

The Assessment Quarterly

Math Faculty Begins a New Curriculum

by Cindy Johnson, Math, with Stephanie Kratz, English

Faced with a high student failure rate in the “old” Intermediate Algebra (Math 097) and College Algebra (Math 107), the math faculty began to study the implementation of a new curriculum. Their study included examination of the diverse needs of math/science majors and non-majors, attendance at conferences and research on group-based approaches to teaching mathematics. Study results suggested that the needs of students were not being served. At the beginning of this semester, while many of us were determining how best to use our “tried-and-true” teaching methods, the math faculty were embarking on a new curriculum and teaching approach.

Curriculum for Math and Science Majors

The old curriculum was essentially a pre-calculus sequence. However, most HCC students were not in the math/science track that required Calculus I. The classes they were headed into did not require the extensive knowledge of algebra they were being required to learn. At the same time, those ma-

jors who were going on to Calculus I were “short-changed” by the department having to “ease up” on the non-majors who were in the class.

The new courses – Intermediate Algebra for Math and Science (Math 099) and College Algebra for Math and Science (Math 109) – feature an expanded time frame that allows instructors time to cover material that had to be skipped before. It also requires more of the student’s schedule time and therefore a higher level of concentration on the curriculum. Although this concentration is needed to master the material and be successful in their later math and science courses, the overlap of content between courses has been eliminated. Thus an entire course – and therefore an entire semester – has essentially been eliminated from the students’ schedules.

Curriculum for Non-Majors

The new curriculum also serves the needs of the non-major students who do not need the degree of expertise in algebraic manipulation that their

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LOOK . . .

. . . for a Faculty Assessment Needs survey in your mailbox soon. Please fill it out and return it promptly so that the Assessment Committee can address *your* needs!

Assessment Committee

The Assessment Quarterly is brought to you by the Assessment Committee: Francine Armenth-Brothers (Nutrition), Barb Borg (Nursing), Tom Clemens (Division Chair for Humanities and Fine Arts), Steve Herald (Dean of Instruction), Stephanie Kratz (English), Janice Malak (Sociology), John Muench (Chemistry), Padriac Shinville (Division Chair for Alternative Learning and Developmental Education), Katherine Starks-Lawrence (Business), and John Wardell (Technology). Please see any AC members with questions or concerns regarding assessment at HCC.

Is Critical Thinking Trendy?: An Unplanned Destination

by "Group Two"

AKA Tiffani Butler (English), Nancy Evans (Business), Stephanie Kratz (English), Catherine Miller (Nursing), Amy Shipley (Communication), Johnny tenBroek (Technology)

During the Critical Thinking workshop on August 13, we made up the infamous Group Two – the group that was teased for our association of the word “trendy” with the concept of critical thinking. We defined critical thinking as follows: “A sometimes trendy, often intimidating, non-linear – yet rational – step on the path towards pure logic.” This definition, while admittedly not the definitive words on the subject, offered several insights and contributions to the discussion of critical thinking (we think).

Non-linear

Critical thinking involves a process that often leads thinkers into uncharted territory and may require that they revise their maps or views of the world (see Intimidating, below). It is not neat, and it is difficult if not impossible to set critical thinking to a schedule or predict what conclusions will be drawn. For students, this may set up an educational model that they were not expecting. For faculty, this demands more individual attention and time spent. Of course, this is what education and teaching are all about, but that doesn't fit the neat and clean “template education” that seems to be valued in our culture.

Trendy

While we worked in our groups at the faculty workshop, the assigned Skeptic of our group asked “Isn't ‘critical thinking’ just the latest academic buzz word?” We began a discussion about academic jargon and trends in educational thinking. While all of us had a classroom activity that included critical thinking to share with the group, not all of us label these “critical thinking activities.” Regardless of the titles, we reasoned, the importance isn't downplayed. Effective teachers have been encouraging critical thinking for years even if they called it something else.

Intimidating

Critical thinking can be intimidating to both faculty and students. First, students who are pre-

sented with the concept of critical thinking may be daunted simply by its name (see Trendy, above) and by the fact that critiquing their beliefs requires them to critique themselves (see Non-linear). Second, we faculty know that the best situations for encouraging critical thinking involve asking questions that we don't know the answers to – or for which there are no answers. Introducing such material in our classes is intimidating – dare we say scary – when we don't know where in-class discussions will take us. Such active learning depends so much on the contributions of students that it takes control out of our hands – another unsettling thought.

Although you may be unsure of the destination of an in-class activity, you can be sure to expect the unexpected. When students begin to think creatively and critically, they may contribute responses that you did not anticipate. Support your students as they contribute to the discussion, otherwise their energy may switch from productive tasks like taking risks as learners to ineffective tasks like self-defense of their ideas and management of the student/teacher dichotomy. Case in point: at the critical thinking workshop, our group felt “shut down” by the experience of being teased about the association of “trendy” with critical thinking. We were taken aback; we didn't mean to be dismissive of the activity, but we felt dismissed. When we began work on the second group activity (“As a group, write a definition of critical thinking”), we were ready to abandon our attempts to be taken seriously. “Why bother?” we thought. We were already expected to be “troublemakers”!

Since the critical thinking workshop, we've joked about this situation, but let's learn from it as well. We doubt that the workshop facilitators anticipated that this particular observation would arise from the activities that they planned. Nevertheless, it is a valuable insight into our teaching and our interactions with students. It is important that we not use “tunnel vision” and ask questions that lead students to respond only in ways that we expect. Such is the nature of critical thinking! When we (or our students) allow the ship to drift through the waters rather than chart every aspect of the journey, we just may find an unexpected harbor.

Upcoming Assessment Events

Contact a member of the Assessment Committee if you are interested in attending an assessment event. Some funding is available.

Teaching in the Community College: Online Course

September 16, 2002 to November 11, 2002

Discover what it is like to be an online student. This course is an eight-week online professional development course, is being offered to all Illinois community college educators through the ILCCO Learning Academy. Designed for faculty with strong content expertise who want to see the latest in teaching and learning strategies, the course is interactive and uses real-life scenarios to explore four essential components of an effective course: planning and syllabus design, teaching strategies, assessment and mentoring. Teaching in the Community College is particularly well-suited for new instructors and adjunct faculty. Register online at <http://www.ilccolearningacademy.org> or phone (630) 466-7900, ext. 2724 for more information.

Workshop: Embedding Assessment Measures in Regularly Scheduled Assignments

September 20, 2002, Illinois State University

Includes an overview of the course embedded assessment process and hands-on activities in which participants can develop program assessment plans and assessment rubrics. For more information visit <http://www.angelfire.com/is/kelley/assesswork/main.html>

Assessment Institute at Indiana University-Purdue University Indianapolis

November 3-5, 2002

This Institute provides opportunities to learn and practice assessment methods and techniques. In addition to workshops, participants will experience in-depth learning opportunities with other scholars and practitioners. For more information, visit <http://www.planning.iupui.edu/conferences/national/nationalconf.html>

A Day at Alverno College: Teaching & Assessing Student Abilities, Milwaukee

November 7, 2002

This day-long seminar allows you to take a firsthand look at Alverno's ability-based curriculum, which was instituted over 25 years ago. A "Day at Alverno College" includes general presentations, small group sessions, and informal conversations that encourage discussion of specific problems and response to individual questions. For more information, visit http://www.alverno.edu/educators/day_long.html

Defining Assessment

by Stephanie Kratz, English

Imagine embarking on a cross country road trip without consulting a map. Imagine preparing to make a delicious but complicated recipe without first reading it through to be sure you've got all the ingredients. Imagine attempting to use assessment in your class without knowing what assessment is.

We often throw around the term "assessment" in professional circles without ever discussing the obvious: what is it? Logically, we need to know what assessment is before we can begin to use it. While assessment has been defined by several noted scholars in a variety of notable books and articles, we on the Assessment Committee want to know what YOU think about assessment. In the spirit of fun, we ask you to put on your thinking caps. How would you complete this analogy?

Assessment is to teaching as _____ is to _____.

We'd love to hear your responses. Email them – along with a rationale for the analogy - to Stephanie Kratz at stephanie.kratz@hcc.cc.il.us (or jot them down and drop them in my mailbox in ICB-2100). We'll share your responses in a future issue of *Assessment Quarterly*.

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counterparts in the majors' sequence do. Therefore, we have "toned down" the repetitious algebraic manipulation practice that the old courses required. Instead, the new courses concentrate on critical thinking and problem solving skills, with the algebraic skills supporting the problem-solving environment. Like the math and science majors, these students are now enjoying a reduced number of credit hours to complete their math requirement and therefore a reduced cost invested in the math curriculum.

For many of the non-majors, the traditional, lecture based format was failing them. It was taught primarily in only one modality and many non-math and science majors do not learn well in that modality. The research that the math faculty read or saw at conferences claims that a more interactive/group based learning approach is particularly effective with those students who struggle with the traditional method and material. Having struggled with the traditional form in the past, the faculty hope that a fresh approach will encourage the students to

try it again and therefore enable them to approach the course(s) with a more positive attitude.

Critical Thinking Emphasis

Along with curricular changes came textbook changes as well. The new textbook very deliberately does not "lecture" to the students. It is designed to lead students to conclusions based on their own observations. The text exposes the students to powerful mathematical tools in a setting where they can learn the strengths and weaknesses of this approach to problem solving. It also enables the faculty to tackle so-called "real world" applications and requires a higher level of critical thinking from the students.

These curriculum changes were conceived with the intention of better serving both majors and non-majors. The math faculty intends to provide both groups of students with a (hopefully) pleasant and successful math experience that will (again hopefully) provide them with useful tools for their future studies and careers.