Title: Old Wines in New Skins: Rethinking Memorization in the Greek and Latin Classroom
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Presented at CAMWS CPL, Boulder, Colorado. March 28, 2015

Abstract:

Now (more than ever) the grunt work of memorization becomes less and less appealing to students in an age of digital immediacy. More, with new approaches toward Latin pedagogy, students' early strides are often followed by staggering steps running against the mounting tide of near-foreign paradigms and unmemorized vocabulary. We argue for an approach toward memorization that embraces an amalgam of traditional, modern, and postmodern approaches toward student acquisition of Latin and Greek vocabulary and forms. There is a certain truth in the ancient Egyptian maxim that the ears of students are on their backs; namely, there is no royal road toward memorization. And the traditional approach toward memorization of grammatical paradigmata through repetitive memorization tasks (e,g, writing it out three times from memory) of daily paradigm quizzes yield real results. But to the traditional approach, we must add the modern innovations of the Waldo Sweet approach to assist students in memorization of the paradigmata. More, as we know that the short-term, workplace memory is essential in transferring knowledge to long-term memory, a planned reorganization of the paradigms allow for more lasting content. Finally, through incorporating the post-modern digital syndrome of pocket technology, we allow for differentiation and student investment through online mobile apps to reinforce memorization of paradigmata as well as vocabulary using a key-words in context approach that only mobile technology can deliver. Through arguing for this amalgam of approaches toward memorization, we believe that these successes we've seen can be replicated and improved upon in other settings.

As Winston Churchill once posited, "Naturally I am biased in favor of boys learning English; I would make them all learn English: and then I would let the clever ones learn Latin as an honor, and Greek as a treat." For too many students in urban environments, they are without these honors or treats. With the traditional model being 3-4 years of Latin before a select number of students being accepted to Greek, most public schools (and nearly all urban schools) are neither structured in such a way as to allow classical language exposure at the middle school. At The Cleveland School of Science and Medicine, through a concurrent teaching method of Greek and Latin for all our students, we have realized substantive gains on national testing.

Program Introduction

The Cleveland School of Science and Medicine is a nine-year-old selective enrollment high school in the Cleveland Metropolitan School District, enrolling around 100 students each year from primarily, within the District's middle- and elementary schools. Though selective, we admit each year nearly a third of our students reading below grade-level. More, the bulk of our students come to us from CMSD schools -- a district that has ranked at- or near the bottom of all schools district in Ohio. And although our school's ACT average is nearing 22, slightly above the national norm, nearly all of our students are college-bound in intent. Therefore, our students come to us with pronounced deficiencies in college-ready skills. In order to bolster ACT verbals, Latin was made mandatory for all sophomores in the first year the school added that grade level. Using the *Cambridge Latin Course,* our founding Latin teacher created a solid journeyman course that appealed to the students in the traditional high school fashion -- Latin names, arts and crafts, JCL Conventions with wood burning and togas. Yet the program did not index itself to national standards, such as those found on the National Latin Exam, and students rarely moved beyond the first year.

When I was brought onboard six years ago, it was to bolster the Latin program offerings and add a certain amount of rigor. In the first year, our National Latin Exam results for first-year students were moderately below the national average. In the next few years, not only did we markedly increase our performance index on the NLE, but added Greek as an alternative language to Latin. Results from the National Greek Exam paralleled the first year of the NLE -- moderately below average; but slightly increased to the national average in the next year of the program's offering. Yet, the explosive growth in Latin scores were not paralleled in the Greek.

These small gains on the National Greek Exam caused us to reflect on offering that language as a parallel course of study. Not only was it apparent that our students in Greek were not receiving the benefits that a robust Latin program had to offer (e.g. as access to the SAT2 and AP Latin) but that the significant gains made in the Verbal section of the ACT were not as pronounced in the first year of study. Yet, we felt that Greek added a certain positive to the typical urban transcript. Hence, two years ago, we fully utilized the 80-minute class time to instruct our sophomores in Greek **and** Latin in a near-simultaneous fashion. All sophomores at our school complete one full unit of Latin and .6 units of Greek in the first year. Generally, three weeks of Latin are interspaced by one week of Greek.   Juniors are given an option further their studies in Greek/ Latin 200. Seniors then complete their final two units of Latin in the AP Latin course on Caesar and Vergil.
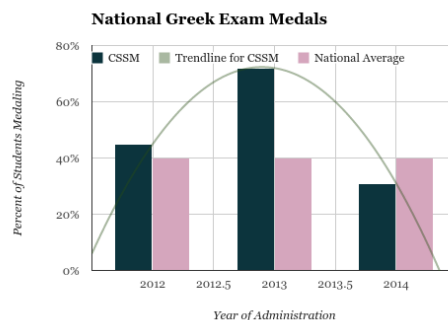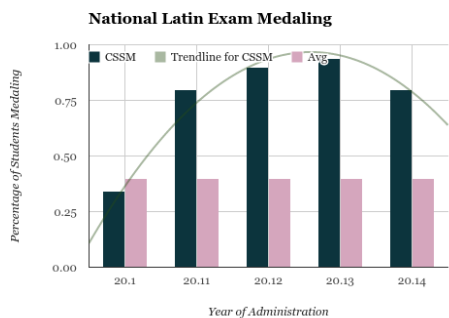
Longitudinal analysis of CSSM student performance on National Latin Examination.

Longitudinal analysis of CSSM student performance on National Greek Examination.

The results, as the above charts clearly show has been a slight downturn in Latin scores -- but still at over half the national average and a marked downturn in Greek scores from its 2012 *nadir*. This downturn can be explained in nearly two-weeks of snow days in January and February and a sequencing of Greek that did not really begin the exposure until October. These errors in sequencing and exposure have been addressed through summer memorization of the Greek alphabet and weekly examinations on orthography and phonology. Students, following the 2015 administration felt very confident about their Greek scores. But, though there was a downturn in Greek scores, more students have greater access to national benchmark exams using the concurrent methodology.

As Flynn, Foley, and Vinnitskaya (2005) argue, there is a grave concern on simultaneous language learning; and second-language (or in our case of Greek, third-language) acquisition is stronger after the base language has been mastered than proceeding concurrently. However, through carefully scaffolding and sequencing both

languages, we have maintained solid growth and metrics -- with nearly 80% of our students scoring above average on the NLE (twice the national average) and our students scoring near the national average on the NGE. Moreover, our Greek program is now second-largest in the nation, second only to Boston Latin, the nation's oldest selective-enrollment high school and with an ACT averaging five points higher than ours. For our program at The Cleveland School of Science and Medicine, with 98% of our students being rated below poverty and being composed of 97% African-Americans and Hispanics (two highly under-represented demographics in the Classics classroom), these results show that a well-structured Classics program that embraces both Greek and Latin can make a significant positive impact on student learning.

The philosophies and methodologies developed to engender such healthy scores are really nothing new -- merely pouring very old wine into very new skins -- taking the oft-disparaged traditional approaches toward rote memorization, structuring it with the modern advances in linguistics and programmed learning, and powering it by the post-modern engine of personal technology.

Traditional Write by Rote
The traditional methodology of learning any inflected language has been to recite the paradigms over and over again until these patterns are well-set in the mind. Bloom (1987) argues that students only successfully memorize 10% of what they see -- the traditional student approach to studying the paradigms. However, also according to Bloom, students increase this memorization seven-fold by verbalizing the paradigms. So, having a student recite the noun declensions, for example, yields a more full morphologic crop. Yet, when we pair the saying with the doing, ie. writing out the paradigms each night, an impressive 90% of paradigms forms are retained. With this guideline, each night students are to prepare for the daily paradigm quiz by writing and saying the target paradigm in Greek or Latin at least three times, or until they master it perfectly -- whichever comes last. Each day, therefore, begins with the traditional written quiz on scratch paper.

Modern Linguistics, Sweet Latin, and Memory Theory

Yet, though the traditional approach functions as a battle-hardened pedagogue to get the children to the table, the traditional approach toward Latin paradigm creation must yield to modern linguistic and memory approach. As Waldo Sweet (1950) put into practice, the restructuring of the paradigms into a model that places similar forms together, as well as side-by side, truly offered a revolutionary approach that directly ties into modern theories of memorization. According to the traditional method, as the example below, were introduced one at a time, in glorious isolation, with each similar form located as far away as possible:

Second or *o*-Declension

	SINGULAR	PLURAL	SINGULAR	PLURAL
N.	servus (*slave*)	servī	bellum (*war*)	bella
G.	servī	servōrum	bellī	bellōrum
D.	servō	servīs	bellō	bellīs
Ac.	servum	servōs	bellum	bella
V.	serve	servī	bellum	bella
Ab.	servō	servīs	bellō	bellīs

Taken from Perkins, Albert. 1918. *Beginning Latin Book*. Benj Sandborn & Co.

Yet, with Sweet and followed by Leinieks (1975), noun declension are introduced horizontally and with similar forms placed together.

	1 silva	**2** hortus	**2i** glādius	**2 var.** puer	**2 neu** bellum
(S VOC)	silva	hortē	glādī	puer	bellum
S NOM	silva	hortus	glādius	puer	bellum
S ACC	silvam	hortum	glādium	puerum	bellum
S ABL	silvā	hortō	glādiō	puerō	bellō
S DAT	silvae	hortō	glādiō	puerō	bellō
S GEN	silvae	hortī	glādī	puerī	bellī
(P VOC)	silvae	hortī	glādiī	puerī	bella
P NOM	silvae	hortī	glādiī	puerī	bella
P ACC	silvās	hortōs	glādiōs	puerōs	bella
P ABL	silvīs	hortīs	glādiīs	puerīs	bellīs
P DAT	silvīs	hortīs	glādiīs	puerīs	bellīs
P GEN	silvārum	hortōrum	glādiōrum	puerōrum	bellōrum

Taken from Valdis Leinieks. 1975. *The Structure of Latin: An Introductory Text Based on Caesar and Cicero.* MSS Educational Publishing Company.

Not only does such a modern arrangement of the noun paradigms allow for easy compare and contrast methods of memorization, as Miller (1956) discovered, the chunking of material together with a goal of 7 +/-2 allows for maximum student learning. In this fashion, the traditional Latin noun paradigms can be mastered in around 9 chunks, without taking into account the appended Vocative. Though memorization and identification of proper case is not the end-all of Latin learning, it is the *sine qua non* of success on all Latin exams -- from the NLE to the SAT2 to even the AP.

However, expanding our study into Greek, we soon see that the same Michigan-Method, "Sweet Latin" approaches work exceedingly well in the near-concurrent memorization of Greek.

	2nd	2nd	2nd neu	2nd neu
S NOM	ἄνθρωπος	hortus	ἔργον	bellum
S ACC	ἄνθρωπον	hortum	ἔργον	bellum
S ABL	----	hortō	----	bellō
S DAT	ἀνθρώπῳ	hortō	ἔργῳ	bellō
S GEN	ἀνθρώπου	hortī	ἔργου	bellī
P NOM	ἄνθρωποι	hortī	ἔργα	bella
P ACC	ἀνθρώπους	hortōs	ἔργα	bella
P ABL	----	hortīs	----	bellīs
P DAT	ἀνθρώποις	hortīs	ἔργοις	bellīs
P GEN	ἀνθρώπων	hortōrum	ἔργων	bellōrum

Taken from Rev.B.A. Gregg. 2015. Ευχειριδιον. eText for The Structure of Greek.

One of the framework goals in the ACL Standards of Classical Learning (1997), "Standard 4.1 Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language," lends itself to these connections. As English has very little connections to Latin paradigms, we find the adding Greek paradigms yields positive results. As Webster (2004) argues, knowledge is acquired through the student creating *schemata,* or models of how information is processed, and assimilating new knowledge into existing *schemata* or accommodating out-moded or incomplete *schemata* with new information. Through adding Greek paradigms alongside their Latin counterparts, and applying the chunking method of Miller, we see that Greek is not really another language to the Latin student -- a sort of Latin 1.5. As Benjamin Stevens (2006) argues succinctly, these certain similarities between Greek and Latin have been documented as far back as Dionysus of Halicarnasus and realized by Classics graduate students around 2 a.m.. Yet, with only a select few high school students in a select few Classics programs in a select-few private schools, the traditional sequencing does not expose students from under-served communities the same access to enrichment.

And, though the beautiful simplicities of a concurrent Greek and Latin paradigm approach offer students a realistic scaffold for learning, we still must remember the old saw of Peter Drucker (1954) and the Management By Objectives school: "what gets measured gets done." Though we can tell our students to memorize and give them elaborate charts, in paper and print, unless this doing of learning is measured by a daily assessment, it won't be done. As Thalheimer (2010) argues, students with learning paired with practice will be better able to remember. Hence, the daily quizzes start on scratch paper for the first several days of instruction, with students seats limiting ubiquitous student cheating in a packed classroom.

The Future- Indicative Active of v̄ōlō is __

- ○ voluī
- ○ volam
- ○ volēbam
- ○ volō

Entry Exam CLC 32.1.1

On the final day of the instructional cycle instruction, using Turning Point classroom response clickers, students sit for a short, 10-question morphology exam designed along the Latin SAT 2 lines question format.

A representative slide is included to the left. In the 25-seconds this slide is on the screen, students will select their response.

These results are then tabulated for each student on who hit the mastery cut score (usually set at 80% to reflect NLE standards for gaining a medal) with a simple Pass or DNM (Did Not Master). A student warranting a DNM will be able to retake the exam online.

However, memorization of forms are not the end of Latin and Greek class; rather, this knowledge must be put together. As Levy (1962) records, Latin "paradigms are given, certainly, but they are given for reference. What the student learns is the endings in context. Not by way of induction but by way of general principle. Not just an accusative, but an accusative doing something" tend toward an analytic approach toward Latin and Greek. Using the principles of morpheme leading to sememe, as posited by Leinieks (1975), students appropriately armed with dry-erase markers then can attack the whiteboard simultaneously to determine the syntax of a Greek sentence, such as found in Greek 100, or that of a Latin one, as found in Latin AP Vergil.

Postmodern Powering the Paradigm

Computers and web-based pedagogy is nothing new to the Classics classroom -- from the old Ibycus and the TLG on CD-ROM to the Perseus Project and the Dickinson Classical Commentary Online Series and huge number of new resources on the Internet -- classicists have ironically tended to be early-adopters. But, in turning to our students -- and especially those students in a high-poverty, urban environment, a digital divide exists in urban America. As Frederick and Shockley (2008) posit, "The utilization and reliance on computer technology in society has a devastating impact on many African-American students, who have limited access and/or limited experiences using computer technologies" Consistently, only 55% of our students have a home computer to which they have access. Yet, nearly 90% of them have smartphones and, combining this with students having low-end (under $100) tablets, nearly 98% of our current students have some access to personal technology. As Hixon (2014) delineates, most Android v. iPhone users are in households making less than $75,000 a year and not having advanced degrees; hence, the urban poor are most likely to have their sole source of internet access on an Android smartphone. Therefore, since most of high-poverty students default to student learning on an Android operating system, such as found in cheaper smartphones sold with pay-per-minute contracts of local carriers is the mode of access, we need to stretch our learning beyond the

traditional homework structures of paper and pen and move toward a web-based, easily accessed platform. Android operating systems are quite versatile in the display of Latin macra, however are limited to the monotonic character set of modern Greek, rather than the polytonic set of Ancient Greek. Remembering the old Beta-coding of the eighties, we have had to adapt a bit of a different system to display Greek characters. For example, the iota-subscript of **ῃ** will not be visible on a student's phone; therefore, as a throwback to the original print, this character is represented in online questions as **η[ι]**. More, since circumflex and grave do not appear in the Modern Greek character-set, these diacritics are ignored in online Greek questions. It becomes a question of inclusion of arcane and obscure accent marks or the exclusion of students in need. An easy answer.

Also an easy answer is how to deliver content outside the classroom. As can be seen riding any public transit in America, teenagers are absorbed by the 3.5 inch screen and various YouTube videos of cats skateboarding and chromatic dresses. As early-adopters, utilizing this medium for content delivery becomes a gentle step. The "flipping the classroom" is becoming as hackneyed a knee-jerk response from administrators as "educational excellence" was a generation ago, as Medina (2008) argues, there are certain benefits to pre-exposure of students to the knowledge in a novel approach in short, ten-minute bites. Through using Screencastify, a free chrome-based screen capture extension, and hosting the grammar pre-lecture on YouTube, grammar lectures are watched the day before the grammar lecture and hardcopy paradigms highlighted before coming to class for the live version. As absenteeism in urban environments -- even at our school that has strong attendance on its admissions rubric -- averages about 10%, these recorded lectures allow greater access to students.

Yet, remembering that "what gets measured gets done," a simple YouTube video yields limited views. However, when embedding that YouTube grammar lecture into an online assessment activity, views increase substantially. In creating concurrent online "shadow classes" that offer online texts, assessments, and activities, with videos embedded in the activities, views and knowledge raised from 30%, using YouTube alone, to nearly 80%, with an online requirement, of the students coming to class with a rough estimate of what was going to be covered. By using the online assessment platform of Quia.com, we have created a portable assessment and supplemental instructional medium for our students. Through culling of released National Latin Exams, National Greek Exams, as well as exams posted by the National Junior Classical League, the archived New York State Regents Exam (stretching back to 1939) and JCL state and regional exams from New York, Virginia, Illinois, Ohio, Texas, and Florida, an online database of over 60,000 questions has grown into being, indexed to specific learning standards in Greek and Latin. Using students as scribes for their quarterly projects, the database contains, for example, over 900 multiple-choice questions in Present-Indicative Active verb translation and morphology. Therefore, as each day's content mastery is measured by Turning Point response clickers, in answering the question, "I failed, now what?" we can turn students to online Exit Assessments that randomly select questions from the database that are indexed to the grammar standards covered that day. A cut-score of 80% on a 10-question exam is necessary for passing and that score is reported by the student at the next day's office hours.

More, using the Quia platform, we are able to prepare students for examinations through short meta-assessments, likewise based on intentional grammar standards. As Holbrook and Dupont (2010) successfully argue, supplemental online materials are incredibly useful for college students. Yet such resources are notably lacking among secondary school students who are just now developing scholar identities. More, considering the findings of Hong, Sas, and Sas (2006) that many students of low- to moderate-ability in mathematics (a cognate skill to classical languages) study for exams with only a superficial scan and that students benefit from a more structured preparation, the online model of programmed learning looks more engaging.

As the followers of BF Skinner posited in the 1960s and 70s and, as most online drill-and-kill programs show, students make marked gains with the active response/ immediate confirmation model (Ellington, 1987). However, there is a danger in the material and assessment mode becoming disengaging to the student. Therefore, though test preparation online can easily and more effectively take the place of the oft-times lost and ignored "study guide," we must take care that the method of preparation/ assessment is not done in such a way as to kill the spark or practice, but to fan the flame of engagement.

As Klatzky (1984) argues that student engagement powers mastery, the Test Prep Sessions (TPS) are collections of randomly-selected standards-based questions that have been dressed up in Golden Age superhero costumes (e.g. BulletMan and Miss America). As a rule of organization, DC Superheroes and Villains are used for Greek and Marvel for Latin. Superheroes? Today's comic-book culture and theories of student learning through play create new, online skins for the dusty wine of paradigms.

Bullet Man

BG2211 ADJ: 3Term καλη
BG2219 ADJ: Agreement
BG2212 ADJ: 3Term μεγας
BG2231 ADJ: Personal ἐμός
BG2214 ADJ: 2Term σωφρων 07β
BG2213 ADJ: 3Term πας 08β
BG2215 ADJ: Numbers 08β
BG2201 ADJ: Usage 09β

Example of an Advanced Greek TPS Head

Miss America

L2301 NOM+0 Subject(1)
L2302 NOM+= Equational(1)
L2303 ACC+0 Object(2)
L2308 DAT+0 Ind Object(9)
L2309 GEN+0 Possessive(10)
L2306 ABL+0 Means(12)

Example of an Advanced Latin TPS Head

Why all this fun and games? Not only does it appeal to the natural classicist nerdiness, but it provides an epic framework for students to insert themselves. As Willis (2006) argues, *"Optimal brain activation occurs when subjects are in positive emotional states or when the material holds personal meaning, connects to their interests, is presented with elements of novelty, or evokes wonder."* Rote practice, therefore, becomes anthropomorphized as what it is -- a friendly sparring session with a broken-down dusty hero to end up with an

epic battle with an obscure supervillain, such as Armless TigerMan or Agent Axis, on the chapter examination. Assessment and practice is no longer is a task, but a quest for mastery.

As the graphic below, taken from the Quia class page for the Latin 100 Quarter One Final Exam, shows, preparation for an exam moves from the realm of procrastinational self-recrimination and doubt to that of a student objectifying their mastery and gaining control over their learning through breaking down the content areas into easily defined masteries.

Blazing Skull
M200 Mythology(1)
M216 Titans(11)
M219 God Problems(11)
L3500 Derivatives(psm)
L3410 Mottoes(psm)
L3420 Abbreviations(psm)
L1230 Conversational(7)

ZZ.FNL.101. Mysterion

The Whizzer
L3220 Italian Geography(2)
L3230 World Geography(4)
L3301 Founding/Monarchy(3)
LL3302 REPUBLIC
LL3303 PRINCIPATE

Captain Wonder
L2112 ADJ: Numbers(I)
L2117 ADJ: Roman Numerals(I)
L2111 NOUN/ADJ Agree(8)
L2115 ADJ: 3-Term(8)
VL2116 ADJ: 2-Term(12)

The Vision
L2271 VERB: P-1v Av(7)
L2391 Voc+0 Address(7)
L2213 VERB: F-I Av(11)
L2202 VERB: Irregular(13)
L2281 VERB: P-Inf Av(13)

Dare Devil
L3110 Housing(2)
L3150 Entertainment(4)
L3120 Meals / Clothing(5)
L3210 Rome(6)

Sun Girl
L2310 ACCUSATIVE Prepositions

L2350 ABLATIVE Prepositions

Fiery Mask
L2211 VERB: P-I Av(3)
L2201 VERB: S/V Agreement(3)
L2214 VERB: Pf-I Av(5)
L2212 VERB: Imp-I Av(6)

Miss America
L2301 NOM+0 Subject(1)
L2302 NOM+= Equational(1)
L2303 ACC+0 Object(2)
L2308 DAT+0 Ind Object(9)
L2309 GEN+0 Possessive(10)
L2306 ABL+0 Means(12)

The Patriot
L2411 ADV Positive(4)
L2420 ADV Interrogative(4)
L2510 CONJ: Simple(4)
L2440 ADV: Negatives(4)
L2520 CONJ: Coordinating(8)
L2430 ADV Questions(10)

And though these online, 5-7 question exams that a student can take as many times as necessary for mastery may seem like the comic-book Cosplay that it really is, we are able to engage the student in the task of learning as something more epic, more lighthearted than the common student complaint of "I don't get this." Resultantly, when a student comes for help, they will usually say, "Fiery Mask is kicking me hard… any suggestions?" Since, in this example, the Fiery Mask TPS encompasses Present-, Perfect-, and Imperfect-Indicative Active verbs, both teacher and student can localize the misunderstandings and target the face-to-face peer tutoring more effectively.

Summary and Conclusions

Effective teaching and learning is more often than not an amalgam of approaches and materials. Through an eclectic sampling of traditional techniques, as well as the framework of modern linguistic theories, we can power effective learning through online resources and assessments that still engage students and yield positive results.

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