

A METACOGNITIVE CONVERSATION ABOUT ACTIVE LEARNING

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After thirty-five-plus years in education, I have chiseled out a philosophy of education that, when necessary, can be reduced to one word: *engage!* The teaching and learning experience cannot result in anything meaningful if the learner is not engaged in the process. The greater the engagement, the more significant the change in the learner, and the deeper the personal meaning will become for him or her. It is my observation that as we train new teachers for the classroom and for ministry, four current themes in our profession intersect at the fulcrum of engagement—*metacognitive analysis, reflective practice, active learning, and formative assessment.*

Popular author and experienced teacher Robyn Jackson expressed her philosophy this way in her book *Never Work Harder Than Your Students and Other Principles of Great Teaching*: “One day, in the midst of a particularly boring worksheet I looked at their glazed over faces and realized that while they were now compliant, they were not learning a thing. At that point, I came face to face with my values. Was it more important that my students be quiet and cooperative, or was it more important that they *actively engage* [emphasis mine] with the material and learn to be critical thinkers and effective communicators? Was it more important that I feel in control of the classroom, or was it more important that my students learn?” (2009, 93).

I am going to take an unusual approach in this seminar paper. I’m going to ask for reader response at the outset and occasionally throughout the discussion. I have chosen the word *conversation* for this reason, and the *metacognitive* dimension will be revealed soon enough. With this forewarning in mind, please join me in an exploration of *active learning*.

In the margin of this document or anywhere you choose to doodle, please write a brief response to the following question: What does *active learning* look like in your ministry or teaching context? (Please prepare a brief response that can be shared with a colleague or the attendee seated next to you at our Forum.)

In *Teaching Strategies: A Guide to Effective Instruction*, Donald Orlich and coauthors define *active learning* as “a wide range of teaching strategies that engage the learner in the actual instruction that takes place. Seat-work is passive. Students working on problems in small groups [are] active.... An active learning classroom is a learning community where all participate, including the teacher” (2010, 40).

What just happened during my introduction to this topic and conversation? I asked you to give a written response to a question, and then I presented you with an authoritative source with which to compare your ideas. Let's look below the surface; your participation to this point can include one or more of the following:

- Active responses, as opposed to passive consideration
- Construction of understanding, as opposed to simple review of another's definition
- Higher-order thinking, as opposed to mere recognition of a process or a concept
- Assessment, as opposed to tacit acceptance
- Use of prior experience, as opposed to collection of new concepts that can be pushed aside for sorting later

(Now technically, since you are reading a paper and you could have chosen not to actually construct a response, you may be reviewing an imaginary "meta" experience, short for "metacognition," or "thinking about thinking" [Schoenbach 1999, 23]. This would be somewhat like *Book TV*—a title that appears oxymoronic—a cable TV show that at first blush seems to be neither like a book nor like television. But upon further examination, the viewer of *Book TV* discovers authors explaining their craft and readers talking back and explaining their thoughts and reactions to the text, the author, or something unrelated to either, a figment of their imagination perhaps. Hopefully we can avoid the smugness that is characteristic of the authors on most episodes and the fawning by many attendees at these public appearances. But I digress.)

Returning to the topic at hand ... A discussion of the metacognitive perspectives on active learning can help pre-service teachers and professionals alike develop an even deeper appreciation of the value of this approach to pedagogy. Active learning techniques should be considered to be much more than "It breaks the monotony," "It captures their attention," or "It gives the teacher a brief rest."

As this paper and presentation continue, my goals include the following:

1. Review briefly some of the current literature concerning metacognition, reflective practice, active learning techniques, and formative assessment.
2. Model some of the above approaches to instruction.
3. Report on an ongoing research project involving doctoral students' perceptions about the use of active learning techniques.
4. Challenge you to reflect on the value of your experience while examining these topics.

First, this discussion will return to the concept of metacognition and a valuable book on reading in the content area by Ruth Schoenbach and coauthors, *Reading for Understanding: A Guide to Improving Reading in Middle and High School Classrooms*. The authors state,

The metacognitive conversation is carried on both internally, as teacher and students individually read and consider their own mental processes, and externally, as they talk about their reading processes, strategies, knowledge resources, and motivations and their interactions with and affective responses to tests.... In metacognitive conversation, then, participants become consciously aware of their mental activity and are able to describe it and discuss it with others. Such conversation enables teachers to make their invisible cognitive activity visible and enables teachers and students to reflectively analyze and assess the impact of their thinking processes. A great deal of research in the past two decades has identified metacognition as key to deep learning and flexible use of knowledge and skills. (1999, 22–23)

For effective instruction, it is not enough to plan and organize opportunities for these types of reflections; it is incumbent upon master teachers to be able to anticipate how students should best approach new information and plan

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how to assist them with overcoming potential hurdles. In *What the Best College Teachers Do*, Ken Bain and his research team uncover valuable insights about successful university instructors. They determine that highly regarded professors have a strong grasp of their discipline and “the controversies that have swirled within them, and that understanding seems to help them reflect deeply on the nature of thinking within their fields.” Bain argues that this ability to think about their own thinking provides them with an understanding about how other people might learn. “They know what has to come first, and they can distinguish between foundational concepts and elaborations or illustrations of those ideas. They realize where people are likely to face difficulties developing their own comprehension, and they can use that understanding to simplify and clarify complex topics for others” (2004, 25).

At this point in his argument, Bain makes a very powerful statement that is at the heart of the thesis of this paper: “The teachers that we encountered believe everybody constructs knowledge and that we all use existing constructions to understand any new sensory input. When these highly effective educators try to teach the basic facts in their disciplines, they want students to see a portion of reality the way the latest research and scholarship in the discipline has come to see it. Because they believe that students must use their existing mental models to interpret what they encounter, they think about what they do as stimulating construction, not ‘transmitting knowledge’ ” (2004, 27). Most Christian educators shy away from the wording *constructing knowledge*. Philip Bassett and Eddie Baumann, in *Foundations of Christian School Education*, write, “While a constructivist might say a learner ‘*builds meaning*’ as he learns, a biblical Christian would be more comfortable saying that the learner ‘*discovers meaning*’ or ‘*builds understanding*’ of truths that already exist” (2003, 131). Marti MacCullough refers to this as *interactive learning*—“the process whereby the learner takes in new information from his or her surroundings and uses prior categories, vocabulary, and understandings to begin to process, make sense of, and store the information for retrieval and use” (2003, 176).

In *University Teaching: A Reference Guide for Graduate Students and Faculty*, Merylann Schuttloffel makes a connection between the professional educator themes of metacognitive analysis and reflective practice. “When we begin to question why we chose a particular methodological procedure, the reflection on our own thinking demonstrates metacognitive behavior. Metacognition assists novice instructors in their most difficult task: learning to think like teachers” (2005, 261). Schuttloffel identifies the following three levels of reflection that are interrelated in the metacognitive process (262–63):

1. The *critical level* asks the question *why*? In what ways does this course fit with the overall mission of the institution and the specific goals of the department?
2. The *interpretive level* of reflection responds to the question *what*? What messages are communicated symbolically and inferentially through the teacher’s behaviors and methods?
3. The *technical level* answers the question *how*? Which pedagogical tools are best suited for communicating the knowledge, skills, and dispositions presented in the curriculum?

These are concepts of extreme importance, and one would predict that few pre-service teachers have ever considered these broad issues while reflecting on their own learning processes; most certainly they stopped short of interacting with other teacher education students about their personal experiences. In light of the importance of this interaction, several specific approaches related to metacognitive analysis and active learning for pre-service teachers will be made at the conclusion of this paper.

Jesus magnificently demonstrates this concept in Luke 9:18 (and following verses) when He inquires of His disciples, “Who do the crowds say I am?” (NIV, 1984 version). Being aware that His disciples were dealing with major-league

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cognitive dissonance, Jesus wanted them to express what they were hearing from others, as even His closest followers attempted to sort out His identity. Their responses were all over the map: “Some say John the Baptist; others say Elijah; and still others, that one of the prophets of long ago has come back to life” (v. 19). He was acutely aware that their prior religious training had created schemata that made it extremely problematic to make sense of His ministry and miracles. Jesus continued the pop quiz, “Who do you say I am?” Only Peter’s response is recorded, “The Christ of God” (v. 20). This also illustrates another crucial point; the role of the Christian educator, as previously stated, is to assist students by stimulating the construction of understanding of absolute Truth within their mental framework and not the manufacture of a personal, relativistic truth.

Please return to your written response to the question “What does *active learning* look like in your ministry or your teaching context?” and share your response with your “shoulder partner” to your left. (And for those of you playing along at home, you can merely read your statement aloud, unless you wish to “phone a friend.”)

What actually happens in a classroom when this interaction occurs? First, the learner actually hears what he or she has constructed, and this is another experience in organizing and evaluating one’s thoughts and beliefs about a topic. Research shows that students learn much more by doing things and getting feedback than by watching someone and listening to someone tell them what they’re supposed to know (Prince 2004, 229). Second, the learner, as a participant, should perceive that the teacher or a classmate actually values what he or she has to offer. This builds confidence and reinforces for the learner that his or her contribution really matters (Marzano et al. 2001, 50, 85).

The students in the Doctor of Education Program at Southeastern Baptist Theological Seminary are currently taking part in a study that is examining their perceptions of the usefulness of active learning techniques in classes that they attend and in classes or ministries that they lead. The students (N=58) were invited to participate in a survey that asked five Likert-style questions and three open-ended response questions.

Research Project on Active Learning in Ministry Contexts (N = 58)					
Question	Strongly Agree	Somewhat Agree	No Opinion	Somewhat Disagree	Strongly Disagree
I am familiar with active learning techniques (ALTs).	39 67.2%	19 32.8%	0	0	0
Instruction and modeling of ALTs in the doctoral program increased my understanding.	42 72.4%	14 24.1%	1 1.7%	1 1.7%	0
Instructional episodes that employ active learning increase my understanding of content.	45 77.6%	11 19.0%	0	1 1.7%	1 1.7%
Lecture method without active learning is the best approach for teaching adults.	0	2 3.4%	1 1.7%	25 43.1%	30 51.7%
I use active learning techniques in teaching episodes in my ministry.	26 44.8%	29 50.0%	2 3.4%	0	1 1.7%

Reflecting on their own learning experiences during their doctoral studies, all the respondents reported that they would “strongly agree” or “somewhat agree” that they were familiar with active learning techniques (ALTs). Of the 58 participants in the survey, all but two (<4%) reported that the modeling of ALTs in their classes increased their understanding of this approach and increased their understanding of course content. When asked about lecture-method teaching that did not include ALTs, 55 (95%) responded that they “somewhat disagree” or “strongly disagree” that this was the best method for teaching adults.

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Attendees of the Forum, you have been sitting for a while, so I would like to invite you to stand up and participate in an active learning activity involving famous artists and their paintings. You will be asked to do the following: *When you recognize the painting in each slide, call out the name of the artist or the name of the painting. The participants at each table who correctly call out the answer first will then be seated.*

(For those who are not attending the Forum and who are simply reading this paper, this requires exceptional imaginative powers, unless you choose to Google “impressionist painters” and create your own review quiz.)

What just happened as we took part in this activity?

- Physiological change—moving and responding created a new sense of energy in the room.
- Competition—for those so inclined, the opportunity to compete creates heightened awareness and, in some cases, increased learning.
- Assessment—formative assessment opportunities were available for the instructor and the students.

This active learning technique is called “Sit Down,” and it comes from *Teach Like a Champion: 49 Techniques That Put Students on the Path to College* (Lemov 2010). It is the opposite of traditional approaches that involve requesting participants to sit down when they respond with incorrect answers and continuing the game until the champion is the only student left standing.

The third item above deserves special consideration. Active learning often has the potential to be formative, if the teacher and the students take note of the achievement level of the class or individual students. From the teacher’s perspective, *What is the quantity or quality of the responses I am getting from the learners?* From the student’s perspective, *How do I need to adjust my personal study to perform at the level of expectation established by the teacher?* James Popham, a researcher and an author on this topic, defines *formative assessment* as “a planned process in which assessment-elicited evidence of students’ status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics” (2008, 17). Popham emphasizes that the formative assessment activities are planned and are not spontaneous as a result of capricious or spur-of-the-moment reactions to an unresponsive class (18). Rick Stiggins and Rick DuFour expand the definition and description of the use of these techniques: “Teachers and schools can use formative assessment to identify student understanding, clarify what comes next in their learning, trigger and become part of an effective system of intervention for struggling students, inform and improve the instructional practice of individual teachers or teams, help students track their own progress toward attainment of standards, motivate students by building confidence in themselves as learners, fuel continuous improvement processes across faculties, and, thus, drive a school’s transformation” (2009, 640).

In our “Famous Painting” activity conducted moments ago, we observed some attendees who have a broad knowledge recall of popular artists from various countries and time periods in art history. On the other hand, some attendees have never darkened the door of an art gallery. If this exercise had been part of an art appreciation class, it could represent a planned assessment designed to collect data about the level of knowledge of the students in the class, and an effort by the teacher to provide students with a personal comparison between themselves and their classmates—all in the context of an instructional episode that occurred in the unit when there would be sufficient time for adjustments to be made, if necessary, by the teacher or the students. (Unfortunately, it has been my observation over the years that an unintended consequence for many college students is that courses like this become “art *un*-appreciation” because of draconian grading policies and severe summative evaluations procedures.)

Robyn Jackson agrees with the importance of this approach: “Formative assessments are one of the most powerful ways to improve student achievement because they provide real-time feedback to you and your students on their progress toward the learning goals, and they help students see a direct relationship between how hard they work and what they learn” (2009, 131). Jackson suggests some activities called “dipsticking” that give quick feedback during instruction including one-question quizzes, thumbs-up/thumbs-down, or unison responses (132).

In their book *Classroom Assessment Techniques: A Handbook for College Teachers*, Thomas Angelo and Patricia Cross connect the dots discussed in the themes of this paper. They review several research projects that “are describing the development of metacognition, defined as the learner’s awareness, understanding, and control of his or her own learning process” (1993). These researchers have found that as teachers use formative assessment techniques, they promote metacognition by teaching students to use formative assessments that require self-assessment, by providing guided practice in using these techniques, and by giving feedback on student responses. “Once again, as with active involvement and faculty-student interaction, there is strong evidence from education research that explicit instruction in metacognitive skills and strategies leads to more and better learning—especially when students learn a variety of discipline-specific skills and strategies” (373).

By way of review, I would like for you to reconsider the positives suggested thus far in regard to the three active learning activities that have been used during this seminar. The count so far is ten potential benefits or outcomes for the use of active learning techniques in your teaching. (And these techniques are closely related to metacognitive analysis, reflective practice, and formative assessment.) Review the list below containing aspects of active learning techniques that have been mentioned previously in this paper/presentation. The learner experiences

- Active responses, as opposed to passive consideration
- Construction of concepts, as opposed to simple review of another’s definition
- Higher-order thinking, as opposed to mere recognition of a process or a concept
- Assessment, as opposed to tacit acceptance
- Use of prior experience, as opposed to collection of new concepts that can be pushed aside for sorting later
- Hearing what he or she has constructed (another experience in organizing and evaluating)
- Perceiving that the teacher and/or classmates actually value what he or she has to offer
- Movement and responses (physiological change) that create a new sense of energy in the room
- Competition that creates heightened awareness and, in some cases, increased learning
- Use of formative assessment to enhance his or her self-evaluation

After examining this summary list, pause and consider which of these are of value in your training of future teachers. Take one minute and explain to the attendee on your right which of these you believe to be of primary importance and why they are important in training pre-service teachers. After one minute, switch speakers and have the second participant respond.

In my survey research that I referenced previously in this paper, the respondents were also asked this question. Some of the respondents included these statements in their answers to the open-ended question:

“I use think-pair-share many times after a teaching session. I also use case-study discussions in small groups for active application of materials. I think they are able to process the content better when they have engaged it in a variety of ways. Some have commented on the effectiveness of putting the information to work while using a case study.”

“I sometimes will start my lesson with a brief survey either asking for a raise of hands, writing down a few answers, pairing neighbors to converse about an answer, or soliciting verbal feedback from the whole class.”

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“I use discussion/reaction to videos, collaborative written responses in pairs, case-study discussion, and group development of graphic organizers.”

“At the beginning of lessons, I use think-pair-share activities, one-sentence responses, and discussion questions to gauge prior learning on the subject of that day’s lesson.”

Richard Felder and Rebecca Brent have done extraordinary research in the field of active learning at the college and graduate school levels. These researchers define *active learning* as “anything course-related that all students in a class session are called upon to do other than simply watching, listening and taking notes” (2009, 2). In concert with the approach taken in this paper, they do not suggest that professors abandon giving lectures altogether. They passionately argue that “if a lecture or recitation session includes even a few minutes of relevant activity—a minute here, 30 seconds there—the students will be awake and with you for the remaining time in a way that never happens in a traditional lecture, and most will retain far more of what happens in those few minutes than of what you say and do in the rest of the session.” Here is a twist on the better-known activity think-pair-share:

Thinking-aloud pair problem solving (TAPPS). This is a powerful technique for helping students work through and understand a problem solution, case analysis, or text interpretation or translation. Have the students get into pairs and designate one pair member as the *explainer* and the other one as the *questioner*. Give the explainers a minute or two to explain the problem statement line by line (or explain the first paragraph of the case history or interpret or translate the first paragraph of the text) to their partners, and tell the questioners to ask questions when explanations are unclear or incomplete and to give hints when necessary. Stop the students after the allotted time and call on several individuals to explain things to you. Once you get a satisfactory explanation, have the pairs reverse roles and continue with the next part of the problem solution or case analysis or text interpretation or translation. Proceed in this manner until the exercise is complete. In the end, your students will understand the exercise material to an extent that no other instructional technique we know of can match. (3)

For those preparing pre-service teachers, Donald Orlich and coauthors provide several active learning techniques that research says are useful in the college classroom to assist students in becoming accustomed to thinking about and stating their thoughts about learning processes (2010, 311–12):

“Describing self-thought”: Challenge students to think about performing a task and focus on what they are thinking about as they perform the activity (Block 2004). Here are some examples: For a basketball player, describe your thoughts associated with shooting a foul shot. For a musician, explain your thinking process that occurs while attempting a new song. For an artist, discuss your thought process in selecting colors that you use in painting a landscape.

“Identifying what is known and not known”: Ask students to “identify what is known about a situation or problem, suggest what needs to be learned, and list steps required to obtain the information (Wray 2003).” Pre-service teachers can be asked to discuss the problem-solving techniques they use to create a plan for teaching students from a culture or a socioeconomic group with which they are not familiar.

“Reciprocal teaching”: The reciprocal-teaching approach is related to the TAPPS technique from Felder and Brent described above. Students take turns in pairs describing their approach to teaching a particular topic in a classroom setting. One partner quizzes the other about the metacognitive process and any concepts that seem unclear. Then the roles are reversed, and the pair continues with a new presenter and a new questioner (Puchner 2003; Seymour and Osana 2003).

Techniques like these provide pre-service teachers with authentic active learning techniques that give them a more sophisticated understanding of their own learning processes (metacognitive analysis) and provide them with

opportunities to reflect with their teachers and classmates about how learning takes place (reflective practice). As they receive feedback related to their understanding of the professional concepts as well as the teaching and learning concepts, these college students can modify their focus and personal study in areas where they need additional practice (formative assessment). And their participation in active learning techniques will provide powerful models for them to follow as they prepare to encourage and engage their students in learning.

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