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Introduction

*Let us introduce ourselves. We are the **Inquirer**, a journal about teaching by and for BMCC faculty.*

*We invite all members of the college community to join us, first as readers and eventually, we hope, as contributors. Our purpose is to facilitate a dialogue about teaching and learning at BMCC. The **Inquirer** is open to all points of view, encourages debate, does not shy away from controversy but insists that all discourse in our pages be conducted in the spirit of sharing and learning from one another.*

Our first issue covers a lot of territory. Contributors consider the connections between teaching and learning, student and teacher, student and student, inquiry and information; examine who our students are, what they know and don't know and how they learn; analyze how as teachers and learners we understand and manipulate written and oral language, numbers, symbols and visual images; and promote cultural diversity by exploring questions of nationality, ethnicity, race and gender.

-Bill Freidheim & Dexter Jeffries (1991)

These words, written by the founding editors of the *Inquirer*, are as true of this fifteenth volume as they were of the first. Of course, *Inquirer* looks a bit better. Then, it was copied, folded, and stapled. Now it is professionally printed and bound, and the editors have literally hundreds of colors to choose from for the cover. Aren't we lucky? Little else has changed, though. But surely, you say, so much has changed in this world of ours since the *Inquirer* first hit the copy-machine, and no doubt much has changed here at BMCC. True enough, but what has not changed is our fundamental task, the thing that we educators do; and so our 'teacherly' concerns and interests, and our 'learnerly' questions and fascinations, remain much the same as they always have been.

Take Cheryl Comeau-Kirschner's article on student-teacher dialogue journaling, which touches on each of the *connections* identified by the first editors. Or Bramadeo Dewprashad's article on preparing students for the world of the future, which is about *what students know and don't know*, and just as surely is about our own knowledge and ignorance as we move ahead. Then there is Jack Estes's article on volunteering as pedagogy. Estes notes explicitly that the task of volunteering becomes not only a matter of world-exploration, but of *self-exploration* as well. And the article by Rochelle Holland and Milton Baxter on community dialect theory is centrally concerned with how to *manipulate written and oral language* to learn and to communicate well. David Lang's carefully crafted "BizPlan" epitomizes the *spirit of sharing and learning from one another* by modeling a well-developed pedagogical plan. And what of Alice Lun's piece on the voices of the aged? How easy it is, and how important, to add age to the more familiar list of *indices of social location*, like nationality, ethnicity, race,

gender, and class. Marguerite Rivas offers a poetic narrative of the role of the senses in teaching and learning, between teachers and students, between students and students, and between students and the world. Howard Sage in his article on the busy intersection between college and the rest of the world takes up again the opportunity we provide for students who *must explore who they are,* in light of where they are and where they hope to be. Yibao Xu's fascinating historical investigation of Western appreciation of Chinese mathematics, though it may not tell us how to teach, *promotes cultural diversity* by reminding us that the disciplines we do teach are always already multiculturally embedded. And Igor Zaitsev's closing piece *facilitates the ongoing dialogue about teaching and learning at BMCC* with a straightforward reminder of the sorts of things we must keep track of to teach well. Thankfully, you can count them on your fingers.

So let us introduce ourselves again. We are still the *Inquirer*, still a journal about teaching and learning, still by and for BMCC faculty, still fostering dialogue, and still open to all points of view. We hope you enjoy reading this fifteenth volume, and that you will consider contributing to the sixteenth.

Mabel Asante & Matthew Ally, editors

Teacher-Student Dialogue Journaling: A Learning Strategy to Enhance Academic Proficiency

Cheryl Comeau-Kirschner
Developmental Skills

If academic language proficiency is "the ability to make complex meanings explicit in oral or written modes by means of language itself" (O'Malley and Valdez-Pierce), then English Language Learners (ELLs) face a daunting task in the English for Academic Purposes (EAP) classroom. Whereas a typical conversation between two speakers is full of contextual and paralinguistic cues that will enable English Language Learners to function quite well, academic language often lacks these components. In fact, Hakuta (1990) aptly notes that "contextualized, face-to-face conversational skills seem to develop more rapidly than decontextualized skills, although the latter is more important for academic success." Consequently, ELL students often struggle to comprehend what they have read in academic texts and to express what they know in writing.

Without a true understanding of the specific demands of academic language, teachers and administrators can improperly perceive and assess ELL students' capacities and needs. Brown (2004) provides the following vignette to make a strong point about the difference between ELL conversational fluency and academic language:

> **Teacher:** Why were you absent yesterday, Eduardo?
>
> **Eduardo:** *'Cause* I had to take my little sister to the hospital, *'cause* she had a stomach ache and she was crying. My mother left for work already and I cannot drive, so I *call[ed]* my uncle, then I *wait[ed]* for him to come and get my sister. We took her to the hospital.

Although there are verb tense errors and the use of slang, Brown notes that Eduardo delivers a clear message without much difficulty in telling the story. This capability shows that he does have communicative language functions, but probably not academic language functions. Brown suggests that "this sort of speech sample is typical among fluent ESL students…he needs [academic] English to be successful in content areas and achieve high marks in school." This is the challenge.

BICS vs. CALP

This distinction between social and academic language functions is an important one. Cummins (1984), for instance, has distinguished between basic interpersonal communicative skills (BICS), and cognitive academic language proficiency (CALP). BICS is considered to be both context-embedded and cognitively undemanding, while CALP is context-reduced and cognitively demanding. As a result, Cummins notes that it can take approximately two years to master basic interpersonal communicative skills, but it takes at least five to seven years to achieve

cognitive academic language proficiency.

Researchers have disagreed with the time frame put forth by Cummins. Hakuta, Butler, and Witt (2000) believe that it can take from three to five years for oral proficiency and four to seven years for academic proficiency. Other researchers believe that achieving academic proficiency is an even longer process. Collier (1987, 1989 as cited in Brown, 2004) believes "that it can take up to 10 years for ESL students to reach grade-level CALP English depending on the kind of English instruction they receive."

This debate about time frames notwithstanding, one thing is clear: ELLs who only have basic interpersonal communicative proficiency lag behind students who have communicative proficiency at both the basic interpersonal and cognitive academic levels. Such a gap may worsen in higher grades as the content-area material and activities become even more cognitively demanding and context-reduced. To Hakuta et. al. (2000), these circumstances reveal the difficulty for English language learners who try to keep up with native English-speaking students who are continually developing in their own language skills.

Dialogue Rather than Monologue

In my own courses, I have dealt with the complexity of helping ELLs to achieve BICS and CALP. With that in mind, I always read "best practice" articles with great interest, and a recent article by Facell, Rampino, and Shea (2005) caught my attention. The researchers interviewed 20 teachers in order to learn which strategies they considered to be the most effective with this student population. Four strategies were mentioned repeatedly: "gestures and visual cues; repetition and opportunities for practicing skills; use of objects, real props, and hands-on materials; and multisensory approaches" (p. 211). The teachers tried to be responsive to their culturally and linguistically diverse students by using these strategies to match language with content, and to foster interaction and communication with other people in the students' lives.

The notion of fostering interaction and communication in a decontextualized, academic setting resonated with me. I wanted to find an instructional strategy that would provide a connection between the levels of basic interpersonal and cognitive academic language proficiencies in a more seamless way. Finally, I discovered dialogue journals and have been pleased with the results each time I have employed this strategy.

Dialogue journaling holds great promise in the English for Academic Puroses classroom because it promotes a personal connection to the writing and reading process. Vygotsky (1978) posits that the teaching of writing should be "relevant to life" and "cultivated rather than imposed" (p. 118). Reading also requires a personal connection and relevance. Rosenblatt (1978) believes that "the 'transaction' or interaction between the reader and the text is different for every reader since each is a unique individual" (p. 16). Thus, teacher-student dialogue journaling is a very human process with an ongoing, responsive conversation that engages the participants as people with their own thoughts and personalities.

With this type of writing, students can compose a response without worrying much about the sorts of linguistic variables they must consider in formal essays.

As Anson and Beach (1995) point out, students are often so concerned about giving the right answer that they fail to "formulate their own ideas or knowledge… they simply defer to external authorities or the teacher as the primary source of knowledge" (p. 24). Swartz (2002) also believes that "writing down what [students] think about what they've read allows readers to clarify their thinking" (p. 43). Since making meaning from the text is a main priority in the EAP setting, dialogue journals also provide a low-stakes opportunity for English language learners to become more insightful readers.

Equality in Participation

Another benefit to dialogue journaling is connected to my "hidden curriculum." In my experience, many English language learners are marginalized by our society and, unfortunately, by the educational system itself. As a result, they often lack self-assurance about their inherent strengths as human beings and as students. Wink (2005) believes that "conscientization" is the key to helping students find their power because it "enables students and teachers to have confidence in their own knowledge, ability, and experiences…[it] is a power we have when we recognize we know what we know" (p. 32). To that end, dialogue journaling is one strategy that helps students to reveal their own stories and aspirations in a potentially less intimidating format than whole class discussion, group- or pair-work, or formal writing. In turn, the teacher can read and respond to the entries more thoughtfully, rather than rely on harried or limited conversations during or after class time. Achieving academic proficiency is certainly a worthy endeavor, but the consciousness raising and critical consciousness that are intrinsic to conscientization can change students' lives well beyond the classroom.

With conscientization as part of the process, dialogue journal writing differs greatly from typical reading journal response because teachers and students interact with each other as equal contributors. That is, "the teacher is primarily a participant in an ongoing, written conversation with the learner rather than an evaluator who corrects or comments on the quality of the learner's writing" (Peyton, 2000). The participatory nature of dialogue journals can dramatically alter the overall learning process; and such interaction often provides unforeseen opportunities for language acquisition. In fact, researchers Kreeft, Shuy, Staton, Reed, & Morroy have found that dialogue journal writing enables "…the following conditions for learning: interaction about topics relevant to learning, focus on interaction rather than form, enhancement of reading skills, modeling of correct grammatical forms, natural evolution of grammatical structures, and interaction in a private, nonthreatening way" (cited in Holmes & Moulton, 1997).

At the university level, dialogue journals are often used as stepping stones toward formal academic writing. O'Malley and Valdez Pierce (1996) note that teachers can help students move beyond summarization with "questions that call for personal reflection" (p. 111). Vanett and Jurich (1990) plan dialogue journal writing into their syllabus, and they believe that there is a clear connection to academic writing tasks such as argumentation and research papers. To that end, they select and sequence journal topics along with the formal assignments to provide "the link between these two types of writing" (p. 26).

A Deeper Meaning

The opportunity to assess whether the "link" between informal writing and formal writing has been achieved is another benefit of dialogue journals. In addition to the summative assessment that is part of most EAP courses, analyzing dialogue journal entries provides a valuable opportunity for formative assessment. Darling-Hammond et al. (2005) point out that teachers "must constantly be checking for student understanding" and students must "…take responsibility for reflecting on and monitoring their own learning progress" (p. 276). With this in mind, dialogue journals may be analyzed from several different perspectives depending on our purpose for assessment. For instance, and perhaps most important, there is the semantic level of analysis. Mayring (2000) points out that the manifest meaning comprises the themes and main idea of a text, while Lankshear and Knobel (2005) note that the latent meaning is not always evident because it depends on the speaker and context. For example, the statement "I'm really tired today" could simply mean that the speaker is tired. Or it could mean I want to take a nap. Or even, I hope you offer to cook dinner for us.

Qualitative content analysis can involve other approaches as well. According to Lankshear and Knobel, there are three potential areas of analysis: word-count analysis, content categories analysis, and definitional content analysis. In word-count analysis, we can count the number of times a word appears in the text. In content categories analysis, one word or several words are grouped together based on similar features, and in definitional content analysis, we want "(a) to understand the meaning of the focus word or phrase in each instance, and (b) to understand the contest of each instance of the word or phrase being sought" (p. 335).

Discourse analysis of journal entries is another important approach. This type of analysis is a close inspection of language use within a particular speech community. The speech community that is the EAP classroom provides several avenues for inquiry. According to Demo (2001), "language learners face the monumental task of acquiring not only new vocabulary, syntactic patterns, and phonology, but also discourse competence, sociolinguistic competence, strategic competence, and interactional competence." Since academic writing is a specific genre, analysis of students' journal entries can reveal evidence of their discourse competence. For example, Brown (2001) points out that discourse markers in English "signal relationships among ideas expressed through phrases, clauses, and sentences" (p. 310); while Savignon (2001) emphasizes the concept of text coherence, that "the establishment of a global meaning, or topic, for a text is an integral part of both expression and interpretation of the individual sentences that make up the text" (p. 18).

While the focus of dialogue journaling is on content rather than form, grammatical competence is yet another avenue of inquiry. Since there is a back-and-forth exchange occurring between the teacher and student, there may be evidence of increased accuracy with this type of competence. Savignon identifies this part of discourse analysis as the ability to manipulate the structural features of a language, such as lexical, morphological, and syntactical elements. Perhaps there will be evidence that the stronger students have mastered certain features

that the weaker students are still struggling to grasp. If this is the case, coherence and cohesion may be adversely affected as grammar is more than just form; grammar is also a matter of relations among form, meaning, and use (Celce-Murcia and Larsen-Freeman, 1999).

From Theory to Practice

Of course, the time-consuming nature of dialogue journaling may turn some teachers off, especially as literature and academic language function requirements become more complex in the higher grade levels. Yet I think the extra effort is well worth it and there are ways to minimize it. One of the most effective ways teachers can limit the amount of time spent on dialogue journaling is to develop a flexible rubric with specific types of questioning strategies to guide the "conversation" from the beginning. Granted, there cannot be a formula as dialogue journaling, like all dialogue, is open-ended and is not an exact science—nor should it be viewed that way. What I am suggesting is simply a user-friendly guideline to avoid reinventing the wheel for each conversation and for each assessment.

For example, when I asked students to write journal entries and then formal essays in response a book we had read, many of them simply wrote plot summaries rather than in-depth analysis of the main characters. This outcome led me to question the effectiveness of journal entries completed in isolation. I had usually graded journal entries without much feedback beyond a check mark or a phrase like *Nice job!* as was the common practice among my colleagues. The first time I tried dialogue journaling related to character analysis, I spent hours on each batch of entries. I was unsure how respond the students' initial entries in ways that would enable the conversation to continue. The realization that this was ultimately not a viable strategy led me to create a guideline of question strategies based on character personality traits and intrinsic/extrinsic motivations, which would in turn help me with semantic analysis. I then adapted my department's curriculum guide for various proficiency levels to chart both grammatical and discourse competence.

The creation of this type of rubric can be labor-intensive, but doesn't much of our initial preparation end up this way? I found that the investment of time and adaptation of materials made my subsequent attempts at dialogue journaling much less time-consuming and labor-intensive. Since the task became less daunting, I felt more willing and able to use it for each book we read during the semester.

Conclusion

After trying the dialogue journaling process a number of times, I think that English Language Learners do see it as an appropriate learning strategy. Having several (or many) chances to engage in low-stakes writing about readings before they have to tackle more difficult formal essay assignments depressurizes the decontextualized environment that is the English for Academic Purposes classroom.

It also appears that less academically proficient students may benefit from the opportunity to have guidance from the teacher about what they should focus

on in the reading. It's a like a gentle nudge in the right direction that students can refer back to during class activities, essay writing, and group discussions. I have noticed that some of my less academically proficient students look at their entries in these different situations, and as we begin to work on the essay assignments, I have been able to say, "Remember you wrote…" or "Remember when I asked you…" to help them brainstorm more effectively.

Ultimately, dialogue journaling helps students to feel comfortable and empowered. It provides an opportunity for them to share their thoughts via a unique personal and academic communicative task, and allows them to see that we are not just "teachers" or authority figures. This surely makes the learning process more effective, and more palatable and humane for everyone.

References

Anson, C.M., & Beach, R. (1995). *Journals in the classroom: Writing to learn.* Norwood, MA: Christopher-Gordon.

Brown, C. L. (2004). Content Based ESL Curriculum and Academic Language Proficiency. *The Internet TESL Journal.* 10(2). Retrieved June 22, 2007 from http://iteslj.org/Techniques/Brown-CBEC.html *n.p. denotes no page number

Brown, H.D. (2001) *Teaching by principles.* White Plains, NY: Addison Wesley Longman, Inc.

Celce-Murcia, M., & Larsen-Freeman, D. (1999). *The grammar book.* Boston, MA: Heinle & Heinle

Cummins, J. (1984). *Bilingualism and special education: Issues in assessment and pedagogy.* Clevedon, England: Multilingual Matters.

Demo, D. (2001). Discourse analysis for language teachers. *Eric Digest.* Retrieved June 20, 2007 from http://www.cal.org/resources/digest/0107demo.html *n.p. denotes no page number

Facella, M., Rampino K.M, & Shea, E.K. (2005). Effective teaching strategies for English language learners. *Bilingual Research Journal. 29*(1). 209-221.

Hakuta, K. (1990). Second-language acquisition, bilingual education, and prospects for a language-rich nation. Restructuring learning: *1990 Summer Institute Papers and Recommendations.* CA: Council of Chief State School Officers.

Hakuta, K., Butler, Y. G., & Witt, D. (2000). *How long does it take English learners to attain proficiency?* Stanford, CA: The University of California Linguistic Minority Research Institute.

Holmes, V. & Moulton, M. (1997) Dialogue journals as an ESL learning strategy. *Journal of Adolescent and Adult Literacy, 40*(8) 616-621.

Lankshear, C., & Knobel, M. (2005). *A handbook for teacher research: From design to implementation.* Berkshire, England: Open University Press.

Peyton, J.K. (1993). *Dialogue journals: Interactive writing to develop language and literacy.* Digest. Washington DC: Center for Adult English Language Acquisition.

O'Malley & Valdez Pierce (1996). *Authentic assessment for English language learners: Practical approaches for teachers.* Addison-Wesley Publishing.

Rosenblatt, L. (1978). *The reader, the text, the poem: The transactional theory of the literary work.* Carbondale, IL: Southern Illinois UP.

Savignon, S.J. (2001). Communicative language teaching for the twenty-first century in M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language.* (pp. 13-28) Boston, MA: Heinle & Heinle.

Shepard, L. Hammerness, K., Darling-Hammond, L., Rust, F., Baratz Snowden, J., Gordon, E., Gutierrez, C., & Pacheco, A. (2005). **Assessment.** In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 275-326). San Francisco: Jossey-Bass.

Vanett, L. & Jurich, D. (1990). The missing link: Connecting journal writing to academic writing. In J.K. Peyton (Ed.), *Students and teachers writing together* (pp. 21-34). Alexandria, VA: TESOL.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wink, J. (2005). *Critical pedagogy.* Boston, MA: Pearson Education.

Preparing Students to Thrive in a World That We Have Only Glimpsed

Brahmadeo Dewprashad
Science

As educators, we are participants in a sacred ritual; one that likely began in time immemorial. We acquire knowledge, add to it, and pass it on to the next generation such that they can use it to thrive, to adapt, and to continue the cycle. However, the world that our students will live and work in is one that we have not experienced, but can only imagine. How do we undertake such an inexact task? If we each teach our courses as per the syllabus, cover every topic, do an excellent job at explaining every concept and ensure that every student masters each of the major concepts, is it enough? I must confess that I do not know the answer to these questions. However, I feel uneasy confining instruction to teaching assigned pages from a textbook. I feel that I need to go beyond that, and I do. I would like to share some of my attempts at preparing students for life and work in the 21st century in the hopes that it will stimulate reflection and discussion of the subject.

I scan the scientific research literature regularly, not only because of my own interest in research, but also because it gives me a sense of the scientific frontiers that are opening up. Several areas that are likely to have a significant impact on life and work in the near future have caught my attention. Nanotechnology is one such emerging field. It pertains to the manipulation of matter at the molecular and atomic scale. It is likely that, in the near future, innovations in this area will allow us to custom design structures from the ground up, molecule by molecule, creating a new generation of improved medicines, food additives, construction materials, fabrics, electronics and a host of other products. Another emerging area is Green Chemistry. This pertains to the development and adaptation of innovative chemical technologies that accomplish pollution reduction in a scientifically sound and cost-effective manner. Advances in Green Chemistry will likely be the lynchpin to the environmentally sustainable growth of nations. Another area that shows great promise is functional genomics, the study of patterns of gene expression under various conditions. This will likely lead to more precise prediction of disease susceptibility and drug response, early detection of illnesses, new therapeutic approaches, and a likely shift in medicine from the conquest of disease to preemptive care and even gene reprogramming. Advances such as these, combined with the continuing exponential advances in computing power will likely result in a world where the "knowledge-worker" is likely to become more greatly valued. Students who develop expertise in these areas, and who posess the requisite innovative skills, will likely not only thrive in this world, but help to shape it.

Emerging technologies such as those just described will have a direct impact on the lives and work of all of our students, not just our science majors. Although it is the scientifically trained person who will likely make the R&D breakthroughs

in these areas, successful commercialization of technologies developed will require collaboration with personnel with expertise and training in a host of others disciplines such as finance, marketing, communication, management, etc. Persons who would likely benefit the most from these new technologies would be those having the foresight to join the pioneering efforts in opening these frontiers. Such foresight and passionate involvement requires an understanding and appreciation of the fundamental scientific concepts involved, and often starts from an early awareness. Undergraduates trained in large research-intensive universities are likely to have such awareness as they are exposed to many emerging technologies. Many of the professors who teach undergraduate classes at such institutions are active in research at the frontiers of science and are likely to connect concepts taught to their areas of research. In addition, on those campuses there are regular presentations on emerging technologies by distinguished contributors to the field. All students are invited, and many do attend.

Our students do not have many such opportunities, but they have an even greater need for such exposure. They are generally not from socio-economic circles where emerging technologies are the subject of discussion. It is because of this that I make a special effort to talk about these technologies in class and to connect them to concepts taught. Often, the limited classroom time does not permit detailed discussion on such topics. However, I have found that even very brief discussions stimulate students' interest such that they do additional readings on their own. They often seek me out with additional questions on these topics during office hour.

Another approach that I have found effective is to develop case studies that connect these emerging technologies to concepts taught. For example, one case study that I have developed and used, asks students to use the chemical reactions covered in the course to show how many consumer chemicals, currently made from non-renewable petroleum feedstock, can be made from ethanol, a renewable feedstock. Students have an opportunity to practice using concepts learned to solve a likely real-life problem. They have indicated that such exercises do provide some meaning to the rigorous study required to learn the numerous reaction pathways by grounding their education in the context of real societal needs.

I have also used web-based materials advantageously to introduce emerging technologies to the class. The are many engaging videos on the internet that introduce students to these topics. I provide links to many of them on my course website. One of these, "The Next Big Thing – Nanothechnology," is particularly engaging. It provides a discussion, in lay person's language, about the potential of Nanotechnology and cites as an example the possibility of designing molecular robots that can be sent into a person to clean up his or her arteries (1). Such readily accessible videos enlarge students' horizons, and many of them could be used in non-science classes given the broader societal impacts of advancing technologies. Introducing students to emerging technologies in this highly accessible way piques students' interest, stimulates their curiosity, and thus motivates them to learn more. It does not, of course, help them to develop the skills that they will need for the future.

Proficiencies in each of the emerging technologies will require even greater multidisciplinary competence than the current generation of workers have. For example, nanotechnology requires competence in several disciplines including organic chemistry, inorganic chemistry, biology and engineering sciences. As these technologies will impact the way we live, an understanding of the social sciences and an ability to communicate will also be critical. Our current curriculum is divided into courses in different subjects. Often, students are not able to connect concepts from these different and often seemingly disparate courses. I have found that a common misconception students have is that once they have completed a course and earned credit for it, there is no need to remember or apply any of the material anymore. As such, I use every opportunity to show the connection between what we do in class and what they have learned or are learning in other classes. For example, in teaching reaction mechanisms, I use examples from biological systems that they have covered in biology classes. In teaching multi-step organic synthesis, I have students undertake the most practicable, the most economical and the most environmentally friendly synthesis for a particular compound. This requires them to consider fundamental economic, health and engineering principles. Such a multidisciplinary approach necessarily provides them with practice in critical thinking. Addressing each criteria individually often requires a different solution for each case. Considering the criteria together requires some compromise and an ability to decide, in the absence of a single "right answer," which solution possesses the most merit. Such an undertaking gives students hands-on training in the sort of analytical and synthetic thinking they will also be increasingly required to do as their education progresses in preparation for work in the 21st century.

I have also been able to use writing to help students connect concepts from different disciples. One such writing exercise require students to explain how and why trans-fats are made, why they are bad for us and how they can be eliminated from processed food without decreasing the shelf-life and consistency of the food. Such an exercise connects the organic chemistry involved in the process, the economic and socio-economic impact of extending the shelf-life of food, and the cardiovascular effects of trans-fat. In addition, it helps students develop their skills at communicating scientific concepts.

Interdisciplinary competence will, of course, better prepare students for life and work through the 21st century, but is not the most important skill that they will require. I feel that the most important skill that students will need is the ability to learn new concepts constantly, and the ability to apply them to solve new problems. The emerging technologies will revolutionize the way we work and think, and workers will need even more regular re-training. Many traditional careers and work pathways will be disrupted and many new opportunities will be created. Information can now be stored and retrieved very easily, and is accessible to an unprecedented and now global extent. Knowledge, per-se is no longer as valuable as it used to be, and will continue to be less valuable. There is an increasing value, not of knowledge, but of the ability to extract information, to synthesize it to form new knowledge and to use the same to solve new problems. So, when students ask "What is the correct answer to a question?" should you

provide it or should you help them to arrive at it themselves? I do the latter. It is difficult, and often times, not immediately appreciated by students. However, I feel that I am doing the right thing. During classes, I facilitate learning but not by simply explaining a concept and providing known examples of its application. I do explain concepts, of course, but more importantly I always try to give students themselves the opportunity to apply concepts to solve real problems of increasing complexity and to formulate additional questions based on their own experience of solving the problem. Many of these problems are not from the textbook but ones that I developed myself. They require not only application of material just taught, but also a synthesis of concepts taught in previous courses taken by students. Often they are required to weigh competing possibilities and to decide a most likely solution. In the beginning, students are not comfortable with this approach and do voice their feelings loud and clear. However, I do not let this distract me. I feel that they need to learn to be become comfortable with uncertainty. In addition, I know from experience, that by mid-semester, they will get comfortable with this style of learning, and by the end of semester they will actually enjoy it. I see such added activities as enrichments to the material covered in the text. However, practicality requires that I limit such activities.

For students who are especially interested, I offer opportunities to work with me on research projects. Every semester I mentor a few students. It is, admittedly, quite an additional workload, but the satisfaction is more that worth the effort. These students are provided with more direct exposure to emerging technologies and additional opportunities to develop critical thinking and communication skills. In addition, I ensure that some of them have opportunities to work in the laboratories of professors at senior colleges and national labs. This provides real-world exposure to cutting-edge research. In addition, these students are provided with opportunities to make presentations at national and regional meetings where they have opportunities to listen to experts in emerging technologies. So far, each of these students has transferred, or is about to transfer, to senior colleges, and each has demonstrated remarkable growth. I feel that many of them have the dedication and aptitude to take our place and continue the circle of learning. I am hopeful that they will.

Oftentimes, we see our role as that of preparing our students to transfer to senior colleges with the expectation that those colleges will provide them with the necessary exposure to emerging technologies. However, early exposure to technologies that engage and fascinate them, is more likely to motivate and inspire them to work towards and attain high grades, and to continue on to senior colleges in pursuit of a bigger dream than they had previously had. In addition, early exposure to emerging technologies will help them choose schools to transfer to that have strengths in these areas. Also, and not incidentally, developing students' ability to make interdisciplinary connections and improving their critical thinking skills will better prepare them for success on transfer to any senior college and for the passage into life and work at the dawn of the 21st Century. Our student body is one that represents responsibility, grit, determination, adaptability, cultural sensitivity and compassion. Our students have many of the hallmarks required for responsible global citizenry in an increasingly complex

world. With our help, they can be better prepared to thrive in and shape that world. It is our covenant to provide such help.

References

http://search.msn.com/video/results.aspx?q=nanotechology&docid=2472481390991&FORM=TVVR3

Volunteering as Pedagogy

Jack Estes
Social Sciences and Human Services

I suspect I'm speaking for many colleagues when I say I needed a change from my standard method of teaching class I most often teach. For me, that class is Introduction to Sociology. Don't get me wrong: I love that class. It seems to be one that really matters, that can change a student's life – just as it changed my own. It is a class that can help a student see life differently, that can introduce a student to new ways of encountering society, that can encourage a student to challenge all those worldly phenomena that he or she has always taken for granted.

I've used some wonderful textbooks through the years, and I've learned a great deal from them. Some were so good that they practically taught the course for me. They had terms and examples and Internet support and accompanying DVDs and PowerPoint slides and Test Banks and Lecture Notes and knock-'em-dead graphics. What more could I ask for? I was intrigued, though, when I read about a small book from Sage Publishing called *The Engaged Sociologist: Connecting the Classroom to the Community*. The title caught my eye (as did the size, since I was not pleased with the bulk and expense of the monstrous books I had been using). As I perused my desk copy, I found myself becoming more and more excited. I started envisioning the way my class might unfold: Students were challenged in every chapter not merely to *understand* the issue involved, but to *act* on that understanding, or better, to understand *by* acting.

So I decided to adopt the book, to direct my attention toward the objectives that the authors offered, and, most significantly, to add a Final Project component to my classes: Volunteering.

> *As the proverb says, perseverance is bitter but the fruit is sweet. Our final project was tough, but it gave me a big lesson in the end. For a long time, I had thought about being a volunteer and had put it off. Always, in the middle of my life circle, there was me, not anyone else. I spent my time only for myself and even when I helped somebody, I always looked for benefits from that work. I was selfish, but I thought it is normal. Whenever I heard that somebody works for someone, I believed she was born with having different personality from general people. Through this project, I met many people who are just like me, and I realized that I had changed. – Julie Chung*

Of course, I was a bit unsure about how best to develop the new requirement. How much volunteering could I require? What could I logically and reasonably and realistically ask my students to do? What volunteer opportunities were available? Could I justify this pedagogically?

I decided, somewhat arbitrarily, that I would ask students to do a minimum of twelve hours of volunteer work. They could do any work they wanted as long as it was either social (as in socially valuable, not like a party) or political. I approached Lisa Rose, coordinator of BMCC's Human Services Program, to ask

about volunteer opportunities. She was very helpful, and extremely encouraging.

> *The organization I joined was very emotional to me and made me have a whole new perspective for the way I viewed women. During the week at the Guidance Center of Mount Vernon, I spoke to a few women and listened to them talk and cry about relationships they had been in and how these relationships changed their lives dramatically. The organization was set up for women who have been abused physically and mentally and have been scarred for life, women who are looking for a way to heal and start over. – Denise Royal*

Here it was, then: Sociology as practice rather than sociology as theory. Oh, I included theory, but it was to be tempered by practice, and grounded in practice. I asked students to pick an issue, any issue they were interested in. We listed issues on the board as the students called them out: child abuse, racism, poverty, sexism, rape, violence, gay rights, unemployment, prison, alcoholism, drug addiction, education, immigration, environment, advertising, sweatshops, teenage pregnancy. The list went on and on. Now, I said, choose one that is particularly meaningful to you and do some research. Find a group or organization that you might join that deals with that particular issue. Call them up. See if you can work with them as a volunteer.

> *I think I'm going to keep doing this volunteering in the kindergarten because I love kids, I love watching them doing homework and I feel good when I help them. It is a good experience that I would definitely recommend to my friends like Betty did to me. This experience created a big bond between me and the students that it is hard for me to say goodbye to them. Maybe I would consider in becoming a teacher just for little kids. – Susana Chong*

The students groused a bit. Some had wonderful stories as to why they couldn't do it. One student said she spends her spare time with her ten-year-old son. I asked her what they do together, and she told me she takes him to PeeWee football practice and to games. So I asked her if she could volunteer for the football team. Her eyes lit up, and she became the Team Mom. She attended practices and games, met with parents of other players, saw to the good upkeep of the equipment, and even served as a sounding board for the coaches. Her experience turned out just right for her and she loved it. Another young mother of a pre-schooler didn't have the support to find a baby-sitter, so she volunteered as a reader to young children – and took her daughter along with her.

> *I will definitely continue to volunteer and even try to get my friends to join me. I would recommend this experience to someone because you get to meet new people and have fun volunteering. Also you get the chance to either make a difference in your community or help others who can't do things for themselves. From doing all this I guess the sanction that I got was feeling good that I did something positive in seeing that I helped the elderly receive their food by taking it to them instead of sitting at home and not doing nothing. – Josephine Kwafo-Baidoo*

I graded the students on three elements: First, that they *did* the assignment, that they actually put in the twelve hours. Second, that they *discussed* it orally in class—they had about ten minutes each.) Third, that they *wrote* about it in an intelligent five-page paper – essentially, their final exam. The paper wasn't a diary of their activities, although I asked the students to describe in one paragraph just what they did. The paper had to be a *sociological analysis* of their experience. They were to write about the culture of the organization; about any racism, sexism, or classism they observed; about deviance; about the organizational structure. That is, they were to show me that they were able to study and interact with the group *as* sociologists, as participant-observers. Not an easy assignment for first-year students, but one that helped me, and them, to see if they had absorbed the theoretical material of the term and if they were able to apply it to an actual organization and a real social experience.

> *I decided to do my twelve hours of volunteering with New York Cares. The reason why I finally choose New York Cares over a lot of other different volunteer groups was because it has a large variety of projects, it is easy to sign up for and be a part of helping. This volunteer group is well organized with sending e-mails, directions and answers on questions to their volunteer workers. I decided from the beginning that I wanted to be as involved as I could be during my twelve hours of volunteering. I signed up for dog-walking, reading bedtime stories to children in shelters, sorting clothes for women who recently were released from prison, exploring arts and crafts with children, and finally a big environmental project in which we planted trees in a park in Queens. – Josephine Johansson*

Would I do it again? Yes, in fact this is my third semester with this assignment. The students claim – as is evident in the excerpts I have included – that this assignment led them to do something they wouldn't otherwise have done, an assignment that they felt resulted in their understanding sociology in a way they would never have imagined.

I agree.

Community Dialect Theory and The Scholarship of Teaching at BMCC

Rochelle Holland
Counseling

Milton Baxter
English

Since the fall of 2005, Milton Baxter and Rochelle Holland have collaborated on a project that assists students in remedial English with the acquisition of Standard English rules for subject-verb agreement.[1] Milton Baxter has many years experience developing instructional strategies for educating students who use nonstandard English dialect in college writing, and Rochelle Holland has many years experience counseling people of diverse ethnicities. We had a shared interest in the areas of English variety and student awareness levels for identifying and utilizing cultural dialect in academic writing, so we chose to focus on subject-verb agreement because it is a most noticeable grammatical feature of English variety in academic and workplace settings. Over the years, many Black Americans have been at a decided disadvantage for using this dialect feature in such settings, and have suffered no end of social and academic criticism. This became the focus of our research.

In recent decades, sociolinguists have gathered a wealth of information regarding nonstandard varieties of English and the linguistic practices and habits of the general American population. Much research has been conducted on Ebonics (A.K.A Black English vernacular) spoken by some Black Americans. Among the major findings are that English dialect usage is a generational feature for many Americans, at least in part because their ancestry is from different regions of the world. Although many years may have passed since their family members migrated to America, in a substantial number of cases there are still familiar generational features of language transformation in the spoken English dialect.

Sociolinguists have also proven that English variety among Black Americans is rule-governed and coded just like Standard English. Issues become compounded when devising pedagogic strategies in the area of English variety among Black Americans because there is a broad range of reasons why a significant portion of Black Americans utilize English nonstandard forms of subject-verb agreement. In general, we surmise there are two main reasons: (a) the need to show cultural solidarity, and/or (b) the varying lack of awareness about the difference in rules between their community dialect and Standard English needed for academic settings. With regard to Ebonics and Black solidarity, some individuals who utilize this type of English variety have a high capacity to code-switch to Standard English in settings that deem it necessary, such as in academic and workplace settings. Regarding the second reason, students who demonstrate lack of aware-

[1] We are grateful for the support of the BMCC Scholarship of Teaching Initiative which provided an opportunity to conduct collaborative and classroom research.

ness have a low capacity to code-switch to standard features of English for subject verb agreement in necessary settings. In prior research, we addressed this code-switching difficulty and relevant pedagogy as "Community dialect theory" (Baxter & Holland, 2007). Most importantly, it is necessary to note that not all Black Americans or Americans of other ethnicities have the same features for nonstandard English. However, many people within a specific race may have the same features of English variety. Therefore, pedagogy that addresses these issues must be both comprehensive and culturally sensitive.

Methods

In our study we explored the nonstandard use of the subject-verb agreement feature among Black American students at BMCC, and evaluated the effectiveness of using a contrastive-analysis instructional module to address this issue. We researched students' awareness levels of Standard English rules with regard to subject-verb agreement. The students were assessed using a measurement that we developed and entitled the "Workplace Language Skills Assessment Test" (WLSAT). This measurement explored features of subject-verb agreement, such as (a) was/were, (b) is/are, (c) words with the "s" ending, and (d) do/does. This entailed having students read sentences that were written in community dialect, and then having them code-switch by re-writing the sentences in Standard English if they deemed it necessary. Many educators would regard these community dialect sentences as demonstrating a "lack of" subject-verb agreement, though this is in our view a misinterpretation of the situation.

In addition, we were interested in measuring their attitudes about writing. We adapted and administered a Writing Likert Scale (WLS). A "pretest" and "posttest" method was used to measure both students' awareness and their attitude levels. We administered the pretests in late March, and after the students had been instructed with the contrastive analysis instructional module, we administered the posttests at the end of the semester in May. We used a convenience sample of two of Prof. Baxter's remedial English 095 classes. Initially there were 43 students for our sample population; however, because of absenteeism, we collected pretest and posttest matched sets for only 22 ethnically diverse students. The WLSAT identified the students' lack of awareness of Standard English subject-verb agreement rules. Our scoring method enabled us to assess various levels of awareness, such as (a) *low awareness:* students who scored 0-7 points on the WLSAT, and used English community dialect rules subject-verb agreement, but had no ability to code-switch to Standard English rules; (b) *some awareness:* students who scored 8-13 points and had some ability to code-switch to Standard English rules for subject-verb agreement; and (c) *high awareness:* those students who scored 14-19 points and were capable of code-switching to Standard English rules for subject-verb agreement. Furthermore, the WLS measured the students' attitudes toward writing. These results were categorized as (a) *positive attitude:* students who scored 45-60 points on this attitudinal scale; (b) *neutral attitude:* students who scored 28-44 points; and (c) *negative attitude:* students who scored 0-27 points.

Although our prior research was primarily concerned with students who

utilized Ebonics, we did find that other ethnic students might use community dialect for subject-verb agreement, so we decided to explore the findings for all students enrolled in the courses. We thought this was advantageous because many students in remedial English, regardless of ethnicity, might benefit from the contrastive analysis instructional module presented as the grammar intervention.

Findings

The findings for our spring 2007 semester study were presented in terms of relevant demographics. Ethnically, 45% (10) reported to be Black Americans, 40% (9) Hispanic, 5% (1) Caribbean, 5% (1) South East Asian, and 5% (1) White American. The majority of the students 64% (14) showed high awareness on the WLSAT pretest. The rest of the students, our target population, showed *low* or *some* awareness. The posttest results showed a marked improvement in the *low* awareness category because all the students moved to the *some* awareness category. Unfortunately, there was no increase in the number of students in the high awareness category. See Table 1.

Table 1
WLSAT Awareness Results Spring 2007

N=22	Low Awareness	Some Awareness	High Awareness
Pretest	13% (3)	23% (5)	64% (14)
Posttest	None	41% (9)	59% (13)

Regarding the WLS, on the pretest the majority of the students 64% (14) had a positive attitude towards writing, while on the posttest the majority 55% (12) had a neutral attitude. Even though there was no student in the negative category on the posttest, there were fewer students in the positive category. See Table 2.

Table 2
WLS Attitudinal Results Spring 2007

N=22	Low Awareness	Some Awareness	High Awareness
Pretest	64% (14)	***32% (7)***	4% (1)
Posttest	45% (10)	55% (12)	None

In our prior research, we were interested in American Blacks who utilized nonstandard features of subject-verb agreement in their writing, and regarded them as our primary target group (Baxter and Holland, 2001). For this study, we continued to segregate the American Blacks data from the general student sample to assess any difference in progress. The results from this table were very encouraging for our primary target population of American Blacks who were identified on the WLSAT pretest in the low and some awareness categories. We identified eight students in this group, but were only able to present results for three for whom we have matched sets of pretests and posttests. On the pretest

two students showed *low* awareness and one showed *some* awareness. On the posttest all three students showed some awareness. See Table 3.

Table 3
WLSAT Awareness Results for Primary Target Group Spring 2007

N=3	***Low Awareness***	***Some Awareness***	***High Awareness***
Pretest	2 (67%)	1(33%)	Not Applicable
Posttest	None	3(100%)	None

Regarding the WLS, the results were mixed for the primary target population of American Blacks. On the pretest, one was negative and two were neutral. On the posttest one was positive and the other two were neutral. See Table 4. The fact that no one had a negative attitude on the posttest was encouraging.

Table 4
WLS Attitudinal Results for Primary Target Population Spring 2007

N=3	***Positive***	***Neutral***	***Negative***
Pretest	67% (2)	None	33% (1)
Posttest	33% (1)	67% (2)	None

Conclusion

The results of our measurements indicate a generally positive impact of the contrastive analysis approach to teaching Standard English rules to students who scored in *low* awareness and *some* awareness on the WLSAT. One additional encouraging finding was that all of the American Blacks in the primary target population passed the ACT final exam and progressed to English 101. Furthermore, with regard to the general BMCC student population, our research over the semesters has found that nonstandard subject-verb agreement is not only found among speakers of Black English, but is in fact a cross-ethnic feature. That is, it can be observed among Blacks, Asians, Hispanics, Native Americans, South East Asians, and Whites. In addition, we have witnessed nonstandard features in cultural sitcoms, movies, commercials and in other mass media, which can indirectly reinforce nonstandard English among individuals with *low* and *some* awareness levels.

Raising students' awareness about community dialect usage builds academic competency; however, instruction must be strategic and non-insulting to the culture that sustains it. Therefore, we agree with sociolinguists when they suggest that to label varieties of English as proper or improper is overly simplistic. A more linguistically accurate term is situational appropriateness, e.g., in academic and workplace settings Standard English is deemed appropriate; in family and other communal settings community dialect is appropriate. Students must learn to code-switch as context changes. Also, we do not recommend correcting students' nonstandard use when talking. For example, if students say something in nonstandard English and a professor restates it in Standard English, it can be

denigrating. Also, it may have no impact on awareness level (especially if students utilize English variety 90% of the time outside of academic and workplace settings), and can adversely affect identity development in the context of family and racial dimensions. Above all, we will continue to research this issue so BMCC students can be academically competent and culturally aware, which is a basic tenet of American education.

References

Baxter, M., & Holland, R. (2007). Addressing the needs of students who speak a nonstandard dialect. *Adult Basic Education Journal,* 1(3), 145-153.

Biz Plan

David A. Lang
Business Management

Entrepreneurship is a topic of significant public interest and private ambition. It is the topic of academic research and is taught in one form or another at most public, private, and community colleges. *Biz Plan* is a means to harness this appetite and energy to produce tangible business tools, while teaching key business concepts, skills, and metrics.

Figure 1

Biz Plan is a computer-based curriculum being developed at BMCC by David Lang. The curriculum evolves from seven terms teaching SBE 100 *Product & Service Creation*, a three credit course in the Business Management Department. Drawing on thirty-five years of business experience in finance, licensing, manufacturing and direct marketing, Dave has devised a logic and method that enables a wide range of student abilities to complete meaningful tasks. The learning includes information about small business practices, venture planning techniques, group exercises, as well as practice in diverse math and communication skills.

Microsoft-based, Biz Plan is comprised of screen-based information, integrated spreadsheet templates, narrative worksheets, assignments and glossary. At present, the screen materials are limited to slides used in classroom presentation, but the amplification and formatting appropriate to web display are in process. Associated lesson plans exist in outline form.

The curriculum is organized in four modules, each representing a key business development activity. Each module divides into topics and guides the creation of a part of a Biz Plan. The topics derive from standard business methods and terminology, and are organized in a sequence that assists students in completing the research and writing assignments attached to key issues and ideas.

Task performance engages the student in conventional research, calculation and writing skills. Narrative writing is prompted by explicit questions. Contrary to conventional academic practice, students are encouraged to cut & paste—and edit—materials from course Blackboard and external sources.

Biz Plan promotes computer competencies, as assignments and support materials are on Blackboard. Completed tasks are submitted and displayed online. Thus the appropriate class venue is a computer lab since this accelerates student access and allows guided practice. More important, immediate computer access allows the students to work in teams on advanced projects. In its preferred con-

figuration, students work individually through the first half of the term, and then repeat the exercises and assignments as part of an assigned group. The course culminates in oral presentation of fully developed Biz Plans.

The task emphasis places a premium on feedback, and the formulaic character of most responses enables rapid evaluation. There is, however, no shortcut to providing the guidance and encouragement to which students are entitled. One technique that is emerging is the use of the "manage group" function on Blackboard. This mechanism enables the teacher to talk directly to each group and offer suggestions, links and information relevant to their collective idea.

Learning outcomes are highly diverse. The emphasis on internet communication is especially helpful for weaker students. While average computer competence of students has improved dramatically over the past five years, this curriculum requires 100% access, with some additional learning about e-protocol and style.

Developing student Biz Ideas through the Biz Con is a means to practice research and writing skills. Students are required to complete writing tasks, e.g., press releases, job descriptions, and biographies, all related to creating a venture. They are directed to use public and course templates to complete the assignments. They are also encouraged to use creative license, while respecting legitimate copyrights.

The importance attached to the Biz Model and the methods of the templates stimulates spreadsheet calculating and formatting skills. Advanced students are able to construct financial plans incorporating the range of conventional accounting terminology and forms. Typically, select English Second Language students earn high ratings.

The Biz Team is the most dramatic of the modules. Group assignments are tiered in a manner requiring multiple student contributors. The process engages the students in group decision-making and encourages cooperative behavior. Successful groups are able to divide the work equitably and achieve real satisfaction in the work product. Of course, not all succeed.

The curriculum punctuates the term with conventional midterm and final examinations. Students are required to answer essay questions based on case-study materials. An optional question requiring financial calculation is usually included. Test results indicate most students grasp the main principles of the Biz Plan, or at least recognize key buzz words.

To date, completed Biz Ideas are modest; BMCC students incline to local retail opportunities. Assignment quality is modest; better submissions are comparable to documents submitted for MBA-level competitions. The use of group activities improves attendance, task compliance rates and student enthusiasm. Student satisfaction is evident in the favorable satisfaction scores achieved by the relevant SBE section.

Biz Plan is a tangible first step in the analysis and articulation of a new business venture. However, it is important to recognize that Biz Plan is not intended to produce comprehensive business plans. As currently taught, company vision and mission are casual topics. Competitive research is scanty. Marketing and operational planning is more conceptual than practical. That said, Biz Plan em-

powers the student to express an ambition with a significant degree of rigor and attention to detail. The financial model component provides select students with a commercial perspective on business development—while also giving them a tool with sophisticated capability.

The following section outlines course content.

Biz Plan

Idea > Concept > Model > Team

Module Content

The Biz Idea module emphasizes the importance of creating value and earning profit. Students are acquainted with the types and characteristics of successful businesses.

The module utilizes brainstorming and trend-spotting exercises to elicit student ideation. Selected ideas are the basis of subsequent assignments. These ideas are refined by directed research into trade and industry classifications, as well as generic key word searches, e.g. association, trade show, locale, and census. Students are encouraged to explore the interconnections of the business world.

Sample Research Assignment:

What's Your Line?

Industry e.g. Manufacturing, Distribution, Merchandising
Trade e.g. apparel, men's knits, import

Specifying industry and trade participation is essential to identifying competitors, customers and prospects. It also links to trade information such as key publications and exhibitions.

Study the Beer & Wine trade grid at ..\BMCC\A Lesson Master 100\Lesson Master 100 .xls

Based on NAICS code available at NAICS.census.gov, prepare a comparable grid encompassing your Biz Idea.

Figure 2

The *Biz Concept* module, *Biz Con,* is adapted from *Growing and Managing an Entrepreneurial Business* by Kathleen R. Allen (1999, Houghton-Mifflin). Biz Con probes issues of product, customer, delivery and benefit to customer in a manner applicable to a wide range of enterprises at a depth accessible to non-professionals. The concept evolves into a statement intended to qualify and convey the fundamentals of a new business endeavor.

The Four Questions	**Key words**
What is the product?	form & function, metrics, competitors & substitutes, sourcing & process, intellectual property
Who is the customer?	census, segmentation, sales process
What is the benefit to the customer?	pricing, quality, utility & psychic value
What is the product?	logistics & location, marketing channel, message & media

Figure 3

Each question is explored through a series of definitions, examples and exercises. Worksheets comprised of additional questions and graphic tools are available online.

The Four Questions are both arbitrary and robust. Significant classroom time is devoted to discussing keyword concepts, frequently enlivened by teacher and student anecdotes. The practical goal is to give the students the vocabulary needed to complete the writing assignments, while pointing more ambitious students to additional topical resources.

The presentation and discussions of business functions continue to evolve. The marketing components, in particular, are being enhanced partly by expanding online links. This is an important reason to transition the curriculum to the open web.

The task approach is an alternative to the comprehensive information approach typical of textbooks. Despite this and other limits, Biz Con is adaptable to a broad range of enterprise and accommodates a wide range of student ability. Similarly, as a curriculum, Biz Plan is flexible in allowing the teacher to selectively use their professional experience to illuminate business practices.

Sample Biz Con statement:

Industrial Components Ltd.
ICL manufactures Heli-Coil™ Screw Thread Inserts pursuant to trademark and technology license and according to aeronautical industry standards. The HC screw thread reinforces bushings in originally manufactured equipment and also effectively repairs damaged screw threads.

The principal customer for ICL is Israel Aircraft Industries and affiliated military companies. Secondary customers include Israeli electronics manufacturers and auto repair operators. All sales are ex factory, net thirty day payment.

IAI benefits from the local availability, technical support and competitive pricing.

Raw materials and specialty tools are imported from the United States. Manufacturing and inventory is conducted in Karmiel, Israel. Postal delivery predominates.

Figure 4

The Biz Model module emphasizes the importance of business related mathematics. Biz Model acquaints students with key financial management concepts such as gross margin control, working capital management, lease and staff planning. Students are instructed to download the master template and adapt the format to their biz idea.

Biz Model assists the student in developing interactive business forecasts. The model transforms core decisions, e.g., capacity, pricing, and investment into coherent forecasts. The excel-based templates combine price and unit forecasts with cost and investment plans. The information is organized in simplified accounting format.

Student ability to understand and manipulate the Biz Model varies widely. Those with accounting and spreadsheet experience are able to produce integrated, consistent financial statements that project three periods of profitability, cash flow and balance sheet. Less skilled students learn and practice spreadsheet skills with less comprehensive output.

Biz Model Variables	
Revenue Model	
Input	*units, price, frequency, direct costs, expenses*
Output	annual sales, gross profit, pre-tax income
Capital Plan	
Input	*type & cost of funds, investments & distributions*
Output	assets, liabilities, debt, equity
Cash Model	
Input	*turnover & collection rates, staffing*
Output	working capital needs, burn rate
Value Model	
Input	*cash & profit estimates, time horizon*
Output	cash & profit multiples, return on equity

Figure 5

Today, the templates are optimized for a merchant business. In the future, the information and support base will be expanded to better accommodate web and project-based businesses.

Biz Team module includes materials about business organization and structure and employment practices. In keeping with urban trends, Biz Team emphasizes the potential for collaborative business arrangements and styles.

Key topics include incorporation, commercial and personal liability, compensation planning, employer obligations, and ownership prerogatives.

Biz Team culminates with the student writing a brief biography emphasizing academic, business and personal achievements in a style appropriate to a business plan. For groups, the process of creating a standard biography format and assigning functions is a formidable exercise.

Next Steps

The main goal, of course, is to improve the curriculum and enhance student learning. BMCC colleagues, especially business management faculty, are invited to review course materials and offer comment and content, and elements of the curriculum are available for use in other SBE 100 sections.

A second goal is to incorporate additional web utilities. WIKI technology appears to be an effective means to develop student skills, while also streamlining the review and evaluation process.

Finally, it has become apparent that the collaborative aspects of the curriculum are an important source of student satisfaction. Dave Lang hopes to build on this asset by better incorporating activities that emphasize the methods and tools of cooperation.

Hear the Voices of an Aging America: The Biopsychosocial Assessment Project

Man Wai Alice Lun
Social Science and Human Services

"Old age is a problem we all have to live through… if we're lucky!" The unknown source of this comment was insightful and humorous, but also perhaps a bit negative about aging. Everyone agrees Gerontology and the geriatric fields are important, and this is increasingly so in New York City where 1 in 5 people will be over the age of 60 by 2030.[1] But not many students are attracted to these fields. Our current societal conundrum is this: no matter how much society resists a profession working with older folks, each profession and business will need some skills in working with older people to stay effective and profitable.

I teach Introduction to Gerontology, and when I discuss the vulnerable older population as "at-risk" in my Human Services classes, sleepy eyes and apathetic faces abound. Inwardly, I challenge my frustration, "How am I going to inspire deeper interest?" It is not the students' fault. Some of those enrolled, of course, had no other course options as all other elective classes were closed by the time they registered. But many of them, like their peers who had chosen the course, love elderly people very much through their personal experiences with their older family members or coworkers. And, intriguingly, a few students are elderly themselves, hoping to glean useful knowledge and skills taught in this class for their own aging process and that of their peers. In short, this class is attended by a diverse group of students all struggling for a broad range of reasons to sort through the practical implications of aging.

Faced with this kind of diversity, so typical in the BMCC classroom, I pondered long and hard how to develop a curriculum that would increase students' understanding, challenge misconceptions, and promote greater appreciation for a section of our society for whom I have deep compassion. I remain convinced that with the basic education and skills garnered in my course, interest in the elderly, even among non-Human Services majors, will increase, not least because of America's core values of altruism and profit.

The best way to learn about aging is to engage with an elderly person. And, through the Biopsychosocial Assessment Project, it is possible for those first learning about gerontology to make their engagements enjoyable and successful. Just as there is required a different type of expertise in engaging with children (think of educators, physicians, human services practicioners, toy companies, etc.), so there is also required a particular type of expertise with the elderly. The Biopsychosocial Assessment Project provides what is for most students a first experiential step in gaining gerontological expertise by placing the emphasis on listening to the elders themselves, and on truly hearing what they have to say.

[1]New York City Department For The Aging. Annual Plan Summary April 1, 2008 – March 31, 2009 For Older Americans Act And New York State Community Services for the Elderly Program And Expanded In-Home Services for the Elderly Program.

At the beginning of the course, several sessions educate students on the basics of gerontology: physical and psychosocial changes as we age, and the current social theories related to aging. After this grounding in fundamental knowledge on aging and aging-related themes, students are introduced to the biopsychosocial assessment, one of a suite of important social work tools. The biopsychosocial assessment is an imperative, systematic, and comprehensive instrument for exploring the experience and condition of an elderly person through understanding his or her physical and mental status, as well as his or her social functions, resources, and social supports. Based on the inclusive assessment, a social worker will obtain a better understanding of a person in the aging process, and so be able to more effectively assess needs and determine the different kinds of services appropriate to the person's situation. The social worker then forms a report based on the findings.

Before starting the project and interviewing an older person, students are asked to read about the purpose of the assessment through course assigned readings. In the online class, I also request that students share their assessment plan on the discussion board. For some it is a hard task and they wonder at first why they need to share their plan weeks before the assignment is due. My intention is that the earlier the topic is in their consciousness, the higher the probability that they will complete a more comprehensive and well organized report in a timely fashion. The outcome is wonderfully successful as most reports are indeed well written and on time.

After fully understanding and developing a plan for their assessment procedure, the next step was is students to identify an older person as an interviewee based on the following parameters: a neighbor with whom they are not very familiar, a member in a senior center, or someone whom they recognize from their workplace. Most students prefer to interview grandparents, using the tool to develop a closer relationship as well as to increase understanding about gerontological issues and the aging process.

After the interview, students write a report by organizing the content of the interview under relevant subtitles such as physical status, psychological wellness and social support. Social support includes more areas of life than most students realize: consistent contact with family and friends, social life, spirituality and religion, cultural practices, value systems and even Bingo clubs. The report must also include the elderly person's past and present story. For instance, what they did before retirement and what their life is like after retirement.

Students who may have been previously apathetic during the coursework, often become animated and cannot resist sharing their impressions of the interview with me and with their peers. What seems to impress students the most is that the interview typically lasts much longer than the hour they were instructed to expect (at least an hour is necessary to do the interview, otherwise it is too rushed for most elders to recall and tell their stories). Many are amused at what they learn from their interview project—an assignment that was believed to be just another ordinary assignment. Through this hands-on experience, students are able to have not only personal but academic and professional interaction with someone who is 30 to 40 years older or more. As a result, they begin to form very

different images of "aging" from those portrayed in our society. Most students find themselves truly intrigued, and some even surprised, that even those who seem fragile had lived full and complex lives with much adventure and excitement. And all students discover that when they take the time and patience, and carefully hone their skills in interviewing the elderly, the interviewee turns out to be very, very interesting: past experience, unique point of view, attitude towards life and other social issues, previously undetectable religious beliefs, devotion to family, diligence at their jobs, and so on. Students also often find that, contrary to stereotypes, a lot of them are in excellent condition both physically and mentally. The senior citizens are able to get around and continue to enjoy their lives, spending time on their hobbies, volunteering, taking care of grandchildren, helping others, working part-time and even full-time, and otherwise actively participating in their community in a variety of ways.

The Biopsychosocial Assessment thus permits students develop dramatically new perspectives on aging, based not only on reading what others have to say, but more importantly through listening themselves to the voices of aging persons. A positive and inspired experience is created, and not only for the students, but for the elderly participant as well.

This assignment inspires me in at least two ways. First, as a Gerontologist, I believe that the value of increasing knowledge and understanding of the elderly cannot be overestimated. Second, to achieve such knowledge and understanding with and through students' own perspectives and direct experience is itself an inspiration. Instead of feeling frustrated while pushing students to change their misperceptions of aging populations through didactic and pedantic measures, Biopsychosocial Assessment permits them to explore this population through their own engagement, research and experience. This is not only more effective but far more enjoyable for students and teacher alike. In short, through hands-on experience, students are educated by their own proactive and interactive efforts. What could be better than that?

Spring Pedagogy

Marguerite Maria Rivas
English

Dogwoods were blooming, the daffodils were just about wilting, the sky was azure, and the Virginia Tech shootings had just shaken us all, students and professors alike. A few blocks away from the site of the former World Trade Center, I sat in a stuffy basement classroom with a group of remedial writing college students from all over the city. Some of these students had overcome obstacles that most people can't even imagine just to be sitting there that day. To say that I loved being their professor, to say that I just wanted them to write a cohesive paragraph and move on, to say that they inspired me, all of this is understatement.

Out of a class that, by the end of the term, was down to about 20, three had lost their mothers in the previous twelve months—one just three months prior to that sweet spring day, another just six months before. Both of these were beautiful girls but quite different in aspect. One was bold but defeated looking with dull eyes. The other was small, shy, wide-eyed and luminous. They shared the same pain, a hurt that no child should feel, one that is unfathomable. But it was finally spring in a semester that had started with the freezing January wind off the Hudson burning our ears and our faces. Now, we were all sleepy and had spring fever, and that is how it all started.

To break the end-of-the-semester monotony, I used to give my first-level remedial writing class short, fun exercises that I would use later in the day to jump-start my upper-level creative writing class. On this morning, I gave the class, "I Wandered Lonely as a Cloud," by William Wordsworth, except that I deleted some of the words, so the kids could fill in the blanks to create their own poems, sort of Mad-libs with the Romantics. We got as far as "a host of golden daffodils" when the hands went up. They didn't know what a daffodil was, and their dictionaries had not yielded much information that would allow them to visualize one. I was a bit stunned. I looked at these eager faces, and a few-not-so-eager, and one or two with the eye-rolling look that meant, "What, are you kidding? Those flowers they sell at the corner deli?," and decided we just needed to get moving. I thought of my dear mother, gone now five years, and her beautiful trumpeting daffodils that bloomed every Easter. Then I thought about her protracted illness, and our having to sell our family home to move her near my sister and me, so we could see her comfortably to her last hour. I looked at the two motherless girls sitting next to one another in the back of the classroom. One was disheveled, downcast, and ashen; the other was neatly groomed, dressed in white, brown skin shimmering, small, and sad. We needed to get out, out into the spring sunshine, out into the blue.

I told the kids to grab their backpacks. We were going for a walk to find some daffodils, to use our senses to make some word pictures. A few stayed behind, but the ones who came, well, my heart, my heart; they gave me such heart that semester. I needed it for I was mourning, too. I was recovering from my

divorce from my true love, who turned out to be not so true.

The students and I headed down the concrete stairs of the campus that lead to the small park nearby. There were formal flowerbeds in the park, a playground, a gazebo, and some trees in full-flower. Lovely cherry trees, I supposed, in full flower. I brought my students to the first flowerbed and told them to close their eyes and just listen. There was a lot of "I don't hear anything but traffic," until a low-flying bird flew right past their heads, almost skimming one student's ear!

One or two of my students jumped. One of my more challenged writers murmured, "A bird flew by." I asked him how he knew. He said that he just knew. One of my sweet girls said, "I heard it flap its wings. I really heard a bird flap its wings!" She must have heard pigeons flap their wings before, as all New Yorkers have, but since the class and I agreed that pigeons are akin to flying rats, pigeons didn't count. This was a bird, a "real" bird.

One of the boys said, "Yo, Miss, that's for real. I could hear the wings, too."

Another said, "No, I heard a squeaking sound."

Another, a hard working student and the kind that befriends others less gifted, settled the argument. My nickname for him was "Johnny Angel"; I used to sing that song to him to snap him out of his reverie. I know it sounds peculiar that I would sing "Johnny Angel" to a student in a college classroom, but that semester I would do anything to get those kids to write, even a Flamenco dance. *For real.*

"No, that wasn't a squeak. What do ya think? It was a mouse? That was some kind of little chirp from far down his throat somewhere, probably a mating call." Johnny Angel had spoken, and having earned much respect from all of us, it was settled.

Since I've always believed that the best way to teach writing is to start with sensory details, I had my students compose a sentence together, out loud. It started with, "A bird flew by."

I asked, "How do you know it did if you had your eyes closed?"

One of my sweeties said, "I knew a bird flew by 'cause I heard its wings flap."

Another said, "Not so hard flapping, though."

"Okay, more, let's say more."

One student shouted, "Miss, Miss, get some paper. I'll write it down." And so they began and after composing and revising, built up to, "By the gentle flapping of its wings and the throaty chirp, I knew, even though I couldn't see, that a bird was flying past me in the sunshine." There it was! All semester I use myriad approaches to teaching descriptive writing, and here at the very end, right before the big final exit exam, was the most wondrous sentence of all.

Now a year later, as I sit here and write this essay, the college professor in me thinks, "This is a splendid example of a student-centered, teacher-guided kinesthetic approach to teaching descriptive writing." The creative writer in me, however, knows it is spring, and the trees are blooming, the sap is running, and the birds are crying their mating songs.

But this episode was just the start of what may be one of the most important teaching experiences of my life. The best part was probably the most profound,

and sometimes things profound are hard to write about, and I didn't even get to the daffodils yet.

We walked along in the early morning sunshine just north of where the World Trade Center used to be, and the sky was the same blue as that awful day, and the daffodils were wilted and brown. The thrumming of life all around us, however, negated all of that. We came upon a gorgeous grove of flowering trees with full-blown white clusters of delicate blossoms. The class knew just what to do. They were quiet; some would stop and close their eyes. Some would just feel the varied textures; others just sat. A few climbed them and hung upside down from the trees' sturdy boughs. I could see several moms and nannies giving them dirty looks, but the students were oblivious.

Throughout our journey, I modeled behavior that is part of my writing process: scratching twigs and inhaling deeply, kneeling down, closing my eyes and gently passing my hands over the grass, rubbing a new green leaf in my palms, having them breathe in the new life. The last thing that I did was to lay flat on a park bench so that I might gaze upward through the flowering bowers to the patches of blue above. Some of the kids stopped what they were doing and looked at me with interest. Dressed in a business suit looking ever-so-serious with my black-rimmed glasses, I lay exhausted stretched out on this park bench looking heavenward. I thought of my mother, who, a child of the Depression, could not go to college, but nonetheless, gave me the gift of words. My mother was brilliant. She was also incredibly kind and loving, too. What she loved most dearly were children, words, and spring flowers

That day her presence was palpable. *For real*. Turning back to look at my students, I could almost imagine her among them, nodding as they read to her, challenging them to find just "just the right word for nothing else would do." I then gazed up again at the white blossoms and floated there for a few minutes. I am inarticulate, even now, to describe the joy that I felt at that moment with my students all around, some exploring at a distance, some close by. I knew that they were really getting it. They were living the connection between the natural world, with all its beauties and all its sorrows, themselves and their writing. I knew that they would take this morning and recreate it someday with their own kids. They came away from that morning writing so vividly, their essays imbued with life through their own senses and sensitivities.

I looked over to see my small, shy, motherless child looking at me intently. The kids noticed, too, as she approached me tentatively. She wanted to try it, to lay flat on her back and float into the blossoms. We could all see it. I got up, and some of the other young women in the class, and Johnny Angel, surrounded her. I whispered to her, "Go do what I did. Stretch out on the bench and just look up at the flowers and the sunshine coming through."

After more encouragement from the class, she whispered, "Professor, I'm scared. Will you sit next to me?" I did.

Everyone was silent as she took her place on the bench. She lay down with one hand clutching tightly to the edge of the bench as though she were holding onto a life raft in the middle of a storm-tossed Hudson. I asked her if she would like me to support her so she could relax. She said that she would. I put my arm

around her shoulders to cradle her and whispered that sometimes when I see something beautiful I talk to my mother. She asked if she could do the same and if her mother could hear her. I couldn't lie to her, so I told her *my truth*: I believe my mother can hear me when I speak to her, especially through something so beautiful as a spring blossom, whether cherry or lilac. I told her, however, that she'd have to try it and decide for herself.

The entire class was still. We could hear toddlers sifting sand in the sandbox nearby, nannies chattering, and a guy jogging around us micromanaging on his cell phone. Eventually the whole class encircled this beautiful, brave child, my other motherless child standing close by, back now straight, eyes alive. "Good," I thought. I held fast to the woman-child on the bench and helped her to breathe deep breaths and coaxed her to let go and to float, and as I did, I felt my mother's presence suffuse my soul. Then I felt this woman-child's body relax as she gazed into the filtered sunlight and the sweet spring blossoms. Her classmates were still. Some were still encircling us; others watched from a distance.

Looking at my students, seeing this woman-child so meditative and her counterpart suddenly so sassy, I understood the learning and teaching process that existed millions of years before Piaget and all the rest. I knew that I had taught lessons that day that my mother had taught me, lessons that could not be found in any curriculum or on any syllabus. I knew also what my students taught me that day, too. They taught me hope. My students and I learned the unquantifiable that day—nothing can truly ever fill the place in your heart left vacant by love lost, but sometimes in spring, if only for a moment or two, your heart can have amnesia and you can find yourself again in a cluster of white blossoms.

Students Negotiating the Intersection: College and the Outside World

Howard Sage
Developmental Skills

All students bring both the slices and the flavors of various worlds with them everywhere they venture, the classroom included. The flavors and slices are cooked and cut at home, in friendships and romances outside the home, in their work at places such as Starbucks and Rite Aid, and in and through sundry other locations and contacts. At its best, the classroom serves as the intersection of these worlds and the college terrain.

Students entering and negotiating this intersection need help to process the worlds they embody. The student entering this intersection does not usually always know what will most help or even what she needs or wants. One student, for example, at an office conference to discuss the revision of her mid-term essay, asked me as she left to please assign more essays. And yet despite a break between classes of five days she had not revised the midterm essay that was due that day. The professor, then, an educated, hopefully motivated kind of street crossing expert, must be kind, crafty, alert, and energetic if he or she is to manage this busy intersection, even when it exists, as it sometimes does, in the windowless basement of a college building

With serendipity strongly on my side, I created a module for my ESL writing classes that seems to function well for the students at this complex life-college intersection. Students read, discuss debate, question, write about, and generally study Paul Fleischman's short novel *Whirligig* (1998). They don't do so in isolation. Rather, through a myriad of activities they build strategies and train to encounter *Whirligig*. These activities, both oral and written, include board meetings on topics culled from newspapers such as a smoking ban in Bangor, Maine reported in *The New York Times*; viewing, discussing and writing about films such as *Little Miss Sunshine* and *Away from Her*; attempting to sell an item during a three-minute speech to the class; assembling photo essays (a one-sentence thesis with photos or advertisements to support it); listening to and questioning guest speakers; role playing particular characters, even dramatizing, in small groups, an action from one of the chapters; or preparing on-site observations homework (brainstorming with no full sentences allowed) of a person, place, or an action they focus on for 30-minutes. These and other activities sensitize them for their work with *Whirligig*. In addition, by the time the students begin to enjoy *Whirligig* they have also had considerable time (usually a vacation period) to read it and prepare to write about it.

On the surface, the novel turns on a teenager's guilt at killing another teen in a car accident and how he best can make up to the teen's family for his action. On another level the book probes how the teen who caused the accident can repair his own life which was, he discovers, severely flawed even before the accident.

To the alert instructor the novel suggests many vibrant oral and writing activities. Fleischman presents the novel's events out of sequence. He doesn't narrate the action in a straightforward chronological order. I sometimes ask students to consider how they might restructure the novel and why they would present the action in that specific different order than the author's. They can compare in pairs or groups the restructuring each envisions and discuss the reasons for their particular changes of sequencing. This activity has particular benefits when students come to consider the organization of their own essays.

Another valuable activity involves discussing, again with a partner or in a group, an action one has done in one's life that permanently harmed someone. Sometimes I simply ask each student, in a full class setting, to tell of such an action. Of course, I never press a student to respond if she or he does not wish to, though it always surprises me how many students have done such actions and are willing to discuss them openly. This activity encourages self-examination, a positive thing in any learning environment, and also provides material for future essay writing topics.

The remedy assigned to the main character in the novel, Brent involves travel throughout The United States. The author uses several settings in various parts of the country to show how Brent's experience in that section of the US impacts him. The instructor may decide to ask students to prepare brief oral reports, and explain, similarly, how a certain place influenced them at one point in their lives. Brent agrees to learn to build whirligigs in memory of the girl killed in the car crash. Students can pick an object or a small machine, such as an I-Pod, a book, a food such as a doughnut, and explain and/or demonstrate what is inside and how it works. They may even take the object apart piece by piece and show its component parts. This hands-on work encourages students to observe carefully and record carefully in words just what they have observed. They become surrogate Brents, learning, as did Brent, how things on the earth and, yes, in the sky and at sea, really operate.

Whirligig is rich in words. Students will pick up many new words from each chapter. During one class the instructor may ask each student to choose one new word she or he has learned and to tell the class as much about the word as possible: etymology, connotations, idioms, exceptions in its use, and more. This activity has enlivened many of my classes as students enjoy some new, even funny, meanings.

Of course, I teach primarily writing classes, and Fleischman's novel suggests an abundance of writing topics. For example, students in my classes have written about how something good may often emerge from the worst circumstances, a topic effective for cause effect and analysis writing. Students can confront the basic question of what kind of restitution the parent of the dead child, when given the choice, should assign to Brent. Students state very strong opinions and reasons to go with those opinions, about whether the task the deceased's mother assigned to Brent was or was not a good choice. In a slight variation on this assignment, the instructor can also ask the students to discuss in writing whether the task assigned to Brent has benefits for Brent and still serves as an appropriate memorial to Lea, the victim. The book also includes several characters with eth-

nicities other than North American. The appearance in the book of these other ethnicities, which include Korean and Puerto Rican, for example, can provide a basis for additional writing topics. I have suggested only a few of the many, many writing opportunities provided by the tale.

In a recent class during some work in groups after viewing part of a film, I saw a student reading a text message on his cell phone. I don't permit students—or myself—to use or even turn on cell phones in class. This student was reading a message from one of the student's worlds, his employer, Starbucks, saying they needed a barista. I cannot, of course, permit the student to distract himself by using his cell phone during class, but I do have the obligation and the pleasure to bring the elements of students' worlds into the classroom and to echo these worlds in the activities I arrange and the assignments I give. Likewise, I have the responsibility to encourage the student writer to immerse himself or herself in the position of a writer in the writing class. Without interrupting the other students working on their activities, with the student's permission I spoke quietly into the student's cell phone and asked the Starbuck's person on the other end if the student could call back in half an hour because the student was busy writing.

Students, I have discovered, read remarkably little of anything in any language, even what they might enjoy, outside the classroom. Reading and writing, as instructors well know, have close bonds. The novel, *Whirligig*, goes a long way toward bringing other worlds into the classroom and at the same time giving students tangible skills and an impetus to write. It impels its readers to see one's own world not only as one sees it, but to envision a bigger world than within the limits of one's own current life, a more primal world literally and fundamentally connected not only to other people but also to the oceans, the sun, and the stars.

I constantly try to correct what I do in the classroom to meet the most rigorous standards: my responsibility to the students as they enter the intersection of their multiple worlds and the college world. One day, following a long weekend, I found the classroom in which my 8 a.m. class met locked. When the BMCC guard came down with the key, she asked to see my ID card before she would open the door. I realized my right to teach the students, who bring so much richness into the classroom, is not a given. I have to prove, much more than through showing my ID card, my right to do so. Each teaching day I have to strive to prove that right. Like Iceland, the youngest country in the world geologically speaking (Polley, 2006), I still have to create and re-create myself as a person having the right to meet my students at this important intersection.

References

Dayton, J., & Faris, V. (Directors). (2006). *Little Miss Sunshine* [motion picture]. United States: Big Beach Films.

Dillard, A. (1990). *The writing life.* New York: Harper & Row.

Dostoevsky, F. (2004). *The house of the dead.* Mineola, New York: Dover.

Fleischman, P. (1998). *Whirligig.* New York: Random House.

Polley, S. (Director). (2006) *Away from Her* [motion picture]. Canada: Film Farm.

Sage, H. (2007) Online interviews: bringing fresh air into the windowless classroom. *Idiom*, 37 (2) , 4-5.

Swanson, H. (2007, January 19). Maine city bans smoking in cars with children. *The New York Times on the web*. Retrieved March 29, 2008, from http://query.nytimes.com/gst/fullpage.html?sec=health&res=9D04E3DC1E30F93AA25752C0A9619C8B63

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David Eugene Smith and His Study of the Ten Classics of Ancient Chinese Mathematics

Yibao Xu
Mathematics

Introduction

David Eugene Smith was a professor of mathematics at Teachers College, Columbia University, from 1901 to 1926, and was professor emeritus at the College until his death in 1943. He was one of the most influential mathematics educators in the United States in the first three decades of the twentieth century, and was an eminent historian of mathematics of his time. He was also a guiding force in many academic institutions, including the American Mathematical Society, as well as a founder of the History of Science Society in America. George Sarton, who was considered a founding father of the history of science, in 1936 dedicated the very first issue of *Osiris*, the sister journal of *Isis*, to David Smith. In the dedication, Sarton wrote: "You [Smith] have been one of the first teachers of the subject [history of mathematics] in America….You have written a large number of papers and textbooks devoted to our studies, textbooks which are today among the main tools for the teaching of the History of Mathematics in the English-speaking world and even outside of it."

David Smith was a prolific writer. According to the "Bibliography of the Critical, Historical and Pedagogical Writings of David Eugene Smith" compiled by Bertha Margaret Frick, which was published in the aforementioned issue of *Osiris*, he has authored or co-authored 23 books, 261 articles and pamphlets, and 211 book reviews, in addition to his editing and translating work. His writings cover many important topics in the history of mathematics, including Chinese mathematics. In this presentation, I examine Smith's interest in Chinese mathematics, and his serious studies of it, especially of the ten classics of ancient Chinese mathematics. I also provide some preliminary explanations about Smith's conflicting views on Chinese mathematics over the years.

Smith's Interests in Chinese Mathematics

About 15 years ago, Professors Joseph Dauben and Zhang Dianzhou discovered that the Manuscript and Rare Books Library of Columbia University David Eugene Smith Archive preserved some correspondence related to ancient Chinese mathematics. The correspondence suggests that Smith became to be interested in Chinese mathematics as early as 1905 when he began to seek out American missionaries in China, including Alvin P. Parker, William A. P. Martin, and Watson M. Hayes, to help him purchase old Chinese mathematical books. But from his correspondence with them, he received discouraging remarks about the nature of traditional Chinese mathematics. For instance, William Martin (1827-1916), an American Presbyterian missionary and once president of the Imperial College (*Tong Wen Guan*) in Beijing, confided his view as follows:

> At the coming of the Jesuit missionaries three centuries ago, they [the Chinese] had nothing in the way of geometry to compare with even the first book of *Euclid*. They had no conception of conic sections and analytical geometry, even algebra was with them limited to simple equations, with but one unknown. The differential calculus had of course not been dreamed of. The best mathematician in this Empire, Li Shenlun [Shanlan], I had on my faculty in the Imperial College in Peking. What he knew, he had learned from missionaries and chiefly from Mr. A. Wylie L.M.S. whom he assisted in translating a whole series of textbooks on astronomy and mathematics.... Prior to the coming of Europeans the Chinese had little [mathematics] in that department worth looking into.

Martin's negative assessment of Chinese mathematics did not make Smith change his mind, perhaps because he placed greater trust in Alexander Wylie's accounts on Chinese mathematics than in those of Martin and other missionaries. Within a few years, Smith had procured virtually all important Chinese mathematical texts (list of the major Chinese mathematics books preserved in the Archive), including the *Suanjing Shishu, Cuiwei Shanfang Shuxue, Meishi Congshu Jiyao, Lishi Quanshu, Shuli Jingyun,* and *Zhongxi Shuxue Daquan*. In his very first letter to the Japanese historian of mathematics, Mikami Yoshio, dated January 11, 1909, Smith writes: "I have also a good deal of material on the early Chinese mathematics which influences the Japanese."

Between 1906 and 1912 Smith studied the Chinese texts he had collected as well as accounts of Chinese mathematics by such scholars as Alexander Wylie, Karl L. Biernatzki, Mikami Yoshio, and Louis van Hée. In 1910, a Chinese student, Chen Zaixin, went to Teachers College to do his graduate work on mathematics education. Smith was his advisor and suggested that he write his thesis on the history of Chinese mathematics. Under the guidance of Smith, Chen Zaixin not only wrote his thesis on a specific problem, *Jia Ling Si Cao* in the *Siyuan Yuanjian (Sea Mirror of the Four Elements)*, but also translated the whole book of the *Yigu Yanduan* into English. In the latest issue of the *Chinese Journal for the History of Science and Technology*, Guo Jinhai published an article on Chen Zaixin's studies on the history of Chinese mathematics. The article provides some valuable information about Chen's pioneering work on Chinese mathematics, especially on Chen's English translation of the *Sea Mirror of the Four Elements*.

Smith and Mikami corresponded to each other for more than two decades, their first correspondence occurring in 1909. Their early correspondence focused on their collaborative project, which was on history of Japanese mathematics. The collaboration resulted in the book, *A History of Japanese Mathematics*, published in 1914. Although the book focuses mainly on Japanese mathematics, it also deals to some extent with Chinese mathematics. In any case, Smith's knowledge of Chinese mathematics was enriched through the collaboration.

The successful collaboration of Smith and Mikami also encouraged Li Yan, later one of the leading authorities on Chinese mathematics, to write to Smith with a request for his help in the preparation of a book on Chinese mathematics in English. In his very first letter to Smith, dated January 23, 1915, Li Yan writes: "I venture to take the liberty of writing you to ask your help in the completion of

my *'History of Chinese Mathematics'* which has been written in a view to expose the merit of our mathematical movement down to the bottom of the world." In his reply, Smith mentioned that he and Louis van Hée had already begun their collaboration on a history of Chinese mathematics, but the project was brought to an end by World War I. Smith proposed "that the three of us might possibly collaborate. We could take such material as you have. I could then write up the work, combining my own materials with it, and the whole thing could be submitted to Father Vanhee for final revision." Since he had been unable to contact Vanhee during the War, Smith thought he might have been killed. Accordingly, Smith later wrote only his and Li Yan's names in the outline for the history of Chinese mathematics. The correspondence between Smith and Li Yan lasted for about two-and-a-half years, but sadly, their collaboration ended in failure. Among the reasons Smith provided for rejecting the English translation of Li Yan's manuscripts by Mao Yisheng and his friends at Cornell University are: 1) There are few exact translations from the original Chinese mathematical texts; 2) Lack of detailed biographical information on the mathematicians mentioned in the manuscript; 3) Inaccuracy in some descriptions; and 4) Inconsistency and mistaken transliteration and capitalization.

Except the first one, the other three problems in the English manuscript might be the fault of the translators. From the extant letters by Mao Yisheng to Smith, we know the translation was done by three or four Chinese students majoring in civil engineering, and within a short period of four months. In fact, in his letter dated April 11, 1917, Mao Yisheng warned Smith by saying that "There are altogether three or four men able to undertake the same task and I am but one of them….It is therefore not to be expected that my translation will ever dispose any real merit of the original writing although I am endeavoring to utilize all that is within my ability. The fact that Chinese mathematics is often embodied in the sayings of the ancients and classics make(s) the task rather uneasy as it involves a clear understanding of the ancient literatures."

Indeed, translation is not an easy task, especially from classic Chinese into English, French or other Western languages. Since Li Yan's manuscripts both in Chinese and English are not available to us, perhaps forever, it is impossible to assess the quality of the English version, and to re-exam whether Smith's rejections are just. But during the period of correspondence with Li Yan, Smith was enthusiastic about Chinese mathematics, and his enthusiasm did not cool down after he had read the English version of Li Yan's accounts. A few days after he wrote to Li Yan, he also wrote a letter to George Sarton, who replied immediately. In the letter dated July 29, 1917, Sarton writes as follows:

> It occurs to me that one of my students, Mr. Yuen R. Chao, could possibly be of assistance to you. He is one of the best Harvard graduate students, and has taken my advanced course in mathematics, also my new course on the history of physics. He is a very fine boy. He <u>might</u> be glad to collaborate with you — to prepare some translations for you, if he were given compensation for his work. He would certainly be able to select & translate accurately the essential parts of any Chinese book, — especially if you asked him to first study Mikami's book & your own on Jap[anese] math[emetic]s — as an

introduction. One the other hand, as Mr. Chao is preparing his Ph.D. — he might not care for this kind of work. Anyhow, should you care for his collaboration, I would be very glad to make inquiries on your behalf.

This letter suggests that Smith confided in Sarton about his criticisms of the English version of Li Yan's manuscript, and that Smith had intended to provide accurate translation of the essential parts of Chinese mathematical texts by himself. The Chinese mentioned in Sarton's letter is Zhao Yuanren (1892-1982), who first studied mathematics and physics at Cornell University and then mathematical logic, history of science, and philosophy at Harvard University. After graduating from Harvard with a Ph.D. in philosophy, Zhao eventually switched his interests to the Chinese language, and later became a renowned linguist. It is a pity for historians of Chinese mathematics that the collaboration between Smith and Zhao proposed by Sarton never materialized.

When World War I was over, Smith finally received a letter from Louis van Hée. They also tried to renew their collaborative book project on Chinese mathematics, but once again, it failed for unknown reasons. In the 1920s and 30s, however, Smith had kept frequent correspondence with van Hee, Mikami Yoshio, and other sinologists. They discussed various issues on Chinese mathematics.

As early as in 1918 Smith was elected as a trustee of the Board members for the Canton Christian College in Guangzhou (Lingnan University). In an article he wrote for the April, 1918 issue of the *Quarterly*, a publication of the Canton Christian College Club in North America, he calls "the attention of Chinese students to an important service which they may render to the history of science in China." In 1920s, Smith visited China, at least Northeast and Guangzhou, and encouraged Chinese students to study the history of Chinese mathematics.

Perhaps under his encouragement, some Chinese students went to Teachers College to study with him. Of these students at least two actually studied history of Chinese mathematics. One is named Chen Jinde (Cheng David Chin-Te), who published two articles in *The American Mathematical Journal* vol. 32, no. 12 of 1925. One discusses the mathematical meaning of the *Ho To* and *Luo Shu,* and the other is on the counting rods. The other student is C. C. Ma. Under the guidance of Smith he published a short note on the origins of the Chinese term for "root" also in *The American Mathematical Journal*, vol. 35, no. 1 of 1928.

From 1905 when he started to procure Chinese mathematical texts to 1930, Smith had always treated Chinese mathematics seriously. But what are his research results?

Smith's Work on Chinese Mathematics

Following defeat in the first Opium War, China went on to lose the Second Opium War, the Sino-French War, the Sino-Japanese War, and the Boxer Uprising. As the situation in China progressively deteriorated, Westerners' perception of Chinese science in general, and mathematics in particular, was negative. In an article of 1911, "Science among the Chinese," Charles K. Edmunds (1876-1949 C.E.), President of the Canton Catholic College in Canton, offered the following assessment:

> Although the study of arithmetic attracted attention among the Chinese from early times and the numerous treatises are extant, and Hindu processes in algebra have long been known to them, yet these branches even down to the end of the Ming dynasty (A.D. 16[4]4) made only slow progress.

Edmunds went even further to assert that it was the lack of mathematical knowledge that was one of the major reasons responsible for the backwardness of Chinese science.

In 1912 Smith published an article entitled "Chinese Mathematics" in *The Popular Science Monthly,* where he criticized Charles Edmunds' hard words on Chinese mathematics. Although Smith in his article does not give high marks to Chinese mathematics, he does believe that Chinese mathematics was independent and had developed to a certain significant level.

Smith's study of Chinese mathematics was incorporated mainly into his two-volume *History of Mathematics*, first published in 1923 and 1925, respectively. In the first volume Smith devoted about thirty-two pages to a survey of Chinese mathematics, focused primarily on the ancient period (prior to 1000 B.C.E.), the sixth century, and the Song-Yuan periods (960 -1368 C.E.). Volume II devotes several more pages to describing the Chinese calculation of π, Chinese algebra, etc.

As for the ten ancient Chinese mathematical classics, Smith also has provided his own thoughts. Smith was aware of the problem of the dating of both *Zhoubi Suanjing* and the *Jiuzhang Suanshu* (The Nine Chapters of Mathematical Procedures). He believed that the *Zhoubi Suanjing* "has undergone considerable change since it was first written" (p. 30), and the extant version preserves "a very good record of the mathematics of about 1105 B.C."

Regarding the dating of the *Jiuzhang*, Smith wrote "it seems probable that it existed, at least in great part, in the period of which we are writing, that is, before 1000 B.C." But for the transmitted version, he attributes responsibility to Zhang Cang, to whom Smith also credits for a formula for calculating the area of a segment of a circle. The two datings are about 1000 years earlier than the ones accepted by current historians of Chinese mathematics. But the methodologies pointed out by Smith for determining the dating is sound. In the article entitled "An opportunity for textual criticism in the history of Chinese mathematics," which was published in the *Quarterly* in April 1918, Smith writes:

> With respect to the celebrated Chou-pei or Chou-pei Suan-ching we are quite as much in the dark. Does it date from about 1105 B.C., or is it much earlier? The same question arises with respect to the "Nine Sections," the Chiu-chang Suan-shu, which has been referred to the 27th century B.C., but is more probably of the eleventh or twelfth.
>
> These are a few of the definite questions that will sometime be answered with approximate certainty based upon textual criticism. Such criticism has never yet been seriously applied to the problem, but why should it not be applied there as well as in the case of an Egyptian papyrus, a commentary on the Talmud, or the books of the Old Testament? Will not a study of the language and the style of these Chinese classics and of other books of about

the same period solve the problem for us? These are dozens of possibilities in the way of foreign words (Greek and Babylonian), of foreign measures, of veiled references to foreign or domestic events, besides the general question of style and vocabulary, and the time will come when Chinese scholars will undertake this investigation.

Smith understands that the *Jiuzhang* "is the greatest of the Chinese classics in mathematics" (p. 31), and thinks that the *Jiuzhang*, together with the *Zhoubi* and *Yi Jing* (the *Book of Change*), "show a degree of advancement quite as high as that found in the other ancient countries, and they prove that China was among the pioneers in the establishing of the early science of mathematics."

The classic immediately after the *Jiuzhang* in chronological order, Smith believes, is the *Wucao Suanjing*. It was written possibly "about the beginning of the Christian era," and it "was one of the best-known but least worthy Chinese classics on mathematics." As for the author of the book, Smith mistakenly thought it might be Sun Zi. Meanwhile, he also confused the book with another classic, *Sunzi Suanjing*.

Smith recognizes that Liu Hui as "the best-known Chinese mathematician of the 3rd century." He also briefly discusses his book, *Sea Island Arithmetic Classic*. But he does not discuss Liu Hui's commentaries on the *Jiuzhang*, let alone his great importance to the later development of Chinese mathematics.

As for the *Shushu Jiyi,* Smith believes it was written by Xu Yue (Siu Yo) around 250. The sixth century, Smith believes, is an important one in the history of Chinese mathematics since the appearance of several works of considerable merit, including:

Zhen Luan (c. 535), *Wujing Suanshu*

Zhang Qiujiang (c. 575), *Zhang Qiujiang Suanjing,* and

Xaihou Yang (c. 550), *Xaihou Yang Suanjing*.

The last one in the list of the ten classics is *Jigu Suanjing*. Smith rightly points out that the book was written around 620 by the renowned Chinese mathematician of the seventh century, Wang Xiaotong, and some problems of the book are solved by cubic equations.

Although Smith owned all of the major Chinese mathematical works, his accounts on the ten classics do not seem to be based on primary research but on such secondary sources as Wylie, Mikami, and van Hée, among others. In fact, Smith's accounts of Chinese mathematics in general, and the ten classics in particular, were mainly the result of his reading of the works of Wylie and Mikami. Although Smith acknowledged the indigenous character of Chinese mathematics, he nevertheless did not evaluate it highly.

After publication of his *History of Mathematics*, Smith soon dramatically changed his opinion of Chinese mathematics. This occurred after his reading *The Report of the Librarian of Congress for 1928* by the imminent sinologist and Chief of Chinese Literature at the Library of Congress, Arthur W. Hummel (1884-1975 C.E.). Smith was disappointed to learn that the *He Tu* and *Luo-Shu*, which in 1923 he had described as dating from 2200 B.C.E., actually turned out

to be a Taoist invention of the late tenth century.[1] This upset Smith greatly, and caused him to doubt the early dating of Chinese mathematical books in general, and to question their contents as well. Given the negative accounts of Chinese mathematics by van Hée and Gino Loria, Smith published an article in 1933 with the astonishing title: "Unsettled Questions Concerning the Mathematics of China." Smith's assessment in this article was even worse than that offered by Edmunds, which Smith had himself criticized in 1912. In 1933 Smith wrote: "Until Western influence became apparent, [Chinese] mathematics existed only in the age of childhood — not that children could solve the intricate problems she often set."[2]

Such views were not uncommon even among Chinese scholars. The philosopher Feng Youlan did not believe that China had any science. In his article entitled, "Why China has no Science — An Interpretation of the History and Consequences of Chinese Philosophy," *International Journal of Ethics* volume 32, number 3 of 1922, he wrote unequivocally: "I shall venture to draw the conclusion that China has had no science, because according to her own standard of values she has not needed any." The *Gu Shi Bian Pai* (The School of Discriminating Ancient Chinese History) was also popular then, and along this same line, the May-Fourth Movement led by the *avant-garde* of the Chinese literati even called for importation of "Mr. Science" from the West. Western negative perceptions and characterizations of Chinese science clearly had considerable influence on the self-perceptions of Chinese themselves. The dramatic change in Smith's perception of Chinese mathematics may be more easily understood if one considers the intellectual climate of the 1920s and 30s in China. His change of heart may have at least as much, and perhaps more, to do with intellectual trends as it does with the real history and significance of Chinese mathematics.

Author's Note: A draft of this paper was presented at the 22nd International Congress for the History of Science special session on the "Ten Classics of Ancient Chinese Mathematics" held in Beijing, China, on July 25, 2005.

[1] Arthur W. Hummel, in a letter dated August 11, 1930, warned Smith that the terms *"He Tu"* and *"Le Shu"* did exist in the older version of the *Yi Jing*. Hummel also mentions an article on the *Zhou Bi* which appeared in *Ke Xue* (*Science*) 14 (1) (1929), written by another authority on Chinese mathematics, Qian Baocong. See Arthur W. Hummel's letter to Smith in the Smith Archive. It is obvious that Smith either ignored this important paper or did not find it.

[2] David E. Smith, "Unsettled Questions Concerning the Mathematics of China," *The Scientific Monthly* 33 (9) (1931): 244-50, p. 244.

Students' Expectations and Classroom Management of Learner-Centered Sessions in the Community College

Igor Zaitsev
Science

As in any field of studies, college pedagogy has its own developmental dynamics. What was appropriate a couple of decades ago may be less applicable today. Priorities and standards in college education, as well as sensitivity to students' needs, are undergoing constant reevaluation and change. In this day and age of globalization, among the major forces that are shaping modern pedagogy are new achievements in the fields of science and technology. Still, no matter how many changes there have been in this modern world, there are, and perhaps always will be, two major types of teaching techniques.

First and foremost there is Teacher-Centered Instruction. This is still widely practiced throughout the United States and, indeed, around the world. The main focus in such instruction in college is on the professor who chooses a topic and lectures on it while students occupy themselves with taking notes in preparation for papers, quizzes, and final exams. If students are curious, confused, or need clarification of a point, the professor answers questions, but usually not until after completing the lecture. Learning under such circumstances involves a transmission process during which a professor often enlarges upon or clarifies material also covered in the assigned text.

In contrast, Learner-Centered Instruction focuses on both students and the professor. Students not only interact with the professor, but with one another, sometimes without any supervision. They can work in pairs, in groups, or on their own. They might even choose a topic for classroom consideration, and they can ask and answer each others' questions. In any case, the classroom is often noisy and bustling. Students learn through active engagement with one another rather than exclusively with their instructor. It has been said: "Tell me and I forget, show me and I remember, engage me and I understand." Learner-Centered Instructions require students to become personally involved with content rather than simply acquiring it impersonally from the professor's lectures.

When first I became aware of the national and state education reform movement advocating Learner-Centered Instruction, my initial reaction was negative. In the Soviet Union it had been for many years an important part of the science classroom. However, the first time I was in such a classroom as a student, I remember having felt lost and frustrated. I had support neither from the professor nor from the other students. This was because the professor conducting Leaner-Centered Instruction was inexperienced, unable to establish any give-and-take rapport among her students. Fortunately, I did have a number of positive experiences thereafter in other science classrooms and laboratories. Under more accomplished instructors, I eventually came to appreciate the advantages

of Learner-Centered Instructions.

When it was my time to apply such a technique in my own science classrooms, I was plagued by the memory of my negative experience as a student, and so was afraid of a similar failure. Only after much trial and error was I was successful. The keys to my success, I feel, were both the classroom management skills I had gained from observations I made as a student, and my years teaching in controlled classrooms. The latter was far more important to me than anything I learned from pedagogical courses and texts. As the German poet Johann Wolfgang von Goethe wrote: "All theory, dear friend, is gray, but the golden tree of life springs ever green."

Classroom management involves issues of supervision, refereeing, facilitation, and, at times, discipline. Since Learner-Centered Instruction may include cooperative learning, group projects, student presentations, games, case studies, and all the same time accompanying noise, student movement, and group interaction, it can be difficult for some professors to control the classroom. However, one should remember that, even and especially in Learner-Centered Instruction, the instructor remains the prime mover of the educational experience.

Learner-Centered Instruction is much riskier than conventional teaching methods, and, it must be admitted, may add to one's workload (Lloyd, 2001). Besides planning and developing learning strategies, professors have to stay abreast of developments in the field so that they can intervene in students' investigations, ask pertinent questions, locate resources, and assess results. The professor needs to be prepared to adjust or rearrange activities, schedules, and assessment measures to cope with the often unpredictable nature of their students.

Group work sometimes can be complicated by personal conflicts among students of different genders, races, classes, religious, and cultural backgrounds. A teacher without classroom management skills in a heterogeneous Learner-Centered class can run into some particularly difficult situations. Remembering that there are at least ten things that students expect of the professor will help the community college instructor in managing such sessions in the laboratory or the classroom.

Number one: the professor is well-organized.

The key to success in the Learner-Centered Instruction is efficiency. It always helps to have a lesson plan. In Case Studies sessions, for instance, make sure before you face the class that you have a list of the key answers expected of your students. This helps to manage the Case Study process more successfully, especially if it is your first year of teaching, or if you might have more than two preparations that semester, or simply have had a long day of teaching!

If you use overhead projectors, computers for PowerPoint presentations, or other supplementary technology, make sure beforehand that the equipment is set up and works. There is nothing more embarrassing than watching an inept professor fumbling or struggling with a technical problem during class time. That said, always be prepared for something to go wrong. Have plan B, C or Z, rather than lose control of a situation or perhaps even the class. Students are well aware when a professor is unprepared. If an instructor loses the class's respect, it can

also lead to disruptive behavior (Braden and Smith, 2006).

Number two: a detailed syllabus is provided.
Where a Departmental Syllabus for a course exists, providing students with a copy is essential. I refer to it as 'paper number-one', reminding students to always keep it handy in their notebooks. In addition students really appreciate having a detailed syllabus which specifies the topics and objectives of the course, plus a detailed description of what they can expect on up-coming exams. I have heard that many professors complain about overly anxious students continuously asking what is going to be on exam even after they have been told specifically many times over. A detailed syllabus will provide peace of mind for nervous, insecure individuals, and at the same time, save the professor from having to repeat him- or herself during class and office hours.

Number three: the professor is clear about rules and expectations.
It is exceedingly important to be specific about your expectations of students just as it is also important to be clear about what students can expect of you. Update your knowledge concerning college policies regarding student and faculty interactions. It helps to set the tone for the course. Some professors cite McGlynn's Guidelines for Courtesy and Respect (McGlynn, 2001). One way or another, at the beginning of the semester, whether while discussing the syllabus or at some other designated time, it is a good idea to provide your students with a clear, ideally written, description of what kind of a classroom environment you expect to have.

Students, new to college microculture, should be provided with a list of both appropriate and undesirable behavior. This can avert management issues since some students simply do not realize that their behavior, besides being disruptive, might be inappropriate and unacceptable in the academic classroom setting. One such list is detailed in Rodriguez's "Learn to be a College Student" (Rodriguez, 2008). What I found works best, in addition to typical syllabus content, is to print and pass out a sheet that includes some explanation of homework expectations, suggested study habits, and classroom decorum, including one's policy on lateness and absences along with office hours and contact information. This overlap with the syllabus helps to reinforce the key issues. I also distribute an additional copy of an academic calendar.

In science laboratory settings, other issues arise. It is imperative to go over safety rules and regulations. Do not take for granted that students are familiar with those rules because they have had some prerequisite courses and experiences in the laboratory. You are responsible for whatever happens in a classroom under your supervision. Check again with college policies on the laboratory safety. Those policies vary from college to college. For example, one might think that it is a good idea to have first aid kit in the classroom. However, in some colleges professors are not allowed to provide students with so much as a band-aid, but are expected instead to send a student to the nurse's office even for a seemingly insignificant paper-cut.

Number four: the professor is clear about the grading policy.
Needless to say, students need to know how they stand academically during the semester, not only at the end of it. They also need to know which specific Learner-Centered activities will affect their grade, so they can improve upon it if need be. Providing students with clear instructions on how to calculate the final grade does not necessarily mean they will be able do so on their own. Moreover, implementing Learner-Centered techniques may cause them additional confusion, so I not only go over grade calculations in class a few times during the semester, but quite often calculate interim grades individually either during my office hours or during class breaks.

Number five: the professor provides students with clear instructions.
Many students prefer step-by-step instructions, and most benefit from them. Such instructions are essential, and provision of them is an important step in Learner-Centered Instruction. Students are surer of themselves if with a worksheet in hand at the beginning of the class. If the purpose of Learner-Centered Instruction is to bring students to a level of personally motivated inquiry, and, to the extent possible, to have them work independently of the instructor, then clarity concerning how to carry out the inquiry is a must.

Sometimes it is difficult to tell if students fully understand the instructions until they are ready to turn in their projects, at which point it is too late. To ascertain whether students are on the right track, one can use a variety of techniques such as signaled answers (true or false questions), choral responses, or the sampling of individual responses. Circulate among the class while students work. Be sure they understand the goals of the task. Ask them additional questions that might lead them to correct conclusions.

For clarification of the subject matter that has been covered, use of the chalkboard is essential. It can also be used to acknowledge comments students have made for the rest of the class to consider. Using the chalkboard is the most effective way to teach students how to develop conceptual maps and how to draw diagrams that contribute to comprehension of complex material.

Number six: the professor sets appropriate time limits.
While one can program lectures almost to the minute, an inquiry-oriented instructor may not be able to do so for discussions, since it might undermine the spontaneity so important for a productive exchange. Some segments of the session may last as little as a couple of minutes, others, as long as half an hour. However, if one particular student persists in dragging out a discussion so long that it irritates or bores others in the class, you may want to simply put an end to it, firmly, but courteously. It often helps to invite such a loquacious student to continue whatever he or she may have in mind after class or during office hours.

There is often an articulate, enthusiastic student who, if not checked, could repeatedly monopolize class discussions. While one wants to encourage every student's contribution, at the same time, a single individual may inhibit less forthcoming members of the class. You may want to talk to that student after class say-

ing, "I am really impressed with your participation. I wonder if you would help me to encourage less active students to join our next classroom discussion?" As a result of such encouragement, this exceptional student may even end-up coaching classmates who will benefit from peer support.

Under certain circumstances, you might want to consider giving students additional time to finish their work, making sure, of course, that it does not exceed reasonable limits. Setting time frames and deadlines helps students develop skills in managing their study habits and priorities in life. In my experience, work that has been handed in late is usually sloppy and often copied from another student. Absence of a specific, reasonable time frame may lead students to loose motivation and even interest in a project.

Number seven: the professor answers students' questions clearly.

Of course, students prefer a professor to answer clearly whatever questions they might have on whatever is being covered during the class. However, a central idea of Learner-Centered Instruction is to withhold answers to whatever problem students are attempting to solve. They must find the answers on their own. As a consequence, might not a professor seem less than knowledgeable, even unapproachable or uncooperative? Certainly not. One can help students by asking a question in response to whatever question may be posed, in order to help them to find the answer expected of them. Since they may be working within a group, encourage them to talk to one another or to refer again to the text, and make sure you get back to them reassuring them when they are on the right track or pointing out if they are not. This way they understand that you are still in charge of their hard-earned progress.

Number eight: the professor is concerned.

To show one's personal concern for each individual student's academic standing is the most important step in gaining the respect of the whole class. Many, if not most of the students, especially in community colleges, have complicated personal lives and adult responsibilities; therefore, they need additional personal support. Often, because of their work schedule, they are unable to come for conferences during office hours. Aware of this, I try to arrive ten or fifteen minutes before the beginning of class. This is the best, and perhaps the only time to take certain students with academic problems aside.

Just as important as knowing each student's name is knowing how they are doing academically in your class. If an individual is in trouble, take time during your conference period either to go over their work, or make arrangements for them to get tutorial help. On quizzes it is also good idea to write a brief personal complementary comment if the student has done well, or offer some words of encouragement if they are doing poorly or have failed.

Number nine: the professor is fair.

Do not have favorites. Treat all students the same. Use the same standards for everyone. If a student asks for a special waver, reply that to make an exception would not be fair to the rest of the class. If there has been a mistake in grading a

paper or a quiz, do not hesitate to immediately correct it and give the grade the student deserves. Be like the Roman who said, "to be human is to err, but it is the fool who perseveres in error."

There are also subtler forms of unfairness. Don't insist upon a certain definition you prefer if it is not the one found in the textbook the class has been assigned. A student once came to me complaining that his professor would not give him credit because he said that in prometaphase the nuclear membrane and nucleolus break down. The professor protested that the nuclear membrane and nucleolus do not break down, they disappear. Yet there are biology textbooks that use not only 'disappear' but 'break down', 'disorganize', and 'disassemble' in describing the process. Thus the student's complaint seems more than justified.

Number ten: the professor acknowledges students' presence.

Students like their presence to be acknowledged, not only on the first day of class, but throughout the semester. This becomes a positive factor in disciplinary control of the classroom when the professor is aware of each individual's identity. Not all community college students in your class might know your name (I heard of a professor who gives her students extra credit if they can identify her name on an exam!), but they want you to know theirs.

Some professors do not like to take the time to call out students' names at the beginning of each class. They prefer to pass out an attendance sheet. I have found that calling out students names before class not only helps me to become familiar with individual students, but it also settles the class down, much like tuning a musical instrument before giving a performance. Speaking their names and making eye contact with each individual gives one increased control of the class.

Knowledge of names is often equated with power in many cultures. Certainly we have found out that when, on occasion, a student becomes rude or disruptive, especially early in a school year, being able to immediately identify that individual by name often startles, even shocks, the student. Depriving him or her of anonymity empowers the professor to control the situation. In this and other ways, knowing students' names conduces to an orderly and effective classroom atmosphere.

Recently, I read on the internet that to get students' attention, some professors turn the light on and off or dim and increase it at the beginning of the class. Other professors play music before class and then turn it off to attract students' attention. All I do, immediately after taking attendance, is to take time and pause for about half a minute to scan the class while making eye contact with each and every student.

Conclusion

Based in large part upon my own classroom experiences, I have suggested a list of ten teaching key strategies and dispositions to cultivate in Learner-Centered classrooms. This list might well be elaborated upon by other instructors since there is no single recipe for dealing with certain situations while implementing Learner-Centered Instruction. I believe that most of the strategies and techniques

one chooses depend on the instructor's personality as well as the topic to be covered. Most of what I have listed above has emerged in my experience in laboratories and small classes not exceeding more than thirty students. Hopefully, what I have outlined in this paper will facilitate most particularly Community College professors in conducting Inquiry-Based science sessions in which class management, as well as consideration of the sensitivity of heterogeneous students, is a key to the success of Learner-Centered Instructions.

References:

Braden, S.W., Smith D.N. (2006). Managing the College Classroom: Perspectives from an Introvert and an Extrovert. College Quarterly, Winter 2006: Vol. 9, No.1

Lloyd, B.W., editor (2001). Learner-Centered Instruction. Inquiry-Based. Technology-Enriched. Integrating Workplace Reality. *A Resource Guide for Teachers:* 139 pp.

McGlynn, A.P. (2001). Successful Beginners for College Teaching. Madison: Atwood, 107 pp.

Rodriguez, L. (2007) Classroom management. http://www.4faculty.org/includes/108r2.jsp

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