How Learning Works in the Greek and Latin Classroom[1]

T. H. M. Gellar-Goad
Wake Forest University

ABSTRACT

This article presents seven neuroscience-based principles of how people learn, derived from Susan Ambrose et al.'s *How Learning Works*, and offers practical advice and tools for applying these principles to the teaching of Greek and Latin. To teach as best as we can, we should look to how our students learn and to how we can better promote and support their learning. The seven concepts are: [1] novices and experts organize knowledge differently; [2] students' prior knowledge affects present class performance; [3] learning depends on motivation, a threefold phenomenon; [4] learning is best supported by targeted practice and timely feedback; [5] acquisition of complex skills depends on automaticity in and integration of basic tasks; [6] reflection and metacognition are essential for successful learning; and [7] course environment and student identity development have profound effects on learning effectiveness. Each principle is treated separately with a subsection on relevant language-instruction techniques. The conclusion ties together the ramifications of these principles for pedagogy and for course design. The Appendix presents sample documents.

KEYWORDS

Greek pedagogy, Latin pedagogy, neuroscience, language learning, brain-based pedagogy

Language acquisition is a hard task, particularly when the language is one such as Latin or ancient Greek that is inflected, culturally distant, and highly literary.[2]

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1 I owe a great debt in the preparation of this paper and in my pedagogy much more broadly to Catherine Ross and Kristi Verbeke, who introduced me to the work of Ambrose et al. and plenty besides. Similar thanks are due to Zak Lancaster, Amy Ekil Lather, and Qiaona Yu. I thank John Gruber-Miller and the anonymous readers for *Teaching Classical Languages* for their careful, insightful, and helpful comments. This paper began its life as a seven-part series for the official blog of the Society for Classical Studies; the final column (with links to the previous six columns) is available here.

2 For an overview of applied linguistic research into the learning of a second language, see Loewen, and especially ch. 5 for discussion of theories, empirical studies, and instructional practices of grammar acquisition. Carlon 2013 explores the applicability of this research to the learning of classical languages, and notes the need for empirical study of ancient-language acquisition — a need, I note,

Teaching Greek and Latin effectively is thus also a hard task. We all have our tried and true — or at least well-worn — methods for classical-language instruction, refined over time and good enough to get the job done. But how can we do better? One path, which I present in this article, is to look to the lessons of neuroscience about how learning works (see, e.g., Doyle & Zakrajsek), and to build or rebuild our language teaching around these findings. In what follows, I explain each of the research-based principles of learning formulated in Susan Ambrose et al.'s fantastically useful and well-received book *How Learning Works*; I discuss the application of each principle to the teaching of Greek and Latin; and I consider techniques for bringing each one into our language classrooms.[3]

The principles are sevenfold:

1. novices and experts organize knowledge differently;

2. students' prior knowledge affects present class performance;

3. learning depends on motivation, a threefold phenomenon;

4. learning is best supported by targeted practice and timely feedback;

5. skill acquisition depends on automaticity in and integration of basic tasks;

6. reflection and metacognition are essential for successful learning;

7. course environment and student identity have profound effects on learning.

The key to turning our students from novices into experts is to share with them the psychological mechanisms of learning, to offer them examples of expertise, and to inspire (or at least induce) them to adopt and practice expert methods for skill and

that has to date gone unfulfilled (and a need that I do not meet in this article). Increasingly, teachers of classical languages, particularly in secondary schools, have found success in applying the Comprehensible Input theory of Krashen to their own classrooms: see especially Patrick. What is clear from Loewen's review of the literature is that a number of instructional approaches can be effective for promoting language learning, and I believe that we should embrace a methodological diversity of learner-centered teaching at least until a substantial body of experimental research in the teaching specifically of Latin and ancient Greek has developed.

3 For a brief discussion in this journal of the applicability of Ambrose et al. to the instruction of Latin, see Clapp.

knowledge acquisition. Learning a foreign language demands the kind of rigorous and sustained practice that is the basis for all successful learning, and in language study in particular it is difficult for learners to fake either the skills necessary or their progression toward acquisition of those skills. Our own awareness of the research-based learning principles I detail below is therefore essential to effective instruction of Greek and Latin.

1. Knowledge organization (Ambrose et al. ch. 2)

Experts and novices mentally organize their knowledge in profoundly different ways. By and large, even when we as students or teachers explicitly discuss and consciously implement knowledge acquisition processes — such as flashcards or prose composition — our mental systems of organizing the knowledge acquired are generally implicit and subconscious. But the difference between expert and novice knowledge organizations has substantial consequences for effective ancient-language instruction.

Novices tend to organize knowledge in linear fashion: item A connects to item B connects to item C, so getting from A to C means going through B. In very early stages of studying a new subject, novices might not have formed any meaningful connections at all but instead may have collected information into a cloud of seemingly unrelated points or tidbits. Experts, on the other hand, organize their knowledge in hierarchies or webs. Figure 1 visualizes these organizational methods, with the two upper boxes representing typical organizational structures of novices and the two lower boxes those of experts. The expert structures offer more connections, richer connections, and more efficient access of knowledge — and they also explain why academics tend to go on "tangents," because one piece of information leads not to one linear progression but to many interconnected ideas.

As a result, Latin or Greek teachers relate to the words, texts, topics, and themes that they teach much differently from how our students do. Our knowledge of noun cases, genitive usages, prepositions, and vocabulary has been spun into a heavily-networked web through years of training and practice, while beginning and intermediate language students will at best generally organize this knowledge into a step-by-step path from the word to the meaning — if they can even make such a connection.
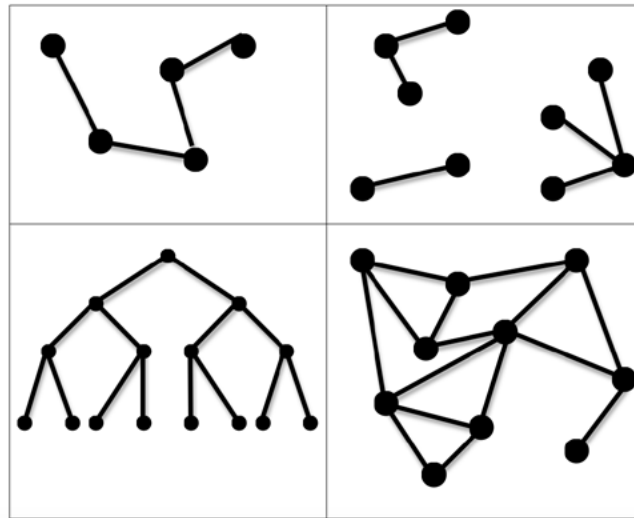
**Fig. 1: Novice vs. expert knowledge organization
(by the author, after Ambrose et al. 50)**

So when confronted with a Latin sentence such as *bello Peloponnesio huius consilio atque auctoritate Athenienses bellum Syracusanis indixerunt* ("in the Peloponnesian War, on his advice and authority, the Athenians declared war against the Syracusans," Nepos *Life of Alcibiades* 3), a novice Latin learner must do the following, often in this order, for each word separately, whether on a conscious or intuitive level:

- find the portion of the word that constitutes the grammatical ending;

- figure out whether that ending is for a noun, verb, or another part of speech;

- decide the conjugation or declension to which the verb, noun, or adjective belongs;

- figure out which particular case or verb ending is used in the word;

- figure out what the word means by consulting a dictionary (possibly before step 1);

- if a noun, identify the case usage; if a verb, identify subjects and objects.

Then the learner must go on to integrate these discrete investigations into a unified comprehension of the phrase.

Experienced readers of Latin, however, have many more approaches open to them, and are able to move through these approaches with greater speed and more automaticity (on which see section 5, below) than novices. An expert's Latin vocabulary is organized into several hierarchies — so that our minds associate the noun *auctoritas* with categories like nouns, third-declension nouns, feminine nouns, nouns formed from verbs, abstract nouns, potentially metaliterary words, and political words. Such hierarchies aid us in simultaneously (rather than sequentially) accessing the information we need to identify *auctoritate* as a feminine ablative singular third-declension noun meaning "with/by authority/authorship/initiative" and to relate it to the rest of the phrase. In addition, my knowledge of morphology and syntax is organized on multiple tracks, so that I can see *auctoritate* and *bello* at once as alike in being ablative and not alike in being different ablative usages. Finally, where a beginner's handling of *auctoritas* will be limited to cycling through English translations offered by a dictionary or glossary or limited meanings they have learned from prior readings, an expert's understanding of the noun will be situated somewhere along the range of meanings it takes based on genre, on period, on context within a passage, and so forth.

Techniques for supporting students' knowledge organization

The methods recommended in *How Learning Works* to help students enrich their connections and make their organizational systems more complex are helpfully straightforward, and they, or variants of them, are already in widespread use, particularly in secondary education. When introducing or assigning new morphology or vocabulary, for instance, we can use "advance organizers" (Appendix item #1), which offer students principles for a cognitive structure — prompting learners to group words not alphabetically but, say, by part of speech, a second time by thematic category, and a third time by the semantic or syntactic expectations suggested by such a word. Syntactical rules and relationships can be delineated on concept maps, an extremely effective tool (albeit one often deprecated by students) whereby content items are linked to each other *hierarchically* and *with meaningful connections* (i.e., labeled or described); see, among others, Novak & Cañas. Figure 2 offers an example of a concept map for syntactical constructions that use the verb ἀκούω.
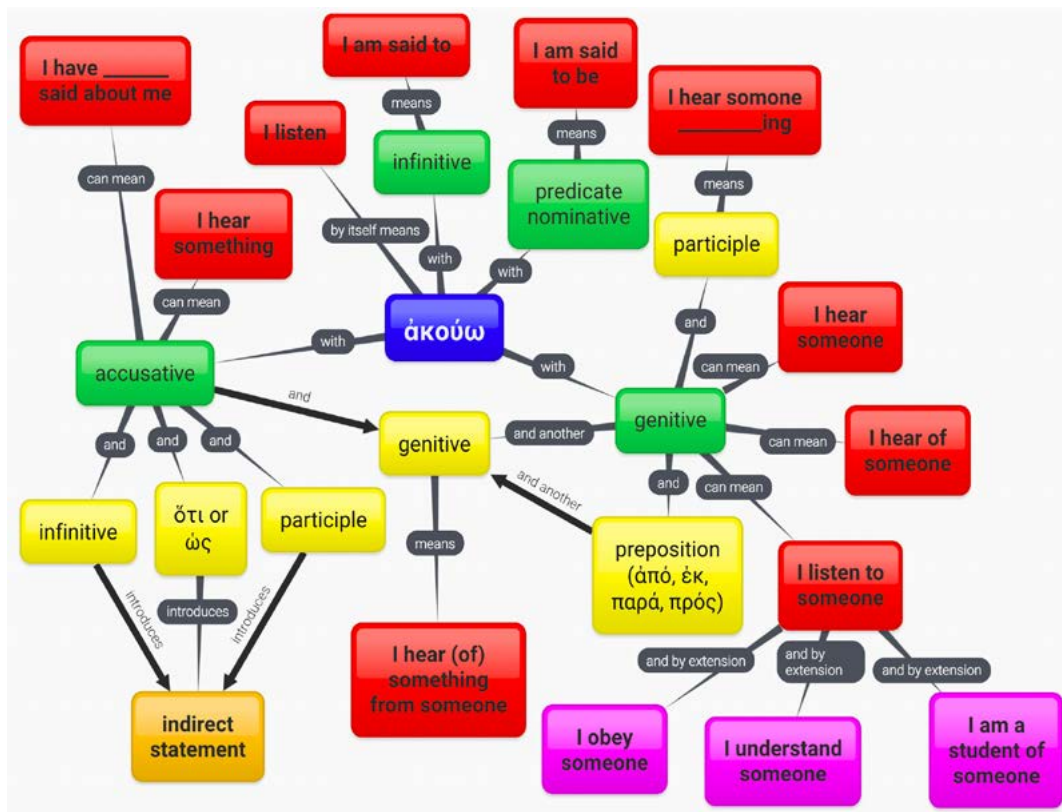
Fig. 2: Concept map for meanings of and constructions governed by ἀκούω (by the author, using [Bubbl.us](#))

Concept maps are useful for enriching knowledge structures at a higher conceptual level, as well: Figure 3 is a concept map of the genre of Roman erotic elegy made by my advanced Latin students at the end of a fall 2012 elegy course at Wake Forest University.

2. Students' prior knowledge (Ambrose et al. ch. 1)

The lesson from the first chapter of *How Learning Works* is simple and seemingly self-evident: "[s]tudents' prior knowledge can help or hinder learning" (Ambrose et al. 13). Students will learn more readily and more thoroughly if they possess a sufficient and accurate knowledge base and are able to draw on this knowledge in appropriate contexts. This situation is the ideal for teaching heavily cumulative subjects such as language acquisition. In fact "there is widespread agreement among researchers that students *must* connect new knowledge to previous knowledge in order to learn" (Ambrose et al. 15; emphasis preserved). In this section, I consider

difficulties students face in activating appropriate prior knowledge, the thorny problem of misconceptions, the differences between declarative and procedural knowledge, and techniques for taking into account students' prior knowledge.
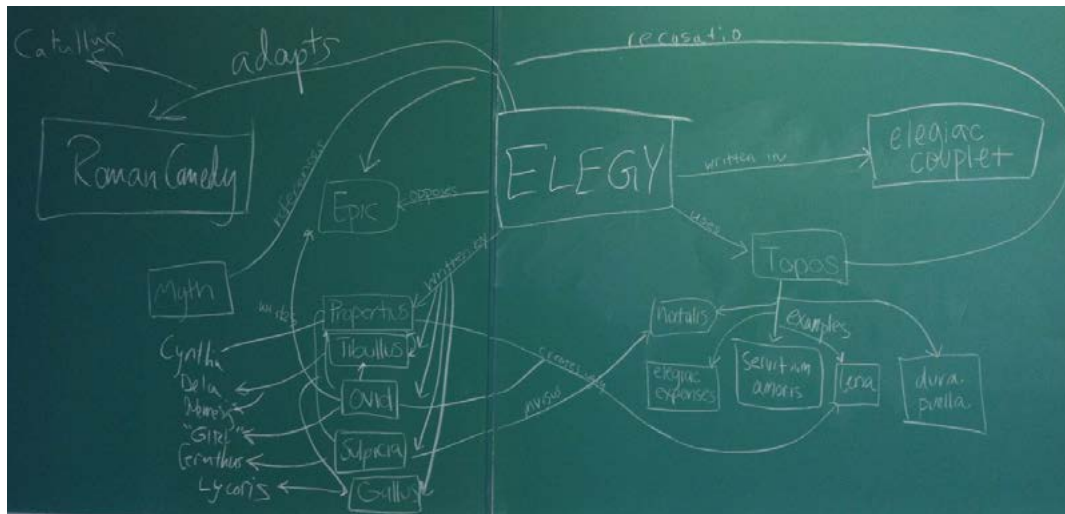
**Fig. 3: Concept map of the themes of Roman elegy
(photo by the author)**

Although new knowledge must necessarily be connected to prior knowledge for learning to take place, often students either do not think to activate their knowledge from previous courses (what's called the "transfer problem," on which see, e.g., McKeough et al.), or they activate prior knowledge that is inaccurate, contextually inappropriate, or insufficient for the task at hand. A particular obstacle for foreign-language instruction is the tendency for novices to rely too much on analogy between their native language and their language of study (Ambrose et al. 21):

> *When many of us are learning a foreign language, we apply the grammatical structure we know from our native language to the new language. This can impede learning when the new language operates according to fundamentally different grammatical rules, such as subject-object-verb configuration as opposed to a subject-verb-object structure.*

What Greek or Latin teacher has not struggled with a classroom full of students determined to translate or interpret a passage from left to right as if it were English

word order?[4] The same principle goes for cross-cultural learning and will be familiar to teachers of language and civilization alike: novices tend to apply their own cultural assumptions to their understanding and interpretation of the practices of other cultures.

We can correct some kinds of inaccurate knowledge and assumptions through head-on instruction, directly addressing and refuting the inaccuracies, but it is difficult to combat *misconceptions*. This term refers to deeply-held beliefs that have been reinforced over time and across contexts, are made up of a combination of accurate and inaccurate knowledge, and are often tied to students' values, ideologies, or identities. Misconceptions are particularly persistent because they may produce successful explanations or solutions in certain circumstances. For instance, the often-persistent but inaccurate notion that datives can always be translated by or understood as equivalents of "to" or "for" will get students through a sizeable portion of their readings. But woe betide them when they encounter a dative of agent.

It is possible to put students on the path to correcting, replacing, and eliminating their misconceptions, but it is a gradual, incremental process.[5] One of the best things we can do is give our students time to think: "when distractions and time pressures are minimized, students will be more likely to think rationally and avoid applying misconceptions and flawed assumptions" (Ambrose et al. 26). Relieving time pressures on assessments like exams and quizzes is good practice anyway, since it also creates a more welcoming and accessible learning environment for all students, including those with limitations on reading speed, with anxiety, or with other learning obstacles (this practice is known as Universal Design).

Teachers of Greek and Latin often encounter students who have accurate, activated *declarative* knowledge but not *procedural* knowledge, or vice versa. Declarative knowledge is knowledge of content, i.e., "knowing *what*," while procedural knowledge is the skill set for applying the content properly, i.e., "knowing *how* and *when*" (see, e.g., Salaberry). The student who possesses declarative but not

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4 Plenty of pedagogues of Greek and Latin nowadays eschew the grammar-translation method in favor of conversational or oral methods: see, for instance, Traupman; Foster & McCarthy. For these teachers, my example is not relevant — but the underlying point about learning, and about the difficulties of SOV-language acquisition for native SVO-language speakers (and vice versa), is.

5 This process can be conceptualized by the term interlanguage (for which see Selinker), which Ellis defines as "the mental system of a second language…that the learner constructs and that is different from the target language system.…[Interlanguage is] the system that a learner has constructed at a particular point of time; we can also talk about the interlanguage continuum to refer to the series of systems that the learner constructs over time" (p. 63). I owe this point to John Gruber-Miller.

procedural knowledge can identify a dative but cannot explain its function in the sentence; the student with procedural but not declarative knowledge, on the other hand, can interpret a sentence correctly but cannot identify case usages or subordinate clause types. Personal feelings on the relative importance of these two categories will vary, but both are important components of expert knowledge of and skill in Latin and Greek.

Techniques for taking into account students' prior knowledge

There are a number of ways to diagnose prior-knowledge issues. We can take inventory of what students do (and do not) already know by means of a self-assessment (Appendix item #2) or pre-test. We can identify explicitly the prerequisite knowledge for our courses. We can have students brainstorm or draw concept maps (discussed in section 1, above) to help reveal to us and to themselves their beliefs and assumptions about our material. Especially useful is to ask priming questions designed to trigger recall of appropriate information, thus helping students activate prior knowledge, a practice called "elaborative interrogation" (on which see, among others, Pressley et al.) — for example, having students answer questions about contextual clues or verb moods and case usage before they read a sentence.

We can also help our students prevent their prior knowledge, or lack thereof, from hindering their learning by discussing the issue directly. Identify common patterns of error in student work (cf. section 4, below). Explain disciplinary conventions that may cause confusion or trouble for novices, such as "translationese," intended to reflect students' comprehension of Greek or Latin syntax at the expense of fluidity in English and most obvious in phrases such as "with the bridge having been crossed" (for an ablative/genitive absolute) or "lest" (for μή/*ne*).[6] Point out the limitations of analogies or heuristics — for example, cognates or derivatives in English can help with Greek or Latin vocabulary ("homoerotic" helps understand meanings of ὅμος and ἔρως), but beware "false friends" (*honor* does not generally mean "honor"), and provide guidelines, inasmuch as they exist, for when these tools are applicable.

When prior-knowledge troubles crop up in class, options for support include giving students multiple opportunities and ample time to practice accurate

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6 I note that most Latin and Greek teachers would not accept translationese as an endpoint for demonstration of student comprehension of or engagement with texts but rather as an efficient means of parsing them — and some reject the use or good sense of translationese entirely. For perspectives on translationese from computational linguistics, see Koppel & Ordan; Volansky et al.

and appropriate deployment of their knowledge; explicitly linking new material to content from earlier courses and from units earlier in the current course, such as getting students to apply familiar constructions governed by verbs to participles or (for students studying both Greek and Latin) to compare the genitive and ablative absolute; or having students make reasoned guesses or judgments on the basis of their prior knowledge and then justify their reasoning.

In the case of insufficient knowledge, it is crucial to deal with problems head on. In a second-semester language course with only a few students who lack sufficient preparation, for instance, the students in question should, if possible, be moved back to the first course in the sequence and should not be passed into or permitted to test into the higher level. If most or all of the class lacks such preparation, however, it is essential to slow down the course's pace and devote time to review (or, as it may be, initial instruction) of prerequisite material. Pushing ahead on a forced march does nobody any good. We must meet our students where they are, not where we wish they were.

3. MOTIVATION (AMBROSE ET AL. CH. 3)

Latin and Greek are hard languages to study. Declension, conjugation, rules for subordination, derivation of verbal forms, particles, and vocabulary all require extensive memorization, practice, and integration. The studying will not do itself, and we language teachers cannot do all the work for our students. More importantly, we cannot learn for others. One of our key goals and tools, therefore, should be to motivate students to learn, to practice, and to seek high degrees of achievement in the language skills and content we teach.

As Ambrose et al. explain, motivation in education rests principally on affirmative answers to three questions. Does the student feel that the class environment is supportive? Does the student feel able to achieve success in the course? Does the student consider the course worthwhile? These three ingredients — environment, self-efficacy, and value — make or break student learning. For successful, motivated learning, students need to find support from not only the instructor but also their fellow students; to believe that their efforts, if sufficient and properly directed, will result in good outcomes; and to value the course enough that they want to succeed.

These factors interact with one another in their effects on motivation to learn, as Figure 4 shows. The technical formulation of this interactive relationship is "expectancy theory," familiar to students of business, the nonprofit sector, and

human-resources management, and applied to pedagogy by, among others, Schunk et al. When all three dynamics are not working towards motivation simultaneously, students are likely to develop a negative disposition toward learning in the course.

		environment not supportive		environment is supportive	
		don't see value	*see value*	*don't see value*	*see value*
student efficacy is…	**low**	learning attitude: ***rejecting***	learning attitude: ***hopeless***	learning attitude: ***rejecting***	learning attitude: ***fragile***
	high	learning attitude: ***evading***	learning attitude: ***defiant***	learning attitude: ***evading***	learning attitude: ***motivated***

Fig. 4: "Levers" of motivation
(by the author, after Ambrose et al. 80)

If students do not think that they are capable of succeeding and do not see the value in the course, they will tend to reject the course (and possibly behave uncivilly in the classroom, if they show up at all), while if they do feel capable but still do not see the value, they will be evasive, doing the minimum amount of work necessary to get by. Students who do see value and feel capable but do not perceive the environment as supportive will take a go-it-alone attitude, possibly including expressions of resentment at the teacher, while students in an unsupportive environment who value the course but do not have a sense of self-efficacy will simply give up. Finally, students valuing the subject and feeling supported but lacking self-efficacy will be fragile, which might lead them to pretend that they understand when they do not or to avoid participation in class. It is only when all three components are working in concert that motivation to learn is reached.

Techniques for generating motivation

Many strategies for fostering self-efficacy and a supportive environment boil down to the theme of clear, explicit presentation of the learning process. We should make our expectations for overall goals and for specific assignments clear, and we should explain how the work we assign actually connects to our course goals. Key parts of this process include determining the appropriate level of challenge for our learning activities, defining via rubrics how we will assess those activities, and

offering study tips tailored to those activities. One particularly potent way to develop self-efficacy in students is through early opportunities to take risks, to fail, to succeed — and, along with those opportunities, through timely feedback. It is better to assign weekly or daily quizzes starting at the beginning of the term than two tests, the first of which does not take place until midterms.

It is also crucial that we try our best to change students' thinking about learning from theories of talent or luck to a theory of effort. People are not good or bad at Latin, but rather they are skilled or unskilled, practiced or unpracticed, working hard or not putting in the kind of well-placed, substantial effort that leads to success and skill acquisition. More generally, we should strive to convince our students and ourselves that people are not simply "smart" or "stupid." To conceive of intelligence in this binary way is to espouse a "fixed mindset" about learning, whereas the brain is actually malleable and responsive to training and practice, the cornerstones of the "growth mindset" (see Dweck). Barring impairment, denial of access to education, or other very real obstacles to learning, anyone can become skilled at anything provided they have a high sense of self-efficacy, a sense of value for what they are learning, and appropriate preparation, guidance, and support. By encouraging students to reframe human intelligence through the growth mindset, we can promote salutary "grit" in their approaches to learning, so that they persevere in the face of difficulties and feel confident about their ability to succeed with hard work and with help from their teachers and classmates.[7]

Getting students to see the value in a course — if they do not already value it coming into the term — can be the hardest lever of motivation to pull. Ambrose et al. 83–85 suggest showing your own passion, enthusiasm, and value for the topic, as well as relating the material to student interests, other coursework, and future career tasks. In other words, to teach most effectively, we need to be eloquent advocates for our field, and for the extra-disciplinary rewards of studying Latin or Greek, even at the introductory level. It also means that we might want to think about offering practice sentences or readings that are less remote to students than, say, British <u>descriptions of</u> colonial India as found throughout Bradley's Arnold, or tokenized,

7 On grit, see Duckworth; Tough. The growth mindset and grit perspectives should not be used to ignore the profound social effects that factors including race, gender, and class have on learning, or to place the responsibility for learning solely on the student, or to suggest that students who do not demonstrate grit are somehow lacking in character: see Snyder for a critique of mainstream misapplications of the grit concept in primary and secondary education, and Kohn for a critique of the "character education" ideology underpinning them. (Character itself, as it turns out, is not real, and our behavior is much, much more heavily determined by situational factors: see Doris.)

stereotyped depictions of Greek and Roman women (on the latter, see Gruber-Miller 2014).

Another approach to encourage students to value what we teach is to tie extrinsic rewards to learning effort. If students earn things independently valuable to them as they engage with and labor at the coursework — e.g., candy, gold-star stickers, a Graeco-Roman coin, the chance to skip turning in a homework assignment, a special in-class title like *Herois* or *Strategos* — then, over time, they may link this extrinsic value with an intrinsic value that they develop for the content of the course itself. (This point helps explain the success of gamification in a variety of pedagogical contexts: see, among many others, Boller & Kapp; Gellar-Goad; Carnes.) Finally, offering students some flexibility and control over their learning experience may prompt them to value it more and to feel more like they can do well. This can be as simple as allowing choice between questions to answer on a quiz, or as complex as a "designer" assessment structure in which students can choose what assignments to complete from a menu in order to (l)earn the points they need to succeed in the course.

4. Practice and feedback (Ambrose et al. ch. 5)

In the formulation of Ambrose et al. 125, "[g]oal-directed practice coupled with targeted feedback are critical to learning." By goal-directed practice, the authors mean practice deliberately applied to a specific challenge related to the skill under study, as opposed to general or unfocused practice. In music, for instance, practicing scales or especially tricky passages is an example of goal-directed practice, as opposed to mere playing-through of a piece from start to finish. By targeted feedback, the authors mean feedback that comes frequently and timely, indicates to students their progress towards their learning goal, and lays out the steps they need to take to achieve their goal.

Imagine learning how to make a cake. Your instructor could have you follow the recipe all the way through and give you feedback at the end of the process based on how the cake came out of the oven. Or your instructor could direct your practice in several isolated steps — measuring, mixing, baking, icing — and give you feedback on the way along with suggestions about common pitfalls to avoid ("use a kitchen scale, not a measuring cup") and clarifications of expectations ("when I say make thick batter, I mean . . . "). The second approach is more effective, will likely result in a better cake, and will definitely result in better baking skills.

So what are the ramifications of this pedagogical principle for us as teachers of Greek and Latin? First and foremost, we should not merely tell our students to study and leave it to them to figure out what, how, how often, and for how long. To teach language, we also need to teach how to learn a language (a point to which I return in section 6). This meta-instruction can take the form of discussion about tips, tricks, and techniques, like flashcards, tools for organization, concept maps (see again Fig. 1, above), meaningful and communicative language practice, self-testing, and application. It could involve use of the student guide to learning by Wirth & Perkins or reports on neuroscientific research about long-term memory storage (e.g., Brown et al.). Key findings indicate that multiple, staggered sessions of memorization and practice of different, interwoven topics and skills make for a more effective strategy than monolithic chunks of time spent cramming a single content area that will never be revisited.

Part of our task in fostering effective practice is, as Ambrose et al. explain, to set challenges at an appropriate level for our students' current knowledge and skill development. In language courses beyond the first, then, it is beneficial to determine students' prior knowledge through an early survey or assessment and to adjust our instruction to meet them where they are (see section 5 and Appendix item #2, below). Similarly, it is more effective to make adjustments to pacing, schedule, and even pedagogical methods mid-term than to plow ahead according to the original plan or goal. Rubrics — though often lamented as part of the bureaucratization of education (see, e.g., Schuman) — are in fact an extremely useful tool when used correctly, since well-designed rubrics clarify criteria and expectations, focus attention and practice on key areas, and enable students to self-assess and direct further efforts. (In my own experience, one step better than rubrics is "specifications grading," on which see Nilson.) A language-acquisition rubric could be as straightforward as those of Santa Monica High School, or as nuanced and detailed as the AAC&U VALUE rubrics for reading and writing, with some adaptation to classical-language acquisition necessary.

Techniques for effective practice and feedback

Some of the strategies for ensuring effective modes of practice are already standard elements of Greek and Latin teaching: multiple occasions for practice and scaffolded practice, i.e., exercises that break down a complex skill into its component parts and focus on each part in isolation. Examples of scaffolded practice (for

which see also Gruber-Miller 2018) include identifying the subjects and objects of verbs, describing relationships between nouns in a sentence, transforming subordinate verbs according to the sequence of tenses or moods to match a change in the main verb, conversing in Latin or Greek with the aid of model scripts or response prompts, reading or translating sentences with vocabulary list provided, and diagramming sentences or answering comprehension questions without translation.

The way we use our in-class time with our students will set the tone for their out-of-class activities. If we spend the whole session lecturing, students will tend to be content merely with reading their textbooks at home and not the kinds of practice that are more active and, not coincidentally, more successful. If, on the other hand, we leave the initial lessons to the textbook (or to YouTube, or to our own lectures posted on a course website), and devote class time to practice individually and in groups and as a whole, our students are more likely to use their homework time in like fashion and thus to make greater language gains both in and outside class.[8]

A typical means of giving feedback in classical language courses — daily homework assignments in addition to regular quizzes and tests — embodies the fundamental pieces of good feedback, namely frequency, timeliness, and specificity. And there are other things in the feedback toolbox that can greatly assist students without being as labor-intensive as marking papers. For instance, we might describe to our students the patterns of errors we have noticed in the class, or we might offer a worksheet prompting students to identify and correct common pitfalls in the language topic currently under examination. By using class sessions for interaction and skill practice rather than grammar lecture, we can troubleshoot our students' language-skill development singly or in groups and can use patterns of error we detect to guide our future instructional activity.

It is also worthwhile to distinguish between *summative* and *formative* feedback. Summative feedback consists of grades, which can be given on tests or quizzes with relatively little correction markup. Formative feedback, on the other hand, does not affect a student's grade in the course but instead is intended to guide and shape the student's subsequent efforts and is particularly useful on daily or weekly homework assignments and on in-class exercises. Allowing revision or resubmission

8 My point here is that the neuroscientific facts of learning argue for the flipped classroom method. Much standard upper-level language pedagogy is already flipped: students read the assigned passage at home, then come in to go over it and troubleshoot. The flipped classroom boasts its fair share of skeptics and discontents; for a third way, consider the "subject-centered" approach advocated by Gloyn (2011, 2017).

of assignments for a somewhat higher grade is a tool that can promote substantial increases in student practice and improvement.

5. Skill acquisition (Ambrose et al. ch. 4)[9]

When faced with a practice sentence from the last chapter of an elementary Greek or Latin textbook, an expert classicist is generally able to comprehend or translate it with ease — for the expert, a simple task. But for the Greek or Latin learner, successful comprehension and translation requires a studied grasp of recently and long-ago introduced vocabulary, morphology, and syntax, all working in tandem. As Ambrose et al. 94 put it, "tasks that seem simple and straightforward to instructors often involve a complex combination of skills," and doing those tasks well involves the fluent integration of knowledge of facts, skills, procedures, and when to use them. That integration represents the ultimate goal of most language education. In this section I consider various components of and obstacles to student skill acquisition, including automaticity and unconscious competence, expert blind spots, cognitive load, and the transfer problem.

The automatic way in which experts process the component skills of complex tasks — seeing ψυχῆς in a sentence and immediately recognizing it as the genitive singular of the feminine noun meaning soul, breath, or animating force, for instance — can present an obstacle to the instruction of novices. Sprague et al. define skill development as moving along the following path:

1.   **unconscious incompetence**, whereby brand-new learners do not know what tasks are required for skill acquisition or how to do them;

2.   **conscious incompetence**, i.e., awareness of the skills needed without ability to do all of them;

3.   **conscious competence**; and finally

4.   **unconscious competence**, where the skills are so natural or ingrained that the components of a complex task may not all be readily apparent even during the task's performance.

9 Ambrose et al. use the term "mastery" for this concept, but I have endeavored to describe it with terms less laden with power relations and white supremacist connotations. (My thanks to John Gruber-Miller for pushing me to make explicit my critical distance from the perspective presented in Ambrose et al.)

As a result of our unconscious competence, we instructors often suffer from "expert blind spots" about what students might have trouble with. Such blind spots make it harder for experts to break a complex skill down into component parts. They also leave us prone to underestimating the time it will take students to complete a task and to overestimating students' ability to recognize the relevance of skills they already have to the task at hand. The basic solution to this problem is to get fresh sets of eyes — advanced undergraduates, grad-student TAs, faculty from other disciplines — to help identify what in the instructional materials, learning activities, and assessments needs more explanation or breaking down.

A major challenge for novices in gaining the skills to perform complex tasks is "cognitive load," or the limits of working memory (on the latter in teaching Greek and Latin, see Carlon 2016). Human brains are not effective at multitasking (see, e.g., Jackson; Carr), and each component of a task demands a portion of our processing capability. The inclusion of too many demanding components will affect overall performance. The practice sentences in the Bradley's Arnold Latin Prose Composition textbook provide a perfect example of a high-cognitive-load task: the exercises do not focus only on the newly introduced material but rather expect students also to have complete and automatized control over all material previously covered (and sometimes material not yet encountered). The result is frequently that students translating these sentences get overloaded and make many mistakes, both on the subject matter of the current lesson and on material they previously had gotten a good handle on.

Experts do better in these situations not because they can handle a higher cognitive load but because their fluency in component skills means that the task itself carries a lower cognitive load on the whole. Yet ask an expert classicist to perform a complex task from another discipline (such as solving a differential equation), and the task's cognitive load will be overwhelming.

The final main difficulty in skill acquisition is the "transfer problem" (mentioned in section 2, above). Ambrose et al. 109 explain that learners can have trouble applying, and knowing when to apply, the skills they have to relevant tasks, whether because of "context dependence" — they only associate the skill with the narrow setting/task type in which they learned it — or because they do not understand why it is relevant or appropriate to apply those skills in a new situation. The transfer problem is currently a matter of great concern in writing instruction in particular (see, e.g., the essays in Wardle) and is an intractable one for all kinds of instruction.

Techniques for supporting skill acquisition

Two techniques can help us mitigate the problem of cognitive load for our students. First, "even a small amount of focused practice on key component skills had a profound effect on overall performance" (Ambrose et al. 101, citing Lovett). Meaningful, iterative practice of components or of simple whole tasks is essential to develop the automaticity that lowers cognitive load and leads to skill acquisition. Focused practice of individual task components needs to be followed by progressive combination and integration into complex tasks, and for advanced learners simple practice in isolation can do more harm than good (so Sweller et al.). Second, students benefit from targeted and especially scaffolded practice (see section 4, above).

Numerous tools, both contextual and practical, exist for addressing the transfer problem. Students can conceptualize the need for transfer through structured comparisons that call for the same knowledge to be employed in different contexts, through analogy, through visual representations, and by generalizing from examples to underlying principles of application. For instance, students working on the Latin sequence of tenses can study the rules as they play out in a variety of example sentences, make charts and creative versions of the rules, or decipher the patterns of subjunctive tense usage from excerpts of authentic Latin authors.

On the practical side of teaching for transfer, a wise starting point is diagnostic testing to find weak or missing component skills — in other words, to assess students' prior knowledge (section 2, above, with Appendix item #2) — and isolated practice to strengthen and develop fluency/automaticity in those weak points. It is important also to explain why knowing the fundamentals like the back of your hand is valuable and why automaticity is important to skill acquisition. As students enter new contexts, prompts about what they already know can help them draw on relevant knowledge and skills. Particularly beneficial is to practice application in diverse contexts, in concert with discussing the conditions of applicability, i.e., when certain knowledge and skills are relevant. In the example of the sequence of tenses, students can be prompted when learning indirect question to think about subjunctive tense-usage patterns they have already learned in connection with purpose and result clauses, can discuss what tenses are likely to appear in relative clauses that use the subjunctive, or can explore situations where the sequence of tenses is not applicable.

6. Metacognition (Ambrose et al. ch. 7)

At the ends of school terms, I find myself naturally feeling more reflective: thinking back on the school year and my courses, considering what worked and what did not, and looking ahead to next time. This process of reflection, self-assessment, and planning for the future — "metacognition," thinking about thinking — is a crucial component of successful learning. For our students to become effective learners, whether just of classical languages or more broadly, we must teach not only content but also metacognitive skills. Successful teaching teaches students how to teach themselves, how to develop intellectual independence, and how to learn what they want to learn.

Metacognition consists of five core acts:

1. assessing the demands of the learning task at hand;

2. evaluating one's own relevant knowledge and skills;

3. planning an approach to the task;

4. monitoring progress on it;

5. adjusting one's strategies to be more effective.

Experts perform these tasks automatically when working within their fields, but novices need explicit modeling of expert metacognition, direct instruction on metacognitive processes, and support (scaffolding) in developing and practicing their own metacognitive skills.

There are considerable mental challenges for novices in most phases of metacognition. When it comes to evaluating their own knowledge and skills, non-experts tend to experience the Dunning-Kruger effect: because of their limited skill in the discipline in question, they overestimate their skill level and ability to complete a task (see Kruger & Dunning; Ames & Kammrath). That experts are less prone to this phenomenon and hence less likely to overestimate their expertise is perhaps best illustrated by Socrates' claim to know only that he knows nothing.

Planning an approach to a problem is something experts do and beginners do not. In fact, as Ambrose et al. 203 write, "students may need significant practice at task assessment and planning even to remember to apply these skills." Every teacher of intermediate Greek or Latin has, for instance, seen students forget to anchor their

reading or translation of sentences with the main verb(s). For many learners, the time required to explore and implement new, more effective strategies acts as a disincentive to try something different at all — especially if the new strategy will be temporarily less effective, as is often the case. Ambrose et al. 199–200 point out that "people will often continue to use a familiar strategy that works moderately well rather than switch to a new strategy that would work better."[10]

Techniques for promoting metacognition

To get students to assess the demands of a task accurately, we might have them describe the task in their own words ("how will you learn these verb forms?"; "what do you need to do to connect this relative clause to the main clause?"), provide rubrics or have students collaborate in creating them, and generally make sure we are very explicit in describing what we want our students to do and how.

For evaluating relevant knowledge and skill level, Ambrose et al. recommend early, performance-based assessment exercises that directly target desired skills (see section 4, above), as well as self-assessments such as a practice test followed by an answer key to check against. Planning may be the step that needs the most support from the instructor. You can encourage students to plan before tackling a challenge by explicitly requiring a planning phase in an assignment (like a rough draft of a term paper), by having them implement a plan you provide, or by assigning the formulation of a plan only, without implementation. The second of these could be a step-by-step checklist for approaching a passage — first underline all the finite verbs, then draw a line from them to their subjects, then put a box around any direct objects, and so forth; or first skim the passage for the basic meaning, then scan for specific information, then identify key vocabulary, and finally do a close reading — while the last could be as simple as having students brainstorm strategies for memorizing vocabulary or inventing a mnemonic for the process of translating or reading a sentence.

Techniques for teaching students to monitor their progress include what Ambrose et al. 208 term "simple heuristics for self-correction," such as asking, "do I know what is happening in this sentence?" or, "does my translation make sense in

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10 In the world of public administration and business management, this inertia is called "satisficing," choosing the most readily available among adequate options rather than spending time to select the best one. Often it is accompanied by the "sunk costs" mindset, which entails fallaciously ignoring a cost-benefit analysis because of time, effort, or resources already spent on an ineffective path — i.e., throwing good money after bad because you feel you are in too deep.

English?" (see Appendix item #3); guidelines for how long a task should take to complete; peer-to-peer assessment; and assignments that call for annotating one's work. So we could ask our students to diagram some Greek or Latin sentences (for my method, see Fig. 5; for other styles, see Markus; Harrison; Anderson and Beckwith), with the recommendation that it should take about 15 minutes and that they should be able to account for the grammatical function of each and every word in all the sentences, and then have them compare results with a classmate and work together to identify trouble spots, quirky syntax, and unresolved questions. Essential to the final phase of metacognition (adjusting strategies) is reflection. Students can answer a battery of questions that facilitate reflection (see, e.g., 21st Century Learning Academy), analyze the effectiveness of their own study habits — with, say, an "exam wrapper" asking how they prepared, what worked and what didn't, what pattern of errors they have found in their work, and how they will prepare differently next time (see, e.g., Appendix item #4 and Eberly Center n.d. a) — or focus on strategy assessment through brainstorming or other strategy-forming activities.
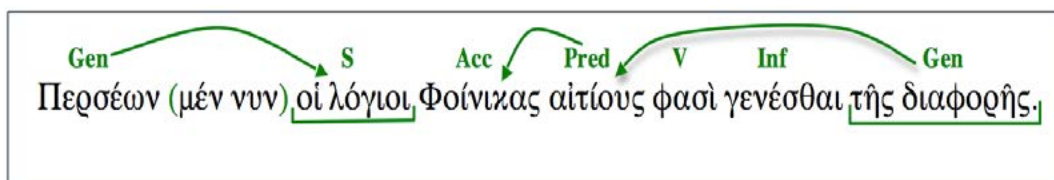
Fig. 5: Sentence diagram of Herodotus 1.1.1
(by the author)

At the core of this principle of how learning works is the notion that, to be truly effective learners, students must learn how to learn. (A helpful document for this is Wirth & Perkins, mentioned in section 4, above.) As I pointed out in section 3, nobody is inherently "good at languages" or "bad at math." That is not how the brain works. Rather, acquisition of any skill requires lots of effort, plenty of time spent practicing, sufficient preparation, and robust support and instruction. And again, there are not "smart" and "dumb" people. Intelligence is malleable and is the product of cognitive and metacognitive training and effort. Even works of "genius" like Picasso's *Guernica* do not spring from divinely-endowed brains like Athena from Zeus', but rather are the product of careful, effortful, incremental development and synthesis by experts in control of the canons of their fields (see Weisberg). By comparison, as Morgan points out, "[t]he ancient notion of literary creativity, in

many ways a much more reasoned one than our post-Romantic idea, was innovation within an established set of traditional rules."

7. Student development and course climate (Ambrose et al. ch. 6)

Central to good pedagogy is the maxim that we teach not only content but also people. As the previous sections have shown, our students will not learn effectively if they are unmotivated, if they lack sufficient prior knowledge, and if they are not self-reflective. But underlying all these factors are the crucial elements of student intellectual development and social identity. Who our students are and where they are intellectually have huge effects on how they learn, and so they should be prime considerations in our approach to teaching and in our construction of the classroom environment, regardless of subject.

It is a truism to say that students are not only intellectual but also social beings. Yet this truism has a profound implication, particularly in classes composed primarily of "traditional college-age students" of Western backgrounds. Ambrose et al. 156–157 note research shows that "the social and emotional gains that students make during college are considerably greater than intellectual gains over the same span of time." Students at all levels of study will possess widely varying degrees of intellectual, social, and emotional maturity — and the same person may have different levels of different kinds of maturity.

A few principal psychological models, outlined in Figure 6, describe growth in these three kinds of maturity. According to Perry's model of intellectual development, people begin in a state of childlike "duality": everything is right or wrong, and if a teacher will not tell me the answer, it is because the teacher is being coy. After encountering enough situations where there is obviously no simple black-and-white answer, they move to "multiplicity": everything is merely a matter of opinion and all opinions are equal. In higher education especially, the goal is to move students into a mindset first of "relativism" — some answers are better than others on the basis of evidence and argumentation — and finally to "commitment" to an answer as the best solution available, again based on evidence and argumentation. Belenky et al. and Baxter Magolda identify some generally applicable gender patterns in progression through the stages of the Perry model.

EMOTIONAL MATURITY (Chickering)		
1. managing emotions	**2. establishing identity**	**3. developing key components of adulthood:** competence in a variety of areas; autonomy; purpose; integrity; mature relationships with others
INTELLECTUAL MATURITY (Perry)			
1. duality	**2. multiplicity**	**3. relativism**	**4. commitment**
SOCIAL MATURITY (Hardiman & Jackson)				
1. naïve stage	**2. uncritical acceptance** of social norms	**3. resistance** to prejudice	**4. redefinition** of sense of self and group	**5. integration** of redefined identity

Fig. 6: Models of social development
(by the author)

Hardiman & Jackson's model of "social identity development," particularly applicable to race but also gender and sexuality, begins from the "naïve stage" of early childhood, wherein difference in appearance is not imbued with deeper value judgments. Young people tend to move from this stage into uncritical acceptance of social norms. Eventually, those in a social minority develop a sense of resistance to prejudice and, finally, undergo a redefinition of their sense of self and group, as well as an integration into themselves of their redefined identity. During the resistance stage, members of minority groups may tend to immerse themselves in their own group or culture and, in aggregate, students of all backgrounds may tend towards "disintegration" between minority and non-minority groups. The "social maturity" development process is not limited to students in minority or traditionally marginalized groups, to be sure, though such students' development has been the primary focus of the scholarship I am considering here; we ought also to note that students with dominant-group identities often struggle with or outright resist moving past uncritical acceptance of social norms — i.e., they cannot or will not truly acknowledge white, masculine, straight, Christian, and other privileges.

Why is all this important? As Ambrose et al. 169–170 put it, "students cannot check their sociocultural identities at the door, nor can they instantly transcend their current level of development." We cannot ignore the larger context within which the art of teaching happens and we must actively accommodate our students' diversity

of backgrounds and development levels as we build our course climate. Ambrose et al. identify four kinds of course climates:

1. those that **explicitly marginalize** minority viewpoints and subjectivity;

2. those that **implicitly marginalize** them;

3. those that **explicitly** "**centralize**" a diversity of perspectives and experiences;

4. those that **implicitly centralize** such diversity.

An *explicitly* marginalizing course climate is one of overt discrimination. In (for example) a modern literature course, an *implicitly* marginalizing curriculum would restrict focus to the traditionally prescribed canon dominated by elite straight Christian men, while an explicitly *centralizing* curriculum would include readings and discussion of texts by persons of all races, religions, genders, sexual orientations, ability statuses, and geographical origins. An *implicitly* centralizing climate leaves the burden of voicing minority views on students from marginalized groups. Marginalizing climates tend to make students not in the dominant group feel excluded and silenced.

Why is it important to build an *explicitly* centralizing course climate? In part because it is of fundamental importance for students' motivation that they perceive the classroom environment as supportive, as I detailed in section 3 above. In part also because less-inclusive classroom environments tend to include microinequities (cf. Hall & Sandler) — things that may not even reach the notice of the dominant group, such as sexist language — which interfere with marginalized students' learning experiences and can activate stereotype threat (so Steele & Aronson).[11]

Stereotype threat is a pernicious phenomenon where individuals with a non-dominant group identity are made to feel as though that aspect of their identities affects their ability to perform the task at hand. For instance, putting the demographics section of a standardized test before the content questions has been shown to have a negative effect on the test scores of women and racial minorities, because at the moment of their test-taking they are asked to focus on a part of themselves that the

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11 Microinequities should not be confused with "microaggressions," a concept current in the popular zeitgeist that may impute discriminatory or prejudicial intent more than is fair.

dominant culture has stereotyped as intellectually subpar (see Steele). As one might expect, stereotype threat and microinequities can cause those affected to leave or avoid the discipline in which they encounter the discrimination (Major et al.): for discussion of this problem in the overly white field of Classics in particular, see Blouin; Umachandran; and Lehmann.

Techniques for taking into account student development and course climate

A centralizing climate requires extra care to achieve when teaching a language and literature like Latin or Greek whose survival has by and large depended on a canonization process controlled by elite men. Sulpicia and Sappho and Corinna do not add up to many lines, and the latter two, as with many papyri and inscriptions with women's or non-elite voices, are very difficult texts for beginners and intermediates. One key tool here is supplementation: art, artifacts, and translated texts that offer alternative and diverse views can ameliorate the canonizing effects of the manuscript tradition (a great example of this is Raia et al. with its online companion).

Another way to avoid a marginalizing climate in Latin and Greek courses is to interrogate, rather than adopt, the ideologies that the texts we teach communicate implicitly and explicitly. Instead of plodding through a Greek textbook starring a lazy enslaved Xanthias and a pair of women valued only for physical attributes and not for intellect (as in *Athenaze*), one might call upon students to explore the hidden point of view of these characters and ask how the characters might feel about the way they are portrayed, or how they might characterize themselves.[12] Or choose a different textbook. Instead of being content with a slangy anti-gay epithet in English as an equivalent for *cinaedus*, in class or in a published translation (as in, e.g., Green's Catullus), one might push students to research Roman constructions of sexuality and moderation.

Some particular strategies that Ambrose et al. suggest for reducing stereotype threat include:

- reducing the anonymity that some college classes are prone to;

- modeling inclusive language, attitudes, and behavior for our students — in the classroom, on the syllabus, and in our selection of course contents and activities;

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12 For an in-depth exposition of this approach, see Gruber-Miller 2008.

- using multiple, diverse examples in instruction, a technique that is also good practice in courses with international students and non-native speakers of English (see Eberly Center n.d. b);

- seeking student feedback on course climate;

- preparing students for sensitive discussions.

A perfect example of this last is the care called for in teaching Ovid, whose disturbing, sexually violent contents and incomparable style present a pedagogical challenge that has produced multiple volumes on teaching it (Kahn; Doherty; and see also Rabinowitz & McHardy) and occasioned national news coverage of how it may be taught (Miller); particularly eloquent are the discussions of Gloyn (2014a, 2014b). Similarly, I recommend addressing head-on, early, substantively, and openly the matter of race, skin color, ethnicity, and racism in the ancient world and in modern conceptions of these categories (see McCoskey; Bond; Kennedy; and the bibliography and resources of Kennedy n.d. a, n.d. b; for guidance in rejecting white supremacist claims of sole ownership of the classical tradition, see Zuckerberg; Kim; Morse; and Sandridge).

Conclusion: How learning works and course design

Convincing students to change their own thinking to match what neuroscientific research has shown about the brain can have profound effects on their performance and engagement (see, e.g., Blad). People who understand that the brain is not static, with fixed capabilities, will have a greater sense of self-efficacy, which is a central component of motivation. Students who belong to traditionally disadvantaged groups will also be less affected by stereotype threat (so Aronson et al.).

Good teaching necessitates good motivational techniques. We cannot merely present content, especially when that content is something so difficult and daunting as Greek or Latin. By thinking and planning explicitly around the issues of value, support, and self-efficacy, we will improve the quality of our teaching, our courses, our students' learning — and, in motivating our students to learn classical languages, we will improve the quality of their lives. As with some of the other elements of how learning works, when it comes to skill acquisition many best practices match what we teachers of Greek and Latin already do, but there is added value in knowing the principles that underlie these practices and in implementing them consciously and

comprehensively. For our students to acquire skills in the languages we teach, we should ourselves acquire skills in deploying the components of effective language pedagogy.

In the end, as pedagogues, we owe it to our students not only to teach them the ancient languages and literatures and cultures we find so fascinating but also to lead them towards a path of lifelong, effective, rewarding learning — a path accessible only through reflection and metacognition. Furthermore, despite how we might feel when first introducing the sequence of moods or tenses, we are not teaching language in or to a vacuum. Our teaching will benefit from keeping in mind that our students' identities and their intellectual and social development play an important role in how they come into our courses.

All of these considerations ultimately involve questions of course design (on which see especially Fink; Wiggins & McTighe; Meyers & Nulty; Blumberg; and Biggs). Our students will get the most out of our courses generally — and out of goal-directed practice and targeted feedback specifically — when we design our courses carefully, intentionally, and with attention to the alignment between course learning goals, exercises that prompt practice at those goals, and mechanisms for assessment, feedback, and evaluation of student progress towards those goals.

A successful language curriculum will ensure a high degree of skill acquisition at lower levels before students are sent on to higher levels. This sounds obvious. But if C-level performance at the elementary language level is not sufficient preparation for progression to cumulatively harder study of the language, we should not be awarding Cs at all but should be redefining performance of such quality as insufficient for continuation, as insufficient to pass the class (inasmuch as our university administration and our eternal need to keep up course enrollments will allow).[13] Moreover, we should periodically reevaluate our language curricula for alignment of learning goals, outcomes, and sequencing (see, e.g., Eberly Center n.d. c). When necessary, we should undertake the arduous but ultimately worthy goal of curricular redesign (for an example of such redesign, see Byrnes et al.). These points should not discourage us but should get us to think bigger about supporting the learning of classical languages.

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13 I make this suggestion from a lens of pragmatism. To rights, I believe that grades are a tool of oppression for students and instructors alike and are a powerfully demotivating factor that impedes learning rather than fosters it. On this crucial issue, see especially Inoue; Stommel.

WORKS CITED

21st Century Learning Academy. "The 40 Reflection Questions." *Edutopia*. 2011.

Ambrose, Susan A., et al. *How Learning Works: Seven Research-Based Principles for Smart Teaching*. San Francisco: Jossey-Bass, 2010.

Ames, Daniel R., and Lara K. Kammrath. "Mind-Reading and Metacognition: Narcissism, not Actual Competence, Predicts Self-Estimated Ability." *Journal of Nonverbal Behavior* 28.3 (2004): 187–209.

Anderson, Peter, and Mark Beckwith. "Form-focused Teaching for the Intermediate Latin Student." *Teaching Classical Languages* 2.1 (2010): 31–52.

Arnold, Thomas Kerchever. *Latin Prose Composition*. Rev. George Granville Bradley; ed. and rev. James Mountford; ed. Donald E. Sprague. Mundelein: Bolchazy-Carducci, 2006.

Aronson, Joshua, Carrie B. Fried, and Catherine Good. "Reducing the Effects of Stereotype Threat on African American College Students by Shaping Theories of Intelligence." *Journal of Experimental Social Psychology* 38 (2002): 113–125.

Baxter Magolda, Marcia B. *Knowing and Reasoning in College: Gender-Related Patterns in Students' Intellectual Development*. San Francisco: Jossey-Bass, 1992.

Belenky, Mary Field, Blythe McVicker Clinchy, Nancy Rule Goldberger, and Jill Mattuck Tarule. *Women's Ways of Knowing*. New York: Basic Books, 1986.

Biggs, J. "Enhancing Teaching through Constructive Alignment." *Higher Education* 32 (1996): 347–364.

Blad, Evie. "Can Changing Mindsets Boost Student Learning?" *Education Writers Association*. 11 Jun. 2014.

Blouin, Katherine. "Classical Studies' glass ceiling is white." *Everyday Orientalism*. 10 Jan. 2017.

Blumberg, P. 2009. "Maximizing Learning through Course Alignment and Experience with Different Types of Knowledge." *Innovative Higher Education* 34 (2009): 93–103.

Boller, Sharon, and Karl M. Kapp. *Play to Learn: Everything You Need to Know About Designing Effective Learning Games*. Alexandria, Virginia: ATD Press, 2017.

Bond, Sarah E. "Why We Need to Start Seeing the Classical World in Color." *Hyperallergic*. 7 Jun. 2017.

Brown, Peter C., Henry L. Roediger III, and Mark A. McDaniel. *Make It Stick: The Science of Successful Learning*. Cambridge, Massachusetts: Belknap Press, 2014.

Byrnes, Heidi, Hiram Maxim, and John M. Norris. *Realizing Advanced Foreign Language Writing Development in Collegiate Education: Curricular Design, Pedagogy, Assessment*. *The Modern Language Journal* 94 Supplement, 2010.

Carlon, Jacqueline M. "The Implications of SLA Research for Latin Pedagogy: Modernizing Latin Instruction and Securing its Place in Curricula." *Teaching Classical Languages* 4.2 (2013): 106–122.

Carlon, Jacqueline M. "*Quomodo Dicitur*? The Importance of Memory in Language Learning." *Teaching Classical Languages* 7.2 (2016): 109–135.

Carnes, Mark C. *Minds on Fire: How Role-Immersion Games Transform College*. Cambridge, Massachusetts: Harvard University Press, 2014.

Carr, Nicholas. *The Shallows: What the Internet Is Doing to Our Brains*. New York: W. W. Norton, 2011.

Chickering, Arthur W. *Education and Identity*. San Francisco: Jossey-Bass, 1969.

Clapp, Doug. "*De Lingua Latina Discenda*: Five Recent Textbooks for Introductory Latin." *Teaching Classical Languages* 5.1 (2013): 56–69.

Doherty, Lillian, ed. *Teaching Rape Texts in Classical Literature*. Special issue of *Paedagogus*. *Classical World* 106.4 (2013): 669–687.

Doyle, Terry, and Todd Zakrajsek. *The New Science of Learning: How to Learn in Harmony with Your Brain*. Sterling: Stylus Publishing, 2013.

Doris, John M. *Lack of Character: Personality and Moral Behavior*. Cambridge: Cambridge University Press, 2002.

Duckworth, Angela. *Grit: The Power of Passion and Perseverance*. New York: Scribner, 2016.

Dweck, Carol S. *Mindset: The New Psychology of Success*. New York: Random House, 2006.

Eberly Center for Teaching Excellence, Carnegie Mellon University. "Exam Wrappers." No date (a).

Eberly Center for Teaching Excellence, Carnegie Mellon University. "Recognizing and Addressing Cultural Variations in the Classroom." No date (b).

Eberly Center for Teaching Excellence, Carnegie Mellon University. "Why should assessments, learning objectives, and instructional strategies be aligned?" No date (c).

Ellis, Rod. "The Development of a Second Language." *Understanding Second Language Acquisition*. 2nd ed. Ed. Rod Ellis. Oxford: Oxford University Press, 2015. 63–95.

Fink, D. L. *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*. San Francisco: Jossey-Bass, 2003.

Foster, Reginald Thomas, and Daniel Patrick McCarthy. *Ossa Latinitatis Sola Ad Mentem Reginaldi Rationemque / The Mere Bones of Latin According to the Thought & System of Reginald*. Washington, D. C.: Catholic University of America Press, 2015.

Gellar-Goad, T. H. M. "World of Wordcraft: Foreign language grammar and composition taught as a term-long role-playing game." *Arts & Humanities in Higher Education* 14.4 (2015): 368–382.

Gloyn, Liz. "Book review: Becoming a critically reflective teacher — Stephen D. Brookfield." *Classically Inclined*. 17 Jun. 2011.

Gloyn, Liz. "The classical pedagogy of trigger warnings." *Classically Inclined*. 21 Jan. 2014.

Gloyn, Liz. "The Problematic Ovid lecture." *Classically Inclined*. 21 Feb. 2014.

Gloyn, Liz. "Experimenting with student-led seminars." *Classically Inclined*. 3 Apr. 2017.

Green, Peter, trans. *The Poems of Catullus: A Bilingual Edition*. Berkeley: University of California Press, 2007.

Gruber-Miller, John. "Teaching Culture in Beginning Greek." *CPL Online* 4.1 (2008): 1–10.

Gruber-Miller, John. "Six Categories for Assessing the Representation of Women in Textbooks." *Cloelia* n. s. 4 (2014): 24–27.

Gruber-Miller, John. "The Standards as Integrative Learning." *Teaching Classical Languages* 9.1 (2018): 19–38.

Hall, Roberta M., and Bernice R. Sandler. "The Classroom Climate: A Chilly One for Women?" *Project on the Status and Education of Women*. Feb. 1982.

Hardiman, Rita, and Bailey W. Jackson. "Racial Identity Development: Understanding Racial Dynamics in College Classrooms and on Campus." *New Directions for Teaching and Learning* 52 (1992): 21–37.

Harrison, Rebecca. "A Structural Arrangement of Text to Facilitate Reading." *Classical Journal* 102.3 (2007): 291–303.

Inoue, Asao. "A Grade-Less Writing Course That Focuses on Labor and Assessing." *First-Year Composition: From Theory to Practice*. Eds. D. Teague and R. Lunsford. West Lafayette: Parlor Press, 2002. 71–110.

Jackson, Maggie. *Distracted: The Erosion of Attention and the Coming Dark Age*. Amherst: Prometheus Books, 2008.

Kahn, Madeleine. *Why Are We Reading Ovid's Handbook on Rape? Teaching and Learning at a Women's College*. Boulder: Paradigm Publishers, 2005.

Kennedy, Rebecca Futo. "Why I Teach About Race and Ethnicity in the Classical World." *Eidolon*. 11 Sep. 2017.

Kennedy, Rebecca Futo. "Race/Ethnicity Bibliography." *Classics at the Intersections*. No date (a).

Kennedy, Rebecca Futo. "Resources for Teaching Race and Ethnicity, Immigration, and Marginality in Classical Antiquity." *Classics at the Intersections*. No date (b).

Kim, Dorothy. "Race, Gender, Academia, and the Tactics of Digital Online Harassment." Society for Classical Studies. Sep. 2017.

Kohn, Alfie. "How Not to Teach Values: A Critical Look at Character Education." *Phi Delta Kappan* 78.6 (1997): 428–439.

Koppel, Moshe, and Noam Ordan. "Translationese and Its Dialects." *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies* 1: 1318–1326.

Krashen, Steven D. *Principles and Practice in Second Language Acquisition*. Oxford: Pergamon Press, 1982.

Kruger, Justin, and David Dunning. "Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments." *Journal of Personality and Social Psychology* 77.6 (1999): 1121–1134.

Lehmann, Hilary. "#ClassicsSoWhite." *Classics and Social Justice*. 5 Sep. 2017.

Loewen, Shawn. *Introduction to Instructed Second Language Acquisition*. London: Routledge. 2014.

Lovett, Marsha. "A Collaborative Convergence on Studying Reasoning Processes: A Case Study in Statistics." *Cognition and Instruction: Twenty-Five Years of Progress*. Eds. Sharon M. Carver and David Klahr. New York: Psychology Press, 2001. 347–384.

Major, Brenda, Steven Spencer, Toni Schmader, Connie Wolfe, and Jennifer Crocker. "Coping with Negative Stereotypes about Intellectual Performance: The

Role of Psychological Disengagement." *Personality and Social Psychology Bulletin* 24.1 (1998): 34–50.

Markus, Donka. "New Wine in Old Skins: Visual Codes for Teaching Sentence-structure in Latin." *Classical Outlook* 76.3 (1999): 89–93.

McCoskey, Denise Eileen. "Answering the Multicultural Imperative: A Course on Race and Ethnicity in Antiquity." *Classical World* 92.6 (1999) 553–561.

McDaniel, Mark A., and Carol M. Donnelly. "Learning with Analogy and Elaborative Interrogation." *Journal of Educational Psychology* 88.3 (1996): 508–519.

McKeough, Anne, Judy Lee Lupart, and Anthony Marini. *Teaching for Transfer: Fostering Generalization in Learning*. New York: Routledge, 2013.

Meyers, N. M., and Nulty, D. D. "How to Use (Five) Curriculum Design Principles to Align Authentic Learning Environments, Assessment, Students' Approach to Thinking and Learning Outcomes." *Assessment and Evaluation in Higher Education* 34 (2009): 565–577.

Miller, Michael E. "[Columbia students claim Greek mythology needs a trigger warning](#)." *The Washington Post*. 14 May 2015.

Morgan, Llywelyn. "[Virgil, hardly trying](#)." *Lugubelinus*. 23 Feb. 2015.

Morse, Heidi. 2018. "[Classics and the Alt-Right: Historicizing Visual Rhetorics of White Supremacy](#)." *Learn Speak Act: Liberal Arts in the Moment*. 15 Feb. 2018.

Nilson, Linda B. *Specifications Grading: Restoring Rigor, Motivating Students, and Saving Faculty Time*. Sterling: Stylus, 2015.

Novak, Joseph D., and Alberto J. Cañas. "[The Theory Underlying Concept Maps and How to Construct and Use Them](#)." *IHMC Cmap*. 2008.

Patrick, Robert. "[Making Sense of Comprehensible Input in the Latin Classroom](#)." *Teaching Classical Languages* 6.1 (2015): 108–136.

Perry, William G., Jr. *Forms of Intellectual and Ethical Development in the College Years: A Scheme*. New York: Holt, Rinehart, and Winston, 1970.

Pressley, M., S. Symons, M. A. McDaniel, B. L. Snyder, and J. E. Turnure. 1988. "Elaborative interrogation facilitates acquisition of confusing facts." *Journal of Educational Psychology* 80.3: 268–278.

Rabinowitz, Nancy Sorkin, and Fiona McHardy, eds. *From Abortion to Pederasty: Addressing Difficult Topics in the Classics Classroom*. Columbus: Ohio State University Press, 2014.

Raia, Ann, Cecelia Luschnig, and Judith Lynn Sebesta. *The Worlds of Roman Women: A Latin Reader*. Newburyport: Focus, 2005.

Salaberry, M. Rafael. "Declarative Versus Procedural Knowledge." *The TESOL Encyclopedia of English Language Teaching*. Ed. John I. Liontas et al., 2018.

Sandridge, Norman. *Ancient Leadership in the Era of Donald Trump*. No date.

Schuman, Rebecca. "Syllabus Tyrannus." *Slate*. 26 Aug. 2014.

Schunk, Dale H., Judith R. Meece, and Paul R. Pintrich. *Motivation in Education: Theory, Research, and Applications*, 4th ed. London: Pearson, 2014.

Selinker, Larry. "Interlanguage." *International Review of Applied Linguistics* 10 (1972): 209–231.

Snyder, Jeffrey Aaron. "Teaching Kids 'Grit' is All the Rage. Here's What's Wrong with It." *The New Republic*. 6 May 2014.

Sprague, Jo, Douglas Stuart, and David Bodary. *The Speaker's Handbook*. Boston: Cengage Learning, 2008.

Steele, Claude M. "Thin Ice: Stereotype Threat and Black College Students." *The Atlantic*. Aug. 1999.

Steele, Claude M., and J. Aronson. "Stereotype Threat and the Intellectual Test Performance of African Americans." *Journal of Personality and Social Psychology* 69.5 (1999): 797–811.

Stommel, Jesse. "How to Ungrade." *JesseStommel.com*. 11 Mar. 2018.

Sweller, John, Paul L. Ayres, Slava Kalyuga, and Paul Chandler. "The expertise reversal effect." *Educational Psychologist* 38.1 (2003): 23–31.

Tough, Paul. *How Children Succeed: Grit, Curiosity, and the Hidden Power of Character*. New York: Houghton Mifflin Harcourt, 2012.

Traupman, John C. *Conversational Latin for Oral Proficiency*, 4th ed. Wauconda: Bolchazy-Carducci, 2007.

Umachandran, Mathura. "Fragile, Handle With Care: On White Classicists." *Eidolon*. 5 Jun. 2017.

Volansky, Vered, Noam Ordan, and Shuly Wintner. "On the Features of Translationese." Literary and Linguistic Computing 30.1 (2015): 98–118.

Wardle, Elizabeth, ed. *Writing and Transfer* special issue. *Composition Forum* 26 (2012).

Weisberg, Robert W. "On Structure in the Creative Process: A Quantitative Case-Study of the Creation of Picasso's Guernica." *Empirical Studies of the Arts* 22.1 (2004): 23–54.

Wiggins, G., and J. McTighe. *Understanding by Design.* Alexandria: Association for Supervision and Curriculum Development, 2005.

Wirth, Karl R., and Dexter Perkins. "Learning to Learn." 17 Dec. 2013.

Zuckerberg, Donna. "How to Be a Good Classicist Under a Bad Emperor." *Eidolon*. 21 Nov. 2016.

APPENDIX

[1] SAMPLE ADVANCE ORGANIZER FOR VOCABULARY

(Vocabulary list taken from Jenney's Latin, p. 148.)

ciuitas	*homo*	*labor*	*lex*	*multitudo*
pars	*pes*	*timor*	*uirtus*	

PART I: classify this lesson's vocabulary using the charts below.

feminine nouns			**masculine nouns**	

PART II: fill out the following diagram for each vocabulary word from this lesson.

WORD:	DEFINITION:	
GENITIVE:	VISUAL REPRESENTATION OF THIS WORD:	
GENDER:		
DECLENSION:		
SIMPLE LATIN SENTENCE USING THIS WORD:		

PART III: divide this lesson's vocabulary into three groups of three words each and explain how the words within each group are related in meaning to one another.

[2] SAMPLE SELF-ASSESSMENT OF PRIOR KNOWLEDGE

For each of the following grammatical concepts, indicate your level of familiarity as follows:

?	I have never heard of this and do not know what it is
H	I have heard of this, but do not know what it is
R	I recognize this and could identify it in a Latin sentence
E	I know this and can explain it to you right now

____ ablative of separation   ____ optative subjunctive

____ gerund   ____ participle

____ gerundive   ____ partitive genitive

____ indirect command   ____ potential subjunctive

____ indirect question   ____ proviso clause

____ indirect statement   ____ relative clause of characteristic

____ jussive subjunctive   ____ relative clause of purpose

____ mixed condition   ____ sequence of tenses

____ objective genitive   ____ subjective genitive

[3] SIMPLE HEURISTICS FOR SELF-CORRECTION OF TRANSLATIONS INTO ENGLISH FROM LATIN OR GREEK

- Does my translation make sense in English?

- Have I left any Latin/Greek words out?

- Do my English verbs reflect the person, number, tense, voice, and mood of the Latin/Greek verbs?

- Have I identified the subject and object (if applicable) of the verbs?

- Have I put adjectives with the nouns they modify?

- Have I put genitives with the nouns they go with?

[4] SAMPLE EXAM WRAPPER

- How did you go about preparing for this exam?

- Were your approach & methods effective and how so / why not?

- What did you learn from preparing for this exam?

- How does this exam connect to your learning in this course and in Latin more broadly?

- What from this exam can you use in the rest of this course, in other Latin classes, and in other courses in college?

- How could I improve this exam the next time I teach this course?