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Offering Professional Development Opportunities for Faculty on Methods of Developing Critical Thinking in Online Courses

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Offering Professional Development Opportunities for Faculty on Methods of Developing Critical Thinking in Online Courses

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Abstract: The purpose of this paper is to summarize the how one university created a successful faculty professional development program that offered training and support on how to develop student critical thinking skills. Selected literature related to building student critical thinking skills through online environments are reviewed. Participants attending this presentation will receive an overview of the professional development program and the incentives offered. In addition, information on the Paul & Elder model will be summarized, as it was used in the program. Furthermore, this report will provide at least 3 examples of instruction from online courses at one south-eastern university that reflect the use of the Paul & Elder model for developing critical thinking skills for both undergraduate and graduate level online courses. The participants will be able to use the examples presented for developing online instruction to build student critical thinking skills.

Establishing a new faculty professional development program takes time and careful planning. Standards for organizing and implementing a successful faculty professional development program need to be considered. The recommendations to establish professional development opportunities for faculty are separated logically into the steps of preparation, delivery of the workshop or sessions, and post-workshop check points or follow-up. The critical roles played by campus administrators, key faculty, and post-workshop mentors are highlighted as vital partners enhancing the actual professional development session.

Some important standards to consider when developing a new professional development program within an university setting include: 1) administration needs to foster an academic climate that supports and encourages faculty professional development, 2) the originators need to ensure that the professional development (PD) program is connected to the university's goals or strategic plan, 3) administration and/or the originators need to develop a worthwhile reward structure for faculty members, and 4) faculty members should be able to individualize the information or training to meet their needs.

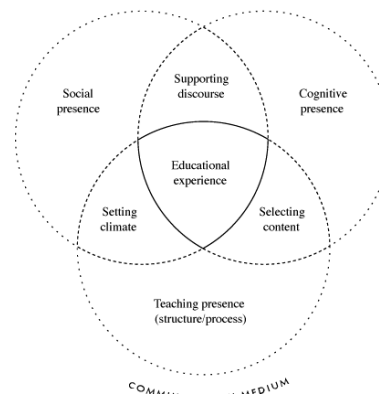
Of course, the overall goal of most faculty professional development programs is to improve teaching and learning. Generally, when a faculty group is formed, such as in a professional development program, the combined energy created has great potential to not only motivate faculty, but also improve the final product or outcomes of the program. Because of the continued communications and the sense of "community" that comes from an ongoing PD program, accountability and support can help the individual faculty members to be more productive in completing the program successfully. That is what was found in the development of one faculty professional development program, referred to as "The Distance Learning Academy." This 9 month program focused on supporting faculty in establishing methods for developing student critical thinking skills in online courses.

Can we teach "thinking skills" through online courses?

For some faculty, offering professional development sessions that are focused on methods of teaching critical thinking skills can possibly reduce the gap between aspirations to teach critical thinking and effective critical

thinking pedagogy. Online teaching and learning certainly has the properties and tools needed to support higher-order learning and create the cognitive presence congruent with deep and meaningful learning outcomes (Garrison, 2003). The asynchronous and virtual nature of online learning calls on learners to be self-directed and to take responsibility for their learning. By offering instruction online, students will be able to participate in a more self-monitored learning environment that offers flexibility to the student as well as increased access to information. Therefore it is important for instructors to utilize the online course tools that are generally available through various course management systems such as: online discussion board, chats, groups, blogs, wikis, etc., to encourage students to be involved in their own learning process through the establishment “presence”. To help to demonstrate this, Garrison, Anderson and Archer (2000) have developed a conceptual model of online learning that is referred to as the “community of inquiry” model,

Figure 1 – Community of Inquiry



This model postulates that deep and meaningful learning results when there are sufficient levels of three component “presences.” The first is a sufficient degree of cognitive presence, such that serious learning can take place in an environment that supports the development and growth of critical thinking skills. Cognitive presence is grounded in and defined by study of a particular content; thus, it works within the epistemological, cultural, and social expression of the content in an approach that supports the development of critical thinking skills. The second, social presence, relates to the establishment of a supportive environment such that students feel the necessary degree of comfort and safety to express their ideas in a collaborative context. The absence of social presence leads to an inability to express disagreements, share viewpoints, explore differences, and accept support and confirmation from peers and teacher. Finally, in formal education, as opposed to informal learning opportunities, teaching presence is critical for a variety of reasons.

Cognitive presence, social presence and teaching presence are all important preconditions in helping the learner to feel comfortable in the learning environment. Garrison stated that establishing cognitive presence online represents a significant shift in the design and delivery of an educational experience (2003). As such, the guidelines for designing instruction that develops effective learning online require a significant shift in the educator’s thinking. Educators must move away from information dissemination to one of collaboratively constructing meaning and understanding. The practical challenge then is to design the learning activities that provide the right balance and integration of reflection and collaboration.

Developing critical thinking in an online course is different from developing these same skills in a face-to-face course simply because of the online tools that are utilized to communicate and share instructions and feedback with students. When designing the online course, educators need to be familiar with the online instructional and communication tools that are available and utilize the tools in order to implement the *best practices* of developing critical thinking skills for students online. Here is a brief list of tools that are generally available in online course and there possible uses:

Course Management Tools	Uses for Building Critical Thinking Skills Online
Announcements page	Demonstrate active instructor participation, share expectations with students, provide navigational instructions, communicate current information and resources for students; Can serve as a motivator to students by keeping information current
Learning Units and/or Modules	Provide a well-organized and resourceful learning

	environment that covers content well; include learning goals/objectives in the units and/or modules; provide rubrics when possible; Instructors can provide examples and a “reflective” model of the process the students will experience and help to explain abstract concepts as they come up in the course
Online Assessments	Provide students immediate feedback in knowledge/comprehension/application levels of intelligence; Students can self-monitor and moderate behaviors as needed to learn
Discussion Board – Asynchronous Communication	Used for engaging students in “thought process”; Use of questioning techniques that encourage critical thinking can be implemented; Allows time for students to “look up” references and information and respond within a given time frame; Allows for open communication for students to ask questions, respond to other views; Encourages active participation of student and instructor alike; Could serve as a motivator for learning
Live Chat Session – Synchronous Communication	Can be used to engage students in “thought process” of a topic, a specific question, or assignment; Encourages (or requires) live, active participation of both student and instructor, real-time feedback can be provided from instructor to student(s) through the control of who is permitted to join the chat session
Groups Page (discussion board and file exchange)	Provides means of building peer relationships, online interactions, and opportunities to collaborate with other students online to complete assignments and/or projects; Provides the instructor a means for sharing feedback with group members where only the active group members can see the information
Blogs (journals – for reflective assignments)	Engage students in processing thought through opportunities to reflect on their learning throughout the course; Provides the instructor a means for sharing feedback to individual students (adding comments)
Wikis (team web sites)	Provides a means of building peer relationships, online interactions, and opportunities to collaborate with other online to complete a team or small group web-based project
Assignments and Safe Assignments	Used for submitting students’ work; Students can self-regulate their own learning and modify their learning strategies as needed to demonstrate learning; Instructors can provide feedback on specific assignments to students
Grade Book	Allow students the opportunity to develop metacognition skills by offering ways to self-regulate and self-monitor efforts and behavior in learning; Students are kept informed on their progress in the course

In order to develop students’ critical thinking skills in an online environment, Garrison reports that there are two very important effective practices that must be developed in an asynchronous online course: 1) Provide students the opportunity to reflect; and 2) Provide students the opportunity to collaborate with others, (2003). Through reflection, instructors must use written communication effectively, and provide learners the opportunity to revise and refine their comments and ideas. Reflection has to do with the state of learning and a learner’s own knowledge, experiences, and thought processes (Dewey, 1933). To Dewey, learning was inducing reflection through questions and actively monitoring this inquiry for the purpose of achieving understanding (1933). Critical thinking is generally agreed to

include the evaluation of the worth, accuracy, or authenticity of various propositions, leading to a supportable decision or direction for action (Jones, 1996).

This type of reflection is normally referred to as *metacognition*. Metacognition is an important concept in cognitive theory. "Metacognitive skills include taking conscious control of learning, planning and selecting strategies, monitoring the progress of learning, correcting errors, analyzing the effectiveness of learning strategies, and changing learning behaviors and strategies when necessary," (Ridley, D.S., Schutz, P.A., Glanz, R.S. & Weinstein, C.E., 1992). Metacognition consists of two basic processes occurring simultaneously:

- 1) Students monitor their progress as they learn, and
- 2) Students make changes and adapt their learning strategies if they perceive they are not meeting their learning goals.

Metacognition is about self-reflection, self-responsibility and initiative. Metacognition refers to knowledge of one's own thinking processes and products or anything related to them. It is "thinking about one's own thinking. At the same time, students must be responsible for goal setting and for managing their own time.

Perhaps the most effective practice in establishing an online cognitive presence congruent with higher-order learning is for the teacher to model reflective inquiry (Garrison, 2003). This is best done with the teacher objectively providing commentary and insight into their thinking process (i.e., thinking out-loud). The purpose is to increase metacognitive awareness – as stated above, a precondition for critical thinking and self-direction. Modeling reflective inquiry provides learners with concrete examples of how to approach subject matter for purposes of constructing personal meaning. Students learn how to manage and monitor their own learning. They gain the ability and confidence to be self-directed learners. In this regard, the teacher must participate in, but not dominate, discussions.

Modeling reflective inquiry and increasing metacognitive awareness can be greatly assisted by explicitly sharing a model of the thinking and learning process such as practical inquiry. Insight into the phases of inquiry and learning can help the learner appreciate whether they are in a problem definition stage, searching for relevant information, connecting ideas for meaning, or confirming understanding. Metacognitive awareness provided by such models can be an important tool in acting confidently and effectively through the selection and employment of appropriate strategies. This combined with teachers sharing their thinking process can be of considerable help to learners to develop metacognitive strategies and abilities and become reflective, self-directed learners.

The first challenge is to establish a community of inquiry in the online environment where learners feel connected and are cognitively engaged; and where there is a community that supports and encourages ideas to be critically analyzed and meaning negotiated. The discourse, however, must be purposeful and focused. The instructor must be able to interject new ideas, diagnose misconceptions, and move the discussion toward resolution that may or may not be predictable. The role of the instructor (as the facilitator) "goes beyond a neutral weaving of participants' contributions" (Garrison & Anderson, 2003). Clarifying, explaining and summarizing are legitimate functions of a facilitator. As long as this direct intervention is constructive, open communication is not threatened. Garrison states, "lecturing online or simply providing access to information is a complete misuse of asynchronous learning networks," (2003).

One important technique to use in an online environment is to allow students to moderate their discussion in small groups. This will actively engage most learners in a committed and free manner. The key is for students to report back their progress or conclusions. In this way, they receive appropriate feedback from all participants and confirmation of their understanding. By providing this increased responsibility and control, learners are encouraged to become more self-directed. The same technique can also be used for group projects, which is an excellent way to have learners collaboratively apply their new knowledge.

Finally, the use of online discussions can be very productive tools when used to develop critical thinking skills of online students. When instructors select a critical thinking strategy to use during online class or small group discussions, it is important for the instructor to frame the entry of the discussion so that students are able to focus their postings to the discussion topic and encourage students to offer deeper dialogue that contributes to the discussion. Collison, Elbaum, Haavind and Tinker confirm that instructors should inform students of the standards and expectations of discussions before the online discussions begin. Also, identify and highlight productive lines of

discussions when they occur. Also, instructors should provide examples of previous discussions as good models of online discussions whenever appropriate. Instructors should use re-direction strategies to keep the focus of the discussion on the topic at hand (2000).

In summary of the literature reviewed, educators can promote critical thinking skills by developing online course materials and activities that reinforce metacognitive skills. Educators who want to develop student critical thinking skills will need to develop a learning environment (online) that encourages students to ask questions, engage in reflective thinking and self-directed learning. At the same time, it is very important for the educator to model the reflective skills needed. Finally, the online discussions are important tools used to develop critical thinking skills for online students.

From the literature above, we found that faculty members needed professional development opportunities that provided training in critical thinking models, such as the Paul and Elder model and at the same time, offer instructional design and media support as the faculty member worked to develop online instructional products for their students to use that would help to support the development of critical thinking skills.

Distance Learning Academy

There are several tools and models available that could be helpful to faculty members in establishing effective methods in their courses for teaching students to develop critical thinking skills. Faculty members could benefit from professional development opportunities that support their efforts to explore the models and put at least one component of a model into practice and summarize the results.

Beginning in June 2009, an innovative faculty professional development program called The Distance Learning Academy was created at one university. The goal of this program was to support faculty members in applying at least one component of the Paul & Elder model in teaching students to think critically in relation to the specific course content. Eighteen faculty members applied to this program and participated in work sessions that introduced them to the components of the Paul & Elder model. From the summer sessions, the faculty members learned how to apply at least one component of the model in their specific courses and at the same time each faculty member wrote scripts for a specific instructional product that was focused on developing students' critical thinking skills. The ultimate goal of the professional development program was to produce an interactive instructional product for an online course that included all of the following elements:

1. measurable learning objectives
2. instructional content
3. models or examples of critical thinking assignments
4. practice or self-check assignments, (opportunities to reflect), and
5. a final assessment.

Through participation in this program, faculty members were given the support of an instructional designer and a media producer to produce the final instructional product. In February 2010, the faculty participants displayed their newly created online instructional products at a showcase for administrators, faculty members and staff to review. Fourteen faculty members completed the program and each of them earned a \$300 stipend. The program has been very successful and is being repeated in the summer of 2010.

Methods & Models Used to Develop Critical Thinking Skills

Critical thinking can also be referred to as purposeful thinking. To think critically requires an active process, one that requires a purpose. Critical thinking is a process where the person applies some pre-identified standard(s) and then uses some criteria in evaluating options that are presented.

Dr. Richard Paul and Dr. Linda Elder promote concise models of the process of critical thinking. Their main point is that critical thinking is a skill that must be taught. Included in their model are three primary components needed to think. They are: 1) intellectual standards-how we evaluate our thinking, 2) 8 elements of reasoning - include the parts of our thinking, and 3) intellectual traits - the ultimate goal of critical thinking is to

develop these traits. Richard Paul and Linda Elder also state that there are two essential dimensions of thinking that students need to master in order to learn how to upgrade their thinking.

1. Students need to be able to identify the "parts" of their thinking, and
2. Students need to be able to assess their use of these parts of thinking.

Understanding the thinking process is important to learning. When learning is moved to an online environment, the challenge evolves to how to teach critical thinking skills through a virtual presence and communications. Faculty members could benefit from learning about one such professional development program that provided opportunities that were focused on establishing effective methods for developing and modeling critical thinking skills through online tools.

In this session, the presenters will share how this faculty professional development program was organized, summarize how the Paul & Elder model was used to support the faculty members' efforts to develop instructional content for these specific products, summarize the faculty support provided within this program, and provide examples of the specific software programs used to develop the instructional products including iSpring Pro, Austhink Rationale Software, Soft Chalk, and Camtasia. Attendees will be able to review at least 4 of the interactive online instructional products that were produced to teach students how to develop their critical thinking skills using the Paul and Elder model specifically.

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