

A Research Investigation of John Milton Gregory's *The Seven Laws of Teaching*

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In this first part of a two-part series, Brian Walker presents contemporary research supporting the first three of John Milton Gregory's seven teaching laws. The remaining four laws will be presented in Part 2 of the next issue of the Journal for Christian Educators.

Few educational books have withstood the test of time as much as John Milton Gregory's 1886 classic work *The Seven Laws of Teaching*. The laws and truths contained within this masterpiece have endless value for Christian school educators and thus are as relevant and applicable today as they were when first written.

This article addresses contemporary research that supports Gregory's first three teaching laws, that is, The Law of the Teacher, The Law of the Learner, and The Law of the Language. To assist the reader, each of the following research sections begins with a statement of the law followed by research notes that verify select truths or insights from the law.

Law 1: The Law of the Teacher

The teacher must know that which he would teach.

Know Your Subject

Gregory's definition of knowledge surpasses a teacher's basic knowledge and understanding of his subject content and leads to in-depth knowledge, or what he calls "truth in its deeper significance and broader associations." Factual information is a prerequisite to the in-depth understanding of a subject, but a teacher's understanding should also include concepts, principles, relationships, and methods of inquiry (Danielson, 1996). Teacher comprehension of subject content, notes Shulman (1987), involves a teacher's understanding of subject content in several ways, including the relationship of an idea to other ideas in the same subject area and to ideas in other subject areas. A solid command of subject content is a prerequisite to effective teaching, whether a teacher's expertise lies in first grade reading or high school mathematics. This deep understanding of a subject represents the essence of Gregory's first law of teaching, the Law of the Teacher.

Use the Known to Explain the Unknown

The profoundness of the first law of teaching can be further illustrated by Gregory's statement: "A truth can only be seen in its fullness when it is viewed in the light of other truths. Hence, truth is known by its resemblances to other truths." In order

for a truth to be comprehended by its similarity to other truths, Gregory encourages teachers to “locate in the lesson its analogies and likenesses to more familiar truths, facts, and principles. In these lie the illustrations by which the lesson may be taught to others.” In essence, a teacher should use the known to explain the unknown. Research supports this powerful truth. Researchers at Mid-continent Research for Education and Learning (McREL) conducted a meta-analysis to determine the effect of instructional strategies on student achievement in K-12 classrooms. They found nine general categories of strategies that have a strong effect on student achievement. The strategy that had the strongest effect was “identifying similarities and differences.” Teachers who instructed students in identifying the similarities and differences between the known and unknown increased student understanding of and ability to use knowledge. Four activities that were found to be effective in enabling students to identify similarities and differences included comparing, classifying, creating metaphors, and generating analogies (Marzano, Pickering, & Pollock, 2001).

Enhance Student Learning Through Coverage of Less Subject Content

Both the simplicity and the complexity of Gregory’s first law are further illustrated when he states, “Ask for *all* the available facts and views about a subject, but be sure to master *some*. It is better to know a few truths well than many imperfectly.” Knowledge of many facts or truths is beneficial, but mastery of fewer truths enhances student understanding of subject content. According to Glasgow and Hicks (2003), successful teachers realize that less is more. Consequently, they streamline the content of their curriculum. Instead of covering many topics superficially, they cover the most important (essential) content in adequate depth so that students will be able to comprehend, remember, and apply what they have learned. Elyon and Linn (1988) reported that a “systematic, in-depth” (p. 290) treatment of a few science topics was more beneficial than a “conventional in-breadth” (p. 290) treatment of many topics. Gardner’s (1993) insight into the impact of excessive curriculum coverage on student understanding is revealing. The researcher makes the following observation:

If one wishes to have any chance of securing [student] understanding, it becomes essential to abandon the misguided effort to “cover everything.” Broad coverage ensures superficiality: at best, heads become stuffed with facts that are forgotten almost as soon as the short-answer test has been administered. Rather, one must move toward “uncoverage,” or, to cite another slogan, one must embrace the principle “less is more.” (p. 191)

Streamlining the curriculum assists teachers in covering course topics in greater depth. Teachers have a limited amount of instructional time during the school year to address course content. Knowing what to address or omit can be a challenging task. Marzano and his research assistants (2003) from McREL identified 200 standards and 3,093 benchmarks in national- and state-level documents for 14 different subject areas. Classroom teachers estimated that it would take 15,465 hours of instructional time in

K5-12 to address the standards in these documents. However, only 9,042 hours were available for instruction. The researchers concluded that schools must “drastically” decrease the amount of content that teachers are expected to cover in class. One way to accomplish this task is to determine which content is essential (concepts that all students are expected to know) and that which is supplemental or intended for students who plan to attend college. Additionally, schools must determine the amount of instructional time that will be designated for coverage of both essential and supplemental content. Devoting a majority of instructional time to fewer essential topics facilitates teacher in-depth coverage of select subject topics, which contributes to increased student understanding of subject content.

Law 2: The Law of the Learner

The learner must attend with interest to the fact or truth to be learned.

Teach Lessons That Appeal to Students’ Strengths and Interests

Gregory states that “attention is unwavering when the appeal is made to the strongest mental faculty.” Although he was not alluding to the “strongest mental faculty” as in multiple intelligences, these “faculties” represent areas of interest, such as law or medicine, which students excel in and find continuously stimulating. Similarly, Gardner’s multiple intelligences represent areas in which students do extremely well and find interesting.

According to Gardner, each individual possesses eight intelligences—linguistic intelligence, logical-mathematical intelligence, spatial intelligence, bodily kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalistic intelligence. Individuals, however, differ in their strengths of the various intelligences. In other words, they possess all eight intelligences in varying amounts. For example, some may have strong logical and mathematical reasoning but minimal musical talent (Arends, 2004).

Gardner believes that teachers should teach in ways that accommodate the eight intelligences (Arends, 2004); however, this does not imply that teachers should teach each instructional topic eight ways. On the contrary, teachers can utilize more than one way to teach a topic (Checkley, 1997), such as using different instructional strategies during a lesson. Varying strategies that appeal to the students’ strongest intelligences would heighten student interest in the lesson since students pay attention to lessons that appeal to areas in which they excel and that they find most engaging. For example, Gregory states that “a lawyer reads and remembers law cases with great ability and competence. A physician is instantly interested in the reports of medical cases.” Likewise, a student who learns best through a particular intelligence will demonstrate greater interest in the lesson if the teacher provides instruction that appeals to this student’s intelligence.

Know When to Stop

According to Gregory, a teacher should “never exhaust the students’ attention span.” He further adds, “Stop when signs of fatigue or weariness appear, and change the lesson, topic, or subject to stimulate fresh attention.” Sousa (2001) and others found that the attention span for adolescents was 10 to 20 minutes, and for preadolescents, it was 5 to 10 minutes. The researcher states that an individual’s working memory is temporary and can process information for a limited amount of time. Thus, for a 40-minute lesson in a secondary class, the first 20 minutes (prime-time-1) represents the best time to teach students new information or a new skill since it is most likely to be remembered. Afterwards, a downtime of approximately 10 minutes should follow to allow them time to practice or review the new information. Finally, the lesson should end with a closure activity of 10 minutes. This final phase of the lesson is called prime-time-2 since it represents the second best time to remember information. The phenomenon in which students remember best what is presented first in a learning segment, and remember second best what is presented last, is called the primacy-recency effect.

Stimulate Student Interest in the Lesson

Highlighting the importance of attracting and sustaining student interest during lesson presentations, Gregory states that teachers should “stimulate and maintain the highest possible interest in the lesson or subject. Interest and attention react upon each other.” According to Tileston (2005), a student’s motivation to learn is controlled by the self-system of the brain. This system determines whether a student will pay attention. Three criteria or conditions must exist for the brain to attend with interest to the lesson. First, the student must perceive that the learning is personally meaningful. In other words, learning has real-world application to the student. For example, the student realizes that learning assists him in meeting personal goals involving immediate needs. Self-efficacy is the second criterion that must exist for the brain to attend to learning. The student who experiences self-efficacy believes success is attainable since he has experienced it in the past. Furthermore, the student believes that he has the capacity (ability, resources, and power) for success. One way that a teacher can develop self-efficacy in his students is to provide them opportunities to experience success in their schoolwork. Finally, the third criterion that determines a student’s attention to the lesson is his feelings about the learning, classroom, subject matter, classmates, and teachers. If a student experiences a threat of some type in the classroom, his mind will focus on the threat above other incoming stimuli. Although a teacher cannot control external threats to a student, the teacher can create a positive classroom environment where students feel safe from physical harm and embarrassment.

Students are notorious for their inattentiveness and short attention spans. If a teacher does not periodically vary the stimuli during a lesson presentation, students will most likely lose interest in the lesson. In other words, the students’ preoccupations with their own thoughts and external stimuli will hinder them from attending to the lesson. Thus, teachers must vary their behaviors or learning activities so that their students will receive new stimuli that keep their attention focused on the lesson (Moore, 2005).

Strategies such as lectures, practice and drills, demonstrations, questioning, inquiry approaches, discovery learning and problem solving, games, role playing, and other approaches can be used to maintain student interest. In addition, using a variety of instructional activities assists the teacher in linking the lesson to the students' learning style differences, which enhances students' interest in the lesson (Burden, 2000).

Demonstrate Enthusiasm for the Subject

Gregory admonishes teachers to "exhibit and maintain the closest attention to and the most genuine interest in the lesson." He adds that "true enthusiasm is contagious." According to Arends (2004), many teachers argue that the key to an effective lesson presentation is for the teacher to implement techniques and strategies used in the performing arts. Excessive theatrics, however, may focus students' attention on the entertaining aspects of the lesson and not on the key ideas of the lesson. Good and Brophy (2003) maintain that projecting enthusiasm for curriculum does not mean "pep talks or unnecessary theatrics" (p. 238). On the contrary, projecting enthusiasm for the curriculum is demonstrated when a teacher identifies reasons for finding the lesson topic interesting, important, and meaningful, and communicates these reasons to his students. Cruickshank, Jenkins, and Metcalf (2003) cite research which indicates that enthusiastic teachers convey to their students that they enjoy what they are doing and that the subject that they teach is valuable and enjoyable. Furthermore, "enthusiastic teaching helps students persists at tasks, motivates them, and leads to increased learning and satisfaction" (p. 332).

Law 3: The Law of the Language

The language used in teaching must be common to the teacher and the learner.

Assess Students' Learning

Gregory emphasizes that a teacher should "obtain from the students as much as possible their knowledge of the subject or lesson. Learn both their ideas and manner of expressing them, and help them to correct knowledge that is incorrectly learned." Wragg and Brown (2001) state that the most "scintillating" explanation can be wasted if the audience does not understand the speaker's message. Student misunderstanding of subject content can be attributed to various factors, including insufficient background knowledge of subject content. Thus, determination of students' knowledge and understanding of subject content prior to explanations of new material enables teachers to select appropriate language for explanations. In other words, understanding the language or vocabulary that students use to express ideas helps teachers to select terminology that students understand. Popham (2003) highlights the importance of identifying students' knowledge of future course content when he states, "Knowing where students stand in relation to future content, both as a group and as individuals, is one of a teacher's most valuable tools in planning appropriate and engaging instruction" (p. 10).

Effective teachers not only pre-assess students' knowledge of select subject content to assist them in instructional planning, but they also assess student understanding of content presented in class. There exist many assessment strategies that provide teachers with valuable feedback concerning student learning. One of the most common is questioning. Teachers frequently ask questions to assess student understanding of teacher explanations. Additional assessment strategies frequently used by teachers to evaluate student learning are tests and papers. These forms of assessment not only identify subject content that students do not understand but also provide teachers measuring devices to evaluate their instructional effectiveness (Wragg & Brown, 2001). Less informal ways for teachers to assess student learning include walking around the room while students are engaged in work and observing student-to-student interaction, such as problem-based learning in which a student teaches what he has learned to another student or a group of students (Tileston, 2005).

Never Talk Above the Students

Gregory encourages teachers to use a language or vocabulary that their students understand. According to McEwan (2002), highly successful teachers serve as role models for their students. They do not talk above their students but use challenging vocabularies in their subjects that enhance their students' spoken literacy. In other words, effective teachers speak in a clear language. Talking above students' heads, notes Kougl (1997), leads to "confusion, boredom, and interferes with learning" (p. 103). Students attach meaning to words. When a teacher speaks without considering what the words mean to his students, "the intended message may be lost" (p. 106). Wragg and Brown (2001) state that one of the key features of effective explanations is clear language. This requires the teacher to select words and phrases that are suitable for the subject topic and yet not too trite or too abstract for the students. In essence, the words are well chosen for the cognitive developmental level of the students.

Check for Understanding

According to Gregory, teachers should "repeat a thought in different words" when their students do not understand them, using less complex language. Effective teachers use several means to check for student understanding of instruction, such as reading body language and asking periodic questions. The body language of students, such as facial expressions or posture, may indicate that they are confused and need further clarification. Teachers must exercise caution, however, in assigning meaning to body language since students may not give visible clues that indicate they do not grasp the lesson. Checking for student comprehension of subject content by asking periodic questions, however, is a more direct method of assessing student comprehension of instruction (Saphier & Gower, 1997). An erroneous student response to a teacher initiated question may require the teacher to provide further explanation of subject content that the student failed to comprehend. Explanations such as these, according to Gregory, should be given in a language understood by the students.

Noteworthy, effective teachers understand which subject content will present the greatest challenge for student comprehension and “when persistent preconceptions, misconceptions, or difficulties are likely to inhibit learning” (Shulman, 1988, p. 37). Maintaining an awareness of the content that is difficult for students to grasp will assist the teacher in planning, organizing, and presenting lessons in a language that helps the students understand the subject material.

Use Illustrations, Pictures, and Objects

Gregory states that teachers should use illustrations to enhance the meaning of words. Teachers frequently use examples to capture students’ attention and to enhance their understanding of subject content. According to Koughl (1997), the ability of an example to enhance a teacher’s explanation of a course topic and captivate an audience makes sense when one considers examples as “little stories” (p. 297). The researcher states, “All people respond to stories because the narrative impulse is intrinsic to human nature” (p. 297). She further explains, “We live our lives as narrative, assimilating our daily lived bits of experience into our personal stories. This is why we identify with stories. The story helps us understand the point that it illustrates” (pp. 297-298). Even the Master Teacher, the Lord Jesus Christ, understood the emotional appeal of examples on His audience. He frequently used parables as examples to assist His audience in understanding the spiritual significance of His teachings.

Not only did Gregory direct teachers to use illustrations to enhance student understanding, but he also states that “pictures and natural objects are favored by young children.” Researchers at McREL found in their study on instructional strategies that have a strong impact on student learning that nonlinguistic representations (mental pictures or images of students’ knowledge) represented one of nine categories of instructional strategies having the greatest effect on student achievement. This strategy resulted in a student percentile gain of 27 percent. One generalization that the researchers derived from their research on nonlinguistic representations was that teachers can use a variety of activities to produce these representations. These activities consist of creating graphic organizers, constructing physical models, forming mental pictures, drawing pictures and pictographs, and participating in kinesthetic activity (Marzano, Pickering, & Pollock, 2001).

Conclusion

Contemporary research clearly substantiates Gregory’s first three teaching laws. Namely, effective teachers possess a deep understanding or in-depth knowledge of their subject, that is, they have a thorough understanding of the concepts presented to their students. In addition, successful teachers gain and maintain student interest and attention upon the lesson; they also refuse to teach without attention. Finally, effective teachers speak in a clear and vivid language common to both the teacher and the student.

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Editor's Note: The research presented in this article was extracted from Gregory's revised classic book *A 21st Century Perspective of The Seven Laws of Teaching*, published by TAKE TENN Publications, 602 Belvoir Avenue, East Ridge, TN. An exhaustive treatment of the research supporting Gregory's laws can be found in this work.

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