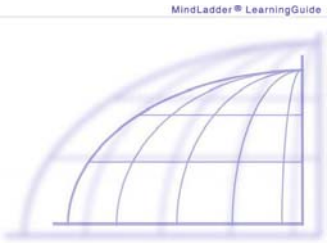

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T-14: Establishing Relationships

This knowledge construction function orients the student to allocate the amount and type of energy that is needed to perform a mental activity. The function plays a role in each of the three phases of the mental act. Learners may allocate energy correctly in one or two phases yet not do so in the third. For example, a student may take great care to be precise when collecting and transforming information yet be careless when communicating information. For this reason the function is discussed separately for reception, transformation and communication (for reception look under R-9 and for communication look under C-7).

Establishing relationships, making connections, is an important part of learning. It enables us to take advantage of the information we have to search for solutions, derive new information, clarify explanations and gain new insights. Since learning is the process of connecting bits of information and generating new information a student without this knowledge construction function will achieve little academic progress. Schoolwork becomes difficult because the learner does not link from one lesson to another. The student may manifest an episodic grasp of reality where each encounter is seen as disconnected and disassociated from the preceding and the following.

In the absence of this knowledge construction function students may receive information correctly, may have the prerequisite mental operations to carry out the task - and yet may not do so. The difficulty arises when the student needs to supply energy to create a relationship to arrive at new information based on the given information (see also T-16).

The readiness to search for connections between the parts of one's experience is sensitive to the learner's attitude towards the self and the world. Students with inadequately developed knowledge

construction functions frequently see themselves as passive recipients of information. In the absence of efficient knowledge construction functions tasks that the learner may even be able to do can still appear overwhelming due to the effort that would be required. The required effort is seen a just too great relative to the probability and value of a successful outcome. It just doesn't seem worth it. In another phrase, the 'economy of the mental act' is unfavorable to the learner. This assessment may be rendered about tasks that more proficient peers will readily approach and solve.

Imagine that you were asked to multiply in your head the following two numbers: 13.47 and 32.29. For most of us this task would create what might be termed an unfavorable mental economy. In others words, the probability and value of figuring out the correct result just don't seem to justify the mental effort that would be required to do it. Now imagine a learner who would experience the same feeling when facing a task such as 2002 minus 1990 or when facing a need to compose a sentence for a writing assignment.

It is possible to change the economy of the mental act by manipulating the value of the outcome. Attaching a prize or reward will have the effect of making the mental effort seem more worth while. For example, with the prospect of a suitable reward we might try to mentally calculate the product of 13.47 and 32.29. Many contests such as the National Spelling Bee provide incentives of recognition and prizes to support the effort that is needed to acquire the requisite knowledge and skill.

Some teachers may attempt to adjust the economy of the mental act by threatening punishment or loss of privileges. This approach does not address the learner's underlying issues and rarely makes a meaningful difference. Upturns in effort are usually of short duration as they are difficult to sustain. The most durable way to improve the economy of the mental act is by mediating the development of students' knowledge construction functions. Central here is the need to search for and establish relationships. The mediation of this function is required to overcome the attitudinal remnants of passivity that may continue to characterize the learner's approach even as improvements in other knowledge construction functions change the economy of the mental act in favor of the learner.

To mediate this knowledge construction function focus on situations that enable you to highlight the active role of the mind in the search for and establishment of relationships. Virtually any problem or task can be used to bring this knowledge construction function to light. For instance, family relationships can be used for the student to discover

that one can search for and establish many different relationships among kin: When linked to different family members, the same person can be a mother, a daughter, a sister, an aunt, a grandmother and a niece. Many board games lend themselves to a focus on this knowledge construction function as play progresses within the context of the rules of the game and the various relationships that evolve among the players (e.g. Parcheesi, chequers, chess).

Throughout the process of mediation, guide the student to the realization that she can be an active generator and producer of information. “Do you see how you can take information that is given to you and create new information from it? And it was you who did it and you did it well!” The active classroom format is well suited to developing this function because the student is encouraged to question as she is pursing a project or assignment. Have the student predict what will happen and discuss why he thinks it will happen. Ask questions to do this. "What do you think will happen to the temperature if we add ice cubes to this beaker of water?" or “Do you think a cookie will crumble faster in hot or cold water”? Asking questions will establish a need for the student to connect events and establish relationships (see also T-17).

The key for the educator is to understand the nature of this function so that it can be pointed out to students in a manner that makes its role and contribution clear. Have your students practice making estimates of the economy of different mental acts so they become familiar with both the cognitive and attitudinal components that enter into this subjective calculation: How much effort will the task require and is the task seen to be worth it? Your students can create their own tasks for this purpose and share them with one another. You can also have them use exercises in their workbooks. First have them make the estimate, each student by himself, then have them do the task and then have them compare their estimate with their actual experience. Follow up with a group discussion. It is usually quite easy for students to rank-order different tasks along the parameter of the economy of the mental act. Remember that the estimate and the actual experience will be a subjective reckoning that will yield different results for different students: Each brings a different knowledge base and a different set of attitudes and expectations to the exercise. Repeated over time the exercise can reveal quite a lot about changes in students’ perceptions of difficulty and confidence in their ability to succeed in the different areas of the curriculum.

Work with your students to strategize how they can affect the economy of tasks they face for example by searching for shortcuts that may reduce task difficulty, by creating motivating challenges and

by feeling pride in the accomplishment of difficult assignments. Students need to learn that it sometimes is necessary to put the shoulder to the wheel and persist in the face of obstacles or setbacks.