ANDY'S TEACHING PHILOSOPHY

An eighth-century Chinese scholar, Han Yu, defined a teacher's roles as spreading wisdom, imparting professional knowledge, and resolving doubts (mentoring). I cannot agree more. I believe that a teacher's primary goal is to help students become wise individuals who think independently and critically. This is particularly important for students in the field of information technology, who will work in a fast-paced field where the flux of changes is the norm rather than the exception. In addition to thinking skills, I want to train students to be adept IT professionals in today's information society and be effective and productive in the posts of their choice. In the mean time, I want to befriend and mentor students, with the aim to resolve, within the limits of my reach, their doubts and concerns regarding their learning, future careers, and roles in the society. With these goals in mind, I will create a learning environment where students are motivated to learn because they see the relevance of the materials to their goals and interest; where they construct knowledge by interacting with the subject matter and their fellow students; and where they are guided toward meta-cognition of their learning and learn how to transfer and apply knowledge to different real world situations.

These beliefs will be reflected in my classes, which often start with a current, real-world example of application of IT in business and the various technical, organizational, social, ethical, or legal issues IT may induce. I have purposefully selected the example so that when the "story of the day" ends, students will see the connection between the topic of that class and the real world. Next, while I am lecturing my lectures are enhanced with proper audio, visual, or other multimedia aids that cater to a variety of learning styles. Once in a while, students also have hands-on exercises on technologies in the class. All these are my ways to help student construct knowledge by interacting with the subject matter. For social interactions, during the class, I intersperse sections of the lecture with group discussion sessions so that students have the opportunity to learn collaboratively and to broaden their perspectives. To stimulate higher order thinking and meta-cognition, during the discussions, I act as the moderator and create a "Socratic dialog" by asking thought provoking questions and following up students' answers with more questions that guide students to think deeper and broader. I then summarize that section of the lecture and discussion before I move on to the next section. Throughout the semester, students have a combination of exams, hands-on homework, and a term paper for assessing their learning progress and applying knowledge in "live" settings. Inside and out of the classroom, they feel free to discuss with me the course topics, any proper questions and concerns, and plans for their IT career.

In short, my goal is to emerge students in a learning environment that is motivating, enlightening, and delighting and where students are free to learn, practice, ask, and think. May my teaching helps students become dexterous IT professionals who know both how to learn on their own and how to work with other people.

ANDY'S NARRATIVE OF TEACHING METHODOLOGY

On Learning

Learning is the process by which one acquires knowledge. By integrating new information into her prior knowledge and life experiences, one constructs new knowledge and, often, also develops the skills to apply the knowledge to practice. During this process, meta-learning also takes place while the learner learns to adjust her learning strategy and methods, as well as her attitude toward learning.

The role of the teacher, thus, is to facilitate and guide this learning process. An effective teacher not only teaches domain knowledge but also stimulates the learner's high-order thinking and provides mentoring because "confusion is the essence of learning," in Churchman's words.[1]

My Teaching Goals

Teaching is, again to use Churchman's terminology, a "teleological system."[2] That is, it is goal-oriented. As the teacher, my predominant goals are to teach student high-order thinking skills and discipline-specific knowledge and skills. This is revealed by taking a teaching goals inventory (**please refer to Appendix 1**).

The TGI explicates my teaching goals and brings them to my attention. The six broad categories of goals the TGI gauges are: (1) high-order thinking skills, (2) basic academic success skills, (3) discipline-specific knowledge and skills, (4) liberal arts and academic values, (5) work and career preparation, and (6) personal development. By using the TGI for self-assessment, I can understand which of these areas I expect and try to help my students to achieve. The TGI also helps to contrast my goals for a course and my perception of my primary role as a teacher in general. All these provide me with insights into the alignment between my goals in teaching a particular course and the goals of a variety of stakeholders, including the community, university, college, the students.

Syllabus Construction

Awareness of my teaching goals is the first step toward constructing a course. I follow a structured methodology to construct a course by utilizing a set of course design worksheets (**please refer to Appendix 2**).

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[1] C. West Churchman, http://groups.haas.berkeley.edu/gem/lecture1/lect2.html.

[2] C. West Churchman, *The Design of Inquiring Systems, Basic Concepts of Systems and Organizations*, New York, NY: Basic Books, 1971.

The first worksheet helps me to consider and try to align my goal with a number of diverse stakeholder goals. Once I have seriously mulled over the alignment, I am able to identify the essential goals and objectives for the course in the next worksheet. The goals are broad, non-actionable statements of outcomes I want the students to achieve for the course while the objectives identify the specific, actionable, observable, and measurable results that, when fulfilled, achieve the goals. Each goal should be supported by a small set of objectives; when these objectives are attained, I can say with reasonable confidence that that goal is reached.

Next, the Assessment Matrix lays out my blueprint for gauging the accomplishment of each objective with a variety of assessment methods. In a similar fashion, the Meeting Objective Matrix depicts how the individual components of the course address the objectives. The visual nature of these matrices makes it easy for me to evaluate the healthiness and balance of my arrangement of assessment methods and course contents.

When all these worksheets are done correctly, it is only a matter of time before I use them to guide my write-up of the various sections of the course syllabus (**please refer to Appendix 3**).

Instructional Methodologies

The syllabus describes my ideal about the goals to achieve for the course. Its successful implementation depends on effective application of a proper combination of teaching techniques, which include (1) delivering effective lectures that address learners' different learning styles and (2) creating a collaborative learning environment.

Effective Lectures

As a student, I have been on the receiving end of 129 semester-hours worth of classroom instruction in Chinese and 105 hours in English (except my 7000-level courses). I regret to say that the number of courses with engaging lectures I experienced is in single digit. I think the reason is simple as that – it is human nature to have short attention span. Our minds wander off after about ten minutes. People also tend to assume a "passive, nonthinking, information receiving role"[3] when they find themselves in a classroom-lecture setting.

As a teacher, I am responsible for delivering engaging lectures. Given the short attention span human has, the key is to break up a long lecture into chunks that last about 10 minutes and intersperse between them various activities, especially interactive ones, to involve students in active thinking. To help drive the ideas home, I use recaps, questions, and repetition. Also, my outlines, notes, and other apparatuses all aim to connect students' existing knowledge structure and

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[3] Wilbert J. McKeachie, *Teaching Tips, 11th Edition*, Boston, MA: Houghton Mifflin Company, 2002, p. 67.

experiences to the contents of the lecture. **Please refer to Appendix 4** for a lecture outline on Risk Management.

Different Learning Styles

Each individual has her own preferred approach to learning, i.e., learning style. It is a person's "default" way to acquire new knowledge or to review and retain old knowledge. A person's dominant learning style reflects her epistemological beliefs (beliefs about what knowledge is and how knowledge is acquired) and may also be shaped by a person's education, experience, ethnicity, culture, age, gender, etc. In essence, an individual's dominant learning style is her "comfort zone" when facing the unknown, because it often is formed and proven effective as an individual grows and learns. Teaching, thus, involves the facilitation of people's preferred learning style in their acquisition of knowledge.

When I teach, I make sure that each person's learning is facilitated to the extent most possible and fair. This calls for addressing different learning styles in course design, lectures, and other classroom activities. To make myself conscious of differences in learning styles, I took a number of learning style inventories (LSIs, **please refer to Appendix 5**). LSIs are an essential instrument to gauge individuals' preferred learning styles. Usually designed as of questionnaire, LSIs use an individual's answers to the purposefully designed questions to analyze and synthesize her learning style. Students' awareness of their own learning style enables them to proactively adopt the best approach to learning. My awareness of students' different learning styles allows me to design the most effective teaching method and to address diversity and individual differences most effectively. My awareness of my own learning style opens my eyes to the possible biases in my teaching due to my own learning style.

Collaborative Learning

Education is not just for students to grow intellectually but also for them to learn how to behave in the society, which includes working with other people successfully. Collaborative learning is a way to cultivate such social skills. Learning in a collaborative environment also provides such psychological support that students are more perseverant in pursuing their education.

Ideally, collaborative learning enhances team sprit and efforts by promoting the following: (1) a sense of interdependence among team members, (2) accountability of individual students both to the team and to the instructor, (3) frequent face-to-face interaction to promote team goals, (4) development of social skills needed for collaboration, and (5) critical analysis of group processes.[4]

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[4] Ruth Federman Stein and Sandra Hurd, *Using Student Teams in the Classroom: A Faculty Guide*, Bolton, MA: Anker Publishing Co., Inc., 2000.

To create a collaborative learning environment, I follow some good practices:

(1) First, to avoid student confusion, lack of motivation and participation, or social loafing, I require students to work in teams only for learning tasks that require teamwork.

(2) I try to improve students' team experience by guiding them to use the team project as a way to learn how to create a productive experience working with other people. I allocate part of the class time once in a while to ensure that the team members will have some surefire way to interact with each other face-to-face while I observe them, get to know more about each team's dynamics, and provide advice, guidance, and even mediation if necessary.

(3) To ensure a sense of accountability, I add an important step that is missing from so many team projects – asking the students to negotiate and sign a group contract (**please refer to Appendix 6** for an example). In addition, I include peer evaluation (**please refer to Appendix 7** for an example) as part of the basis to determine each team member's grade.

Active Learning

For students to develop high-order thinking skills, they need to become independent in their pursuit of knowledge and learn how to analyze real world situations. Thus, in addition to lectures, I also employ active learning methods, which, though not efficient in covering a large volume of information in a short time, are effective in getting students to think and learn independently after classes. Using the active learning methods, I give student much more autonomy in how they allocate their time and approach learning.

Of all the interactive techniques, I think peer tutoring is particularly effective. As McKeachie points out, preparing to "teach" fellow students prompts the student to think actively about the material, to analyze and select main ideas, and to process the concepts into her own thoughts and words. To clearly articulate something requires a lot more thinking and learning than merely to read and understand the same thing. Thus, in this process, students are encouraged to become thorough in the domain knowledge and to apply critical thinking skills. For particularly important concepts, I design some activities that require student to study and research at home and come back to teach other students in the classroom.

Assessment Feedback

To ensure that students are making proper progress in their learning, timely use of a number of assessments is essential. Two types of assessments are commonly used. *Summative assessments* are used only to evaluate while *formative assessments* are used to elicit feedback and to facilitate learning. Although tests, quizzes, and other

graded instruments are often used as summative assessments, I also deliberately apply them to gauge student learning.

Before I grade assignments and exams, I create a grading rubric to make sure that the grading process is consistent and fair. The rubric also serves as the basis of discussion when I explain to students, before an assessment, what I expect from them and, after the assessment, what they missed and how they can improve for future assessments.

I use Primary Trait Analysis (PTA) to construct the rubric. PTA is highly explicit and criterion-based. First, I identify the factors or traits, expressed as nouns or noun phrases, which are expected in an assessment and will count for the scoring. Then I build a scale (usually a two- to five-point scale) for determining a student's scores. These are descriptive statements that describe different degrees of manifestation of an expected trait. Each statement is related to a score and a student whose performance matches the statement will earn that score. The PTA-based rubric enhances structure, consistency, and communications in grading. **Please refer to Appendix 8** for a sample of my assignment and **Appendix 9** for its related rubric, which identifies five traits and establishes a three-point scale for each trait.

Classroom Management

Whether managing the classroom or interacting with student individually, I try to exercise good judgment, be sensitive, and pay attention to telltale signs about students needing care.

Often, students' deviant behaviors, such as cheating, plagiarism, aggressiveness, or disengagement from the class stem from reasons on both sides. When I encounter these behaviors, I try to resolve problems by changing what I can change and helping students reduce their contribution to the problem.

When dealing with cheating, on the one hand, I am careful in determining the commitment of the dishonest behavior lest I might affect an innocent student unduly. On the other hand, I do not let cheating behaviors slide by and de-motivate those students who work hard to earn their grades. I believe the key to strike a balance between the two is to use good judgment, follow the correct procedures, and consult the appropriate sources for advice.

In the case of plagiarism, I help students prevent honest mistakes due to lack of knowledge by providing some basic training on how to credit the sources correctly.

When I notice that a student is having emotional problems or exhibiting aggressive behaviors, I examine whether the level of academic challenge is appropriate for the class and whether I am using the best combination of techniques to create a supportive learning environment. If these have been done, then the student may be

struggling with some idiosyncratic difficulties. I try to help the student by exploring the root cause of such difficulties, especially with regard to student's attitude and self-efficacy toward learning. However, when professional help from doctors, psychiatrists, counselors, etc. is in order, I will refer the student to such professionals or offices such as Student Disability Services.

Summary

Teachers in the 21st century face an uneasy task to transmit professional domain knowledge to and cultivate high-order thinking in students who are very diverse in their background, motivation, and learning styles. Therefore, I adopt a systematic approach in designing my courses and assessments by using structured and tested methods such as course design worksheets and PTA-based rubrics. I make my classes engaging and stimulating by following good practices to deliver lectures and promote active and collaborative learning. In addition, I try to exercise good sense and judgment in maintaining a fair and caring classroom experience for the students. All these efforts pay off, but I know they are an ongoing endeavor.