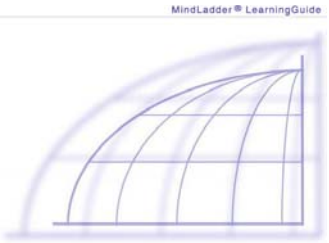

Printout of MindLadder® Advisor Section B-5•

T-12: Mental Transformations

This knowledge construction functions enables learners to mentally change ideas. Ideas are formed as mental representations (T-7).These initially may be vague and fuzzy. When we work productively with our ideas, we experience that they become clearer in our minds. We say that our ideas are 'taking shape': We are mentally transforming the original idea:

> "Last week I got an idea for a play. It wasn't very clear to me at first but I stayed with it and it became increasingly evident to me what I really wanted to say and do with it. The idea still needs a lot of work but the principal characters are beginning to be fleshed out in my mind. I can begin to see now what kind of structure the play will have. It will have four acts and, I think, at least three scenes in the first act. I am working in my mind now on a scene that will be part of the second act. There is still a lot I have to think about."

This knowledge construction function supports the development of the learner's ability to mold, sculpt and fashion ideas. To mediate this function have students practice changing mental representations (ideas) in their minds. For example, have students think about a play that they might wish to write. Have them close their eyes and focus their minds on the central character or protagonist. You can use guided imagery to support the development of this knowledge construction functions:

> "Now, you each have your main character in mind for the play you are envisioning. Think about where your character is situated. Is the character inside or outside? What time of day is it? What time of year? How is your character dressed? Now I want for you to slowly put your character in motion. If your character is with other people begin to let them interact.

> If your character is alone let your character begin to reflect his thoughts."

Use activities like this for students to become aware of this knowledge construction function and how they deliberately can employ it.

It is easy to find situations within your curriculum where you can activate this knowledge construction function. For example, have students turn common geometric shapes in their mind. "Put the idea of a square into your mind. Now tilt it so it stands on an angle. Now spin it first slowly then faster. You can see what your minds can do with this amazing brain tool: We use this brain tool to change and develop the ideas we have in our minds." Have each student pick a topic for an essay. Coach and guide them in developing their thoughts in their mind. Have them begin to sequence their points and arguments and have them edit these in their mind. Then have them begin to write it out on paper. Use the experience to compare the ease of composition and writing with or without the use of this knowledge construction function. Look at the quality too.

A transformation involves a change of parts within a larger whole: One or more parts change while others remain the same. The pace of a transformation is determined by the number of the parts that undergo change and the speed at which this occurs. Nature and biology are replete with transformations. Butterflies go through four stages of life starting with an egg which hatches into a caterpillar or larva which forms the chrysalis or pupa which matures into a butterfly. Even weeks after the egg has been laid a frog living primarily on land emerges from a tadpole living in water. The stages of the human fetus from conception to birth is another example of a transformation; one we can extend through the seasons of a person's life from neonate, to infant, to child, to adolescent, to young adult, to mature adult, to old age and death.

Drawing on analogies in nature discuss with your students how we can use the knowledge construction function of mental transformations to change and develop our ideas from their inception to the completion of a project.

Some transformations in nature are irreversible, like the biological transformations mentioned above, and others are reversible. Chemistry and physics provide many examples of reversible transformation. The melting, vaporization, condensation and refreezing of water are reversible transformations. For any particular temperature a chemical equilibrium is a state of balance in which two

opposing reversible chemical reactions take place at constant equal rates.

Ideas are used to guide human decisions and actions. Ideas are easier to reverse than decisions and decisions are easier to reverse than actions. Hence the saying 'Think before you act'. Ideas can be changed and improved and it is often easy to do so especially in the beginning of a project and when we are far from a deadline. We use ideas to make decisions (T-20) both as individuals and as members of communities. Some are easily reversible, some are reversible with various degrees of difficulty and some are not reversible at all. For example, transforming a friendship to a marriage; transforming our body by what we put into it, transforming political systems by changing voting procedures, transforming the environment by changing waste management routines.

Difficulties reversing actions and decisions make it especially important for learners to become skilled and careful in developing their ideas. The ability to modify and grow an idea through stepwise mental changes is connected with decision-making (T-2) and such other knowledge construction functions as goal seeking (T-22), planning (T-23) and goal achievement (T-24). These functions often interface with the function of mental transformations by providing impetus and direction for the development of an idea. Have students try to experience how these knowledge construction functions can guide the mental transformation of their ideas. Together these functions enable the individual to establish purpose and meaning. The ability to see one's own life as a series of transformation over time plays an important role in the development and maintenance of the person's sense of continuity and identity over time.