Affordable Higher Education

Current debates on affordability of higher education focus almost entirely on financial matters. However, there is an important academic component that we cannot ignore or disregard: peculiar pedagogical methods employed by instructors and administrators in their efforts to make undergraduate education affordable for all who want to have a diploma. It is an open secret in academe that these methods include the following:

1. Sample or practice tests and review sessions.

On Monday students receive a “sample” set of questions and problems. On Tuesday during the review session the lecturer or teaching assistant gives a complete analysis, including solutions, of the problems. On Wednesday the same problems with minor changes—perhaps the number 120 is changed to 150—are given as test problems. Students love this; “Sample exams are how we roll”.

2. Take-home midterm and final tests.

The chairman could request that the instructor make the final exam a take-home final, “in order to give students a thorough opportunity to demonstrate their knowledge of the material and what they’ve learned in the class”.

3. Curving.

This is a simple way to push grades up; D+ becomes B-, etc. When the instructor does not cave in and does not curve, students might lecture the instructor: “Curving the test occurs after the test, you calculate the class average and adjust the grades based on that. When students are still doing so poorly on exams even with twenty possible bonus points, usually a teacher curves. All of my math and science teachers have curved. In fact, in past math classes here, they have adjusted the grading scale previous to any scores being submitted, as well as curved all the test scores. Otherwise the majority of the class doesn’t do well.”

4. Self-evaluation by students.

Who knows better than the student himself how good or bad his performance is? So would it not be quite natural to ask him which grade he deserves and for the instructor to simply record it in the grade roster?

5. Grade roster adjustment or rosters of nonexistent classes.

Maybe manipulations of grade rosters are rare and extreme; they violate rules and regulations. However, as a top administrator of a major midwestern university explained once: we should be flexible and commend faculty who assign phony grades if it helps to guarantee high quality and integrity of undergraduate education.

This list is not exhaustive. Educators and educrats have many sophisticated and innovative ways to level the playing field and guarantee that any student—indeed, of his/her competence or skills—can sail smoothly from admission to graduation and get a diploma that presumably certifies excellent knowledge and high professional qualifications.

Does it?

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Topical Bias and Journal Backlog

I found the article “Topical bias in generalist mathematics journals” quite enlightening. Although the author does point out the self-perpetuating nature of the bias and the influence of editorial boards and topic culture, he neglects to mention what is perhaps the most obvious observation: that the most negatively biased subjects are those which have a more “applied” orientation and have significant overlap with other fields (e.g., computer science, physics, biology). Many of these topics are relatively new (e.g., computer science, information theory, game theory), and most are very fast moving. Consequently, the long lag between submission and publication in most generalist mathematics journals (e.g., seventeen months for Proceedings of the AMS, twenty-eight months for Transactions of the AMS (source: AMS Notices, Oct. 2009, p. 1316)) is not acceptable, and authors prefer journals with more rapid publication cycles—largely specialized/electronic journals. It seems to me that the trend is getting worse, i.e., longer lag times rather than shorter, and this deficiency must be addressed if journals wish to broaden the scope of their publications to include more papers in these areas.

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Educational Failures

In “Commentary on Education Legislation: A Mathematical Perspective” (January 2011), Matthew Pascal and Mary Gray mischaracterized me as a “back to basics’ advocate” and wrote that I agreed with Cathy Seeley “that NCLB provided little incentive for engaging students in learning more.” This was offered as counterpoint to Pat Connell Ross’s assertion that “if teachers are not teaching better, that’s not NCLB’s fault.”

I do not disagree with Ross’s statement and, while recognizing the essential role of technical fluency in sound mathematics education, I do not advocate “back to basics”. The NCLB legislation was a coercive, blunt instrument whose main thrust was to demand that more students achieve “proficiency” as measured by state tests. The details, including the definition of “proficiency”, the quality of the assessments, and the standards on which they were based, were left to the states.

No agency had greater influence on all of these than the National Council of Teachers of Mathematics which bears far greater responsibility than NCLB for poor results.

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