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Beginning at the Beginning: The Faculty View: A Portrait of Students and an Analysis of Them as Learners

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Differentiated Students and Differentiated Learning:
Multiple Points of Entry for Multiple Kinds of Students

A Summary

Kathleen Blake Yancey’s Presentation and Workshop

Margot Soven, Core Director
Introduction: The Challenge

Kathleen Blake Yancey, a leader in research in higher education, presented us with a “blizzard” of ideas for pedagogical change, supported by the research she cited throughout her workshop. Her theme “multiple points of entry for multiple kinds of students” gives us a new definition for the student population we have been describing as “mixed ability” or “differentiated.”

Participants asked for a “summary” of her remarks—a daunting task, since she gave us much to think about. She modeled her philosophy of teaching in the way she conducted her workshop. She refused to be the “sage on the stage,” but instead helped us to arrive at many insights through her questions, and the writing, discussion, and reflection activities of the day.

She also provided a template for us to continue to work together to experiment with new approaches to teaching in all disciplines, frequently referring to mathematics, science, in addition to the humanities subjects for her examples.

She ended the day with a challenge: try out at least one of the methods we discussed today in your courses. Join together with likeminded colleagues to discuss these changes while you are in the process of implementing them and assess their effectiveness.

I have tried to distill the main ideas from her hand outs, slides, and the video of her presentation. Please feel free to recommend additional data that you may have recorded in your notes. If you were not able to attend, but would like to participate in the “follow up” workshops, this summary may be helpful. You are also welcome to watch the video as soon as it’s edited. (It’s too long to be sent as a file).

I will also send you the hand-outs and slides if you missed the workshop and you would like copies.

I look forward to continue working together!

Margot Soven, Core Director

June 20, 2012
Major Shifts in Higher Education

There is a major shift occurring in higher education which is literally changing the ground on which we walk. Most of us were accustomed to and learned effectively from the “sage on the stage” model. The instructor lectured, we listened, and passed our exams, usually a mid-term and final. We wrote papers, lab reports, etc. and took mid-terms and final exams. We were focused on the subject matter of each course.

If we made connections between one course and another, it was usually without prompting from the instructor. If we made connections between our courses and our personal lives, it was our own initiative which prompted us to do so. We never questioned why we were in college. We were told that to get a good job and to become an educated person you had to go to college. We believed our parents and teachers when they assured us that a college education was worth pursuing.

For many reasons, the “sage on stage” model does not seem to work as well with many of our students, nor are many of our students as clear as previous generations as to why they have chosen a four year college. The reasons for the differences between students today and students in the past are complex, the subject for another seminar.

Research tells us students become more engaged in their studies as they clarify their goals. It is our responsibility to help them become metacognitive about these goals, what they need to learn to achieve those goals, and expand their vision of how college can influence their personal and public lives as well as their professional lives.

What is “Normal?”

“Normal” is what we take to be the way things operate. When this “normal” is disrupted, we need to re-set, and it’s easier to do when we understand the conventions of the new “normal”, both for faculty and students.

“Normal” for higher education is changing, for faculty in lots of ways, but two changes are particularly important. One is the moving from “sage” on the stage” characterized by lectures, and students doing most work outside of class, to a “contextualized model” where students do more work in class than in the past.

An important question: How might we incorporate contextualized practice in our classes? A second question: How might we use reflection/metacognition to help students learn? How might reflection help students progress from novice ship to expertise in college?
“Change” can be talked about productively. At many universities, like La Salle, the demographics of the student body have changed, but what is “normal” is not only changing for us as faculty. The change occurs for our students as well. This resetting happens every year for our students when high school students become college students; the “normal” of high school is not the “normal” of college.

A good question to ask is how high school versus college “normal “differ. Another good question is how we might make those differences apparent to students. A third question is whether we can adjust some of what we do in college to make the transition to college more successful.

**The Students: New Definitions**

Kathy Yancey suggested several categories for describing our students other than demographics such as SAT scores, definitions which may be more helpful than SAT scores in thinking about curriculum and pedagogy:

- The students who ask “How can I ‘get out of here’ with the least amount of effort? “
- The students who want to know “How can I get an A?”
- The students who are aware that they lack the ability to accomplish the intellectual tasks college presents.

Another category that can help us to better understand our students: There are the “boundary crossers” and the “boundary guardians”—namely those students who look forward to expanding their knowledge, and those who cling to their current ways of understanding the world.

**How People Learn**

Several principles related to how people learn are the basis for the methods introduced at the workshop: (From *How People Learn: Brain, Mind, Experience and School*), Bransford, Brown, & Cocking, Eds.) .

**Contextualized Practices**

1. Creating Mental Maps
2. Teaching the vocabulary of the discipline
3. Teaching college reading and writing skills
4. Opportunities for Reflection
5. Explicitness
6. Building in Failure
7. Frequent Feedback
8. Group work

Creating Mental Maps

Visual mapping helps students to see the relationship between the material in a course and the relationship between the material in different courses. We know that "mental maps" are used by experts in their fields when confronted by problems to solve or new material to be learned.

For this method to work most effectively, students should not only have the experience of making a "map" but they should also be asked to articulate the rationale for the map to others. Instructors can give students "maps" and ask them to add to the map (See Figures 1-2). Visual maps can also be used for students to explain their concepts of processes such as the writing process when they begin a course as compared to when they conclude the course. (Figure 3-4)

Teaching the Vocabulary of the Discipline: Key Terms

Students need to know the vocabulary of the discipline, the significant concepts they must understand in order to master the discipline. Begin by asking them to list five words they associate with the subject. Introduce more concepts gradually using a similar process.

Metacognitive Skills: Opportunities for Reflection:

At the beginning of a course ask students to explain their strengths and weaknesses related to the course. For example, in a writing class, a student wrote,

*I think I need more gramme. I have slid through my English class by being a strong reader but not so good writer. I am very weak in that sense. My writing skills in general. Starting a paper and ending, as well as repeating myself are big problems.*

Reflections by another student about their skills at the beginning and end of a writing class are markedly different.

Explicitness

Knowing the Rules of the Game: One of the most effective methods for increasing student awareness of the objectives of the course is to give them the opportunity to assess their own work. They are very accurate if given a rubric that reflects the goals of an assignment or a clear statement of the course objectives.

Building on Failure
In some disciplines, failure is accepted—especially in math and the sciences. Students anticipate that they may fail, but they will have other chances to “get it right.” Instructors should try to build in similar opportunities for “failing and getting it right” into all courses. (Fig. 11)

**Frequent Feedback (Fig. 10-11)**

Respond to journal entries, study questions as often as is practical. (Fig. 10-11)

**Explaining, Presenting their Work to Their Peers**

Giving students the opportunity to present their work to their peers is a powerful method for learning. Power Points and Posters are good vehicles for presentation. Surrounding the class with Poster size paper for students to write responses is another suggestion. (Fig. 9-9a)

**Group work and Assessment**

Students should be given the opportunity to work in pairs on study questions and assessment activities (See Robert Talbert:” Turn to your Neighbor and Take a Test”) There is no need to worry about the better students doing all the work. They learn as much by helping their fellow students as they do by talking with one another. (Fig. 7-8)

**Writing and Reading across the Curriculum**

In addition to these general methods most of which can apply to all subjects, teaching the intellectual skills required in college reading and writing is the responsibility of teachers in all disciplines. Here are some techniques discussed at the workshop:

*Annotation, Summary, Response and Reflect and Pop-Ups*

Many students have difficulty with college reading materials. We can teach students how to annotate the important parts of a text, through modeling annotating, summarizing, and then responding, and reflecting (connecting to other readings, to other courses).

We can also use the “comment” tool we can model this process. (Fig. 10-12) Suggestion: two questions for each student, and the requirement that they return a page answering your questions—one form of frequent feedback.

*Personal Connections*
Pop-Ups ask the student to make personal connections to the readings. Students can write about anything that comes to mind, such as in Fig.13 (my boyfriend) etc.

Five Areas of Focus for Writing.

When students come to college they don't have a complicated writing process. Using the "rhetorical situation" to frame writing can transform their writing in all courses. (Fig. 14)

And last but not least.....The Trusted Adult

Richard Light (The Harvard Assessment Seminars Report) says that "The most important thing a student can do is to find a trusted adult on campus." As faculty and staff we should be looking for that student for whom we can become "the trusted adult," the person who students can come to when they need help or just "to talk."

Conclusion

This brief summary does not capture the experience of the workshop, which was an excellent example in "contextualized learning." As with all such workshops, participants learn as much from having time for reflection and discussions with one another, as they do from the workshop leader.

I hope that we can continue that process of reflection and discussion as we experiment with "multiple points of entry for multiple kinds of students."

Margot Soven, Core Director
Figures

Selected References
Major as not in the center?
Many connections, vertical and horizontal
Connections annotated
Major more integrated with gen ed
Gen ed qualities rather than courses
Role of the personal life
Decide on Topic

Research

Rough Draft

Revise

Final Draft
**Le Chatelier’s principle** states that a system at equilibrium responds to a disturbance in a way that minimizes the effect of the disturbance.

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**Dynamic Equilibrium**

- One way to identify equilibrium

**Equilibrium Constant (K)**

- Reactions with acid/base
- Solubility product
- Gravimetric analysis
- Common Ion Effect

**Le Chatelier’s Principle**

- Mathematical expressions for equilibrium

**Equilibrium**

- A state of dynamic balance

**Buffer Solutions**

- Solutions of conjugate acid/base pairs
“the biggest challenge I faced when creating my concept map was trying to identify relationships. It was very easy to name accounting concepts but developing relationships between the concepts was a challenge.”
Writing Process

1. Procrastination
2. Personalization
3. Write Rough Draft for Peer Review
4. Decide Rough Draft is no good.

5. Complain to Roommate
6. Watch TV
7. Start Fresh
8. Write Body

9. Write Intro. and Conc.
10. Ask a friend to look for errors.
11. Final Revision
12. Final Product
Next Time, Fail Better

The work of coding, I discovered, was an endless round of failure, failure, failure before eventual success. Computer-science students are used to failing. They do it all the time. It's built into the process, and they take it in stride.

When I taught first-year writing, I developed a grading rubric that allowed me to give students low grades in some categories and high grades in others, blinding them with numbers so they couldn't figure out a letter grade and would, instead, focus on the categories that needed improving.
This article resonates with me even as a scientist. During my undergrad studies in chemistry, I had little experience with failure; the experiments were designed to be durable, to 'work', and to showcase a chemical principle. Once I started in graduate school, I found the hardest thing was dealing with failure.

“No scientist would follow such a process. In fact, few things are considered less scientific than to attempt to write a compelling, well-argued paper based on singular runs of an experiment. In short, the lab report develops habits that students must unlearn if they are going to think and write like professional chemists.”

“...three substantial changes. They redesigned the sophomore organic experiments so that they promoted genuine inquiry resulting in enough data to be worth writing about; they designed sequences of writing assignments to teach the scientific paper over the course of a year; and they built in genuine writing instruction—employing well-designed assignments, examples, rubrics, and peer review—to help students develop ‘writing process knowledge.’”
I said at the outset that the key thing with this class was to force the issue on assimilation of material, and part of that was to engage in early, small, and frequent assessment.

For formative assessment, we do daily online homework and clicker questions. There’s no requirement to get clicker questions right at all, and WeBWorK sets have no limits on number of attempts or the amount of collaboration or technology used.

For summative assessment, we have a midterm exam and a final exam.
What makes Assessments different than the usual tests, other than their length, is that there is a collaborative portion to each one.

Each is split up into multiple choice, mechanical calculations, and problems to solve.

Assessments are 50 points with about 10, 20, and 20 points respectively assigned to those three areas.

During the first 10 minutes of the Assessment, students are randomly assigned to groups of 3 or 4 students and given the “problems to solve” portion on a separate page. Then they brainstorm and try out solutions together for the duration of that 10-minute period. They may use whatever technology and notes they want.

Then, when the 10 minutes are up, everything gets put away — including the notes they took during the group portion — and they get the entire assessment to work out individually for 25 minutes.

After the individual portion is done, the work is handed in and we take 10-15 minutes for discussion and debrief (so they get some feedback immediately).
I also have students do presentations in a "trade fair" format where they have to present to 3-4 sets of visitors - I give them the okay to use the feedback from each round to change how they present the material, and I watch to see behavioral and content changes.

After the presentation they get extra credit for identifying things that they saw in other presentations that they wish they had done/will try in a future presentation.

For longer papers I have students meet in roundtable groups at least twice to discuss their original ideas and their current thinking is, then at a later date what they have found out about their topic from research. In both stages their peers are required to give feedback and ask for clarification - it's a gentle way to get the message across that the student has not thought of everything and that's quite normal.
I have this **poster** I had to create for my chemistry class, **which tells me what genre** I have to use, and so I know how to write it, because a poster should be organized a certain way and look a certain way and it is written to a specific **audience in a scientific way**. I wouldn’t write it the same way I would write a research essay – I’m presenting the key points about this chemistry project **not writing a lot of paragraphs** that include what other people say about it or whatever. **The poster is just the highlights with illustrations, but it is right for its audience.**
Working With Text

This was sacred ground. Though the most remote and least developed region of the German federation—so remote that by 1914 it lay north of Russian Poland and today it is part of Poland—East Prussia was in a sense the heart of the Hohenzollern empire. It was the ancient home of a collection of families who were neither conspicuously wealthy nor particularly distinguished in any other way but regarded themselves as Germany’s rightful leaders and were regarded as such by their king.

Hindenburg himself was a son of one of those families, which for him made the victory exquisitely sweet. He had saved the tabernacle from violation, overnight turning himself into a national idol. He had kept alive not only Germany’s hopes of winning the war but his kinsmen’s hopes that their privileged place in the life of Germany would not be lost, and that the weaknesses and contradictions of that special place—its absurdities, even—could continue to be ignored.

The Germany that Hindenburg and his kind dominated has come a long way since the Franco-Prussian War. Long regarded as the land of musicians and dreamy philosophers and Black Forest elves, by 1914 it was the most modern, efficient, innovative, and powerful economy in Europe. Not only in industrial output but in science, even in the arts, Germany was a powerhouse. Militarily it was so strong that Britain, France, and Russia had good reason to fear that even in combination they might not be able
It is part of the strange dark poetry of the Great War that the Battle of Tannenberg, the most dramatic and complete victory achieved by either side in more than four years of bloody struggle, was fought in East Prussia.

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SUMMARY (150 words)

RESPOND (100 words)

REFLECT (150 words)—CONNECT TO CLASS, TO OTHER READINGS, TO OTHER CLASSES
Five Areas of Focus for Writing

*Developing writing processes

*Using the "Rhetorical situation" to frame writing
  - purpose
  - audience
  - topic
  - genre

*Assigning "wild" genres

*Combining writing with critical thinking

*Asking students to assess their own work
Selected References


