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Online Discussions: Strategies for Success

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You can use the Discussions tool in WebCT Vista productively for group work, peer review, and discussing concepts and readings. Although the tool itself is simple to use (visit ITS's Vista Instructional Video on Discussions: http://its.kennesaw.edu/techoutreach/facultystaff/training/vista/index.php), facilitating and assessing asynchronous discussions can prove challenging. Consider these suggestions:

1. Prepare your students to succeed by modeling what you want them to do. What should they be doing and asking? What is the ultimate goal of the discussion activity? What constitutes a high-quality posting? What are some strategies for following up on other students' postings and moving the conversation along? How should they incorporate material from readings and points from peers?

Consider these quotes from Carol MacKnight (2000, p. 39):

> Students need coaching and practice in how to carry on online discussions.
>
> It is the role of the faculty to coach learning and problem solving by modeling questioning techniques that enhance social interaction and dialogue.

2. Provide students with a clear rubric that focuses on quality. Knowing how their work will be evaluated helps students make appropriate choices. I have provided some resources on rubric development in the references.

3. Remember that well-crafted discussion prompts are more likely to promote critical thinking and generate a productive discussion. According to MacKnight, the process begins with faculty asking a focus question and then "raising questions that drive thinking, asking for clarification or elaboration" (MacKnight, 2000, p. 39).

4. Establish your role and level of participation. Some faculty find that their attempts to participate in student discussions beyond raising guiding questions shuts down the conversation. In order to prevent this problem and keep assessment manageable, consider responding to the conversation rather than to each individual. For example, at the end of a discussion activity, you can synthesize discussion threads, quote particularly significant points, and share this information with the class.

5. Provide feedback so that students know how they are doing. However you decide to grade postings and participation, make sure that students receive feedback about how they are doing and how they might improve.

6. Make discussions count enough to warrant effort. Discussions often require a great deal of reading and writing. Students will want to know that time spent on discussion activities will impact their grades and that their efforts will be rewarded.

7. Consider involving students in other ways. For example, you might work with them to create a collaboratively authored netiquette statement or to develop assessment criteria. Consider including peer evaluations if students will be using the discussion board for group work. Help students identify areas for improvement and synthesize what they have learned from discussion activities by requiring self evaluations and reflective writing.

References and Suggested Resources

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Recommended Web sites: Using Case Studies in Teaching

The following Web sites provide examples and suggestions for incorporating case studies into your teaching.

CasePlace.org:
http://www.caseplace.org/

National Center for Case Study Teaching in Science:
http://ublib.buffalo.edu/libraries/projects/cases/case.html

Teaching and Learning with Technology:
http://tlt.psu.edu/suggestions/cases/

Center for Teaching Case Studies:
http://www.vanderbilt.edu/cft/resources/teaching_resources/activities/case_studies.htm

Teaching Materials Using Case Studies:
http://www.materials.ac.uk/guides/casestudies.asp

Understanding Factors that Affect General Chemistry Performance

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General Chemistry I (CHEM 1211) is a required first course for students who wish to pursue careers in chemistry or science fields. However, this course traditionally features low rates of student success both nationally and at KSU and as a result serves as a gateway limiting access to science fields (Tai & Sadler, 2006). We performed this study to gain an understanding of the factors that contribute to student performance and retention in CHEM 1211 in order to increase student success in the sciences.

Joseph Novak's theory of Human Constructivism details 3 domains that must be addressed for meaningful learning to occur: cognitive, psychomotor and affective (Bretz, 2001). The cognitive domain incorporates content knowledge and reasoning skills. The psychomotor domain relates to the ability to actively manipulate physical materials and is best addressed in the laboratory setting. The role of both domains to chemistry success has been well documented (Bunce & Hutchinson, 1993; Lewis & Lewis, 2007; Niaz, 1988; Rudd II, Greenbowe, Hand, & Legg, 2001). However, the affective domain, describing the attitudes and motivations of students, has received less research attention, particularly in post-secondary chemistry.

Therefore, we chose to focus on the affective domain of student learning. Our study attempts to relate student self-concept, defined as an evaluation an individual makes and customarily maintains with respect to oneself regarding an area of knowledge (Bauer, 2005), to CHEM 1211 performance and retention. We administered the recently developed and validated Self-Concept Inventory (SCI) to evaluate the self-concept of chemistry students (Bauer, 2005). The SCI includes five distinct subscales: chemistry self-concept, mathematics self-concept, academic self-concept, academic enjoyment self-concept, and creativity self-concept. Additionally, we collected student grades on the American Chemical Society (ACS) Standardized final exam, which is the final in all CHEM 1211 sections at KSU, to relate student self-concept to course success. This multiple choice exam has 70 items and is nationally available.

We administered the SCI instrument in CHEM 1211 courses at KSU over the fall 2007 semester. With instructor permission, we included the SCI as part of the course syllabus with students receiving a small portion of credit. We obtained informed consent from students during the first day of each lecture, and we administered the SCI after the first test so that student self-concept in the course could be established. During Fall 2007, there were 9 sections of CHEM 1211 of approximately 50 students each. Of these, 252 students consented to being part of this study and completed the SCI survey. After screening for outliers, 251 remained in our sample and these students are the subject of the results that follow.

We analyzed patterns of student responses on the SCI to determine common self-concept profiles of our CHEM 1211 students and relationships between these self-concepts and course retention and success. We used cluster analysis to identify 4 groups of students: High math & high chemistry self-concepts (55 students), High creativity self-concept (90 students), Low chemistry & low creativity self-concept (34 students), and Low math & low chemistry self-concept (72 students). We examined the demographics of each group to determine if gender plays a role in student self-concept. Of the males within the student sample, 27% have High math & high chemistry self-concepts whereas only 20% of the females fall within this group. Conversely, 33% of women have Low math & low chemistry self-concepts compared to only 21% for males.

In addition, we discovered a relationship between student self-concept and course retention as indicated by the percentage of each group that completed the ACS Standardized course final exam. The High math & high chemistry group had the highest percentage retention with 93% of students in this group completing the final exam, while the Low math & low chemistry group had the lowest percentage retention at 78% completion. The student groups differed statistically in their average scores on the ACS final exam. The High math & high chemistry group received the highest scores with an average of 57% correct and the Low math & low chemistry group had the lowest average, 47% correct.

Finally, we performed a multiple regression analysis to determine which self-concept subscales were the most predictive of student success on the ACS final exam. Only the math self-concept subscale was significantly related to course success when controlling for the other self-concept subscales. Students with a high math self-concept scored better on the ACS final exam. Interestingly, we also found a gender self-concept interaction: math self-concept was a stronger predictor of course performance for male students than for female students.

Future studies may investigate how to improve student self-concept. For example, students working in groups may improve their own self-concept as they demonstrate their knowledge by discussing the information with others or through interacting with other students who are successful in their approach to the course material. Other options to improve self-concept may be alternative assessments such as essay writing or student presentations where the student can apply concepts to a topic of interest and demonstrate this understanding in a prepared fashion.

This information may also serve to call attention to investigating the role of the affective domain in educational settings across all disciplines. While the instrument used in this study is particular to chemistry, more general measures and other discipline specific measures detailing the affective domain are available (Marsh & O'Neill, 1984). Such investigations may allow instructors to better understand a dimension of our students that often receives little attention, in particular where large class sizes are present. This may also help in crafting techniques to improve student self-concept leading to the ultimate goal of improving student retention and success.

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Apply for CETL Funding Opportunities

The CETL Web site (http://www.kennesaw.edu/cetl) lists several funding opportunities for faculty development. Click on the link for Faculty Funds for more information about each of these funding opportunities.

The **2008-2009 (FY09) Teaching Conference Travel Funding Award Program** provides 20 awards of up to $300 each to support faculty who travel to conferences related to teaching and student learning. Travel awards are competitive and expended until funds are exhausted. Travel must occur between 7-1-2008 and 6-30-2009.

The **Tenured Faculty Professional Development Full Paid Leave Program** provides the faculty member with his/her full salary and fringes for one semester (either fall or spring) to pursue professional development. The faculty's department will receive $25,000 to fund a full-time temporary replacement. The deadline for proposals for Spring 2009 leave is 4-7-2008, and the deadline for Fall 2009 or Spring 2010 leaves is 1-19-2009.

The **Fiscal Year 2010 KSU Incentive Funds for Scholarship** provide up to $8,000 per project to assist faculty in implementing innovative scholarship consistent with the Boyer Model of Scholarship. Deadline: 11-9-2008.

The **Creative Activities and Research Experiences for Teams (CARET)** program is designed to enhance undergraduate involvement and experience in research and creative activity. The deadline for receipt of proposals for Spring-Summer 2009 projects is 4-7-2008.

CETL will sponsor a limited number of **2008-2009 (FY09) Undergraduate Research Travel Stipends** of up to $500 for a faculty mentor and $500 for an undergraduate student to attend professional conferences to present their research. Travel must occur between 7-1-2008 and 6-30-2009.

The **2008-2009 CETL Faculty Learning Communities (FLC) Program** brings together groups of up to 6 faculty to focus on a particular teaching and learning initiative for a full semester or academic year. Each funded FLC receives $750 for materials (e.g., books), $750 in professional travel funds for the FLC Coordinator(s) and $500 in professional travel funds for each participant. Deadline: 9-2-2008.

CETL will award up to seven **2008-2009 Scholarship of Teaching and Learning Team (SoTL) Funding Awards** of $1000 to individual faculty members or teams to pursue SoTL research. Deadline: 9-2-2008.

Could You Use a Second Life?

Second Life (http://secondlife.com/) is a popular multi-user virtual environment that offers opportunities for educators to facilitate collaboration, simulation, and experientially-based learning. Purdue University maintains an annotated bibliography of educational online resources for using Second Life (http://web.ics.purdue.edu/~mpepper/slbib). To join a group of faculty interested in developing a KSU presence in Second Life, contact Chris Randall, CETL Associate Director (crandal2@kennesaw.edu).

The Reverse Jigsaw: A Process of Cooperative Learning & Discussion

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Note: A more complete description of this procedure appeared in *Teaching Sociology*, *31*(3), 325-332.

The Jigsaw classroom (Aronson et al., 1978) was developed over 30 years ago to promote cooperation among students in recently-desegregated classrooms marked by hostility and competition. The Jigsaw is a cooperative learning exercise that involves 4 steps:

1. Students gather in "jigsaw groups" of 3 to 6 and the instructor divides the material to be covered into the same number of sections.

2. Each member of the group is provided materials related to one of the sections, so that all materials will be covered within the group. Students are provided sufficient time to review their respective sections.

3. Students form "expert groups" by gathering with members of other jigsaw groups who were provided the same section of the material. Students in the expert groups discuss the materials and plan how to teach the material to other members of their respective jigsaw groups.

4. Students return to their jigsaw groups with two tasks: 1) to teach their material to their group with appropriate time for clarifying questions and discussion, and 2) to learn the materials taught by other members.

I have adapted the Jigsaw Classroom to a college environment in a way that integrates active involvement and student interdependence to facilitate learning through cooperation and discussion. In due recognition of its inspiration, I refer to this process as the Reverse Jigsaw. Where the Jigsaw is meant to bring about student comprehension of the instructor's material, the Reverse Jigsaw is meant to facilitate understanding the range of participant interpretations, such as perceptions and judgments, on a number of topics through a highly participatory structure. The Reverse Jigsaw process can be outlined in 3 steps:

1. Students gather in 'mixed groups' of 4 (or 3 or 5), where each student is provided a unique module consisting of a case study with questions, a complex question, or some other prompt. Each student facilitates group discussion of her or his topic or question, capturing the main points and any outcomes/decisions in writing. A fixed amount of time is allotted to each topic, perhaps 5-15 minutes, depending on the depth or complexity of the topics.

2. Students gather in 'topic groups,' so that all students who facilitated and recorded on the same topic are together. In this group, students share the highlights of their mixed group discussions and develop a report identifying the common and divergent themes in the room/class. It is useful to have each topic group prepare a visual record and short oral presentation of these themes. The last task for each group is to select a reporter. Again, depending on the complexity of the topics under discussion, this step may take 10-25 minutes.

3. The entire class reconvenes as a large group and each reporter (recall that there will be 1 reporter from each topic group) delivers her or his topic group's report. Following the reports, the instructor may wish to debrief the exercise with the class to review/highlight dynamics of group interaction or to conduct an evaluation of the process.

It is likely that some readers, like many of my students, can make better sense of this model when it is presented graphically:

1. Mixed groups:

AB CD	AB CD	AB CD	AB CD

2. Topic groups:

AA AA	BB BB	CC CC	DD DD

3. Reports; each group's reporter presents to full gathering:

	BCDAB	
A	CDABC	(in order, B, C, D present)
	DABCD	

Case Study. In courses that involve analysis of case studies, I have employed the Reverse Jigsaw to facilitate the study of four scenarios designed to stimulate student application of a given theory or method through reflection or critique. For instance, following an instructional presentation on a professional code of ethics, each mixed group is presented with four handouts, one on each of the 4 scenarios or dilemmas. Each student presents one of the scenarios by reading it aloud to the others. Then that student facilitates and records discussion on the ethical implications and ramifications of various courses of action. After all 4 scenarios have been covered, the students meet in topic groups to share the results of their mixed-group discussions and to compile a report on the major themes discussed in the room, highlighting points of agreement and difference. The 4 reports are placed on flipcharts, chalkboards, or overheads and are presented to the full class. The creation of an end-product facilitates a sense of accomplishment, as well as providing a visual aid for the presentation.

Topical Analysis. The Reverse Jigsaw may also be employed to explore a single topic through a series of questions. Following a reading assignment or lecture on a given topic, mixed groups can be presented with 4questions about the topic, each designed to probe a different aspect. In a lesson about the political strategy of smear campaigns, for illustration, the 4 questions might be: "Why would a candidate or party employ a smear campaign?"; "In what ways are smear campaigns conducted?"; "What are the potential drawbacks or pitfalls of a smear campaign?"; and "Provide one example each of a successful smear campaign and an unsuccessful smear campaign and describe their effects." A similar inquiry might fit a lesson concerning a social policy such as affirmative action or economic empowerment zones.

Reference

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