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Changing Student Learning Behavior Outside of Class

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This essay is about learning when teachers are not around - it is about out of class learning activity. It argues that you can have a substantial impact on student performance by planning this out of class time and by using assessment as a lever to encourage students to spend their time in sufficient quantities and in productive ways for the enhancement of their learning.

Importance of Learning Out of Class
• One of the "Principles of Good Practice in Undergraduate Education" (Chickering & Gamson, 1987) is "Good practice emphasises time on task." Defining what the learning task consists of, specifying how much time is allocated to it, and making sure this time is spent on this task, are critical for making courses work.

• Students can spend more time learning out of class than they do in class. In the U.K. students spend two or three hours out of class for each hour in class (Innis, 1996). However, although college instructors in the U.S. expect their students to spend about two hours out of class for each hour in class, they actually spend only 0.3 to 1.0 hours (Gardiner, 1997).

• An hour spent on a range of learning activities out of class has been shown to be as effective as an hour in a lecture, for the purpose of memorizing information, and more effective for understanding and problem solving (Bligh, 1997).

• Being student-focused means paying attention to what students do in order to learn rather than to what teachers do (Barr & Tagg, 1995).

Teachers tend to put most of their design effort into designing the content to be covered in their classes (Stark & Lattuca, 1997), and what effort is left is put into designing tests to measure what has been learned. It is significant that in most course descriptions what teachers do in class is described while what students do out of class is not - it is simply not planned in the same way or to the same extent. When I ask teachers how many hours their students are supposed to spend out of class and what they are supposed to do with these hours, I am often met with puzzlement, as if this were not their concern. These teachers were only planning half their course and were leaving the other half to chance.

It is difficult to improve teaching sufficiently to have a measurable effect on student learning, though it is possible. Almost all of the examples of dramatic improvements in student learning I have come across over the years have resulted not from improvements in teaching, but from improvements in learning. This involves a re-orientation of design effort.

Examples of Improved Learning without Changing Teaching
Forbes and Spence (1991) describe a failing engineering class in which student performance was transformed by simply requiring students to submit problem sheets for peer assessment on six occasions during the course, while all lectures and tests remained the same. The improvement resulted from:

• the requirement for students to submit work even though it was not graded, which made sure that they actually did it;

• the social pressure produced by students' work being seen and commented upon by others, which made sure that they did it well;

• the internalization of standards resulting from assessing others' work, so that they could judge and improve their own work;

• and learning from seeing others' mistakes and imaginative solutions to the same problems they themselves had tackled.

Here the strategy was to generate appropriate learning activity out of class through changes in the assessment. The specific tactic of peer assessment was less important than this underlying strategy.

Similarly, Cooper (1994) describes a large Accountancy class in which students were performing very poorly. Instead of changing the teaching to overcome this difficulty, students were formed into learning teams of four. Students attended the same classes and took the same exam, individually as before, but were allocated the average exam mark of their learning team of four. Again performance was completely transformed. The change was in what students did out of class, and the lever for this change was assessment. Students' marks were dependent on those of their team members so they taught each other very thoroughly. Almost all students benefited greatly, but the students who benefited most and whose marks increased the most were the best students - because teaching is a very effective way to learn, as every new teacher knows. Again the strategy was to change student learning activity by manipulating the assessment, in this case through the tactic of shared team exam marks. Incidentally this innovation was at no cost to the teacher in terms of her time.

Learning Functions of Assessment

Both the above case studies used assessment to change student out-of class learning behaviour. Assessment is the most powerful lever teachers have to re-direct learning effort in productive ways. It is common to distinguish two main types of assessment:

• formative assessment, which supports learning, primarily through providing feedback on progress;

• summative assessment, which allocates marks or grades to summarise what has been learned.

These two examples help us to identify the formative functions of assessment in a more discriminating way. I have found it helpful to consider four learning functions of assessment:

1. Capturing student time and effort. Assessment can make sure that students spend "time on task" and can make it more likely that this is "quality time." In the Engineering case study, requiring problem sheets to be submitted made sure that the time was captured; and having these sheets assessed by peers made sure that this was quality time.

2. Generating appropriate learning activity. The key word here is "appropriate." Much assessment generates learning activity which narrows students' attention and produces short-lasting consequences. For example, a multiple choice test generates very different learning activity in relation to the same content and educational goals than does an essay; and it is very difficult to generate "reading around" a topic without assigning a paper. If the goal for the Engineering case study was for students to tackle problems, then there was simply no substitute for assigning problems as learning activities. In a previous innovation the problem sheets had not been marked at all, to save resources. Students had stopped tackling the problems, and performance had plummeted.

3. Providing feedback. This is another of the "Seven Principles": "Good practice gives prompt feedback", to which I would want to add "that students pay attention to." Much effort in providing individualized written feedback is wasted either because the feedback is too slow or because students do not make use of it (Hounsell, 1987). Paying attention to feedback is a learning activity. In the Engineering case study students paid more attention to feedback provided immediately by their colleagues than they previously had to feedback provided, less promptly, by their teacher. The fact that their teachers' feedback was more accurate mattered less than when and how it was provided.

4. Helping students to internalize standards. Students who understand what different grades mean are more likely to improve their own work before submitting it than those who have never thought about standards. Teachers know about standards because they grade assignments. Students can learn about standards in the same way, as in the Engineering case study. They can learn to assess as reliably as a teacher's colleagues (Falchikov & Boud, 1989). However reliability is probably less important than the learning

consequences of having internalized standards.

Summary
It is proposed that teachers count up how many out of class learning hours they are entitled to and plan how to make the most productive use of all of these hours. Students should be briefed about the activities involved. Of course students will vary in terms of how many hours they need for the tasks teachers set. That should not, however, deter teachers from establishing explicit expectations any more than variations in students' ability should deter teachers from setting academic standards. To get students to actually allocate the time and effort required teachers may rely on students' intrinsic motivation. What is suggested here is the deliberate use of assessment to capture learning time, thereby promoting enhanced learning.

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