Integrating Mnemonics into Psychology Instruction

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Overview

This document contains a literature review concerning the use of mnemonics in psychology education, including results from a recent student survey. The next section features a summary set of recommendations, or best practices, regarding the integration of mnemonics into instruction. The concluding section is a collection of mnemonics relevant to psychology course content, organized by topic. References are listed at the end of the document.

Outline of Contents

I. Introduction: *Why mnemonics? Why psychology?*

Psychology courses, particularly at the introductory level, typically require that students learn many new terms and concepts in a short time. Instructors can teach students to use mnemonic devices to facilitate this challenging yet necessary task. This resource provides evidence-based recommendations for using mnemonics in psychology courses, as well as a collection of mnemonics relevant to psychology.

Mnemonics refers to "the art or practice of improving or of aiding the memory" and to "a system of rules to aid the memory" ("Mnemonics," n.d.). Mnemonics impose organization and meaning onto to-be-learned information, thereby making the material more memorable. Students can then spend more time and effort focused on in-depth thought and study of course topics. Knowledge about mnemonics can be applied to many courses, within and outside of psychology. As such, teaching students how to use mnemonics can benefit their academic success in a broader sense by improving their learning skills.

Perhaps the most obvious specific course connection is with Introduction to Psychology, a course that requires students to acquire a new vocabulary of course terms and concepts based on very little existing prior knowledge. In addition, incorporating mnemonics into courses that include learning and memory as topics (e.g., Introduction to Psychology, Learning and Memory, Cognitive Psychology) can serve a dual purpose. As students learn to use mnemonics to boost their own memory for specific course material, they can also learn about how human memory works by studying *why* mnemonics improve retention of to-be-learned information. Connections to theories of memory include chunking, the semantic organization of long term memory, elaborative rehearsal, the bizarreness effect, and the importance of utilizing both verbal and visuospatial resources. Mnemonics provide ready-made examples of memory principles in action.

II. Literature Review

What Are Mnemonics and How Do They Work?

Mnemonics, or mnemonic devices, are encoding strategies used to organize and/or chunk to-be-learned material, in order to make it more meaningful and easier to remember. Types of mnemonics discussed in this document include first-letter mnemonics (e.g., acronyms, acrostics), keyword mnemonics, pegword and method of loci mnemonics, and a category including song, rhymes, and stories.

At a conceptual level, mnemonics bolster memory due to at least three factors. First, they typically involve deliberate, or effortful, learning (Bellezza, 1996); the focused attention the learner pays to the material while using and/or creating mnemonics supports encoding to long-term memory. Second, they connect new knowledge with established schemas in long-term memory, a process also called elaboration, which enhances encoding and supports successful retrieval (Balch, 2005; Bellezza, 1996). Third, many mnemonic devices require the integration of two or more information *codes* (e.g., verbal, visual) which, consistent with Paivio's (1986) dual-coding theory, enhances memory by providing multiple routes to retrieval. In fact, the use of mental imagery may be particularly important; some researchers recommend using interactive, dynamic, distinctive, and possibly even bizarre images (McDaniel & Einstein, 1986; McDaniel, Einstein, DeLosh, May, & Brady, 1995) and spending at least 6 seconds on each visual association (Bugelski, 1974).

Levin (1983) summarized these factors using the "three *R*s" of mnemonic use: *Recoding*, *Relating*, and *Retrieving*, with a possible fourth "*R*" for *Rehearsing* (Carney & Levin, 1998b). Similarly, Shimamura (1984; see also Higbee, 1988) created an acronym mnemonic to describe elements of mnemonic learning: "*MOVA* your memory," with the letters referring to *Meaningfulness* (e.g., schema-building), *Organization* (e.g., chunking, use of hierarchies), *Visualization* (i.e., imagery), and *Attention* (i.e., effort).

Mnemonics are often used in education at the initial stage of knowledge acquisition. They may act in this early stage as scaffolding for more permanent schematic knowledge that develops as education advances (Bellezza, 1996). Indeed, psychology courses (especially those taken early in the curriculum, such as Introduction to Psychology) require the mastery of an entirely new lexicon before students can study more complex concepts (Balch, 2005; Carney & Levin, 1998a). The types of elaborative strategies incorporated into mnemonics can support this process.

General Issues in Teaching Mnemonics

One major issue to examine when considering the use of mnemonics in education is whether it is best to provide students with mnemonics or to have them create their own (e.g., Bellezza, 1996). The memory principle known as the *generation effect* (e.g., Slamecka & Graf, 1978) suggests that self-created materials should be better remembered. As such, and in keeping with the *depth of processing* principle (e.g., Craik & Lockhart, 1972), mnemonics that are self-generated should be better remembered. Further, the *self-reference effect* (also known as *self-referential processing*; e.g., Rogers, Kuiper, & Kirker, 1979) suggests that material relevant to

the self-schema enjoys encoding and retrieval advantages. Thus, the most successful mnemonics should have personal meaning and importance to the learner, which presumably is best achieved in newly created mnemonics.

However, some evidence suggests that the level of difficulty of encoding the to-be-learned material is critical: Relatively easy material may be best learned using self-generated mnemonics, whereas difficult material may be best encoded using instructor-provided mnemonics, which are likely to be more accurate and of higher quality (Bellezza, 1996).

Specific to psychology courses, Carney, Levin, and Levin (1994) suggested that instructors initially provide in-class "mnemonstrations" to highlight the importance of mnemonics with personal relevance, with the goal that students would then take more ownership of mnemonic creation and use over time. Balch (2005) also recommended teaching students mnemonic methods by including examples in lecture materials. Further, Balch showed that although psychology students were helped more by keyword mnemonics than by non-elaborative methods on objective memory tests, this pattern was not fully reflected in subjective helpfulness ratings. Learners may not have the metacognitive sophistication to judge the most effective learning methods, and it is therefore critical for instructors to assess empirical learning outcomes when making pedagogical decisions for their own classrooms.

In a more holistic approach to mnemonic instruction, Shimamura (1984) developed an entire short course focusing on mnemonic skills and emphasized that instructors must take the time to provide training and practice, perhaps in the form of class time and/or homework assignments, and also that increasing students' knowledge of how memory works should further bolster mnemonic use and success.

The following sections are organized by type of mnemonic. A definition of each mnemonic precedes a discussion of research regarding its use in psychology education.

First-Letter Mnemonics: Acronyms and Acrostics

Among the first-letter mnemonics, the two most common are *acronyms* and *acrostics*.

Acronyms are created by combining the first letters of to-be-learned words into a new word (or word-like) unit, such as using the mnemonic *dabda* for the five stages of death and dying (Carney et al., 1994; see the mnemonics collection below). These mnemonics are popular and easy to use, but they may not be as useful as other, more effortful, mnemonics (e.g., Carlson, Zimmer, & Glover, 1981; Pressley & Mullally, 1984). One particular challenge is that the acronym itself may be easy to remember, but the elements may be difficult to retrieve.

Stalder (2005) examined the use of instructor-provided acronyms in an Introduction to Psychology course. Students were given acronyms on exam review handouts, along with a sentence that visually or verbally connected the acronym to the topic (addressing the challenge discussed above). Then, on their own, students had to find the course material pertaining to the mnemonic. Results suggested that level of acronym use was related to performance on acronym-relevant exam questions. Also, those who used acronyms more frequently were more likely to write out acronyms on their exams. Finally, students gave high ratings to acronyms and also reported self-generating additional acronyms. Stalder noted that these results speak to the motivation issue: Even armed with knowledge of mnemonic techniques, actual implementation

of mnemonics will only occur if students find them useful (and even enjoyable). In a second study, Stalder polled psychology instructors, who reported high helpfulness ratings for acronyms in Introduction to Psychology; yet teachers perceived greater levels of student use compared to ratings given by students themselves. Also, acronym use reportedly declined with more advanced levels of psychology coursework.

In an investigation of the usefulness of one specific acronym mnemonic, Lakin, Giesler, Morris, and Vosmik (2007) reported that, in an introductory research methods course, frequency of using *HOMER* as an acronym for steps of the scientific method (see the mnemonics collection below, p. 13) predicted memory for, and elaboration of, the steps. In addition, students responded positively to the mnemonic, rating it as enjoyable and useful, and recommending it for future courses.

Recently, Stalder and Olson (in press) examined first-letter mnemonics (along with keywords, which are discussed in the next section) for terms and concepts (e.g., *t* test for two groups) in a psychology statistics course. Students recalled most of the mnemonics used during the semester, and their ratings of the mnemonics were overall very positive. They noted that the mnemonics helped with learning and motivation and made the material more fun.

Another first-letter mnemonic method is the *acrostic*, which most commonly involves using the first letters of a list of to-be-learned items to create a meaningful and/or odd sentence. To address the issue of self-generated versus instructor-provided acrostics, Bloom and Lamkin (2006) compared these two conditions in a physiological psychology course. At both 2-week- and 10-week-delay points, students who self-generated acrostic mnemonics for the 12 cranial nerves performed better on a recall test, and, perhaps more impressively, did not show a decline in learning from 2 to 10 weeks (whereas the instructor-provided condition did). Though there was no control group who used non-mnemonic methods, these results suggest that active learner involvement in creating acrostics is beneficial for memory.

Keyword Mnemonics

Keyword mnemonics involve making a phonetic link connecting a to-be-learned word with a similar-sounding *keyword*, and then making an interactive image that links the keyword to the meaning of the to-be-learned word (e.g., Bellezza, 1996; Levin, 1983). Though originally studied in the context of foreign language learning, the keyword method has been recently applied to psychology education.

Carney and Levin (1998a) tested the impact of "neuromnemonics" (i.e., keyword mnemonics) for brain structures and functions. For example, to remember the function of the *medulla*, one could use the keyword *medal*, then imagine a runner winning a race, *breathing heavily* and with his *heart pounding*, then bending over to have a *medal* hung around his neck. After a 2-minute delay, both the keyword and the keyword-plus-image group (which were similar in performance) outperformed a control group using a rote repetition strategy, on definitional and applied test items. Because Carney and Levin's results did not suggest that instructor-provided imagery added to the keyword's helpfulness, they recommended that instructors teach the keyword method and provide the specific terms and relevant keywords for the to-be-learned material, but that students can create interactive images on their own.

More recently, Carney and Levin (2008) investigated the short- and long-term benefits of keyword mnemonics, using phobia words as stimuli. For example, to remember that *harpaxophobia* refers to the fear of *robbers*, one could imagine *robbers* stealing a lovely *harp*. Three experiments showed significant advantages of the keyword mnemonic over a repetition condition, on immediate and 2-day-delayed tests of forward recall, inferential matching, categorization, and backward recall. Given that their results uniformly and strongly supported the advantages of the keyword mnemonic in a variety of time delays and recall contexts, the researchers cautioned instructors against avoiding mnemonics due to "mnemonophobia."

Research from my lab has extended the work of Carney and Levin (2008) by adding hand gestures to keyword mnemonics (McCabe, Craig, et al., 2011). Using similar phobia terms and keywords, we compared a gesture condition, in which an actor read aloud the imagery sentence while incorporating iconic hand gestures, to a non-gesture condition, in which the actor read the sentence aloud with no gestures. Gestures were advantageous on the 10-min-delayed test, although not at the 1-week-delayed test. Research is currently ongoing to further investigate whether adding hand gestures to mnemonics is helpful for long-term memory, and whether it is especially beneficial for learners to do the hand gestures themselves, in addition to watching the gestures being performed.

Balch (2005) took a slightly different approach to investigating the keyword mnemonic using Introduction to Psychology students. Students encoded various psychology terms (e.g., experimental method terms, brain terms, psychological disorders, and psychotherapies) using examples, keyword mnemonics, paraphrases, or twice-repeated definitions (control condition), all provided by the instructor. Results showed that performance on definitional and applied multiple choice questions were equivalent for the example and keyword mnemonic conditions, and these levels were significantly better than the control condition. Students rated mnemonics and examples as very helpful, and repeated definitions as less helpful; however, as mentioned earlier, students showed a metacognitive disconnect in rating paraphrases higher than twice-repeated definitions, even though objective test scores showed no difference in the two conditions.

To extend Balch's (2005) work, I recently conducted a study that compared three conditions when learning brain terms in Introduction to Psychology: simply reading instructor-provided examples and keyword mnemonics, self-generating examples, and self-generating keyword mnemonics (McCabe, 2011). Results indicated a learning advantage on a structure-to-function matching test at both a 10-min delay and a 2-day delay for the generate-keyword condition, whereas the read-only and generate-example conditions were lower and similar to each other. Thus, for keyword mnemonics, as with acrostics, evidence suggests that self-creation is beneficial for learning.

As a close cousin of the keyword mnemonic (Carney & Levin, 2000), the *face-name mnemonic* deserves a brief mention here. Learners identify a keyword (or "name clue") that is acoustically similar to the name of a person they are trying to remember. Then they connect the name clue with a feature of the person's face using interactive imagery. This technique can help students learn the names of their classmates (Carney et al., 1994; Smith, 1985), while simultaneously increasing their knowledge of mnemonic methods. Students can also use this strategy to learn famous names and faces of important psychology figures, such as William James or B. F. Skinner.

Pegword and Method of Loci Mnemonics

The *pegword* mnemonic technique is typically used for remembering an ordered list of items; it involves two stages. First, the learner memorizes a rhyming scheme for the numbers 1 to 10, which can be used multiple times: *One is a bun, two is a shoe, three is a tree, four is a door, five is a hive, six is bricks, seven is heaven, eight is a plate, nine is wine, ten is a hen*. Next, the learner creates a mental image of each item on the to-be-learned list interacting with the word that rhymes with the appropriate number.

The pegword mnemonic has been specifically applied to psychology learning in the case of Erikson's eight stages of psychosocial development. For example, for the *trust* stage, one could imagine "an infant lying in a perfectly '*trusting'* position while mommy powders his little behind (*buns*)" (Carney et al., 1994, Table 2, p. 173; see mnemonics collection below pp. 23, 26-27). The learning of any set of ordered items can potentially benefit from the use of pegwords.

Empirical research on the effectiveness of the pegword mnemonic as applied to psychology education is lacking. However, Carney and Levin (2011) demonstrated that, using a combined pegword-keyword mnemonic for word list learning, and using the same 10 pegwords repeatedly, the mnemonic condition consistently outperformed an "own best method" control condition.

The *method of loci* mnemonic is similar to the pegword technique, in that both aid memory for an ordered list of items; also, once learned, both can be used repeatedly to remember multiple lists. Instead of pegwords and rhymes, however, the method of loci utilizes a series of spatial places to which the learner visually associates each to-be-learned item. At the retrieval stage, the learner takes a mental walk along the route established in the first phase, and "picks up" an item at each destination along the way. The classic example is remembering a grocery list by imagining each food item along the route one takes to school or work, or in different rooms of a house (e.g., visualize a loaf of bread on the doorstep).

Within psychology courses, the method of loci could be used for Erikson's stages: "For example, *trust* could be the trusting baby playing in your driveway, *autonomy* could be a toddler running away to live in your garage, *initiative* could be a youngster knocking on your front door selling Girl Scout cookies, and so forth" (Carney et al., 1994, p. 173).

Research on the method of loci mnemonic in psychology is also sparse. One study by Schoen (1996) reported teaching students the method of loci by having them use a Monopoly™ board as locations for a list of unrelated items. Recall scores at an immediate and 1-week delay showed an advantage of *mnemopoly* over pure method of loci and pegword mnemonic methods. The author argued that the game board locations acted as effective cues because they were overlearned domains of knowledge for most students. Students were also surprised by their memory success during this demonstration, which could help convince them to use mnemonics on their own in other contexts.

Song, Rhyme, and Story Mnemonics

This category is a catch-all for several types of semantic-based mnemonic techniques. Learners create a song, rhyme, or story that organizes and/or describes the to-be-learned material.

VanVoorhis (2002) compared statistical concept learning for students who learned and sang "stat jingles" to those who simply read the concept definitions aloud. Students in the jingle condition outperformed those in the read-only condition on short-answer test questions. VanVoorhis argued that music inherently increases chunking, which in turn aids in the transfer from short-term/working memory to long-term memory. She also reported high student enjoyment of the jingles, noting that this is an especially impressive feat in a statistics course.

Projects in my own lab have similarly examined the use of song and rhyme mnemonics in statistics courses. Following an "Ode to Statistics" assignment in which students created their own song or rhyme mnemonics for specific topics, student ratings were positive overall. They reported that the assignment was fun and creative, helped them learn more about their topic, and should be assigned in future courses (McCabe, 2009). However, in a small-scale controlled experiment comparing the mnemonic-creation condition with a definition-writing condition in a statistics course, there was no learning advantage for the mnemonic condition (McCabe & Diller, 2010). As in the original study, students' ratings of the assignment were positive, suggesting that at the least, creating mnemonics for statistics terms may increase enjoyment and engagement in the course. Further research on a larger scale is needed to determine any objectively measured impact on learning.

To my knowledge, there is no research on the use of story mnemonics in psychology, although the depth of processing principle (e.g., Craik & Lockhart, 1972), and the general notion of semantic organization in long-term memory, support its use in psychology courses. For example, students could be asked to create a story or narrative that included 10 vocabulary terms from a given text chapter.

Undergraduates' Knowledge and Use of Mnemonics

I recently conducted an online survey measuring undergraduate students' knowledge and use of mnemonics in their courses (McCabe, Osha, Roche, & Susser, 2011). The final data set was based on 513 participants, 94% of whom were currently enrolled in, or had previously taken, at least one psychology course. Several findings are of particular interest and relevance to this teaching resource:

- The majority of participants (81%) were able to provide a reasonably accurate definition of mnemonics; however, only a small minority (9%) could provide a theory-based rationale as to why or how mnemonics work.
- Students overall rated first-letter mnemonics (e.g., acronyms, acrostics) as most familiar, most often used, and most helpful, followed by keyword mnemonics, song/ rhyme/story mnemonics, method of loci, and finally pegword.
- In a list of nine common study strategies (e.g., doing practice problems, self-testing, rereading class notes), students ranked using mnemonics seventh in terms of usefulness, with Likert-type ratings significantly lower than five other learning strategies.

- Questioned about the source of mnemonics, participants either self-generated or used instructor-provided mnemonics much more often than mnemonics from peers, textbooks, or online sources.
- The most highly rated factor in the decision to use mnemonics was "instructor uses them," followed by "the course requires rote memorization," and "there is a lot of new terminology to learn."
- Participants endorsed the psychology topics they perceived as being best aided by the use of mnemonics. These topics are presented here in order from most to least frequently endorsed: Memory, Biological concepts (e.g., the brain), Psychological Disorders, Learning, History of Psychology, Personality, Research Methods, Development, Language, Therapy, Sensation and Perception, Statistics, Intelligence, Social Psychology, Health Psychology, Motivation, and Positive Psychology.
- Students who rated themselves as self-aware and strategic learners on independent scales of metacognition tended to report being more familiar with and more likely to use mnemonics.

A take-home message from this set of findings is that although many students know what mnemonics are, they do not judge them to be as beneficial for learning compared to other common study strategies. Given prior research supporting memory advantages of mnemonics, some of which is reviewed in this document, psychology instructors should consider increasing mnemonics instruction in their courses.

III. Best Practices for Integrating Mnemonics into Psychology Instruction: A Summary

- ***"Conquer Mnemonophobia!"*** (Carney & Levin, 2008). Though mnemonics may be perceived as "shallow" learning techniques, they can provide effective scaffolding for more complex knowledge by allowing the acquisition of basic terms and definitions (Bellezza, 1996), and at least for the keyword method, have been shown to benefit memory in the short- and long-term, and on definitional and conceptual assessments (Carney & Levin, 2008). Don't be afraid to use mnemonics and to teach them to your students!

- ***Practice (and Feedback) Makes Perfect.*** Repeated practice with mnemonic strategies aids in the development of this skill set (Shimamura, 1984). Convincing students about the benefit of mnemonics may be largely influenced by providing multiple study-test-feedback experiences in the classroom (e.g., Levin et al., 1990, as cited in Carney et al., 1994; Pressley, Levin, & Ghatala, 1984, as cited in Carney et al., 1994).

- ***Two Codes Are Better Than One.*** Teach students that the most effective mnemonics are often the ones that involve at least two codes, most commonly visual and verbal (e.g., Paivio, 1986).

- ***Maximize Mental Images.*** For image-based mnemonics (e.g., keyword, method of loci), encourage the use of interactive, dynamic, distinctive, and possibly bizarre images (e.g., McDaniel & Einstein, 1986), and instruct students to spend time (at least 6 seconds) focusing on each image (Bugelski, 1974). For the keyword method, providing students with instruction on how to use the method and with the specific terms and relevant keywords for the to-be-learned material may be sufficient; students can and probably should create interactive images on their own (Carney & Levin, 1998a).

- ***Encourage Creativity.*** Self-generated (and often, as a natural consequence, self-referential) mnemonics may have an advantage over instructor-provided mnemonics (e.g., Bloom & Lamkin, 2006, for acrostics; McCabe, 2011, for keywords), though possibly less so when the material is particularly difficult to learn and accurate mnemonics are challenging to create (Bellezza, 1996). Utilizing a combination of instructor-provided and student-generated mnemonics may be the best learning strategy.

- ***The Basic ABCs.*** First-letter mnemonics (e.g., acronyms, acrostics) are popular, easy to create and use, and can show learning benefits (e.g., Lakin et al., 2007; Stalder, 2005); however, caution students that they may end up remembering only the acronym itself and not what it refers to. Emphasize the connection of the mnemonic to the to-be-learned information.

- ***Keys to Knowledge.*** The keyword mnemonic is not known as well as first-letter techniques, but it has been repeatedly shown to benefit memory for psychology terms and definitions (e.g., Balch, 2005; Carney & Levin, 2008). One advantage to this method is that it effectively combines verbal and visual imagery strategies.

- ***List Learning Through Pegs and Loci.*** Though less thoroughly investigated than first-letter and keyword mnemonics, some evidence suggests pegword and method of loci mnemonics can be useful for specific lists of items that need to be learned in psychology courses (e.g., Erikson's psychosocial stages; Carney et al., 1994). In addition, using locations on the *Monopoly* game board for an in-class demonstration of the method of loci may be an effective strategy for encoding ordered lists and can show students the power of mnemonic methods (Schoen, 1996).

- ***Sing a Song of Statistics.*** The creation of songs, stories, and/or rhymes that organize and/or describe to-be-learned information is an easily accessible, and enjoyable, mnemonic strategy (e.g., McCabe, 2009). In the context of Statistics courses, singing songs describing statistical concepts may benefit learning (VanVoorhis, 2002).

- ***Increasing Mnemonics Instruction.*** Student survey data suggest that undergraduates are largely aware of what mnemonics are (McCabe, Osha, et al., 2011); however, students would benefit from more instruction in varieties of mnemonics, how and why they work, and evidence or demonstrations that they are useful. Ideally, students' learning about mnemonic techniques will transfer to other courses and even other domains of life, resulting in spontaneous use of these strategies to maximize memory.

- ***Easy Integration.*** Instructors can readily incorporate mnemonics into psychology courses in multiple ways: present mnemonic examples in lectures, specifically teach types and uses of mnemonics, and practice the creation and use of mnemonics in small group discussions, writing exercises, homework assignments, or online discussion boards.

IV. Psychology Mnemonics Collection

The following mnemonics, collected from a variety of sources including journal publications, psychology students, and psychology instructors, are verbatim from the source. Whenever possible, full crediting information is included.

The collection is organized in rough order of topic presentation in a typical Introduction to Psychology textbook. Listed under each bolded heading is the specific topic for the mnemonic, the mnemonic itself, the type of mnemonic, and the source. To search for a specific topic in the mnemonic collection, use the "Find" function (CTRL-F).

A. Research Methods

- Topic: *Four Aspects of Experiments*
  - Mnemonic: *RADIO (*"Initial *experiments* with the *radio* resulted in many minor electric shocks.")
    - *R*andom
    - *A*ssignment
    - *D*ependent variable
    - *I*ndependent variable
    - *O*perational definition
  - Type: Acronym
  - Source: Stalder (2005)

- Topic: *Scientific Method*
  - Mnemonic: *HOMER*
    - *H*ypothesize
    - *O*perationalize
    - *M*easure
    - *E*valuate
    - *R*eplicate/revise/report
  - Type: Acronym
  - Source: Lakin et al. (2007)

- Topic: *Three Types of Research*
  - Mnemonic: *CoED* ("Research is no longer limited to male participants; most *research* is now *coed*.")
    - *Co*rrelational
    - *E*xperimental
    - *D*escriptive
  - Type: Acronym
  - Source: Stalder (2005)

B. Statistics

- Topic: *Independent-Samples* t *Test*

    - Mnemonic: “Independent *t*-Test RAP”
        - Almost all researchers would agree
        - That the *t* is better than the *z*
        - But if there’s any contemplation
        - Ask "is there a standard deviation?"
        - Remember that error of the mean has faded
        - And now the standard error is estimated
        - First take the *SS* or squares of sum
        - And divide that by the degrees of freedom
        - If you don’t state the hypothesis, all will fall
        - So don’t forget the alternative and the null
        - Use the distribution table to find *t* crit
        - Then see if *t* obtained exceeds it
        - After this process, have a ball
        - Especially if your data rejected the null!
    - Type: Song/Rhyme
    - Source: Unknown

- Topic: *Levine’s Test*
    - Mnemonic: *LOVE*
        - *L*evine’s
        - *O*ver .05 assume
        - *V*ariances are
        - *E*qual
    - Type: Acronym
    - Source: Rebecca Brand, Villanova University

- Topic: *Normal Curve*
    - Mnemonic: “Plot, Plot, Plot Your Curve” (to the tune to “Row, Row, Row, Your Boat”)
        - Plot, plot, plot your curve
        - Plot your normal curve
        - The mean is equal to the median and the mode
        - Plot your normal curve
        - Sixty-eight percent of scores
        - Fall within one
        - Standard deviation
        - Above and below the mean
        - Ninety-six percent of scores
        - Fall within two
        - Standard deviations
        - Above and below the mean
        - Ninety-nine percent of scores
        - Fall within three
        - Standard deviations
        - Above and below the mean

  - Type: Song
  - Source: VanVoorhis (2002)

- Topic: *Standard Deviation*
  - Mnemonic: "I'm a Standard Deviation" (to the tune of "I'm a Yankee Doodle Dandy")
    - I'm a standard deviation
    - A standard deviation am I
    - I estimate the average distance from the mean
    - Across a group of scores.
    - I'm a standard deviation
    - A standard deviation am I
    - Subtract the mean from each score
    - Square and add them up
    - Divide by *n*, take the root
    - And that's a standard deviation
  - Type: Song
  - Source: VanVoorhis (2002)

- Topic: *Standard Score Distribution*
  - Mnemonic: "The Standard Score Distribution" (to tune of "She'll Be Coming Around the Mountain")
    - The standard score distribution has a given mean and *SD*
    - The standard score distribution has a given mean and *SD*
    - The standard score distribution
    - The standard score distribution
    - The standard score distribution has a given mean and *SD*
    - The *z*-score distribution has a mean equal to 0
    - The *z*-score distribution has an *SD* equal to 1
    - The *z*-score distribution
    - The *z*-score distribution
    - Has a mean equal to 0 and an *SD* equal to 1
  - Type: Song
  - Source: VanVoorhis (2002)

- Topic: *Type I and II Errors*
  - Mnemonic: *HoRT*, *HoAF*, and *PHoRF*
    - Type I (*HoRT*): *R*ejecting the null hypothesis (*Ho*) when it is *T*rue
    - Type II (*HoAF*): *A*ccepting the null hypothesis (*Ho*) when it is *F*alse.
    - Power (*PHoRF*): The *P*ower of a test is its ability to *R*eject the null hypothesis (*Ho*) when it is indeed *F*alse.
  - Type: Acronym
  - Source: John B. Collins, University of British Columbia

  - Mnemonic: "Reject when true, not type II"

  - Type: Rhyme
  - Source: Unknown (contributed by Meridith Pease Selden, Wilkes University)

- Topic: *z Scores*
  - Mnemonic: "*Z* scores, *Z* scores Really Fun" (to tune of "Twinkle, Twinkle Little Star")
    - *Z* scores, *z* scores, really fun
    - For single samples they're the one
    - Hypothesis testing it's a blast
    - With a *z*-score table, it's really fast
    - A null and alternative hypothesis shown
    - With the standard deviation known
  - Type: Song
  - Source: Unknown

C. Biological Bases of Behavior

- Topic: *Amygdala*
  - Mnemonic: The amygdala controls your sense of fear. Think of either a *MIG* coming right at you and, of course, making you afraid, or picture a scary *wig* with *dollars* in it.
  - Type: Keyword
  - Source: Britt (2008b)

  - Mnemonic: Use the keyword/image of Queen *Amidala* from the Star Wars movies. For the entire movie, Queen *Amidala* is either *fighting*, or *running away*. This cues the information that the amygdala is involved in the fight-or-flight response.
  - Type: Keyword
  - Source: Kristie Campana, Minnesota State University, Mankato

- Topic: *Brain Stem Parts*
  - Mnemonic: *PMS*
    - *P*ons
    - *M*edulla
    - *S*pinal Cord
  - Type: Acronym
  - Source: Jim Matiya, Florida Gulf Coast University

- Topic: *Cerebral Cortex*
  - Mnemonic: Imagine a Texas cowboy hat on top of a brain. The cortex is the outer layer of the brain just under the hat where complex thinking occurs.
  - Type: Imagery (General)

  - Source: Britt (2008b)

- Topic: *Cerebellum*
  - Mnemonic: The cerebellum helps in coordination and balance. Picture your favorite athlete with *bells* all over his or her body (hanging from the clothes, hands, feet, etc.).
  - Type: Keyword
  - Source: Britt (2008b)

  - Mnemonic: The cerebellum facilitates movement. Imagine someone hearing the *cereal* bell. That's the signal to *move* to the breakfast table and begin *moving* the cereal to the mouth with a spoon.
  - Type: Keyword
  - Source: Carney and Levin (1998a, p. 133)

- Topic: *Corpus Callosum*
  - Mnemonic: The corpus callosum contains the fibers that connect the two halves of the brain. Thus, it adds the two parts together. Think of the *corPLUS CalloSUM*. Because the corpus callosum coordinates communication between the two hemispheres, think of corpus *Call Someone*.
    Type: Verbal (General)
  - Source: Britt (2008b)

- Topic: *Hippocampus*
  - Mnemonic: The hippocampus is the seat of memory. Think of a *hippo* with a *compass*. The hippo uses the compass to find his way back to the swamp because he can't remember where it is.
    Type: Keyword
  - Source: Britt (2008b)

  - Mnemonic: The hippocampus is responsible for forming long term memories (consolidation). Imagine a *hippo* walking through campus. A student says, "I'll always *remember* seeing that!"
  - Type: Keyword
  - Source: Unknown

  - Mnemonic: To remember that the hippocampus is the seat of memory, imagine a *hippo* with a mortarboard on this head, because he's on *campus*.
  - Type: Keyword
  - Source: Kristie Campana, Minnesota State University, Mankato

  - Mnemonic: To remember that the hippocampus is the seat of memory, remember the phrase, "An elephant never forgets," but replace "elephant" with "hippo": "The *hippo*(campus) never forgets."
  - Type: Verbal (General)

  - Source: Kristie Campana, Minnesota State University, Mankato

- Topic: *Hypothalamus*
  - Mnemonic: The hypothalamus regulates a number of functions in the body such as body temperature, thirst, hunger, and sex drive. Think of *"hypo the llamas".* Your llamas are hot, sweaty and thirsty, so you use a hypo to spray water on them to cool them down and you give them some water.
  - Type: Keyword
  - Source: Britt (2008b)

  - Mnemonic: The four "*F*s"
    - *F*ighting
    - *F*leeing
    - *F*eeding
    - "Mating" (insert your own "*F*" word here)
  - Type: First-Letter Mnemonic
  - Source: Unknown

- Topic: *Left Hemisphere*
  - Mnemonic: The *L*eft hemisphere is dominant for *L*anguage, *L*ogic, and *L*inear processing.
  - Type: First-Letter Mnemonic
  - Source: Celia Reaves, Monroe Community College

- Topic: *Lobes of the Brain*
  - Mnemonic: *F POT*
    - *F*rontal
    - *P*arietal
    - *O*ccipital
    - *T*emporal
  - Type: Acronym
  - Source: Julie McIntyre, Russell Sage College

- Topic: *Medulla*
  - Mnemonic: The medulla regulates the autonomic activity of your heart and lungs. Picture *medals* over your heart and lungs, or stick those medals into a heart.
  - Type: Keyword
  - Source: Britt (2008b)

  - Mnemonic: The medulla controls heart-rate, respiration, and blood pressure. Imagine the winner of a race. *Heart pounding* and *breathing heavily*, a *medal* is hung around the winner's neck.
  - Type: Keyword
  - Source: Carney and Levin (1998a, p. 133)

- Topic: *Neuron, Flow of Charge*
  - Mnemonic: *DNA*
    - *D*endrites
    - *N*ucleus
    - *A*xon
  - Type: Acronym
  - Source: Jim Matiya, Florida Gulf Coast University

- Topic: *Neurotransmittters*
  - Mnemonic: "*A D*rug *S*o *N*eurons *G*et *G*oing"
    - *A*cetylcholine
    - *D*opamine
    - *S*erotonin
    - *N*orepinephrine
    - *G*ABA
    - *G*lutamate
  - Type: Acrostic
  - Source: John Booth, University of Maryland University College (European Division)

  - Mnemonic: *GONADS*
    - *G*ABA
    - *O*xytocin
    - *N*orepinephrine
    - *A*cetylcholine
    - *D*opamine
    - *S*erotonin
  - Type: Acronym
  - Source: Jordan Troisi, University at Buffalo - SUNY

- Topic: *Occipital Lobe*
  - Mnemonic: The occipital lobe has two "C"s in its name, and it's for SEE-ing.
  - Type: Verbal (General)
  - Source: Celia Reaves, Monroe Community College

- Topic: *Parasympathetic Nervous System*
  - Mnemonic: The parasympathetic nervous system calms the body. Imagine the peace and *calming* effect of watching a *parachute* drift slowly downward.
  - Type: Keyword
  - Source: Carney and Levin (1998a, p. 133)

  - Mnemonic: The parasympathetic division of the autonomic nervous system has an "*R*" in it, and it handles *R*elaxation and *R*estoring our *R*esources.

  - Type: First-Letter Mnemonic
  - Source: Celia Reaves, Monroe Community College

- Topic: *Pons*
  - Mnemonic: The pons helps you relax and sleep. Think of a relaxing *pond*.
  - Type: Keyword
  - Source: Britt (2008b)

- Topic: *Reticular Formation*
  - Mnemonic: The reticular formation helps you to become alert and aroused when you need to be. Think of what would happen if you were napping and someone *tickled* you: your reticular formation would kick into gear to wake you up.
  - Type: Keyword
  - Source: Britt (2008b)

  - Mnemonic: The reticular formation is involved in attention. Imagine tickling someone to get her attention. Then, she loses interest again so you have to *retickle* her!
  - Type: Keyword
  - Source: Carney and Levin (1998a, p. 133)

- Topic: *Sensory and Motor Nerves*
  - Mnemonic: *SAME*
    - *S*ensory, *A*fferent
    - *M*otor, *E*fferent
  - Type: Acronym
  - Source: Unknown (contributed by Celia Reaves, Monroe Community College)

- Topic: *Sympathetic Nervous System*
  - Mnemonic: The sympathetic nervous system excites the body. Imagine a *symphony* playing loudly in the room next door! The music *excites* you and you can't sit still!
  - Type: Keyword
  - Source: Carney and Levin (1998a, p. 133)

  - Mnemonic: The *S*ympathetic division of the autonomic nervous system handles our response to *S*tress.
  - Type: First-Letter Mnemonic
  - Source: Celia Reaves, Monroe Community College

- Topic: *Thalamus*
  - Mnemonic: The thalamus takes sensations that come from the body and directs them to the appropriate part of the brain for processing. Thus, think

of *Hal* and *Amos* – two traffic cops in the brain who direct these sensations to the right route.
    - Type: Keyword
    - Source: Britt (2008b)

    - Mnemonic: The thalamus is a relay station for incoming information. Imagine a *relay* race. The first runner hands a *thermos*, instead of a baton, to the next runner.
    - Type: Keyword
    - Source: Carney and Levin (1998a, p. 133)

D. Sensation and Perception

- Topic: *Bottom-Up and Top-Down Processing*
    - Mnemonic: To keep bottom-up and top-down processing straight, think of sitting at a desk reading a paper that's lying on the desk. At the bottom is the paper with the black marks on it. At the top is your head, with all its knowledge of the world and past experience. Bottom-up processing refers to how the marks on the page contribute to what you see; top-down processing refers to how the knowledge and experience in your head contribute to what you see.
    - Type: Imagery (General)
    - Source: Celia Reaves, Monroe Community College

- Topic: *Retina Cells*
    - Mnemonic: *RchBag*, pronounced "Rich Bag," is "the Louis Vuitton of mnemonics." Each letter stands for the different levels of cells, going from outermost to innermost.
        - *R*ods / *C*ones
        - *H*orizontal cells
        - *B*ipolar cells
        - *A*macrine cells
        - *G*anglion cells
    - Type: Acronym
    - Source: Michael Palij, New York University

E. Variations in Consciousness

- Topic: *Brain Waves During Waking and Sleeping*
    - Mnemonic: *BAT* (Bats fly around at night, just as we sleep at night.)
        - In order from most to least alert, we display *B*eta (awake and alert), *A*lpha (drowsy, relaxed), and *T*heta (light sleep) waves.
        - *D*elta waves indicate *D*eepest sleep.
    - Type: Acronym / First-Letter Mnemonic
    - Source: Celia Reaves, Monroe Community College

F. Learning

- Topic: *Five Classical Conditioning Principles*
  - Mnemonic: *RAGED* ("Pavlov became en*raged* when his *classical conditioning* experiments failed.")
    - *R*ecovery (spontaneous)
    - *A*cquisition
    - *G*eneralization
    - *E*xtinction
    - *D*iscrimination
  - Type: Acronym
  - Source: Stalder (2005)

G. *Memory*

- Topic: *Amnesia Types*
  - Mnemonic: *A*nterograde amnesia refers to not remembering what happened *A*fter the accident/trauma. *R*etrograde amnesia refers to *"Retro,"* Hollywood-style amnesia (Who am I? Who are you? I don't remember anything!)
  - Type: First-Letter Mnemonic / Verbal (General)
  - Source: Erin E. Hardin, Texas Tech University

- Topic: *Primacy and Recency Effects in the Serial Position Curve*
  - Mnemonic: *P*rimacy effect reflects *P*roactive interference. *R*ecency effect reflects *R*etroactive interference.
  - Type: First-Letter Mnemonic
  - Source: Unknown (contributed by Annette Kujawski Taylor, University of San Diego)

- Topic: *Proactive and Retroactive Interference*
  - Mnemonic: *PORN*
    1. *P*roactive (remember) *O*ld
       - or: *P*roactive – *O*ld memories interfere with the new ones
    2. *R*etroactive (remember) *N*ew
       - or: *R*etroactive – *N*ew memories interfere with the old ones
  - Type: Acronym
  - Source: Unknown (contributed by Annette Kujawski Taylor, University of San Diego, and Riki Koenigsberg, Yeshiva University High School for Girls)

  - Mnemonic: *P*roactive interference refers to "*P*ast interferes with recent." *R*etroactive interference refers to "*R*ecent interferes with past."
  - Type: First-Letter Mnemonic
  - Source: Erin E. Hardin, Texas Tech University

  - Mnemonic: To keep proactive and retroactive interference straight, think of one common situation when they are experienced: changing your

password. At first the old password keeps interfering with the new one (proactive interference), but once you've finally learned the new one it interferes with your memory of the old one (retroactive interference). The two types of interference happen in alphabetical order, proactive then retroactive.

- Type: Verbal (General)
- Source: Celia Reaves, Monroe Community College

- Topic: *Seven Sins of Memory*
  - Mnemonic: The mnemonic uses a peg list to help students remember Schacter's (2001) "Seven Sins of Memory." In the class presentation, the right column is left blank, and students are asked to come up with their own bizarre images. These are some of the best that they have generated.

Schacter's Seven Sins of Memory	*Peg List*	*Associations and images that you form*
1. Transience	One-bun	Train on a hot-dog bun
2. Absent-mindedness	Two-shoe	Pair of shoes, one missing (absent)
3. Blocking	Three-tree	Three trees blocking the sun
4. Misattribution	Four-door	Four doors, you open the wrong one, out leaps a tiger
5. Suggestibility	Five-hive	Bee hive with a bee dropping a piece of paper (suggestion) into a suggestion box
6. Bias	Six-sticks	Six sticks leaning far to the left (biased)
7. Persistence	Seven-heaven	Someone is persistently pounding on the pearly gates of heaven, over and over and over

  - Type: Pegword
  - Source: Furchner (2009)

H. *Intelligence*

- Topic: *Cattell's Theory of Intelligence*

  - Mnemonic: Cattell's theory includes the concept of crystallized and fluid intelligence. Imagine a *cat* knocking over a *crystal* glass, spilling a thick *fluid*.
  - Type: Keyword
  - Source: Carney et al. (1994, p. 172)

- Topic: *Crystallized Intelligence*
  - Mnemonic: "hard facts", hard crystal
  - Type: Verbal (General)
  - Source: Julie McIntyre, Russell Sage College

- Topic: *Gardner's Theory of Intelligence*
  - Mnemonic: Gardner's theory includes seven kinds of intelligence. Imagine a *gardener* puncturing a *7-Up* can with a hoe.
  - Type: Keyword
  - Source: Carney et al. (1994, p. 172)

- Topic: *Guilford's Theory of Intelligence*
  - Mnemonic: Guilford's theory includes the Cube Model. Imagine a *guilty* man sitting in a courtroom working on a *Rubik's cube*.
  - Type: Keyword
  - Source: Carney et al. (1994, p. 172)

- Topic: *Spearman's Theory of Intelligence*
  - Mnemonic: Spearman's theory includes the concepts of "g" and "s." Imagine a *spear* thrown at a red *gas* can.
  - Type: Keyword
  - Source: Carney et al. (1994, p. 172)

- Topic: *Sternberg's Theory of Intelligence*
  - Mnemonic: Sternberg's theory is a triarchic theory. Imagine a *steer* with *three* (instead of two) horns.
  - Type: Keyword
  - Source: Carney et al. (1994, p. 172)

- Topic: *Thurstone's Theory of Intelligence*
  - Mnemonic: Thursone's theory includes eight factors. Imagine a *thirsty* person drinking from a fountain that is shooting up water in the pattern of a *Figure 8*.
  - Type: Keyword
  - Source: Carney et al. (1994, p. 172)

I. *Motivation and Emotion*

- Topic: *Brain Regulation of Hunger and Eating*

- Mnemonic: The lateral hypothalamus is the part that signals hunger, and the word "l*ate*ral" contains the word "*ate*."
- Type: Verbal (General)
- Source: Unknown (contributed by Riki Koenigsberg, Yeshiva University High School for Girls)

- Topic: *Hormones that Increase Hunger*
  - Mnemonic: When I am hungry, "*I GO*" to McDonalds.
    - *I*nsulin
    - *G*hrelin
    - *O*rexin
  - Type: Acronym
  - Source: Michelle Hacera

- Topic: *Theories of Emotion*
  - Mnemonic: To keep the Cannon-Bard and James-Lange theories of emotion straight, think first of how these two theories describe the relationship between the event that triggers the emotion and your direct experience of the feeling, and also think of the letters of the alphabet that the two pairs of names begin with. In the Cannon-Bard theory, they are directly connected (the event triggers the feeling, at the same time as it triggers the body's physiological response), just as in the alphabet C and B are directly next to each other. In the James-Lange theory, the event does not directly trigger the feeling, but has to go through the body's response, just as in the alphabet there's something between J and L.
  - Type: Verbal (General)
  - Source: Celia Reaves, Monroe Community College

J. *Human Development*

- Topic: *Authoritarian and Authoritative Parents*
  - Mnemonic: Use the last three letters of each word as an acronym
    1. Authoritar*IAN* = *I*s *A*wfully *N*asty
    2. Authoritat*IVE* = *I*s *V*ery *E*xcellent
  - Type: Acronym
  - Source: Kathleen Stassen Berger, Bronx Community College

- Topic: *Erikson's Eight Stages of Psychosocial Development*
  - Mnemonic:

Pegword	Stage	Imagined Interaction
bun (1)	Trust	An infant lying in a perfectly "trusting" position while mommy powders his little behind (*buns*)
shoe (2)	Autonomy	A toddler grabbing her *shoe*

		from daddy, saying: “I can put it on myself!”
tree (3)	Initiative	A young child picking apples from a *tree* in order to make some money
door (4)	Industry	School children working hard on a class assignment when they are interrupted by a loud knocking at the *door*
hive (5)	Identity	A confused teenager exclaiming “I want to be me!” after watching a *hive* of thousands of swarming bees
sticks (6)	Intimacy	Two young lovers promising a commitment to each other while sailing on a raft made of *sticks*
heaven (7)	Generativity	Two parents “thanking *heaven*” for the child they created
plate (8)	Integrity	An older person being awarded a gold watch at a dinner while the diners are banging on their *plates*

- Type: Pegword
- Source: Carney et al. (1994, p. 173)

- Mnemonic:
    1. Bun (Trust vs. Mistrust): Picture a "rust" colored bun.
    2. Shoe (Autonomy vs. Shame): Picture an "auto" shoved inside of a shoe. The auto is driven by "Shane."
    3. Tree (Initiative vs. Guilt): Picture Shia LeBeouf (or an Inn) sitting in a tree, which is wrapped with a quilt.
    4. Dinosaur (Industry vs. Inferiority): Picture a dinosaur with dust (in"dust"try) sprinkled all over it. The dinosaur feels inferior because of the dust all over it.
    5. Sky dive (Identity vs. Role Confusion): Picture a skydiver's chute doesn't open and he falls on top of a car denting it. He is also very confused after hitting the car.
    6. Sticks (Intimacy vs. Isolation): Picture two sticks in love and one stick all by himself.
    7. Heaven (Generativity vs. Stagnation): Picture a generator up in heaven that died because it ran out of gas and a male deer (stag) pulling the cord to try to get it started again.
    8. Plate (Integrity vs. Despair): Picture grits and a pear on a plate.

  - Type: Pegword
  - Source: Britt (2008a)

  - Mnemonic: "Use eight personalized loci-based scenarios (based on familiar ordered locations) to accommodate each Eriksonian stage. For example, *trust* could be the trusting baby playing in your driveway, *autonomy* could be a toddler running away to live in your garage, *initiative* could be a youngster knocking on your front door selling Girl Scout cookies, and so forth."
  - Type: Method of Loci
  - Source: Carney et al. (1994, p. 173)

- Topic: *Piaget's Four Stages of Cognitive Development*
  - Mnemonic: *SP*a*C*e*F*arm ("Babies raised on a *farm* in *space* have better *cognitive development.*")
    - *S*ensorimotor
    - *P*reoperational
    - *C*oncrete operational
    - *F*ormal operational
  - Type: Acronym
  - Source: Stalder (2005)

- Topic: *Piaget's Concepts of Accommodation and Assimilation*
  - Mnemonic: a*CC*ommodation refers to *C*hange or *C*reate schemas; a*SS*imilation refers to *S*ame *S*chema
  - Type: First-Letter Mnemonic
  - Source: Erin E. Hardin, Texas Tech University

  - Mnemonic: a*CC*ommodation is about how our mental *C*onstructs *C*hange; a*SS*imilation is about how our mental structures *S*tay the *S*ame
  - Type: First-Letter Mnemonic
  - Source: Celia Reaves, Monroe Community College

- Topic: Vernix
  - Mnemonic: Associate the "*V*" for *V*ernix with "*V*" for *V*asoline. It is like a greasy coating of *V*aseline that protects the fetus' skin.
  - Type: First-Letter Mnemonic
  - Source: Julie McIntyre, Russell Sage College

K. *Personality*

- Topic: *The "Big Five" personality traits*
  - Mnemonic: *OCEAN* ("The *Big Five* categories cover most traits, as the *ocean* covers most of the earth.")
    - *O*penness
    - *C*onscientiousness

        - *E*xtraversion
        - *A*greeableness
        - *N*euroticism
    - Type: Acronym
    - Source: Stalder (2005)

- Topic: *Clusters of Personality Disorders*
    - Mnemonic:
        - Cluster *A*: *A*bnormal – odd and eccentric
        - Cluster *B*: *B*itchy – overly emotional
        - Cluster *C*: *C*owardly – antisocial
    - Type: First-Letter Mnemonic
    - Source: Anonymous

L. Miscellaneous

- Topic: *Descartes' Theory of Solitary Inquiry*
    - Mnemonic: *DARE*
        - *D*oubt everything
        - *A*nalyze in components
        - *R*econstruct
        - *E*xhaust all possibilities
    - Type: Acronym
    - Source: D. Alfred Owens, Franklin and Marshall College

- Topic: *Five Stages of Death and Dying*
    - Mnemonic: *DABDA*
        - *D*enial
        - *A*nger
        - *B*argaining
        - *D*epression
        - *A*cceptance
    - Type: Acronym
    - Source: Carney et al. (1994)

- Topic: *Methods of Acquiring Knowledge*
    - Mnemonic: *IRATE*
        - *I*ntuition
        - *R*ational Method
        - *A*uthority
        - *T*enacity
        - *E*mpirical Method
    - Type: Acronym
    - Source: Anonymous/Unknown

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