Learning and Retention or How learning and retention impact academic Success

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Abstract

Once students learn subject matter, teachers want them to recall it. When a certain task is performed faster with less errors repeatedly, learning is said to take place. Learning, retention, recollection, recall and recognition are important for academic success. The attitudes, knowledge, skills, and hope provided during growth and development will be the foundations of adulthood. Formal education pedagogy requires the student to learn. Learning is a change of behavior or skills that result from experience or instruction. Education must also have a retention and its corollary transfer as part of its components, for without the second part there is no education. The article discusses what education and retention entails and the components of retention.

Key Words: Learning, Retention, Recollection, Recall, Recognition

Introduction

To educate is to provide schooling to train by formal instruction and supervised practice
especially in a skill, trade, or profession to develop mentally, morally, or aesthetically especially by instruction. Formal education has two principal objectives with respect to the cognitive development of the individual: a) the long-term acquisition and retention of stable, organized, and extensive bodies of meaningful, generalizable knowledge <u>and</u> b) growth in the ability to use this knowledge in the solution of particular problems, including those problems which, when solved, augment the learner's original store of knowledge. The criterial by which short-term memory determines whether information should be stored for the long term is complex (<u>Newquist</u>, <u>Kasnot</u>, & Brace, 2004; Wlodkowski, 2008; Ratey, 2002; Barkley, 2010; Ritter, Baxter, Kim, & Strinivasmurthy, 2013).

Retention

Retention is the process by which long-term memory preserves a learning so that it can be located, identified, and retrieved accurately in the future (Baxter, Kim, & Strinivasmurthy, 2013; McLaurin, Smith, & Smillie, 2009). Hermann Ebbinghaus was describing the learning curve back in the late 19th century. He also described the Forgetting Curve, which demonstrates how about 70% of any new information is lost within 24 hours if we don't make an effort to retain it (Shrestha, 2017).

There are many factors that influence retention. One critical factor is adequate time to process and reprocess information so that it can be transferred from short-term to long-term memory. The process by which information moves from short-term memory to retention in long-term memory takes time and at times occurs during deep sleep. Research on retention demonstrates that the greatest loss of newly acquired information or a skill occurs within the first 15-24 hours, so if a student can remember the information after 24 hours, there is a higher likelihood that it is now in long-term storage. If a student cannot remember the information after 24 hours, it is most likely not permanently stored and will not be retained.

Learning

A dynamic process in which the learner constructs his or her own mind by constantly making and changing connections between what is new and what is already known is called learning. Deep, long-term learning occurs when changed connections result in reformatted structures with a corresponding change of behavior. Students need to do the work required for meaning-making to take place (Baxter, Kim, & Strinivasmurthy, 2013). If there is no meaningful behavioral change in the student based on learning, when we review the information, we are not teaching so much as we are reminding.

The following figures illustrate some of the important aspects of formal education pedagogy. Figure 1 provides a simplified version of the contributing factors to meaning making.
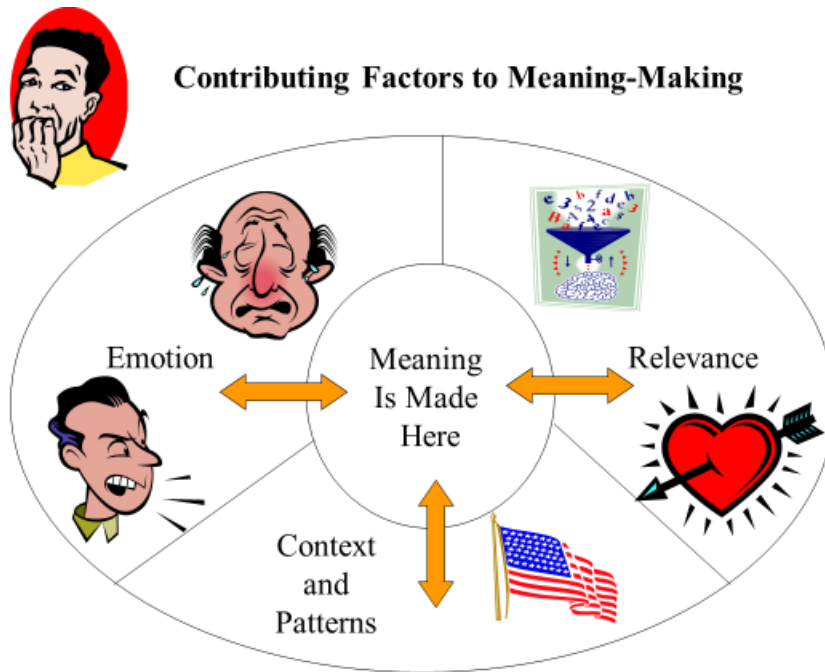

Figure 1: Contributing factors to meaning making**.** (Notar, 2012).

You may or may not have heard the following saying:

<div align="center">

I hear: I forget
I see: I remember
I do: I understand

</div>

Figure 2 provides some statistics supporting the above statement.

Average Students Delayed Recall

	3 Hours	After 3 Days
When Told	70%	10%
When Shown	72%	20%
When Told and Shown	85%	65%
When They Tell and Show	90%	75%

Figure 2: Average student delayed recall. (Notar, 2008).

The *Cone of Experience* (Figure 3) will help in the pedagogy of education to improve retention of learning and transfer of learning.
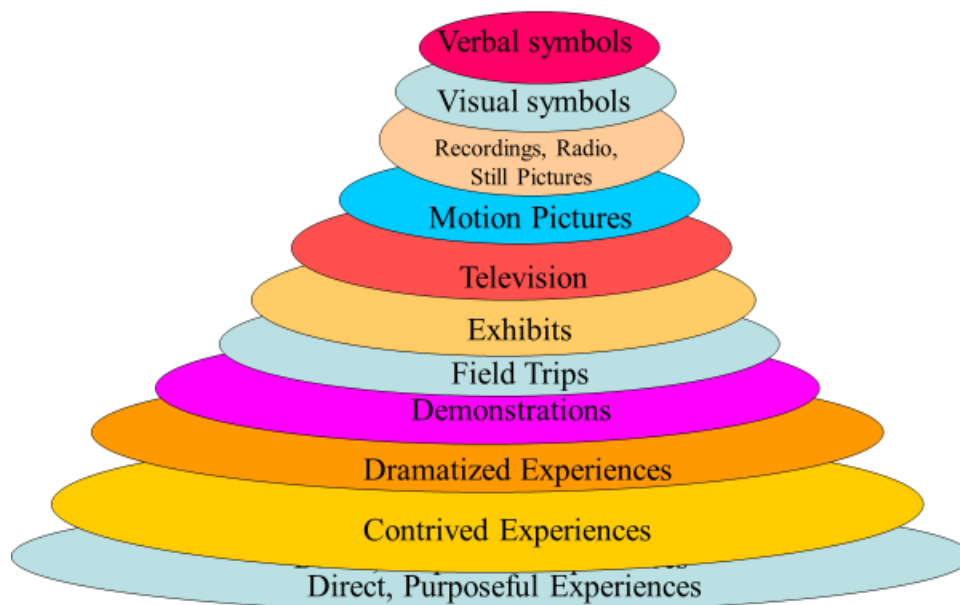
The Cone of Experience

- Verbal symbols
- Visual symbols
- Recordings, Radio, Still Pictures
- Motion Pictures
- Television
- Exhibits
- Field Trips
- Demonstrations
- Dramatized Experiences
- Contrived Experiences
- Direct, Purposeful Experiences

Figure 3: The Cone of Experience (Dale, 1946).

Retention and Transfer

Force the student to search for relationships between current learning and past learning. This can be done by developing problems, such as case studies that cause the student to actively search for points in similarity and differences in two or more situations. The teacher may also use homework assignments or in-class requirements depending on the objectives.

The attack on Pearl Harbor December 7, 1941 and the attack on the World Trade Center September 11, 2001 are and excellent example of retention and transfer. This Provides review in which the student must use learned material for new activities. The teacher should relate established principles to advanced requirements. As a minimum, the teacher should periodically tell students how previous material relates to current subject matter.

Ensure that student learn well in the first place. Practice that will bring a student's performance beyond the standards should be conducted. Termed "over-learning," this is not a new concept.

Provide well-distributed practice in problem solving. Problem solving is an exercise in transfer because the student relates his knowledge to a problem. Once learned, problem-solving skills are well retained. Brain research shows that when new learning is readily comprehensible and can be connected to past experiences, retention is dramatically improved (Sousa, 2006; McLaurin, Smith, & Smillie, 2009; Svinick, 2004B).

Emphasize application and relate material to situations the student will encounter on the job. Classroom discussions and activities should be similar to those the student will find on the job. Students will more accurately remember the material that relates to job performance if they understand the relationship. Also, using what is learned promotes retention. Knowledge must be applied, or it will be forgotten.

Establish a good learning environment and present instruction in a professional manner to combat repression. A competent and enthusiastic teacher is a positive influence on students. Give the student frequent progress evaluations to minimize errors. It is not necessary for students to make mistakes to learn that the mistakes must be avoided (Svinicki, 2004A).

Learning to do things right the first time is easier than learning to do things wrong and then trying to learn to do them right. Formative evaluation provides the frequent progress evaluations to minimize errors and finds errors the quickest.

Retention

WAYS TO REMEMBER

Recollection.
Recall.
Recognition.

Recollection. To recollect is to reestablish an earlier personal experience on the basis of a partial clue.

Recall. Recall is the human ability to perform some activity in the present based on past learning. An adult can use recall to swim although he may not have done so since childhood. Recall differs from recollection in that the person cannot remember the circumstances under which something was learned. Riding a bike or learning how to swim are examples of recall. To understand and recall information and then use this knowledge in a variety of contexts to solve problems and think critically and creatively is an important goal for most classroom teachers.

Recognition. Recognition means to become aware of someone or something as familiar. It may be the way a person walks, the pitch of his voice or his accent. In such a case, the memory will genera1ize from familiar to similar.

Another example of recognition … Do you remember when you went to the doctor and the doctor gave you a shot and it hurt. Do you still have a fear of shots hurting?

There are many models of learning. The authors have come up with one of their own (Figure 4.)
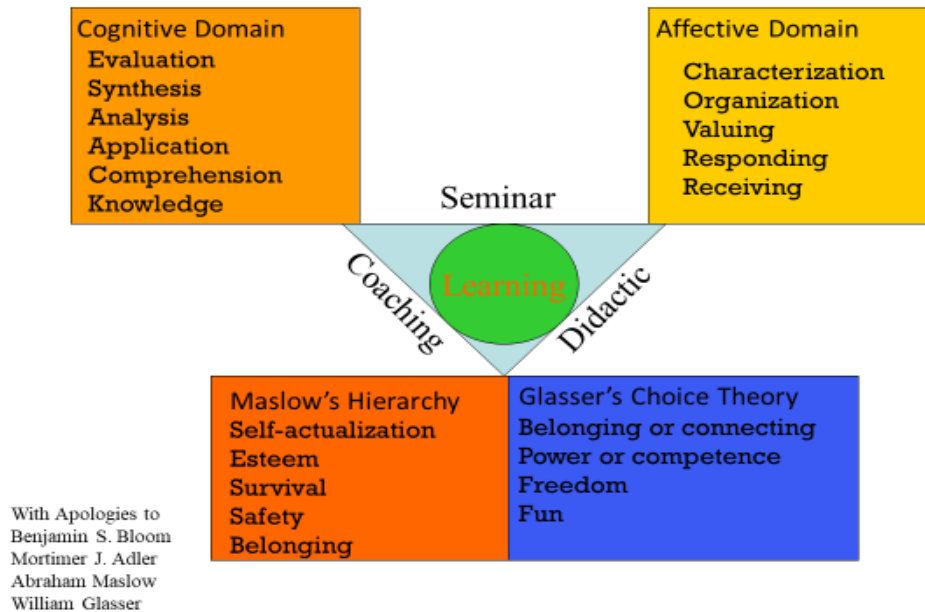

Figure 4: Learning, "A Model" (Notar, 2005).

Educational Climate

Creating a trusting and positive educational climate is a prerequisite for students learning and retention. A trusting climate is created together with students and teachers. Take the lead in establishing the direction for positive learning climate in your classroom.

The best model and intention will not work unless there is a favorable learning climate. Providing a favorable learning climate requires the school and classroom atmosphere to make the difference between an enthusiastic learner and a hater of a particular subject. The ideal class room climate seems to be one in which and active partnership exists between the subjects and for the students. It includes seven conditions:

1. Communication is open and active, featuring dialogue rather than monologue.
2. High levels of attraction exist for the group as a whole and among its members.
3. Norms are supportive for getting work done, as well as for optimizing individual opportunities to be different.
4. Members share high amounts of potential and actual influences both with one another and with the leader.
5. The processes of working and developing together as a group are important in themselves and open to examination and change.
6. Encourage student-to-student dialogue without going through the teacher.
7. Actively listen while students are talking. This includes positive eye contact with the student who is talking and avoidance of interjection with other student or organization activity (e.g., shuffling papers). Teachers have a tendency to make comments or elaborate on every student statement.

Conclusion:

Students learn through both the content and the pedagogy of education (Weimer, 2009).

Remember!!!
Learning = Content + Pedagogy
Learning = Application + Motivation
Learning = Repetition + Repetition + Repetition
Learning = Content + Pedagogy + Application + Motivation + Repetition + Repetition + Repetition

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