

WHAT IS CHEATING ABOUT?

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The immediate internet access in student hands by use of mobile devices generating an exponential increase of the access to the information, and the demand of new skills by the volatile job market challenge us to understand the boundaries of what students have to learn. What is learning and how do they learn? What is cheating? Usually, the words exam and cheating provoke a tapestry of reactions in our faculty and student community. We recognize the constant need of revising our teaching methods, as the professional job market demands new capabilities. Is our perception about cheating and learning also evolving to be attuned with the modern world?

The fall 2008 chemistry 210 was an example of this need of evolution. Can we harmonize the dilemma between the increasing demand of our science courses implemented to fulfill the dual program agreement with senior colleges, and our students' plethora of academic and social difficulties? The midterm is a critical time point in this Chemistry course. At this time, the overwhelming pressure of deadlines, assignments and homework invaded the classroom; the syllabus completion seemed unreachable. The two first partial exams were a disaster considering the students' talent and effort. Did I have to keep running to complete the syllabus? Did I have to schedule more exams? The formative assessment was demanding an urgent and creative solution before Fs and Ds would pile up in the roster.

With my ultimate goal in mind, improving the learning process of my students; I focused on engaging them from another perspective. If students have to play a larger role in their educational process, they might as well help assessing it. If we are fostering freethinking behind each human being, we might as well nurture a free environment in the classroom by giving the students some power. I decided to plan with them how to solve the critical situation of their Chemistry course by involving them in the decision making process of their own learning assessment.

Are we willing to engage our students in the discussion of syllabus policies? Are we prepared to accept their suggestions if the natural evolution of the course demands it? As a result of my dialogue with the whole class, I devised a different assessment

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strategy for each of the subsequent chapters covering Gases, Thermochemistry, Quantum Theory, The Periodic Table and Solutions. All students had to demonstrate the material learning by four different ways instead of the only traditional face-to-face exam. It also intended to ameliorate the "crime and punishment atmosphere" surrounding the science exams that ultimately does not necessary validate different ways of learning. As a consequence of this assessment strategy, all students took:

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a face-to-face exam

a take-home exam-received 6 days before the former in order to engage them into the chapter assessment for several days. It was due two days before the face-to-face exam. It contained a strictly deadline police

because the answers of this take-home exam were posted in the Blackboard after the deadline; consequently, students can revise themselves immediately after they handed this exam, and before they take the face-to-face-exam an online non-graded exam for practice—available several days before the face-to-face exam and with unlimited access. It was intended to familiarize students with the online environment, plus to give more opportunities to solve problems.

an online timed exam-accessible only once in the 12 hours before the face-to-face test and 12 hours after it. For the last chapter, there was an online exam only.

This new evaluation process with several exams spontaneously triggered a student network of learning. They began to study together. They invaded my office trying to find answers before the face-to-face exams. Were the students empowered by the “the adrenaline of sharing the exam questions”? Did that power foster the learning process? This multiple assessment strategy connected the students bringing the otherwise isolated learning process into the center of the pedagogical process.

The grade average for the students taking the four written exams, showed improvement after the practical, online and the take-home exams were embedded in the course (Table 1). The significant correlation (94%) between the grades obtained in the online and face-to-face exams during examination period IV shows how the online exam ultimately showed each individual performance in the learning process. During examination period III, there was no significant correlation mainly because of the multiple difficulties associated with the online experience such as student lack of computer skills and the use of the Blackboard. The higher online exam averages may be attributed to the less stress associated to this approach since students can use books and their materials to address it and/or the impact of the student “potential collaboration” on this exam type. The varying content of each exam might be another variable impacting the grade. Each evaluated chapter present different challenges for the students. Some chapters require more abstract reasoning skills; other ones require more problem solving skill and mathematic background. Taking into consideration our students’ preparation, we believe all chapters have a similar and high level of difficulty for them.

Table 1: Face-to-face exams were only scheduled during the first two periods of examinations. A set of four exams (face-to-face, take-home, non-graded practical online exam, and online exam) was scheduled during the third and fourth examination periods. An online exam was scheduled during the fifth examination period.

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The chemistry course grade policy includes credit of 10% for the homework; nevertheless, ongoing faculty conversations in the unit about this issue show that this process is not really nurturing the learning process. It is not possible to revise 30 problems for each student from a 25-30-student group and give clear recommendations before each of the four partial exams. This process, indeed, nourishes a passive mode of learning behavior. I believe the online discussion board, the self and peer-assessment tool available in the Blackboard 8, and the online exams will give avenues to foster problem-solving skills engaging students in an active learning process. I am revising this grade policy by giving more weight to those activities that promote active learning instead of those nourishing isolated learning processes or generating copy-paste homework mechanisms. Are we willing to give importance to the learning process by including it as part of the grade and to assess its deep nature?

The online assignments can be a way to address this issue. In this experience, the one-time-access and time restricted online exams were randomly crafted from different test banks. This process also brought a fast way of assessing skills because each test bank contained questions and problems addressing specific skills. It simultaneously used the multimedia language that students use currently to communicate; moreover, the multiple access, non-graded practice exams spontaneously nurtured a student-learning networking. In this regard, the submitted COBI project: “iChemistry: Let’s assess student learning” (Prof. N Nunez-Rodriguez and Prof. G. Cicco) is intended to address this goal. This project will evaluate the critical

thinking and problem solving skills in science students who will use a discussion board to post exam questions and develop chemistry problems. They will have to explain why the question should be in the exam. Other students can agree or disagree explaining their viewpoints. The problem solving online forum is intended to expose students' and instructor different problem solving strategies. The instructor will participate as another student in this forum and the students participate as instructor suggesting exam questions in the discussion board. Students' participation and accuracy will contribute to their grades. These online venues will contribute to unravel the deep nature of chemistry learning; furthermore, this role exchange will also help to reconcile the intrinsic contradiction between students and the teachers because both will be simultaneously learners and instructors; avoiding the students' position as oppressed (Freire 72). These non-traditional ways of assessment, including the online exam, acknowledge different ways of learning, as well.

The online exams, by itself, present a number of important benefits. These include quicker and more accurate grading, more time to spend in covering important topics during class, and faster feedback for the students (Eylon 2). Even though

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	Face-to-Face exam Average (%)	Online Exam (%)
Examination Period I	68.7	-
Examination Period II	62.4	-
Examination Period III	73.0	78.4
Examination Period IV	75.5	82.2
Examination Period V	-	80.5

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some concerns about "online dishonesty" may arise, I believe it is better to creatively implement ways of avoiding student collaboration on the online exams (McKenzie; McMurtry 37) such as the use of passwords, limiting time access, etc, than eliminating the use of these tools altogether. Do I have to use the cheating word to define the procedure they used to grasp the material? Some institutions do not use the word "cheating". It is such a charged word and can be difficult to prove. Instead, they create clear online exam policies and, eventually, try to document the fact that the exam rules have been violated (Eylon 2). In this regard, there are only a few empirical studies of cheating in online classes (McMurtry 37); however, data from two undergraduate classes in principles of economics at a single institution suggest that online exams administered in a proctored environment might equalize the incidence of academic dishonesty between online courses and face-to-face courses (Harmon 123).

The implementation of the online exams, originally intended as an emergency strategy in the middle of the semester crisis, taught me an even more valuable lesson. First, It reinforced the idea that student interpersonal relationships can reinforce motivation, and ultimately facilitate the learning process (Anderman 118). This different exam approach opened a spontaneous network of communication, understanding and learning where students freely found their own way to grasp the content of the course. This strategy is also a valid tool for facing the future larger enrollment and the constricted classroom availability, and eventually, to shed light on the crucial issue how the increasing enrollment can be switched into larger retention, larger graduation and ultimately, better-prepared professionals. The recognition and the approval of students' own ways of learning show another pathway for nurturing student spiritual and professional horizons. If not, what is learning about?

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