Helping Students to Retain Skills and Content: Classroom Ideas

Students who struggle with academic work often have difficulty with retention—the capacity to maintain a previously mastered skill or content over the long term with little or no additional practice. Retention of skills and content does not happen automatically but requires sustained work on the part of both teacher and student.

Below are teaching strategies that can lay the foundation for student retention in your classroom. NOTE: While these strategies can work effectively with individuals, they are most effective when woven into whole-group instruction:

1. Use multiple direction formats. When directing students to complete a task, provide those directions through more than one format (Thorne, 2006). For example, the teacher may state directions aloud, provide a visual demonstration, and also give students a written summary of the steps to follow. When directions to perform a task or skill are delivered through several formats, they can be made more memorable and thus easier for a student to retain and recall as needed.
2. Encourage read-alouds. Research shows that when we read a passage aloud to ourselves, we retain more information than when we read the same text silently (Cox, n.d.). The act of reading combined with the act of *listening* to one's own reading increases attention and retention. Teachers can suggest to students that, when completing assigned readings, they read particularly challenging passages aloud to promote comprehension and retention.
3. Simplify learning with guides and organizers. Teachers can use various types of organizers to streamline tasks and allow learners to concentrate on the most important content to be memorized (Thorne, 2006). Handouts distributed prior to a lecture can highlight key concepts to be covered. Guided notes (copies of teacher notes with strategically located blanks into which students copy important terms) can reduce the cognitive load on learners and allow them to attend more closely to the lecture. More specialized organizers such as comparison/contrast charts prompt students to narrow their inquiry to a manageable scope and maintain attention.
4. Break tasks into checklists. Students tasked with memorizing a multi-step cognitive task can benefit from having the steps of that task converted into a printed checklist. Initially, the student may need to reference the checklist sequentially while completing steps of the task. That student can then gradually reduce dependence on the checklist in stages. For example, a student familiar with a 7-step checklist for solving math word problems (Montague & Dietz, 2009) may switch to reviewing the checklist once as a prompt at the start of a homework assignment and then relying on memory to implement the steps—with the eventual goal of memorizing the checklist completely.
5. Have students work collaboratively. The likelihood that skills will be retained increases when the learner reviews or practices those skills with full attention. Collaborative learning activities are naturally motivating and can help to boost student engagement (Cox, n.d.). For example, students who are taught a math problem-solving strategy can be partnered with a peer and use a structured format like Think-Pair-Share (Rasinkski & Padak, 1996). to apply the strategy to a particular problem. (In Think-Pair-Share, students are first directed by the teacher to 'think' about a problem or task or question, then to 'pair' off with another student and 'share' their thinking. The instructor then directs a whole-group discussion to explore students' shared thinking.).
6. Activate prior knowledge. Learners' capacity to retain newly taught skills or content increases when they are able to *link* that new material to what they already know (Cox, n.d.). So, as teachers prepare lessons, they can promote retention of the novel instruction by explicitly activating students' prior knowledge of the topic.

   The 3-column KWL chart is one classroom method that illustrates how to activate prior knowledge to support retention. Before completing a reading or other learning activity, the student fills out column 1: *What I KNOW about this topic.* The student next fills out column 2: *What I WANT to know more about this topic*. After

completing the reading or other learning activity, the student fills out column 3: *What I have LEARNED about this topic*.

7. Use memory tricks. An effective approach to improve retention relies is to teach students explicit strategies for memorization and recall (mnemonics) (Brigham & Brigham, 2001).

   One memory trick is to use an acrostic, an easy-to-remember word whose letters each signify an element or step to be memorized. For example, students can acquire a useful sequence for editing their writing by memorizing the word 'SCOPE' (Bos & Vaughn, 2002), whose letters are linked to specific prompts:(1) Spelling: Is the spelling correct?; (2) Capitalization: Are the first words of sentences, proper names, and proper nouns capitalized?; (3) Order of Words: Is the syntax correct?; (4) Punctuation: Are there appropriate marks for punctuation where necessary? ; (5) Express Complete Thought: Does the sentence contain a noun and a verb or is it only a phrase?

   A related memory trick is to create a sentence whose words each evoke a fact or concept. For example, *King Phillip Came Over From Germany Swimming* can be used to recall the order of taxonomy commonly used to classify animal and plant species: Kingdom/Phylum/Class/Order/Family/Genus/Species.
8. Employ summarization activities. Students sometimes have difficulty retaining information from informational passages because they cannot identify the most important facts for recall. In short, they can be overwhelmed by information. Any activity requiring the student to summarize and reflect on their reading can help the learner to winnow the content and increase the odds that they will retain the essentials of the passage. Examples of effective summarization activities include having a student write or dictate a brief 'retell' just after reading (Schisler et al., 2010) and directing the reader to write a summary (main idea and 2 supporting details) for each paragraph in a passage (Hagaman, Casey, & Reid, 2010).
9. 'Overlearn' the skill. A powerful method for skill retention is to have the student 'overlearn' it through frequent practice (Martens & Witt, 2004). With overlearning, the teacher sets a skill-proficiency goal for the student that is actually higher than required for classroom success. When the student reaches this ambitious goal, he or she is more likely to retain the skill over the long term.

   When first learning the skill, the student practices frequently ('massed practice') until reaching the teacher-selected mastery level. Here is an example: 'Star words' is a strategy that can be used to 'overlearn' sight words (Foorman et al., 2016): The teacher writes 3-5 high frequency words onto flashcards for the student, connected with a ring. Through the week, adults—other teachers, aids, parents—ask the student to read the words. The adult writes a star next to each correctly read word. When the student has 3 or more stars for each word, more words are added to the ring.
10. Practice memory retrieval. Retention includes the ability to retrieve memorized content or skills on demand. Like any other ability, retrieval of information from memory improves with practice (Thorne, 2006). Even better, each time that students successfully recall information, they can access it more easily in the future (Weinstein & Wu, 2009). One strategy to promote retrieval is for teachers to give frequent quizzes –rather than infrequent longer exams—to allow students more opportunities to try out their retrieval strategies (Weinstein & Wu, 2009). Another option is for students to begin the class each day with a bell-ringer activity in which they complete several short-answer questions that tap recently learned information (Weinstein & Wu, 2009).
11. Maintain skills through occasional practice. After the student has committed skills or content to long-term memory, the teacher's work is still not done. All of us experience 'memory decay', the gradual forgetting of memorized content that we do not review or use over extended periods of time (Pashler et al., 2007). Teachers can guard against this predictable threat to retention of information through use of 'distributed practice'. This term simply means that the teacher periodically (e.g., at intervals of 4-12 weeks) has students engage in practice activities that require the recall and application of the information or skills that the instructor wishes to maintain.

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