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## Teaching Thinking in the Basic Course

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## **Teaching Critical Thinking in the Basic Course\***

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*Melissa L. Beall*

Concerned educators at all levels are often caught in a professional bind. On the one hand, business, industry, and educational reformers call for excellence in education, including the teaching of thinking. Indeed, the 1992 Goals Report of the National Education Goals Panel has identified reasoning and critical thinking as special areas of emphasis in two objectives:

The percentage of students who demonstrate the ability to reason, solve problems, apply knowledge, and write and communicate effectively will increase substantially, and

The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially (Paul, 1993, p. 20).

The new Secretary of Labor, Robert Reich, claims that the "wealth of a nation is given in the quality of the thinking of its workers" (Paul, 1993, 1.2: 22). On the other hand, educators often proclaim that students don't and can't think. A recent memo from a department head in our college carried a warning that "critical thinking is a process. . . children learn to think early, and if students come to the college/university level without the ability to think, it's too late for us to do anything." This is a frightening concept: that people can only

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\*Portions of this paper on the teaching of critical thinking have been used in other articles by this writer.

"learn to think" early in life, and teaching college students to think is hopeless.

Another common complaint from educators is "I teach my students to think, but it just does not transfer." This writer believes not only that thinking *can be* taught, but indeed, that it *should be* taught, *in context*, at all levels of education. Another strong personal conviction (supported by the research in critical thinking [cf. Paul, 1991]) is that the transfer of thinking abilities can and does occur, if the right classroom strategies are followed. Unfortunately, Paul (1993) suggests that the educational community does not focus on the process of good thinking, but rather on the "end products of thought" and educators do little to suggest the thinking/reasoning that is the basis for the products (p. 28). In communication courses, we may feel that we are teaching the process of thinking/reasoning because so much of what is required of our students, particularly in the basic course, involves a great deal of analysis and application. Unless, however, instructors focus on the thinking about the thinking (metacognition) that occurs, there will be little transfer to other communication activities, much less to other disciplines.

This paper provides one course director's view of how the basic communication course can facilitate students' abilities to make connections between and among courses, activities, and thinking, rather than merely focus on the end products of thinking. Given the focus on the communication *process*, our task should be easy, but it does not appear to be the case. Sometimes we may attribute this difficulty to the approach taken by some of our basic course textbooks. In our own basic course, we take the "practical" approach and have much greater success with students. We see and hear evidence of the kinds of thinking we hoped to see when our students draw inferences, make comparisons, and refer to earlier specific activities throughout the semester. Discussions and papers exhibit the students' search for reasons, evidence, and criteria. Speeches, too, provide increasing evidence of careful

thought and evidence to support views. We've tried a variety of approaches over the past three years, and believe that a focus on metacognition, specific instruction in critical thinking, and a conscientious effort to encourage students to make connections between classroom activities and other classes and/or situations makes critical thinking instruction meaningful to our students.

Most basic course textbook authors acknowledge the need to address critical thinking. Many authors look at critical thinking from the perspective of formal logic that basic communication course students (and their graduate student instructors) often have trouble grasping, or at least have trouble in applying to their own communication activities. Pearson and Nelson (1991) provide a chapter on critical listening and critical thinking. The chapter covers listening, note-taking, definitions of critical thinking, and attitudes that encourage critical thinking. Much of the chapter is devoted to arguments, fallacies, inferences, rules, truth, and validity. Others, too, provide a formal reasoning or argumentation approach. Gronbeck, McKerrow, Ehninger, and Monroe (1990) include a chapter on argumentation and critical thinking. The chapter provides background on argumentation, refutation, reasoning, claims, evidence, fallacies, and proofs, and directs the student to apply concepts through discussion questions and exercises. Berko, Wolvin, and Wolvin (1992) briefly review reasoning systems, vis-a-vis logic, reasoning, philosophical thought, and conflicts between reasoning systems. Verderber's newest text (1991) address critical thinking and provide chapter questions to direct the student to think critically. Zeuschner (1992) includes both a chapter on critical thinking and an emphasis on critical thinking about the concepts covered throughout the text. Each of Zeuschner's chapters also has a "critical thinking box" and application questions and exercises. Most of the latest texts address, in one way or another, the concept of critical thinking. Many of the new texts or revisions are looking

at critical thinking from a more practical perspective (e.g., Zeuschner's [1992] critical thinking boxes).

Increasing numbers of textbooks now include critical thinking chapters and activities. Given the national emphasis for "more critical thinking" and "more transfer" we really have little choice but to address critical thinking in the basic communication course. The difficulty lies not in teaching critical thinking, but in finding an approach that makes sense to the students. Our goal should be to facilitate students' ability to make connections between ideas and activities, and to use good thinking/reasoning in their speaking, listening, and writing.

Most educators believe that they are teaching students to "think." And, more than likely, thinking occurs in most classrooms. How much of that thinking is a natural part of the student's *modus operandi*, and how much is the result of the pedagogical methods utilized in the classroom is an issue. Another issue is the extent to which students are provided opportunities and assistance in making connections and finding the interrelationships between and among concepts. Individual instructors can promote thinking and can facilitate the transfer of those thinking abilities to other areas, with perhaps only a change of perspective.

College/university students know how to think or they would not be in college classes, for a certain amount of thinking is required to make it through the educational system. The problem lies in making students aware of what, why, and how they think. If we can teach students to think about their thinking (be metacognitively aware) we can help them make the connections between what we do in our classes and what is expected outside the classroom. We can never assume that thinking will automatically develop or transfer just because teachers provide opportunities for thinking. Students must be directly taught *how* to think within the specific communication situation, and how that thinking can be applied to other situations.

## DEFINITIONS

Definitions of thinking, thinking skills, and thinking strategies are necessary. Elsewhere, this writer has defined "critical thinking" as "the search for meaning." Others, too, have similarly connected critical thinking and the making of meaning. A thinking "skill" refers to such discrete thinking abilities as classifying or categorizing, while thinking strategies involve more complex operations such as problem-solving (Beall, 1993, in press).

## THE THINKING SKILLS MOST NEEDED IN THE CLASSROOM

Talking about and even requiring knowledge, comprehension, application, analysis, synthesis, and evaluation is not enough, although using Bloom's Taxonomy (1956) is an excellent basis for setting up the categories of cognitive skills and objectives for class discussions, activities, and exam questions. Many writers believe teachers ought to concentrate on the how and why of classroom learning as much as on what is to be learned. For example, Svinicki (1991) suggests that cognitive psychology provides practical suggestions for both teachers and learners. She asserts that teachers have two tasks: (1) to "organize the course and its content in a way that is consistent with what we believe about how learning takes place" and, (2) to "help students learn how to learn content, a step in sophistication above the mere learning of content itself" (29). Also, Weinstein and Meyer (1991) suggest that college teachers need to focus their teaching "not only on content but on how to learn content in the context of particular courses" (15).

Teaching "thinking" is not the same thing as teaching specific thinking skills or strategies. Each teacher should establish clear expectations of students' thinking in each class-

room in order to better provide the appropriate instructional methods and activities for the students in that particular classroom. Beyer (1987) posits that it is extremely challenging to select what thinking skills/operations to teach. Brandt (1984) and Costa (1984) suggest that educators teach *"of, for, and about thinking"* in all classrooms. Beyer (1987) suggests the following criteria for making selections about thinking for classroom instruction:

1. Does the skill or strategy have frequent practical application in the students' everyday, out-of-school life?
2. Does the skill or strategy have frequent, practical application in a number of subject areas?
3. Does the skill or strategy build on previously taught thinking operations or lead to the development of other, more complex operations?
4. Does the subject matter in which the operation is to be taught lend itself to teaching the operation?
5. Can an understandable form of the skill or strategy be mastered relatively easily by the students, given their degrees of readiness and experience? (p. 45).

The following is a list of thinking skills we utilize in preparing for the basic communication course. (The list of thinking skills is included in the course guide, covered early in the semester in the unit on critical thinking, and referred to throughout the semester.) While not exhaustive, it is a helpful stimulus for determining what to include in teaching of, for, and about thinking. All educators are urged to determine their own expectations for their students. It may also be helpful to the students to have a copy of the instructor's list of thinking skills as a reference for activities and discussions.

### **List of Thinking Skills Most Needed in the Basic Communication Course**

**1. Concentration Skills**

**Attending**  
**Concentrating**  
**Focusing**  
**Seeking Information**

**2. Information-Gaining Skills**

**Listening to information**  
**Processing information**  
**Note-taking**  
**Questioning**  
**Organizing information into some schemata**  
**Responding to one's intuition**

**3. Critical Thinking/Critical Listening Skills**

**Discriminating (sounds, words, concepts, ideas)**  
**Analyzing**  
**Classifying**  
**Categorizing**  
**Evaluating**  
**Determining relationships**  
**Questioning**  
**Identifying main ideas**  
**Distinguishing between fact and opinion**  
**Drawing inferences (inductive and deductive reasoning)**  
**Identifying significant details**  
**Following sequence**  
**Relating new to old**  
**Relating information to personal ideas**  
**Relating information to personal values**  
**Making constructive comments/criticisms**  
**Knowing what specific information to utilize**  
**Knowing when to use specific information**



Using Trial and error  
Comparing  
Contrasting  
Synthesizing  
Applying  
Crystallizing  
Predicting outcomes  
Hypothesizing  
Following one's intuitions to see where they lead

**4. Response skills**

Responding verbally  
Responding nonverbally  
Knowing when to respond  
Writing notes  
Providing feedback  
Adjusting  
Judging the validity of information  
Judging the sufficiency of information  
Judging the ethics of the speaker  
Judging the worth of the information  
Identifying the situation or message  
Imagining  
Testing the validity of arguments  
Testing the validity of reasoning  
Testing the possibilities  
Determining whether or not the intuitions provide the appropriate information

Instructors are encouraged to determine their own lists of thinking skills/operations based upon the needs of the curriculum, the students, and the situation. Teachers should determine what the students know and can do before attempting to teach specific thinking skills or strategies. The research in thinking is inconclusive as to how many thinking skills there are, and which are the most important. The

thinking experts seem to agree, however, that choosing the thinking skills to be covered in any classroom should be made on the basis of the kinds of thinking the teacher believes students will need in situations both inside and outside the classroom.

## COGNITION AND METACOGNITION

We need to differentiate between cognitive and meta-cognitive skills. When teachers teach *of* thinking (teach students what thinking is, or, discuss/provide the labels for the kinds of thinking being utilized), and *for* thinking (teaching students why they use certain kinds of information and reject other information), we are teaching cognitive skills. When teachers teach *metacognition*, they teach people to think about their own thinking. When students are metacognitively effective, they are aware of how they think, why they think, and what has gone into the thinking process. Students can be objective and reflective about their ability to think when they reflect upon what thinking took place (an activity which most of us take for granted). Metacognition allows thinkers to know how they can and do think and how they make meaning from the world around them. Metacognition allows thinkers to internalize things. Students would probably be more proficient in their transfer of thinking from one area to another if we encouraged them to think about what went into the thinking process — before, during, and after each thinking act. Flavell (1976) says there are three aspects of metacognition: **planning, monitoring, and assessing**. Metacognition can be likened to the director's role in setting up the basic course: the director first considers the course and what it should cover, and then plans the best approach. Secondly, the course director oversees the course as it is being taught and considers what is working well and what needs to be improved. After the academic term is completed, the course director evaluates the strengths and weaknesses and determines what addi-

tions, deletions, or changes are needed. Thus, the curricular process may be likened to the metacognitive process, because it, too, is almost second nature. Just as thinking may be second nature to the students, most faculty members do not spend a great deal of time thinking about the thinking involved in their courses. Students, however, must be taught to internalize their thinking if we want them to be more effective thinkers. Even in advanced undergraduate and early graduate classes, we have all found critical thinking to be a rare commodity. Who among us has not bemoaned students' inability to understand what is involved in an analysis of the problem? In debriefing sessions, we can focus on metacognition by asking students how they could have prevented certain problems and how they might approach a similar problem in the future. When instructors focus on metacognition, students and teachers alike will become more concerned with the process of thinking even though something (a product) is created, a paper is completed, or a task is completed. When the classroom becomes obviously process-oriented, more thinking takes place, students internalize the information and the process and can thus make connections between that class exercise or activity and other situations.

## **AN APPROACH TO TEACHING THINKING**

Earlier, we said that each instructor needs to determine the approach most appropriate for all individuals in the classroom. This necessitates a view of the variety of learning styles students and the instructor bring to the classroom. Each student learns differently but there are specific patterns to learning. Teachers should recognize that a variety of teaching strategies and activities are generally most helpful for the majority of students. The more the instructor allows students to have ownership of the class through interactive strategies, the more likely the student is to stay "tuned in." Classroom activities should provide opportunities to observe the kinds of

thinking students bring into the classroom situation. If students already take effective notes, for example, there's no need to cover that aspect. When students do not understand what is involved in making predictions, the process needs to be both modeled and explained. Thinking is not something easily assessed, so there should be opportunities for informal evaluation of student thinking, and especially created opportunities to try the thinking process without a fear of failure.

Students need to know the teacher's expectations. One way to ensure this is to provide handouts or use overhead transparencies so lists of thinking skills can be explored. This becomes a handy reference for the student in ensuing discussions of the thinking process. Activities in the class should enable students to focus on the thinking skills/strategies expected. Students need to know why they are doing what they are doing in the classroom. Thinking should not be taught in isolation if internalization or transfer is the goal. Instructors should let the students internalize the thinking process in which they, themselves, are engaged. Modeling the thinking strategies is an effective reinforcement for the teaching of, for, and about thinking.

Too often instructors ask questions, wait one or two seconds, and then re-phrase the question, ask another question, or answer the question, without providing enough "wait time" to actually think things through. If the process of thinking is emphasized, teachers will allow enough time for the students to process the question and think through possible responses. This should be natural because we deal with the communication process, but too often a "product" becomes too important. Instructors who continually remind their students that the *process* is more important than the product, and who provide opportunities for evaluating the process rather than the product will allow students to believe that thinking *is*, indeed, important.

As is the case with any effective classroom strategy, thinking activities must be discussed. Discussion should focus

on both the cognitive and metacognitive aspects: (1) What were t(3) Why did people make the choices they made? (4) What was needed to arrive at a decision? (5) What would need to be changed to accept some information over other information? (6) What would the student do differently next time? (7) Where else might this kind of thinking be utilized? The instructor should help the students see that the kinds of thinking engaged in for the class are necessary/helpful/already required in other classes and in other activities and situations outside the classroom. Reminders to previous activities and previous thinking facilitates the retention and transfer of thinking to other activities. Constant reinforcement of thinking skills and strategies, and reminders of previous activities allows the student to become fully cognizant of the thinking process used throughout the academic term. Even at the college level, the teacher has to make the connections for students over what seems to be an inordinately long period of time. When the reinforcement occurs constantly and naturally, however, the students begin to make the connections on their own.

A General Education Committee member (a faculty member from another college and department within our university) questioned how we approach the critical thinking aspect of the general education requirements in the Oral Communication course. After examining the materials included in the *Guide to Oral Communication*, he remarked that what we provide is "good teaching."

Perhaps that really is the key to teaching thinking: to be good teachers, teaching well. And, for us, that means making students aware of their own thinking and how that thinking can be used in other situations, both inside and outside the classroom.

## ACTIVITIES TO PROMOTE THINKING IN THE BASIC COURSE

The following materials are included in our *Guide to Oral Communication* text. Different instructors use them in differing ways, but all report that the concept of critical thinking is easier to approach with these materials. Students (and their instructors) report greater satisfaction with practical materials than with textbook chapters. Students seem to grasp the practical application of the thinking process far easier than they are able to deal with enthymemes, syllogisms, models of arguments and formal logic. That is not to say that formal reasoning should be avoided. Rather, it has been our experience that a focus on the practical applications (making connections) and metacognition is working for our students. We have tested a variety of approaches to the teaching of thinking over the past three years. During that time we've included at least six hours in staff orientation sessions on the practical approach to teaching students to think critically. In addition to the August orientation, at least two hours are built into staff meetings during the each semester. Graduate teaching assistants take the Communication Education Seminar and are required to demonstrate and apply teaching strategies for critical thinking in course units and in microteaching sessions. Bloom's Taxonomy provides the basis for making the graduate teaching assistant aware of higher order thinking skills, and serves as a reminder of classroom objectives. We have found that asking students to analyze, develop criteria, test criteria, provide evidence, justify, apply the concepts or evaluate the concepts we cover in specific situations is not enough. All staff members have found that making students aware of how they think, and what they are doing pays dividends. Our students *do* learn to make the connections on their own.

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## APPENDIX A

### LINKING LISTENING AND THINKING

Listening and thinking are closely inter-related. Think about the process of listening. What is involved? We hear sounds, we interpret the sounds, and then we try to do something with the sounds and their interpretation. Just as there are similarities between perception and listening and between the speaking process and the *listening* process, there are similarities between listening and thinking. What happens when we think? What happens when YOU think about something?

Let's experiment for a moment. Read and complete each section before moving on to the next paragraph, please.

Think about that last question: What happens when you think? What happens first, then what, then what, and, what do you end up with? How did you get there? Write down what you think happens as you think in the space below.

Now, let's do a bit of problem solving: Identify what you consider to be the **world's greatest invention**. Then, in the space provided, explain why you believe that invention is the greatest the world has known.

Think about what happened when you had to decide what the world's greatest invention is and why it is the greatest. How did you arrive at your decision? What was the process in

which you were involved? What kinds of thinking occurred? How did you use information? What information did you seek? What information did you reject? Why did you reject certain bits? Why did you reject certain inventions? Why did you finally choose the one invention you did? What helped you make that decision? How did you go about rationalizing your decision? What *are* the justifications for that invention as the greatest *in the world*? What other alternatives are there? Why? Why did you reject the alternatives?

Explain your thinking (Provide answers) here:

Compare your answers from what you thought thinking was like to what actually happened when you had to make a solve a "problem" how similar were your answers? How different?

Now, compare the whole thinking process to the communication process. Where are the similarities there? What are the differences? How similar is the thinking process and the listening process?

In the examples here, you had to read, think, and respond. As a listener, you hear, listen, think, and respond. On a *prima facie* basis (on the face of things), you can see the similarities. Do those similarities go deeper than that? This writer believes they do. Thinking *is or should be* involved in everything we do. But, then, so should speaking, listening, and questioning. If we wish to be effective in whatever we do, we must take every opportunity to improve upon and utilize our communication/thinking skills. The purpose of the exercises here are to get you to think about the whole process. If you'll carefully respond and then think about what you've written and what you've done, you will have made progress toward utilizing the listening-thinking connection. Carefully look over the MZETACOGNITION handout in this packet. Pay careful attention to the diagram on the fourth page. The teaching learning process utilizes speaking, listening, questioning and thinking skills as well as other teaching-learning strategies. If you think about how those circles move together and apart in various learning situations, you'll realize that the skills are inseparable, but we must be aware of them, and we must understand when, where, and how to use those skills in all facets of our lives.

An effective and efficient listener is utilizing his or her questioning skills, listening skills, and thinking skills, and then is able to apply the skills and the results of using them to whatever situation is being faced at the moment. The student who is aware of what is happening during the process is the one who will be able to use the information and the thinking and be able to *apply* it to a variety of situations throughout her or his life — not just in an activity in this class, but in everything she or he does.

## **APPENDIX B**

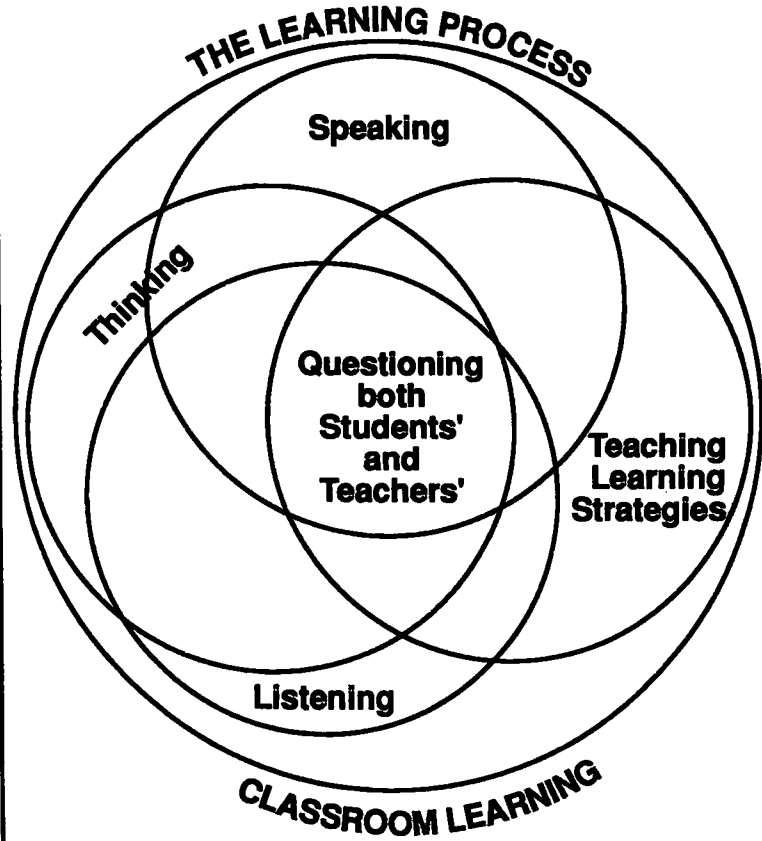
### **METACOGNITION: THINKING ABOUT THINKING**

In the past decade or more, in virtually every educational report, and every survey of what businesses expect of their employees, three competencies have been identified: speaking, listening, and thinking. (See Figure 1.) These competencies are the focus of much of what we do in Oral Communication, 50:023, and much of what is required of us in our roles as friends, family members, workers and citizens. Since these areas as well as an awareness of a changing world are issues of concern for all people, we have put together several packets to supplement readings and class discussions.

A United States Labor Department Commission in July, 1991, issued a report urging the nation's schools [at all levels] to concentrate "on five learning areas of increasing importance in the workplace" [see "Workplace Skills" from the U.S. Labor Secretary's Commission on Achieving Necessary Skills]. Many of the areas are covered in this course; for example, "working with colleagues in teams and other settings; using and evaluating information; understanding systems; listening; speaking; an array of thinking skills, including creative thinking, decision making and problem solving, and such personal qualities as responsibility, self-esteem, sociability, self-management and integrity." (Peterson, *Los Angeles Times*. D1, 7-3-91).

Many of the competency areas cited by the Labor Department are skills and operations we *think* we already know. Unfortunately, we may know that these competencies are important, but we don't really give them much thought in our pursuit of an education. Instead, we tend to concentrate on "what is needed to do well on the exam" or "what is needed to

**The Relationship  
of Speaking, Listening and Thinking  
in the Learning Process**



*Melissa L. Beall, UNI*

**Figure 1**

### **The Workplace Skills**

The U.S. Labor Secretary's Commission on Achieving necessary Skills released a report Tuesday describing five learning areas of increasing importance in the workplace. Their development depends on a foundation of more basic abilities.

#### **The Foundation**

- **Basic:** Reading, writing, mathematics, speaking and listening.
- **Thinking:** Creativity, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, reasoning.
- **Personal qualities:** Responsibility, self-esteem, sociability, self-management and integrity.

#### **Job Skills**

- **Resources:** Allocating time, money, materials, space and staff.
- **Information:** Acquiring and evaluating data, organizing and maintaining files, interpreting and communicating and using computers to process information
- **Systems:** Understanding social, organizational and technological systems, monitoring and correcting performance and designing or improving systems.
- **Technology:** Selecting equipment and tools, applying technology to specific tasks and maintaining and trouble-shooting technologies.

Source: U.S. Labor Secretary's Commission on Achieving Necessary Skills

(from the Los Angeles, *Times*, July 3, 1991, p. D7.)

get an "A" in the course. Too often we forget that the material we study is at least perceived to be valuable for most people. Also, our teachers sometimes forget that the object of education is to provide opportunities for students to move from one

place to another in order to help people learn **how to do what and where to go to get answers, not to fill up minds just for an exam.**

Thinking skills and operations are, by this time, almost automatic. we just do what we have to do, and don't really give much thought to what happens when we think. If we concentrate on what we think about, how we think, and what happens when we think, we can improve our thinking greatly. Even more importantly, we can learn to use that same kind of thinking in other situations. Only when we become aware of how we think, why we think, what decisions have gone into the thinking process, and what and why we selected or eliminated available alternatives can we become "better thinkers." Students have to take advantage of the thinking opportunities provided them if they are to make the transfer from classroom to other situations.

Metacognition is a word which refers to how one thinks about thinking. What we ask people to do when thinking about their thinking is to figuratively step back and observe our own thinking. We must reflect upon the thinking we do, **before, during and after** the act of thinking. Think about the problem-solving process. There are many "steps" in solving a problem, but the basic elements according to Flavell (1986) and other thinking experts are: **planning, monitoring and assessing.**

Planning means that we analyze the situation and decide what we will do and how we will approach the problem. We engage in any number of thinking operations and skills to do this. We may focus our attention on the elements involved in the problem, then we may ask questions, listen to information, look for significant details, process information, make inferences, draw comparisons, look for contrasts, evaluate the evidence, make predictions, create hypotheses, and predict possible solutions.

As we continue to work on finding a solution to the problem(s) we monitor what we're doing. Some of the same think-



ing skills come into play in this operation. And we may further relate new and old information, relate information to personal values/views, look for significant details, try to identify sequence, make adjustments, look for relationships, determine when we use specific information, and synthesize the evidence and the reliability of the solutions we've begun to determine. We constantly monitor ourselves by asking such questions as "How am I doing? How can I get (x) to happen? This isn't working. I'll try this approach. Yes, this is better. We're checking, adjusting, changing, throwing out, seeking additional information, finding new approaches: we're monitoring the rethinking (even if automatic pilot has taken over the controls).

Once a solution or series of solutions have been generated, the thinker must assess whether or not she or he has found the best solution and the most effective response to the problem. Any number of the thinking skills utilized earlier may be brought into play for this aspect of the thinking process. The thinker continues to make judgments about the problem, the solution/s, and the **best or most effective** means of implementing the solution/s. We assess not only whether or not the approach we took for this particular problem was best, but we also need to think about how we can use this process for another situation. Again, we mentally calculate how we would change the approach in a similar situation.

In a face-to-face communication, we respond to feedback to determine whether or not we're getting through. As a part of the **assessing** that goes into our thinking, we should consider not only whether or not we're "getting through" but also, "how effective was my thinking in this situation" and, "how can I use this process in another situation, at another time?"

Flavell (1986) indicates that we are using metacognitive skills when:

1. we take note of what we have trouble learning,

2. we remind ourselves to double-check something before we accept it as fact,
3. we remind ourselves to scrutinize each alternative in a multiple-choice test **before** selecting an answer,
4. we sense that it is important to write something down before we forget it, and,
5. we have **INTROSPECTION** (looking inside ourselves and our minds to figure out what and how we're thinking, and what kinds of thinking skills we're using), **RETROSPECTION** (looking back to see what we've done and evaluating whether or not we're on the right track, or what additional information we need), and **FUTURESPECTION** (thinking about how we might use this process in the future, in another situation or for another problem, or when we think about how we can prevent certain problems and how to approach problems in the future).

Margaret Donaldson (1978) gave us a view of what is needed in educational systems:

"[the students] should learn to turn **language and thought** in upon themselves. They must direct their own thought processes in a thoughtful manner. They must become able not just to talk, but to choose what they will say, not just to interpret but to weigh possible interpretations (90) [emphasis added by this author]. . . . If a [student] is going to control and direct his/her own thinking, . . . s/he must become conscious of it" (96) .

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## APPENDIX C

### QUESTIONING STRATEGIES FOR THINKING STUDENTS

Questioning skills are among the most important skills in the classroom, for students and for their teachers. In the communication classroom questions are particularly important because the effective listener, the effective thinker, the effective communicator must all utilize questions as a way of making sense of the communication process if they are to apply knowledge and understanding to themselves and their lives.

Questions are more than just asking a question or making a query. Questions help us make sense of the world around us, especially if we ask questions and find answers. We ask questions to clarify our understanding of concepts, to make sure that we got the requirements of an assignment, to make sure that we understand what another is saying, and, we should also ask questions to get further into matters than we often do. Students who are constantly learning should be the ones who ask many questions. Unfortunately, the educational process has not always encouraged the use of questions by students. This writer remembers numerous times from the primary grades through graduate school when she got "into trouble" with the teacher because she asked too many questions. (Is it any wonder that she now believes that one can never ask too many questions in search of knowledge?) Questioning ourselves, whether mentally or aloud, helps us to reveal our thoughts and feelings to ourselves and to others. Learning to use questioning strategies and developing our questioning skills helps us to become "critical thinkers." Critical thinkers do more than just deal with the basic content of something. Critical thinkers use questions to facilitate the in-

tellectual process so that they can use and apply information and knowledge not just to one class, one activity, or one thing, but to a variety of situations in their lives. Critical thinkers who question and find answers are the people who learn to integrate information, explore topics, argue points of view, interact effectively with others, and LEARN.

Many of you have doubtless heard of Benjamin Bloom's "Taxonomy of Learning." Bloom identifies a hierarchy of learning moving from (1) basic knowledge (recall), to (2) comprehension, to (3) application, to (4) analysis, to (5) synthesis, and finally to (6) evaluation. You can't move up the hierarchy unless you have the basic knowledge, first, but there's not a real sequence otherwise. You may, for example, ask a question which helps you establish what's going on, and then ask a question which allows you and the person of whom you ask the question to evaluate something. A third question might allow you to apply knowledge. There's nothing wrong with that kind of configuration, but you can't move anywhere unless you know first know what is being discussed. These guidelines are merely suggestions and do not imply that people asking questions have to move from recall questions up the hierarchy. If one does not understand the basic concept, however, she or he will be unable either to effectively phrase a question or understand an answer designed to move into the higher levels of thinking. What is important, instead, is that we begin to actively seek ways to improve our questioning skills, learn new questioning strategies so that we can be the most effective communicators/thinkers/learners we can be.

Let's look at some of the ways we can begin to work on our questioning strategies.

1. If you're not sure of what someone is saying or what you're reading, ask a question. "I'm not sure I understand you. Are you saying . . . ?" **In this classroom, there are no dumb questions.** How can we learn unless we ask questions?

2. Allow yourself to think about and come to terms with the material being covered. An immediate response, either to another's question, or to another's statement is not required. Thinking takes time. Phrasing questions takes time. Use your time wisely, and don't worry about speed or lack thereof!
3. Be flexible. Listen carefully and think about what you need to know so that you can ask questions that will help you be a more effective communicator/listener/thinker/questioner.
4. Don't be afraid to ask questions that make others think. In other words, take some risks. In this communication classroom we're not going to get upset with you for asking a question that moves beyond the factual areas -- we encourage you to ask questions which allow you (and us) to comprehend, apply, analyze, synthesize, and to evaluate. We'll commend you for helping us move to higher levels of thinking, too.
5. Try out the questioning process in the dyads and small groups in which you work in this class, and in other situations. Listen carefully to what's being said in class, in discussions, in presentations, and mentally apply that information to other situations. How does it fit? Where might it fit? What additional information do you need to have? Where can you find the needed information? How will this apply to something somewhat similar but not exactly the same thing?
6. Ask questions that let others know that you were listening and that you are thinking about what you heard. Instead of asking, "What did you tell us?" or, "What was the assignment?" or, "What is it you want us to do?" (questions which imply that you were NOT listening), ask questions such as: "Does that mean you want us to come up with three alternatives?" or,

"What if we can only find two alternatives?" or something similar. Do you see the difference in the questions? The first type of question asks what another said and the second (better) type of question tests for understanding or allows the person being questioned to see that you're not sure of the consequences.

7. Listen to others' questions and the answers they receive. This will help you focus on what is being asked and how it is being applied.
8. Take every opportunity to ask questions, either silently of yourself, silently asking others, or verbally asking questions aloud, in class, in discussions, as you watch television, hear a speaker, or talk with friends. Asking questions helps you clarify your own thoughts and those of others. Asking questions helps you to know what it is you're thinking.
9. Give yourself time! Asking the "right" kinds of questions isn't easy. It involves perhaps different kinds of thinking skills than you've had an opportunity to utilize very often before. Remember that you'll get better with practice.
10. The objective is to ask questions that will help you learn more.

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**SAMPLE PROBLEM SITUATION**  
**(from Christenbury and Kelly, 1983):**

A husband and wife drive to work together each day. Their office is a half-hour drive from their house, but each night they leave work at 5:00 and don't reach their house until 6:30. Why?

Generate a list of questions to help you solve this logic problem.

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