CONCEPT LEARNING

Helping students develop sophisticated understanding of essential concepts associated with a content-area unit of study can be a considerable challenge. Essential concepts are those ideas that are central to understanding an over-all lesson or unit. Students who do not understand the important essential concepts of a unit often "miss the point" of the unit and develop superficial or erroneous understandings about the unit topic. Examples of essential concepts include:

Content-area class	Unit	To-be-learned Concept
World history	The Middle Ages	feudalism
American history	The Civil Rights Movement	peaceful resistance
English	Charles Dickens author study	exploitation
Psychology	Factors impacting behavior	co-dependency
Science	Evolution	survival of fittest

The central, most important essential ideas of a unit are often the most complex and challenging to teach, and are in turn the most difficult for students to master, especially those students who are at-risk.
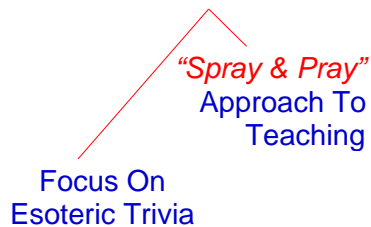
WHAT ARE THE FACTORS WHICH IMPAIR CONCEPT LEARNING?

Unfortunately, most students quickly forget new terms once they have taken the test, and many intentionally try to forget the new knowledge in order to "make room for the next round" of to-be-memorized information. Many students view the brain as if it were a garbage can -- *once it's full, it must be emptied before more stuff can be put in it.* The quickness in which new information is forgotten by students raises a serious question about practice: If students quickly forget the new information once they have taken the test, why bother requiring them to memorize it in the first place?
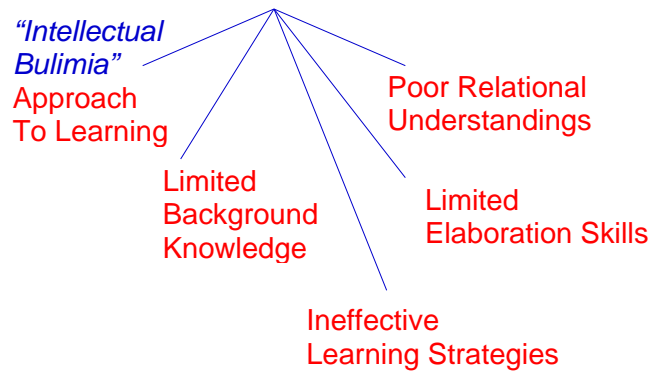
There are several common factors that significantly impair students' ability to learn new concepts in a meaningful way. Some of these are directly related to the nature of instruction that students commonly receive, and some are due to the nature of students' learning styles and abilities. A few of these factors are briefly explored below.

FACTORS WHICH IMPAIR CONCEPT-LEARNING

TEACHER FACTORS

STUDENT FACTORS

"Spray & Pray" Approach To Teaching

Focus On Esoteric Trivia

"Intellectual Bulimia" Approach To Learning

Limited Background Knowledge

Ineffective Learning Strategies

Poor Relational Understandings

Limited Elaboration Skills

TEACHER FACTORS WHICH IMPAIR SUCCESS

"SPRAY AND PRAY" APPROACH TO TEACHING

Frequently, teachers experience a great deal of pressure to "cover" the content (or finish the book), and as a result, expose students to a great deal of information, but teach very little of it. Metaphorically, students tend to get "sprayed" with a thin layer of information that covers a wide range of subject-matter, and they "pray" that some of it will stick. As a result, most students fail to develop deep knowledge structures about important ideas of the curriculum. In short, we tend to attempt to teach far too much information, thus, the adage "less is more -- depth is more" has considerable merit.

FOCUS ON ESOTERIC TRIVIA AND SPECIALIZED KNOWLEDGE AT THE EXPENSE OF FOCUSING ON MAJOR CONCEPTS AND ESSENTIAL IDEAS OF THE CURRICULUM

One way to evaluate what teachers think is important for students to learn is to examine the tests they give students. These tests often reflect the expectation that students memorize a great deal of information that is not really worth knowing at the expense of ensuring that students more fully understand the concepts of the curriculum that have great merit for understanding our world and solving real world problems. For example, following a unit about exploration of the new world, students are commonly tested on whether they can name the Spanish explorers and identify locations in the Americas about which the explorers are associated. As a result, students must put all of their energies into memorizing trivia, and learn little about the real significance of the essential ideas associated with this period of history (i.e., how exploitation of weaker populations

manifests itself throughout history, how spreading Christian gospel was (and 'is') sometimes used as an excuse for wealth-building, etc.).

Some teachers' knowledge base about the subject-matter being taught appears to be a major contributor to this problem. Some teachers know so little about the subject matter that they are unable to identify the major concepts themselves, while others seem to know so much about a specific topic that they loose track of what the more fundamental ideas are that students need to know about a specific topic.

STUDENT FACTORS WHICH IMPAIR SUCCESS

"INTELLECTUAL BULIMIA" APPROACH TO LEARNING

Regrettably, many students' approach to learning can be best characterized as "intellectual bulimia" -- that is, they attempt to memorize as much "stuff" as they can in order to perform well on the upcoming test, and then regurgitate it for the test. Like persons who suffer from bulimia who don't want to retain the calories they've ingested, many students *intentionally* forget the information once the test has been taken. This unfortunate perspective to learning is largely due to the rules of the "school game" that educators have established over the years.

LIMITED ABILITY TO ACCESS BACKGROUND KNOWLEDGE AND FORM RELATIONAL UNDERSTANDINGS

Many students (and especially those with learning disabilities) appear to experience difficulty accessing their own background knowledge about subject matter, and as a result, develop poor relational understanding of a to-be-learned concept. In short, many students experience a great deal of difficulty understanding how one idea is related to another idea. Metaphorically, they tend to *accumulate* knowledge rather than *integrate* knowledge.

The more one knows about a topic, the easier it is to learn more about it. Many students with disabilities are further handicapped from learning new content by their own lack of background knowledge about topics commonly taught in school. This may be due, in part, to their own learning problems that resulted in failure to learn content subjects taught in the earlier grades. Lack of background knowledge may also be due to lack of opportunity to learn -- many students with disabilities miss basic science and social studies instruction that occurs in the elementary and intermediate grades because they are pulled out for resource room services designed to remediate literacy skills.

LIMITED ELABORATION SKILLS

Elaboration of an idea occurs when one transforms an idea in some manner without loosing the essence of the concept's meaning. Examples of elaboration include: paraphrasing a definition, identifying the main idea of a

paragraph, creating a visual image of an idea, role-playing or acting out the meaning of an idea, forming predictions, or transforming the information into a series of questions. Due to differences in intellectual development, many students often lack the language-based cognitive skills necessary to engage in effective elaboration. Some students also experience significant problems with short term memory resulting in an inability to retain the new information for a sufficient amount of time for elaboration to occur. Unfortunately, elaboration of a new concept's meaning is one of the most important cognitive strategies students can use to promote understanding and memory of the concept. In sum, students who lack elaboration skills are at greater risk for school failure.

INEFFECTIVE LEARNING STRATEGIES

One of the most common strategies students use to study the definitions of concepts is the *'look and remember'* technique. Here, students typically stare at the term and definition, apparently trying to activate photographic memory they wish they had. Another common study technique is *'rote verbal rehearsal'* -- saying it over and over again, usually in the exact language and format in which the definition originally came. Neither of these strategies require much in the way of cognitive activity, and neither are particularly helpful in facilitating comprehension or memory of new concepts.

HOW DOES MEANINGFUL CONCEPT LEARNING LOOK?

For students to develop meaningful understanding of key concepts, they do not memorize others' definitions of the concept. Rather, they construct their own understanding based on integrating new information provided them with their own background knowledge and experiences. Learners are constantly re-constructing and refining their understanding of the concept as they encounter more information about it and experiences with it.

Developing deep knowledge structures of a key concept is an iterative, recursive process whereby students gradually move up a continuum of understanding. The bottom of this continuum represents erroneous understanding where the learner has little real understanding of the concept and makes few connections between the idea and other important ideas. Students whom rote memorize definitions are at risk for being at this end of the continuum.

The top of the continuum represents sophisticated understanding of the concept where many connections to other important ideas are formed. The learner is able to understand the idea from multiple perspectives (i.e., can identify its unique critical features, distinguish it from other similar concepts, can recognize variations of it, generate examples and nonexamples of it). **Most importantly, the students understand the concept in relation to current, real-world contexts.** This means that the concept needs to be comprehended in relation to how it helps one better understand our current world, a current real-

life problem, or how to solve a real-world problem. This means that of all the things teachers can do to promote learning of new concepts, one of the most important is teaching the concepts from the perspective of understanding or solving the problems in their *current* world. Thus, we read Charles Dickens, in part, to better understand the concept of "exploitation" and how this is a current problem in our society that needs solving; we study about "feudalism," in part, so we gain a greater appreciation of how the U.S. Constitution is designed to prevent this kind of society today; we study about "co-dependency" so that we will better understand the problems some face so that we'll have a better idea of how to help them or understand ourselves better; and we study about survival of the fittest, in part, to understand how random variations in DNA structures interact with frequently changing environment to create new species.