WILLIAM & MARY
CHARTERED 1693

Training & Technical Assistance Center
P.O. Box 8795
Williamsburg, VA 23187-8795

Practice and Homework – Effective Teaching Strategies *Considerations Packet*

For more information, contact:

E-mail: ttacwm@wm.edu
Phone: 757-221-6000 or 800-323-4489
Website: http://education.wm.edu/centers/ttac/index.php

Practice and Homework – Effective Teaching Strategies

This *Considerations Packet* focuses on practice and homework as instructional strategies that teachers can use daily with all learners to increase and maintain retention of information. Strategies for practicing new learning include visualization, mnemonics, quick writes, and effective questioning. Finally, tips for homework completion are provided for both teachers and parents.

It is important to make sure that all students understand the content that has been taught. Practice and homework are effective instructional strategies to help students retain content. All classrooms contain students with diverse learning styles. To guarantee mastery and retention of new learning for all students, teachers should use several variations of practice and homework. In addition, students with disabilities need extended practice periods with teacher feedback as well as variations of practice and homework.

Practice

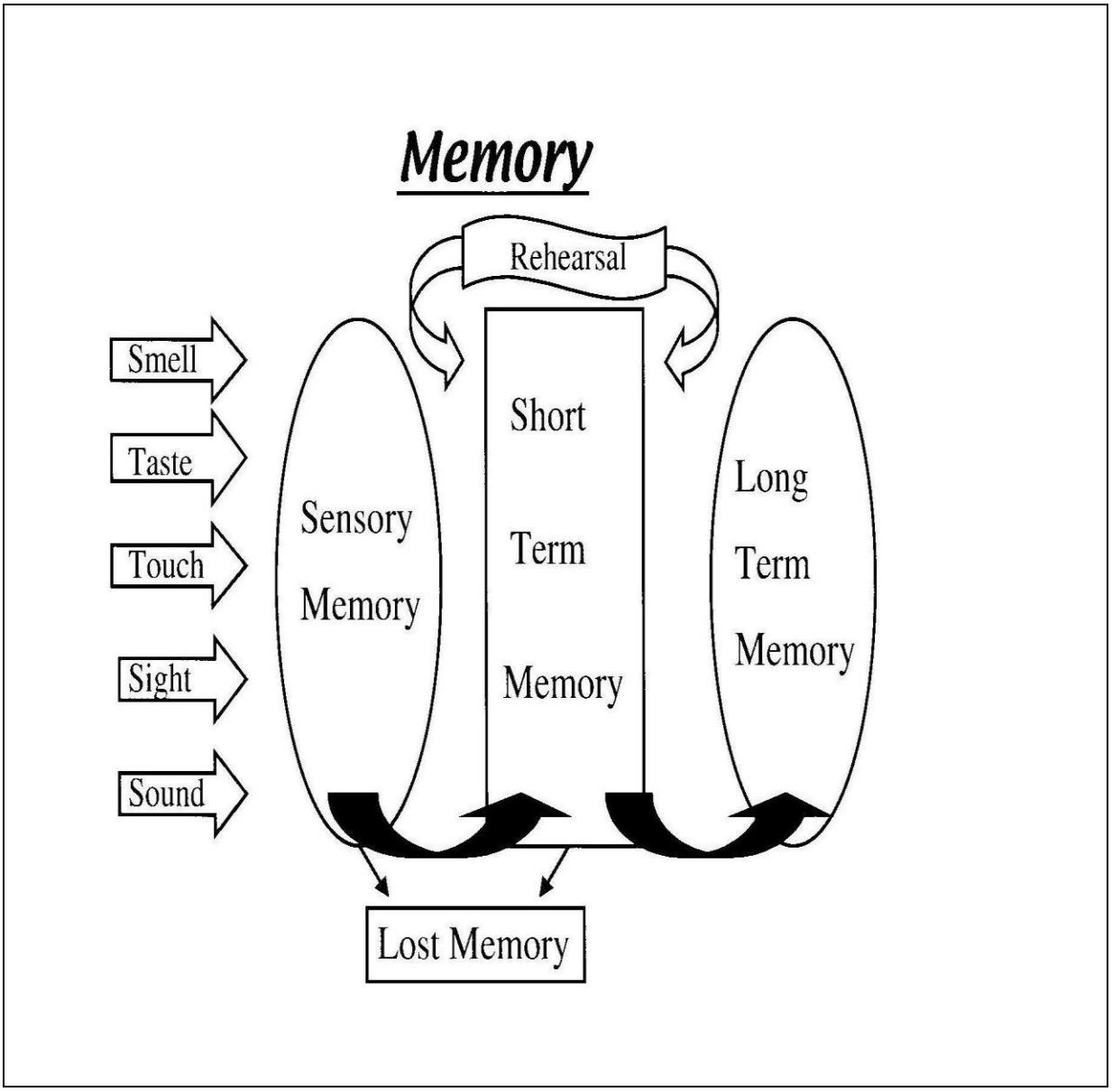
"Practice must tightly align with learning objectives and provide students with opportunities to deepen their understanding or become faster and more proficient at a skill" (Dean, Hubbell, Pitler, & Stone, 2012, p. 110). As teachers plan practice activities, it is important to consider ways to ensure that these activities are beneficial to their students' learning. Specifically, to reduce the variance in student achievement related to practice, teachers should:

- clearly identify and communicate the purpose of practice activities;
- design practice sessions that are short, focused, and distributed over time; and
- provide feedback on practice sessions.

For learning to take place, students must commit information to memory. According to Susan Jones (2002), known for her work on brain research, several practice sessions are needed for students to retain new learning. To that end, Jones has developed a memory model to help understand how the brain works with new learning (see Figure 1).

As illustrated, new learning enters the brain through what is known as our sensory memory, which lasts approximately 3-4 seconds. From here the new learning travels to short-term memory, where it remains for approximately 18 seconds. If no rehearsal or practice sessions follow, the new learning simply becomes lost memory. New learning may also be forgotten or lost from short-term memory if it is not rehearsed enough. It takes at least eight rehearsal sessions for advanced learners to retain new information. Average learners need 20 rehearsal sessions, and students with special needs may require as many as 90 rehearsal strategies.

Figure 1. **Jones' memory model.**



This model was adapted from Jones (2002).

In the following we will look at several rehearsal strategies.

Rehearsal Strategies

Effective instructional strategies help students revisit content as much as possible. Expert teachers know the power of teaching struggling learners specific, detailed ways of learning content to an automatic level of recall. Therefore, teaching "how to learn" as opposed to "what to learn" is important in helping students acquire and retain the massive amount of content they are expected to know from year to year. "Most of us, struggling or gifted, need multiple opportunities to learn new ideas, preferable over time, and we need to see the purpose of deliberately practicing" (Hattie, 2012, p. 114). Examples of such strategies include:

- Visualization
- Story creation
- Mnemonics
- Song, rap, or skit development
- Foldables
- Preprinted response cards
- Quick writes
- Questioning techniques

Visualization. Visualization refers to creating images or pictures in the mind. When students have difficulty visualizing, the following technique may be helpful. Ask students to close their eyes and picture their classroom, thinking about the bird cage next to the door, the fish tank under the windows, the hamster cage beside the sink, and the snake poster on the bulletin board. Then ask students to open their eyes and write a list of animals for their science class. This simple task will help them begin to visualize content material when needed. Visualizations help students process content, retrieve it from memory later on, and then make sense of it from the mental images they have created in their minds (Wise, 2014).

Story creation. Creating a story can help increase retention and achievement. For example, storytelling helps students with sequencing. Tell students a story about how plants are grown. Using a fictional character, describe how seeds were purchased, planted where there was sunlight, and watered regularly to produce a healthy plant. This progression of events helps students when they need to remember sequential or cyclical information in science and social studies.

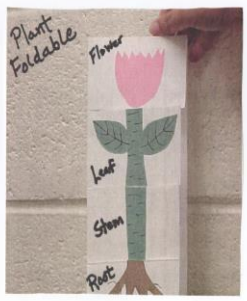
Mnemonics. Human brains are "wired" to remember patterns and shortcuts. Mnemonics are strategies for remembering information that is otherwise difficult to recall. The basic principle of mnemonics is to use as many of the functions of the human brain as possible to code information. The brain likes to code images, color, structure, sounds, smells, tastes, touch, emotion, and language. Mnemonics attempt to use all of these functions.

Mnemonics help to relate new information to information students already have stored in their long-term memories. That is, by coding language and numbers in an abbreviated image, we can accurately and reliably code information to be recalled later. A good example of coding information when teaching a science unit is this mnemonic: "**M**y **v**ery **e**ducated **m**om **j**ust **s**erved **u**s **n**ine **p**izzas." The first letter of each word in this sentence helps students recall the nine planets in the order of how they are arranged from the sun (**M**ercury, **V**enus, **E**arth, **M**ars, **J**upiter, **S**aturn, **U**ranus, **N**eptune, and **P**luto). Using mnemonics is an effective strategy to aid students' recall of important information. The Iris Center provides teachers with a mnemonic

strategies activity that is “highly effective for helping students retain and recall information” (The IRIS Center, 2018).

Song, rap, or skit development. Developing songs, raps, or skits taps into the students’ creativity. These types of activities also allow students to become physically active while learning, thereby activating both hemispheres of the mind. (The left side of the **brain** is responsible for controlling the right side of the body and also performs tasks that have to do with logic, such as in science and mathematics. On the other hand, the right **hemisphere** coordinates the left side of the body, and performs tasks that have do with creativity and the arts.) Finally, giving students the choice to practice new content by working in small groups or learning content independently through song, rap, or creating skits helps diverse learners find success (Brownlie, Fullerton, & Schnellert, 2011).

Foldables. When creating so-called foldables (Zike, 2018) teachers and students use paper to create books, pamphlets, or study guides of subject content. Foldables are used as graphic organizers that help students to problem-solve, take better notes, and improve study skills. The following picture is a “foldable” of parts of a plant to be used as a study guide. On the front is a picture of four parts of a plant. As each section or part of the plant folds back, the definition of the respective plant part appears.



Preprinted response cards. Preprinted response cards are used to help students remember vocabulary words from each of the content areas. As a primary objective, these cards can be used to increase the level of student engagement and support students in studying new content (The Teacher Toolkit, 2019). On one side of the card, the vocabulary word to be learned is written in large print. On the back of the card, primary students, as well as many students with disabilities, draw a picture to represent the word. For students in the upper grades, the definition and an example sentence are printed on the back of the card.

Sample lower-elementary response cards:

Bus	
Front of Card	Back of Card

Sample upper-elementary, middle-, high-school response cards:

Cannon	An artillery piece: big gun  The North and the South used big cannons during the Civil War.
Front of Card	Back of Card

(The Reflective Editor, 2018)

Quick writes. Quick writes are short writings from students in response to a teacher's question or prompt. Provided with a topic or idea, students are often less anxious or nervous about writing, and are better able to write freely (Shen, 2019). Quick writes serve as a quick assessment tool to see if information is being retained. They may be used as morning board work, journal entries, or even homework assignments. Students generally enjoy doing quick writes because they are not expected to write pages of information. The average length of a quick write is 5-10 sentences, and takes approximately 1 to 5 minutes to write. Students with writing deficits may use tape recorders, share their ideas with a partner, or note words and phrases on a graphic organizer such as a frame or web.

Effective questioning. Asking effective questions may "prompt students to think more deeply and critically about the information presented" (Dean et al., 2012, p. 56). Student practice with higher-level thinking skills has been correlated with improved standardized test scores. Dean et al. (2012) suggest that teachers provide cues and questions such as the following to access prior knowledge and allow students to be successful learning new information.

- *Focus on what is important.* Ask questions that directly focus on content about the topic.
- *Use explicit cues.* These types of cues activate prior knowledge, building a foundation for new learning.
- *Ask inferential questions.* These types of questions help students dig deeper into their own knowledge bank to form a base for the new learning.

- *Ask analytic questions.* These types of questions promote higher-order thinking and help students make connections to the new learning.

Homework

In classrooms across America, homework is a part of the lives of today's students. Homework gives students multiple opportunities to practice content that has been taught and to support new learning. Through frequent homework assignments, teachers provide students a greater chance of developing fluency with the information. Research on effective homework practices (Pickering, 2003) suggests the following.

- **Vary the amount of homework assigned to students from elementary to middle school to high school**. As students grow older, they should spend more time on homework. The homework chart below (Table 1) reflects the results of six studies involving both general education and at-risk students, listing the total minutes per day each study recommends that students spend on homework. As illustrated, all the studies show increasingly more time being spent on homework as students move from primary school to high school.

Table 1
Minutes per Day Spent on Homework

Studies	**1**	**2**	**3**	**4**	**5**	**6**
Primary	30		20-29	10		
Upper Elementary	45-95	50	30-34	40		
Middle School/Junior High	90-120		50	60		
High School	120-180			120	60	60

(Pickering, 2003, p. 5).

- **Keep direct parent involvement in homework to a minimum.** Many parents feel that it is their responsibility to help their children with homework. As a result, they often help their children to redo assignments that have been done incorrectly. However, their responsibility should instead be to make sure their child is doing the work. According to Marzano (2017), homework help is most effective if parents ask their children to "summarize what they have learned from the homework and reflect on their level of effort" (p. 60).

  It is helpful to provide parents with suggestions for how they might assist their children with homework (Pickering, 2003). The VA Family Special Education Connection (2018) a resource for Virginia parents, families, and caregivers of children with special needs, suggests that teachers help provide parents with answers to the following questions:

  - What level and types of books should I be reading to my child?
  - What are some good study habits (that fit my child's learning style) that I can help my child develop?
  - How can I help with my child's homework?
  - What kinds of activities can I do at home that will relate to information being taught at school?
  - How can I help my child become a better test-taker and show how much he or she has learned?
  - What are some tips I should know to be supportive and encouraging to my child?

- **Clearly identify and articulate the purpose of homework.** Do not expect students to practice skills that are unfamiliar or unclear to them. Homework is usually assigned to students to practice new learning taught by the teacher. In some cases, homework may be given to prepare students for new learning taken from the curriculum framework. In short, students should be given homework to preview new content, deepen knowledge of new content, or practice a process or skill (Marzano, 2017). For example, give each student a paper lunch bag and ask them to bring the bags back the next day filled with three things that represent something meaningful in their lives. The next day, show the class how to write informative papers about themselves using each of the objects in the bag as the subject for a main idea of a paragraph for their paper. Be sure to provide the parents of students with disabilities frequent communications about homework and special projects.

- **If homework is assigned, provide feedback.** At best, completed homework should be reviewed by the teacher. Studies have shown that student achievement increases if the teacher grades the homework. If the teacher goes beyond grading and provides feedback directly to the students, student achievement is even greater (Dean et al., 2012).

Tips for Practice and Homework Completion

Most students with disabilities have difficulty completing assignments. The acronym "PROJECT" was used with students in inclusive classes to help them complete assignments (Hughes, Ruhl, Schumaker, & Deshler, 2002). Specifically, students were taught to implement the strategy using assignment notebooks.

"PROJECT" stands for the following steps:

- P = Prepare your forms – students prepare various forms, including monthly planner, weekly study schedule, and assignment sheet
- R = Record and ask – students record assignments on the assignment sheet and ask for clarification
- O = Organize the assignment – subdivided into BEST:
  - **B**reak assignments into parts
  - **E**stimate the number of study sessions
  - **S**chedule your sessions
  - **T**ake materials home
- J = Jump into it – students overcome task avoidance, prepare necessary materials, affirm the quality of the work to be done, and check requirements
- E = Engage in the work – students complete the assignments and enlist assistance from parents or a "study buddy" when needed
- C = Check your work – students evaluate the quality of the work, make corrections, and assign a "quality grade" on the assignment sheet
- T = Turn in your work – students place their assignment folder in a place where it can be located easily, check the monthly planner and assignment sheets, and turn in the assignment on time

Using this strategy, students learn to become more independent and successful at completing work assignments. In addition, they turn in more work assignments in a timely manner.

Conclusion

All teachers in Virginia are expected to be teaching from Virginia's Standards of Learning curriculum framework. In addition, practice and homework should be used throughout the school year to help students retain the knowledge they need to learn to be successful in school and pass high-stakes tests. Homework has been a highly valued tradition in American culture ever since the beginning of formal education (Vatterott, 2009). Through effective use of practice and homework, students can continue to benefit from the academic instruction that they receive. The strategies presented here will help to create better problem solvers and build lifelong learners.

References

Brownlie, F., Fullerton, C., & Schnellert, L. (2011). *It's all about thinking: Collaborating to support all learners.* Winnipeg, MB, Canada: Portage & Main Press.

Dean, C., Hubbell, E., Pitler, H., & Stone, B. (2012). *Classroom instruction that works.* Alexandria, VA: ASCD McRel.

Hattie, J. (2012). *Visible learning for teachers.* New York, NY: Routledge.

Hughes, C., Ruhl, K., Schumaker, J., & Deshler, D. (2002). Effects of instruction in an assignment completion strategy on the homework performance of students with learning disabilities in general education classes. *Learning Disabilities Research & Practice 17*(1), 1-18. Jones, S. (2002). *Maximize your students' learning with practical, brain-based strategies (Grades K-8).* Medina, WA: Institute for Educational Development.

Marzano, R. (2017). *The new art and science of teaching.* Bloomington, IN: ASCD & Solution Tree Press.

Pickering, D. (2003). *Research-based strategies for increasing student achievement.* Paper presented at the Virginia Association for Supervision and Curriculum Development Conference, Williamsburg, Virginia.

Shen, D. (2019). Quick write. *Harvard University's ablconnect.* Retrieved from https://ablconnect.harvard.edu/quick-write

The IRIS Center. (2018). *Mnemonic strategies activity.* Retrieved from https://iris.peabody.vanderbilt.edu/wp-content/uploads/pdf_activities/independent/IA_Mnemonic_Strategies.pdf

The Reflective Educator. (2018). *Response cards.* Retrieved from http://thereflectiveeducator.com/response-cards

The Teacher Toolkit. (2019). *Student response cards.* Retrieved from http://www.theteachertoolkit.com/index.php/tool/student-response-cards

Vatterott, C. (2009). *Rethinking homework: Best practices that support diverse needs.* Alexander, VA: ASCD.

Virginia Family: Special Education Connection. (2018, May 25). *Academic and family support.* Retrieved from http://vafamilysped.org/

Wise, R. (2014). *How to use the visualizing and verbalizing strategy to improve reading comprehension* [web log post]. Retrieved from http://www.educationandbehavior.com/how-to-teach-visualization-in-reading

Zike, D. (2018, February 12). *Dinah Zike's notebook foldables for spirals, binders & composition books*. Retrieved from http://www.dinah.com/

This *Considerations Packet* was prepared by Tina Spencer; revised October 2018.