The Role of Rote Memorization in Education Today

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Three questions are addressed:
What is rote learning?
Why use it?
What are some considerations in implementing it?

Abstract
The decline of American education over the last 50 years represents a significant problem in this country. Concern is reflected in such works as, for example, A Nation At Risk (1983), The Closing of the American Mind (1987), and Why Johnny Can't Read (1955), (or do math, etc.). This paper examines historical documents and recent research and proposes that "rote" memory work is a valid educational intervention for today's classroom and will provide statistically significant achievement.

Three questions are addressed: What is rote learning? Why use it? What are some considerations in implementing it?

Rote learning, for the purposes of this paper, is defined as "deliberate memory tasks" connoting some meaningfulness. Current brain research is examined to help provide a rationale. Various examples are discussed of modern day schools implementing "memory" type programs successfully.

imposed for lack of sufficient progress upon examination by the court (Boone, 1899, p.16).

Over the next 200 years, parental instruction in the home gave way to children attending one-room village school houses. The content and teaching methods remained relatively constant during this time. The picture of a strict schoolmaster with a switch in his hand watching a student recite his lessons is fairly accurate. In Boston in the early 1800s, students took final oral exams and a routine report was filed without comment. Under Horace Mann's influence, a thorough written test was introduced in 1845 by the Boston schools. Otis W. Caldwell and Stuart A. Courtis stated in Then and Now in Education 1845-1923 that upon evaluation of the results, "the degree of success attained by the teachers in 'the good old days' of 1845 was, to say the least, very poor and keenly disappointing to all" (Caldwell & Courtis, 1925, p. 53).

Given these results, Horace Mann's ideas turned into educational changes, and both schools and society moved forward. At the Universal Exposition in St. Louis in 1904, the purpose of education for the beginning of a bright new century was supposed to produce, as stated by John Stuart Mill, a "perpetual succession of superior minds, by whom knowledge is advanced, and the community urged forward in civilization" (Maxwell, 1906, p. 102). Leading this charge into the twentieth century was the reformer John Dewey, who wanted to swing the pendulum of educational change away from the old-fashioned methods, instead promoting what he called "progressive education."

The last half of the twentieth century, however, has witnessed a marked decline...
in American educational achievement. Concern and even alarm has provoked books such as A Nation At Risk (1983), The Closing of the American Mind (1987), and the Why Johnny Can’t Read (1955 on) series (read, do math, etc.). Modern American students are scoring lower on standardized tests than in the decades past, compared to other leading nations. Many are calling for higher scores, yet the standards seem to be continually being lowered. Clearly, at the end of the twentieth century we are wandering in a post-zenith age in education. Dissatisfaction with this downward trend has produced popular educational movements like Back to the Basics and 3R programs (reading, writing, and ‘rithmetic), seeking a return to the best of the past. Conversely, other educators seek different or novel ways to reach students effectively. The New Math and whole language instruction are some examples of these experiments. In 1994, California’s schools had the lowest reading scores nationwide after a 10-year experiment with whole language, and they are currently returning to a phonics based method of teaching reading. One school district in California has voted to ban the use of calculators in lower elementary grades. Students were simply not learning their basic math facts. These developments certainly help to demonstrate the validity of the “back to the basics” movements. Finally, there is the misunderstood and misused concept of self-esteem. Rewarding a student for any effort, no matter how small, is not helpful. One study found that American students performed far below Japanese and Chinese students in math, but ranked far ahead of them in thinking they were good at math (Adler et al. 1992).

Initil Hypothesis

It is the purpose of this research to examine the role and significance of the historical use of “rote” memorization in instruction. This method dominated classrooms for almost 300 years in this country. Rote memory was both significant and successful in the past. I hypothesize that it represents a valid and worthwhile instructional discipline that, when updated and implemented today, will produce significant improvements in any classroom.

Question 1: What is rote memory?

In suggesting that schools return to the use of rote memory in classrooms, it is important first to explore just what rote memory is, and, through a review of the literature, to understand its place in early American classrooms.

Usually we think of rote memory as storing away empty, disjointed facts and mindless repetition. Most of us have even practiced it to some extent when we “cram” for tests—only to promptly forget everything we just crammed in! One hundred fifty years (and longer) ago, teaching was conducted by textbooks containing specific questions programmed to yield a single memorized answer. No meaning whatsoever was attached to the recited answer by the majority of the students. Students were expected to pass tests and proceed to the next book or grade level based on memorized answers, but with no real understanding. Various works from that time period allow us to go back and see into those old one-room schoolhouses and so gain some valuable insight as we contemplate the question at hand.

The Rev. Warren Burton captured a scene from the early 1800s in his memoir The District School as It Was. The minister and some townsfolk presented themselves to listen to the end-of-year examinations. After listening to impossibly big words spelled by the third class, the minister requested to “put out a few words to them” himself. Expecting long words, the students were surprised by the brevity of the minister’s words: wrist (which the students misspelled r-i-s-t), gown (g-o-u-n-d), andiron (a-n-d-i-u-r-n) (Burton, 1928, p. 142).

The teacher is disconcerted and mortified. It dawns on him, that while he has been following the order of the book, and priding himself that so young scholars can spell such monstrous great words, —words which perhaps they will never use, they cannot spell the names of the most familiar objects. The minister has taught him a lesson.

However, at the end of the day-long exams, the minister remarked to the teacher, “Your school appears very well, in general, sir” (Burton, 1928, p. 143).

And such were the schools of the state of Massachusetts when Horace Mann became the secretary of the state board of education in 1837. But they would not remain so for long. Mann was a reformer. In 1843, he endorsed and advertised a book titled The School and the Schoolmaster, by Alonzo Potter and George B. Emerson. In the book, Potter nicely summarized and lamented the practice of rote teaching methods, stating, “A wordy superficial rote-method of teaching and learning, may be regarded as, at this time, the great and special bane of our common schools” (Potter & Emerson, 1843, p. 184). The general problem, Potter pointed out, was with the textbooks. These provided questions and answers which ended up being memorized by the student without the teacher’s interaction or guidance. Consequently, “the pupil studies words, not principles; tasks his memory much, his judgement little” (Potter & Emerson, 1843, p. 185).

In their 1925 book, Then and Now in Education,
Caldwell and Courtis reference a survey looking at Boston schools of 1845. This survey portrays rote memory in quite a negative, though undoubtedly accurate, way and substantiates Potter’s observations. Caldwell and Courtis comment that the students...

...can repeat rules with great fluency and accuracy, answer printed questions in arithmetic, while the book is before them, and, in fact, recite all their lessons in the book in a manner which would seem to do them great credit. When, however, these landmarks are thrown aside, and they are called to the blackboard and requested to answer questions not found in the book, and for which they have no prescribed rules, they come to a dead stand, and lose the whole skill which before they apparently exhibited. (Caldwell & Courtis, 1925, p. 55)

Horace Mann, who was the impetus behind that 1845 survey, expressed dismay at the textbook design at the time as containing more of “isolated facts and abstract principles than of relations and applications.” As the publisher of the Common School Journal, he chided both teachers and textbooks in his October 1, 1845, issue for their practice of requiring huge amounts of memorization: “Hearing recitations from a book, is not teaching,” Mann said. “It has no claim to be called by this dignified and expressive name. It is the exposition of the principle contained in the book... which can be appropriately called teaching. All short of this is mere journey-work, rude mechanical labor and drudgery” (cited in Caldwell & Courtis, 1925, p. 55).

Alonzo Potter, a few years earlier, had dispensed the blame in a different direction, stating that the fault was not in the teachers or the textbooks but rather in the parents and children themselves. He claimed that students were too eager to feel that they had finished a book, caring little that they were deficient in understanding. Yet, “the teacher who wishes to check this disposition to advance without knowledge, is very liable to incur the displeasure of both the pupil and the parent” (Potter & Emerson, 1843, pp. 183-184). (Apparently the objection by parents to having their children held back a grade in school is not unique to our century!)

Speaking with the benefit of hindsight, they validated Mann’s work of 75 years earlier by stating “that Horace Mann was scientifically minded on educational matters long before his time... His statement, ‘We venture to predict that the mode of examination by printed questions and written answers will constitute a new era in the history of our schools,’ is proof of his clear-sighted vision and sound judgment” (Caldwell & Courtis, 1925, p. 44). Mann, with his well-deserved reputation, can then lend credibility to what he endorses, such as the handbook The School And the Schoolmaster (1843), by Alonzo Potter and George B. Emerson, which I found to be a helpful primary source document.

On another note, I was frankly very surprised to hear “rote” memory spoken of so negatively at a time when it was being heavily used as though it was the only educational methodology available. Its definition then and now seems, as Webster’s Ninth Collegiate Dictionary puts it, to be “memory without thought or intelligence—a mechanical repetition.”

Synthesizing a New Hypothesis

When I prepared my initial hypothesis, these findings were completely unexpected. I was unsure how to get off this apparent dead end street without breaking the rules of research. I began by revisiting both historical and recent data and synthesized a second hypothesis, which I will address in the remainder of this paper.

In The School and the Schoolmaster, a chapter on instruction elucidates several principles. The first focused on gaining attention and engaging as many “faculties of the mind” as possible (Potter & Emerson, 1843, p. 407). Another stressed that all learning should “be made familiar by repetition until it is deeply and permanently fixed in the mind.” Further, any lessons should be “learned perfectly” and “repeated without the least hesitation” (p. 413). This principle of repetition is true with any type of study and in any time period. So, if these authors did not contradict themselves, they clearly were not objecting to memorization itself (deeply and permanently fixing things in the mind) or to repetition (as without the least hesitation). In fact, even today study skills classes stress reading and repeating information before trying to recite it to verify learning.

Something else that Potter and Emerson did state, however, was that the mind must be completely focused on the concept to be learned. Attention and concentration go a long way in a general understanding of new material. This, I submit, is the missing factor without which rote is indeed “memory without thought or intelligence.”

Therefore, I propose that memorization should result in permanency of the thing memorized, facilitated by attention and repetition. My review of the literature led me...
to the phrase “deliberate memory tasks,” (Gelzheiser, et al., 1983, pp. 421-425). The word “deliberate” adds the concept of meaningfulness to the well-known task of memorization. My revised hypothesis is that the use of “deliberate memory tasks” in today’s modern classroom will produce statistically significant increases in student learning and performance, as well as other long-term benefits.

Question 2: Why Use Deliberate Memory Tasks?

I have hypothesized that deliberate memorization will increase academic achievement. Both historical and recent documents can be found which give clear and precise explanations as to why deliberate memory tasks should be used. I will focus on pertinent recent documents which support and validate this hypothesis and which provide teachers with ample motivation to implement this educational intervention.

To begin to establish why teachers should make use of deliberate memory tasks, it is important to look into what is already known about the primary organ involved in learning—the brain. In a recent article, Brenda Slegers reviewed the stages of brain development. The three-month-old fetus has approximately 200 billion brain cells. Yet, in three short months, Slegers reports, about half of these neurons will have died, having failed to make a meaningful connection with other neurons. Brain research has shown, according to Slegers, that input from the senses (stimuli) is necessary for these connections to be made and maintained (Slegers, 1997). During the first five years of a child’s life, between 50 and 1000 trillion neural connections are made in the brain. To remain viable these connections must be reinforced. “Windows of learning,” Slegers says, operate up to the age of twelve. After this, “one must work harder to enrich the brain” (Slegers, 1997, pp. 23-24).

The presence of stimuli can have profound effects on the brain, particularly in these younger years. According to Dr. Kenneth A. Klivington of the Salk Institute, “Structure and function are inseparable. There are some studies currently being done that show profound differences in the structure of the brain depending on what is taken in by the senses” (Slegers, 1997, p. 13). In other words, Slegers explains, a child’s daily activities and his response to his surroundings shapes the brain. The input the child receives and his interaction with it affects the way the brain is used (its function) as well as its neural wiring system (its structure) (Slegers, 1997, p. 13).

Extending the general concept of neural connections, Rita Smilkstein (1993) states that teaching and learning is really the process of brain cells forming new structures and pathways—of growing new connections. These new networks, she says, remain very specific to the task for which they were created. Generalization of learning is difficult, if not impossible. Often, many different neural connections created by new learning experiences remain isolated, as if lost at the end of a dead end street. However, Smilkstein says, dendrites, synapses, and neural network of each separate thing a student has learned grow enough to make contact with the well-grown neural network of a different thing, an ‘aha’ experience occurs and learners say, “Oh, now I see how they relate.” They see this because the two neural networks have make physical contact and now they do, in fact, physically relate. At this moment, learners are finally able to see or grasp that—and how—the different things relate. (Smilkstein, 1993, p. 42)

Thus, no matter how isolated the learned information seems to be, it is patiently waiting for new experiences to cross its neural path and connect with it, thus rendering it not just meaningful, but immediately useful and transferable to new situations as well. Smilkstein’s concept of neural connections reminds me of the ancient Greek mathematicians who discovered, explained, and taught new branches of mathematics which had no practical application for them whatsoever. These mathematical theorems and formulas sat around for thousands of years waiting for the computer age to arrive when they were found to be useful in solving complex electronic equations. I extrapolate from Smilkstein’s article that even though meaningfulness is always important, lack of it should not prohibit us from deliberate memory tasks as those tasks lay down new neural highways and provide us with multitudes of new neural connections as well as the potential for millions more.

Gelzheiser, et al. (1983) use the example of writing to explain how brain functions affect the process of learning. The brain, the authors explain, has a limited central processing space in which to consciously handle the task at hand. If a young student is still learning or struggling with letter formation, it is this task that will predominate the central processing or conscious area of the brain, hindering the ability to be creative at a writing task. Through repetition and practice, the letter formation eventually comes automatically, and the brain is thus freed up to concentrate on the creativity of the task. The authors
propose that teaching certain tasks or processes (such as organizing, or developing a plan to begin problem solving) until they are automatic will free up space in a student’s brain, allowing him to concentrate on the material to be learned, instead of being bogged down by all the prerequisite skills (Gelzheiser et al., 1983, pp. 422-423).

Another, almost forgotten aspect of memorization, is that of self-esteem (that is, self-esteem based on real accomplishments). In an article called “Learning By Heart,” Marilee Rist writes,

As a kid, you learned your ABC’s and your multiplication tables by heart. You listed the state capitals by heart. You probably grumbled when your English teacher made you memorize passages from Julius Caesar or Macbeth. But you did it, and to your surprise, you felt a secret thrill for having triumphed. Decades later, things learned by heart remain deeply etched in memory. (Rist, 1992, p. 12)

Rist goes on to cite deprived schools that were turned around by implementing this “heretical notion,” as she calls it.

In 1843, the authors of The School and the Schoolmaster understood the universal concept that “Every power is improved by exercise” (Potter & Emerson, 1843, p. 311: emphasis in original). Applying this to the mind, the authors elaborated,

This law, indeed, is the foundation of the theory of education. It is by exercise that all the faculties are improved. Address the love of knowledge—that curiosity which is instinctive in every mind,—and you increase it. The perceptions are quickened, the power of observation is sharpened, the memory made ready and tenacious, the reason strengthened, the comprehension enlarged, the judgment matured. . . . This is mental education. (Potter & Emerson, 1843, pp. 312-313)

In the previous paragraphs, I have described current scientific research involving the brain and its plethora of neural connections. Learning is primarily the process of growing new pathways and connections within the brain. I submit that “deliberate memory tasks,” or memorization, is a lost and forgotten mental discipline, but a significant one.

**Question 3: What Are Some Considerations in the Implementation of Deliberate Memory Tasks?**

Given the problem of the decline of education in America, I have looked into the past for answers. Based on my research of historical sources, I have proposed that the increased use of deliberate memory tasks in today’s classroom will produce statistically significant academic achievement. The concept of a “deliberate memory task” suggests meaningfulness and a deliberate plan, as opposed to the emptiness of “rote” learning. Current scientific research on the brain offers a rationale for using memorization methods. The brain is a vast neural network, and learning occurs when brain cells grow and seek out new connections. In the following section, I will explore recent literature and cite examples regarding some specifics in implementing memory tasks in a classroom.

As previously stated, memorization was highly used in schoolhouses for hundreds of years, but how? At age 75, John Muir, the Scottish naturalist, remembered and wrote about this precise thing. Although he was writing about his Scottish teachers before he came to this country at age 11, it nevertheless portrays an accurate picture of American schools 150 years ago.

I can’t conceive of anything that would now enable me to concentrate my attention more fully than when I was a mere stripling boy, and it was all done by whipping, — thrashing in general. Old-fashioned Scotch teachers spent no time in seeking short roads to knowledge, or trying any of the newfangled psychological methods so much in vogue nowadays. There was nothing said about making the seats easy or the lessons easy. We were simply driven pointblank against our books like soldiers against the enemy, and sternly ordered, “Up and at ‘em. Commit your lessons to memory!” If we failed in any part, however slight, we were whipped: for the grand, simple, all-sufficing Scotch discovery had been made that there was a close connection between the skin and the memory, and that irritating the skin excited the memory to any required degree. (cited in Carus, 1971, pp. 246-247)

Despite its apparent effectiveness, the above method of implementation would obviously cause quite a stir today. Thus, it goes without saying that any viable “old-fashioned” methods would need to be upgraded or modernized before being used in today’s classroom. My review of the literature found studies describing various experimental methods of implementation contrasted with a control group which used
a purely rote method of memorization and repetition. One of the studies, for example, by Alvin Wang, et al., compared mnemonics to traditional rote memorization. They found there was "greater forgetting" for the mnemonic group than the rote group, and that, "mnemonic devices do not appear to confer any long-term advantage to the retention of material so learned" (Wang et al., 1989, p. 3). Similarly, a study of preschoolers trying to learn their phone numbers used three groups: a game format, a mnemonic, and straight rote memorization. Researchers L. Carol Scott and Elizabeth M. Goetz found that the rote group had fewer wrong answers and also remembered better and longer than either of the other two groups. Further, in addition to calling for more studies, they questioned the effectiveness of the "game" method of teaching so favored by elementary educators, based on its poor results (Scott & Goetz, 1978, pp. 19, 25).

A 1991 study by Linda R. Ward explored using cooperative learning as a memorization method, versus straight individual rote learning. She found that, though the scores were not significantly different statistically, the cooperatively learned "deliberate memory task" did result in slightly higher scores. She also found the benefits generally associated with cooperative learning to be evident, such as students looking forward to study times, being more interested in the task, being generally more friendly to each other, and the class as a whole, being more fun and easier to control (Ward, 1991).

Another successful method of incorporating memorization into the classroom is the use of mastery learning. This is an approach to teaching that establishes a core of basic and essential skills and topics. In contrast to individualized student centered programs, mastery based education uses cooperative learning yet is teacher-centered and teacher-paced. Thomas R. Guskey and Sally L. Gates conducted a meta-analysis of 27 studies. Guskey and Gates reported that although there were subject area and grade level differences, the results of mastery learning were generally very positive. Students retained information longer and were found to have gained a more positive attitude about learning. Interestingly, teachers also were reported to have developed an increased positive attitude toward their teaching and toward their students (Guskey & Gates, 1986, p. 78).

Finally, an article by Marilee C. Rist (from which I have quoted previously) described the turnaround of one underprivileged inner-city elementary school which implemented the "heretical notion" of requiring memorization. Starting with "rock-bottom" achievement, major discipline problems (food throwing at lunch, etc.), and 150 suspensions a year, the principal, Rodolfo Bernardo, began a "back to basics" program including character education. Bernardo's initial premise was that schools try to push too much "complexity" too early, before children are ready for it. Countering this, he focused on becoming rooted in the basics. Memorization was used as a key aspect of this. He stated, "knowing the basics by heart gives children a sense of accomplishment and stimulates them for greater challenges" (Rist, 1992, p. 13). In the brief two-year turn-around since implementing this program, scores on a national achievement test significantly improved. The school has become a model school and now even boasts a waiting list!

Though it has different guises, the implementation of "deliberate memory" learning in any classroom has been shown through the literature to be academically effective across the curriculum and is applicable to any learning situation. It works! In addition, according to the report by Guskey and Gates, its benefits include increased competence, self-confidence, and self-esteem in both students and teachers. Regarding this educationally important issue, the teacher's question should not be, "Should I include memory work in my classes?" but rather, "How should I implement deliberate memorization in my classes?"

Summary and Analysis

Education is and has been on the decline over the last half of the 20th century. Efforts to improve it have taken the form of various interventions or methods, some tested and some not. California has recently called an end to a ten-year experiment with whole language. When students scored at the bottom of the list nationwide, they decided to return to the more tried and true phonics method of teaching reading. My purpose in this historical research paper was to investigate the role of rote memory as another "tried and true" method that is no longer used.

I discovered the connotation of rote memory was the same 150 years ago as it is today: meaningless, mechanical memorization and repetition. Consequently, I chose the phrase "deliberate memory tasks" to be more representative of the favorable use of memory proposed in my hypothesis. The word deliberate implies planned, specific memory work, infused with as much meaning as is appropriate.

Brain research provides interesting insights into what learning really is - the growth of individual neurons seeking connections with other neurons. These connections result in greater understanding and form an ever-growing, interconnected neural network. The more we study and learn, the more connections are made, and the more we understand. Also, the self-confidence and self-esteem that come with memorization are powerful internal motivators (the best type) toward continued success in learning. Thus, one of the best things we can do for the long-term health and well-being of our brains is to commit our minds to the discipline and exercise of memorization.
Finally, I examined some recent practices to see what forms of memorization were successful in classrooms today. Among the arguments against memorization is the boredom factor associated with it—sometimes referred to as “drill and kill.” Based on the literature, I do not believe this to be a well thought-out objection. As evidenced by the turn-around of an underprivileged inner-city school through a focus in part on “the basics” and memorization, I propose that a school needs to create an environment of acceptance and excitement surrounding memory work. Memorization needs to be promoted and practiced, respected and rewarded. With these attitudes, there is no room for boredom.

Historically speaking, rote learning has a bad reputation. In 1843, it was not the aspects of memorizing, rehearsing, and reciting a lesson that were considered the “bane” of the common schools. Rather, it was the practice of memorizing huge amounts of useless information, such as impossibly large spelling words, to the exclusion of learning necessary facts or principles, such as the general spelling rules for many everyday words. It seems the 1843 authors were denouncing the meaninglessness of memory work rather than the memory work itself. Conversely, in our modern denunciation of memorizing, we have “thrown the baby out with the bath water.” When considering the recent literature along with the old, I submit again that the conclusion about memory learning is obvious: It works.

In reality, some type of memorization is really the heart of all learning and can be successfully applied in numerous non-traditional (non-rote) ways. Foreign language learning— that last bastion of excessive “rote” memorization—is one area in which new methods of meaningful memorization are being successfully used. Harris Winitz (1981), for example, has proposed learning a new language in the same way a toddler learns: by meaningful listening. Stemming from some earlier work which broke language into two simple concepts, the easier receptive, (listening and reading) skills, and more difficult expressive (speaking and writing) tasks, his method involves looking at a picture while listening to a native speaker slowly repeat a word or sentence that describes the picture. For optimal results, the student is advised to go over the same lesson two to four different times for reinforcement. The advantage to this method is that the student is able to learn word meanings and grammar without any empty memorizing of vocabulary or grammar rules and without having to translate. Early studies of this method showed that students had better retention and eventually better expressive skills than the traditionally taught “rote” students (Winitz, 1981).

Although memorization is typically associated with language, it can also be applied to numerous non-language areas, such as the multiple intelligences proposed by Howard Gardner. For example, when learning to play an instrument, a student must memorize and associate a visual symbol with a specific pitch as well as the proper finger and hand motions needed to produce proper pitches (the notes). Then, after all this memorization, and much repetitive practice, a student musician demonstrates his learning at what is aptly called a “recital.” Similarly, a karate student must memorize both kinesthetic stances and spatial movements to learn this skill. This, too, requires repetition until the movements become automatic. Even the task of typing involves committing to memory the location of all the keys as well as the correct finger position and motions to strike them speedily and accurately.

In considering the purpose of my research, I realize I have not added to the body of knowledge since most of my findings were generally already in existing literature. However, I found only three or four articles on this subject published within the last five years. Most of my “recent” documents were from five to twenty years old. Therefore, there is a clear need for more current study in this important area of education, including longitudinal studies of some of the successes of ten or more years ago.

The second reason for research is to perfect practice. I do hope that this study will raise awareness of the importance of memorization, and through rationale and examples, incite educators to implement some type of “deliberate memory tasks” in the course of their teaching.

In conclusion, I have shown that meaningful memorization does produce significant positive results. Upon reaching the end of this paper, I am reminded of the purpose of education. Education is not for its own sake, nor is it only for the student’s sake. Rather, as stated in 1643, the purpose of education is for the “benefit of the commonwealth” (Boone, 1899, p. 16). Exactly 200 years later, in 1843, it was hoped that education would “cultivate good intellectual habits, among the rising generation; and to inspire them with a liberal taste for knowledge” (Potter & Emerson, 1843, p. 180; emphasis in original). Perhaps a return to the tradition and discipline of memorization in schools is one right step toward these mandates in an otherwise downward spiral. A return to memorization is a return to a disciplined mind. And what better gift to give the future of a democratic society than disciplined and thinking minds?
### References


