage" to the "guide on the side" who views the students not as empty vessels to be filled with knowledge but as seekers to be guided along their intellectual developmental journey. Other metaphors she adopts describe the teacher as midwife, coach, and

maestro. Working against this shift in role are the expectations of the students, who rely on the teacher to make all the decisions, as well as the pedagogical literature which, she says, is preoccupied with teaching over learning, almost exclusively focusing attention on what the teacher should do. Weimer states unequivocally that students learn by doing, and so involving them in the learning activities promotes learning. For example, students become part of the presentation and learn from each other when they respond to instructor invitation to give examples, applications, and summaries, and they experience learning when they take part in problem-solving sessions. In-class activities which involve students provide faculty with opportunities to help guide them in clarifying their understanding and in assimilating the subject matter in meaningful ways.

Baxter and Gray (2001) concur that for effective learning it is desirable to move toward a model in which students are actively engaged in the learning process. No longer is the student expected to be a passive absorber of information; instead, the teacher acts as a facilitator and does not need to be an expert in the particular content (Tärnvik, 2007). Examples reported in the literature span a wide variety of disciplines, and they include peer-learning activities such as having students prepare and teach a five-minute lesson on grammar to their peers rather than simply engage in debates or read from provided material (Oldenburg, 2005). Remedial students were more successful in developing mathematical skills when taught by cooperative methods which involved peer interaction and relating the principles with other disciplines rather than by traditional teaching methods (Cantone, 2001). Student learning and conceptual understanding were significantly greater when a large upper-division biology class was made more interactive by introducing student participation and cooperative problem-solving into the lectures (Knight & Woods, 2005). Salter et al (2009) guided faculty in redesigning their course to give students and instructors new roles in which students would be more actively engaged and not just be lectured to by the instructors. In planning classroom activities, the focus was on identifying the tasks students needed to do in order to learn the material rather than on the tasks teachers needed to do in order to prepare the class presentation. The students engaged in dialogue, which had the potential to challenge beliefs and produce conceptual changes. Such a learner-centered approach was found to be especially effective when multicultural issues were examined (Mahendra et al., 2005) since the students were able to benefit from the wide variety of perspectives present. These approaches transformed the classrooms from teacher-centered to learner-centered.

The Responsibility for Learning

As Weimer (2002) points out, the responsibility for learning naturally shifts to the student in a learner-centered setting. Neither students nor teachers are adept at making this shift. However, the onus is on the faculty to redesign and conduct the course in a way that requires students to hold up their end of the educational contract. Faculty should follow through on consequences instead of making adjustments to accommodate students' failure to accomplish agreed-upon expectations of the course. She criticizes rules as external motivators which do not pique students' curiosity or create mature, responsible learners who are intellectually curious or motivated to delve deeper into the subject or related issues. She describes today's students as "unable to function without structure and imposed control" and having "little or no commitment to learning." Their concern is, overridingly, to get a good grade, and when this does not occur the blame is placed with the teacher. Accompanying this has been an increase in incivility toward both teacher and peers.

Learner-centered methods of content delivery allow students the opportunity to control their learning since they require students to take responsibility for their learning by being actively involved in the learning process rather than simply passively receiving information from a lecture (Slunt & Giancarlo, 2004). Kennedy (2009) found that after participation in a debate, positive rating of the experience as an instructional strategy increased from approximately 75% to about 85%, including among students who were initially reticent to participate; interestingly, both before and after the debate male students showed a stronger preference for debate over female students. In some cases, student-centered methods are incorporated into traditional delivery formats, for example concept checks which require chemistry students to prepare in advance and then get concept clarification in class (Slunt & Giancarlo, 2004) and problem-based learning (PBL) which, although not universally accepted (Tärnvik, 2007), aims to "align the contents and assessments of the subject with the student's learning needs" (Chung & Chow, 2004). Other methods which utilize technology include We!Design, educational software which gives students the opportunity to mature as learners by helping them to enhance familiar abilities like note-taking and then progress to higher cognitive levels such as analysis (Triantafyllakos et al., 2008) and Just-In-Time teaching (Novack, 1999-2006), an approach originally developed for undergraduate physics courses and which has been extended to a wide range of science and non-science disciplines, making it possible for the instructor to plan class presentations based on student responses to warm-up exercises done on-line. The flexible learning format of Cornelius &

Gordon (2008) blends on-line and face-to-face learning, giving students opportunity to determine their own time and place of learning. Instructors can also give students control over their learning in practical courses using a research-led learning (RLL) approach which allowed students in an undergraduate physiology practical course to develop investigative skills in stages by learning experimental design in the first semester and then learning in the second semester how to apply them to produce a publishable research paper (Kemmm & Dantas, 2007). Perry et al (2005) found that students were most successful in completing college when they had high academic control and took appropriate actions to avoid failure.

The Purpose and Processes of Evaluation

A central concern of learner-centered teaching is learning, and so evaluation in the student-centered classroom is not just to generate grades but, more importantly, to promote learning (Weimer, 2002). This means that the processes used will also change. Course objectives and learning goals will be clearly stated, and students will be taught to assess their own work and that of their peers by asking critical questions in a constructive manner. They will be given many opportunities to practice the theoretical and practical skills they are expected to learn and perform. Strategies like these, Weimer (2002) insists, will diminish test anxiety and reduce the temptation to cheat.

It is an accepted pedagogical premise that the evaluation methods are determined by the objectives and practices employed, and the extent to which the course objectives are fulfilled should also be evaluated (Cornelius & Gordon, 2008). This includes the traditional evaluation of learning: Knight and Wood (2005) found that frequent in-class assessment successfully promoted and improved learning in a large upper-division developmental biology class; evaluation by Lu et al. (2007) of the use of wireless internet for student-centered learning indicated significant positive effects on pedagogical, technological, and cultural learning; Kemmm and Dantas (2007) found that use of an audience response system and e-learning in a physiology practical course accommodated many learning styles and enhanced student interest and engagement, resulting in better performance on written reports and examinations. In evaluating a history class that used a student-centered learning approach, the problems encountered by both students and teachers were examined with a view to improving the course design (Brush & Saye, 2000). Chung & Chow (2004) report that although Chinese students studying in Britain found problem-based learning to be a more effective learning experience, they were uncomfortable with the idea of challenging the lecturers. Kain (2003)

recommends that student attitudes toward, and readiness for, particular approaches should also be evaluated, and in general, learner-centered teaching approaches were found to produce positive results, such as increased student satisfaction (Kemmm & Dantas, 2007) and motivation (Chung & Chow, 2004; Triantafyllakos et al., 2008). Field-based instruction was found to enrich students' understanding and facilitate retention in introductory as well as upper level textile courses (Kozar & Marcketti, 2008). Being involved in projects which benefited the community, such as establishing a pediatric outpatient clinic (Ibrahim, et al., 2006) or a speech and language therapy clinic (Baxter & Gray, 2001) enhanced the knowledge of medical students and therapists-in-training, respectively. The after-school media literacy program designed by Tyma's (2009) class filled a need identified by the off-campus community and provided intrinsic motivation for the students to create a satisfactory product.

A variety of tools are used to assess and evaluate different aspects of student-centered teaching and learning. For example, Turkish teacher candidates' teaching behaviors were evaluated using Learner-Centered Micro-Teaching (LCMT) (Kilic, 2010) and Turkish in-service teachers' instructional beliefs about student-centered education were evaluated using an inventory which measured educational objectives, content, teaching strategies, and instructional assessment (Isikoglu, 2009). To evaluate the effectiveness of teaching basic nursing skills in the learning laboratory using student-centered approaches, compared with traditional teaching methods, an experimental design with repeated measures, supplemented by qualitative and questionnaire data, was employed (Jeffries et al., 2002). Other instruments have been developed to assess student perceptions and satisfaction (Shu-Hui & Smith, 2008), some with associated validity and reliability levels (Crick & McCombs, 2006), and some discipline-specific, such as for English (Crick & McCombs, 2006), music (Brown, 2008), physics and chemistry (Grove & Bretz, 2007). Feedback from a variety of activities, which included in-class pair discussion, cooperative learning, computer-assisted instruction, guided inquiry and projects, was explicitly used to give chemistry students learning opportunities (Brooks et al., 2005). The findings in each case allowed for evaluation of its effectiveness.

Conclusion

A positive response to student concerns can result in a classroom that is even more student-centered (Chung & Chow, 2004). The preceding review of the pedagogical literature indicates that many college

teachers believe that a student-centered classroom provides a more effective learning environment and are making efforts toward this end. In these reports students tended to respond positively to the changes introduced, and the teachers considered themselves successful in their quest to create more learner-centered classrooms while achieving their course objectives. Maryellen Weimer (2002) acknowledges that making such a transition will meet with resistance from students, teachers, and administrators, and she includes a chapter on "Responding to Resistance."

It is the aim of this essay to inspire more college teachers to become student-centered in their teaching methods, and teachers who wish to put into practice the ideas elucidated by each of Weimer's criteria will find that the pedagogical literature is a rich body of helpful and practical resources.

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