

Inquiry before Advocacy:

An informal exploration of English critical thinking classes

In the light of neurological sciences,

And consistent with my opinionated and creative impulses.

Sabbatical shares a root with **Sabbath**, a ceasing, and is meant to be a time of rest and rejuvenation – and rededication to the profession. This project, which leads to specific class proposals, is meant to fit into that definition. As such, formal writing has been put aside for a more leisurely and personal exploration, and layman’s language is the norm wherever possible.

Exploring the cognitive sciences and applying them to my teaching has been an avocation of mine for several years, and I have enjoyed sharing insights with my students so they become better students. This project is an extension of that avocation and an extension of knowledge so my teaching is consistent with newly discovered best practices and so students can learn even more about how to “hack” their brains and “hack” the world around them so their lives, now and into the future, can be full, happy, and productive.

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*Ancora Imparo*¹**Introduction**

This sabbatical project is an attempt to explore and solve some problems so we can optimize student learning in the *English 3: Critical Thinking* class. Many of the findings and approaches in the following exploration will be useful for other classes across the curriculum, but this project's foci are critical thinking, creative thinking, rhetorical analysis, and argumentation in various forms.

Specifically, it examines the potential of expanding our understanding of critical thinking by placing it in a larger context of interdisciplinary approaches and presenting it in a way that is student centered and sound in terms of an emerging pedagogy based in cognitive sciences, neuropsychology, and neurosociology, and by using the new scientific findings about, for example, neurogenesis to create greater opportunities for student engagement and success.

English 3: Critical Thinking is a core course in our curriculum. It satisfies CSU and UC requirements for the critical thinking component, and it is one of only three critical thinking courses offered on our campus (Philosophy and Communication are

¹ When Michelangelo was quite old, in his 80s, he posted a sign above the door to his workshop: *Ancora Imparo*, which means "I am still learning." (Cozolino 211). That seems like an appropriate motto for this project, though I am still far from 80. Well, not far enough.

the others). [Note that English 3 Honors is included throughout this discussion without specific references].

From the *Course Outline of Record* approved by the Clovis Community College Curriculum Committee and recognized as an articulated class with the CSU and UC systems:

“A course designed to develop critical thinking, reading, and writing skills beyond the level achieved in English 1A/1AH. The course will focus on the development of logical reasoning and analytical and argumentative writing skills based primarily on works of non-fiction in a variety of media.”

Student Learning Outcomes:

Upon completion of this course, students will be able to:

1. *Identify and critically evaluate the differences between cogent and fallacious arguments in a culturally diverse context.*
2. *Examine and interpret college-level texts including visual media and literature, with preference for non-fiction.*
3. *Write multiple synthesized and documented critical analysis papers of at least 6000 words, with one essay of at least 2000 words.*

Objectives:

In the process of completing this course, students will:

1. *Produce multiple synthesized and documented, critical analysis papers of at least 2000 words which: exhibits a sophisticated introduction, multiple body paragraphs, and a conclusion; expresses an arguable claim that aims to contribute to or alter pre-existing ideas on the subject matter; shows supporting details that exhibit critical thinking and use credible, multiple secondary sources; identifies researched and evaluated sources for use in the development of their own writing; demonstrates correct usage of MLA format with correct use in-text citations and a works cited page; illustrates appropriate and purposeful use of quotations; employ causal analysis, advocacy of ideas, definition, persuasion, evaluation, refutation, and interpretation effectively in college-level prose; employs an annotated bibliography of multiple sources; differentiates plagiarism from cited source material and correctly employ in-text citations; locate logical fallacies in others' writing and avoid them in their own writing; match details to main point and with complex analysis recognize errors and revise compositions; demonstrate awareness of third person/universal; demonstrate awareness of a scholarly audience; apply controlled and sophisticated word choice; recognize and employ sentences that exhibit a command of the complex/compound with minimal comma splices, sentence fuses, and*

fragments

2. *Demonstrate and ability to read and critically evaluate college-level non-fiction material from a variety of sources on themes from different content areas; recognize the difference between valid and sound arguments and invalid and unsound arguments; classify deductive and inductive language; recognize factual statements from judgmental statements and knowledge from opinion, identifying the deliberate abuses and manipulations of rhetoric; propose logical inferences from information presented; identify and employ denotative and connotative aspects of language*
3. *Be able to communicate analysis/synthesis through class (and/or group) discussions*

Individual instructors have the opportunity to choose topics and themes in order to accomplish the ends listed above, and many students are successful in these classes. Clovis Community has a tradition of themed *English 3* classes, and our last Program Review included an explanation and rationale for both themed classes and for visual rhetorical analysis.

Cynthia Elliott, a fellow instructor at Clovis Community, summarized her reasons for teaching documentary film in a private e-mail:

As we gather more of our information from short video clips and documentaries, students will need to develop critical thinking skills for visual analysis. This goes beyond the normal aesthetic qualities of balance, color, texture, etc. to include discussions about how a video "cites" its sources and photographic manipulation. As film is indexical, most believe everything they see. Unfortunately, this is a deleterious conclusion. Documentaries lend themselves smoothly to critical thinking outcomes. For example, induction and deduction are a struggle to identify when analyzing texts, but are very

simple to understand in terms of producing a documentary. A deductive documentary such as the work of Michael Moore is constructed ahead of filming and the editing occurs around the general plan from the beginning--a composed argument. An inductive documentary such as the work of Errol Morris is one where the filmmaker begins with an idea and sees where it leads, figuring out the actual argument in post-production editing. As part of this class, students design their own fashion to cite in visual arguments, since none formally exists, and they discuss and judge the power of juxtaposition in persuasion. They not only practice critical thinking skills, they add to the growing methods of analyses “ (Elliott).

Clearly, this matches the intent of a critical thinking class and expands the scope of that type of class so students are confronting important issues with the tools of analysis to make the medium a coherent and useful part of their lives. They are also expanding their horizons and, as we'll see in this project, expanding their brain's capacity – literally.

However, most instructors, following the lead of instructors throughout the state, use this class as a contemporary events class, examining current texts on issues such as abortion, gay marriage, current election issues, racial discrimination, body dysmorphia, etc. I have no desire to undermine those instructors, but I am hoping that this project will suggest alternatives that may be superior. And I will explain my reasons.

Several years ago, I determined that the focus on current issues is counterproductive; I will examine my reasons below. I will admit that current events tend to bore me², and if I am bored, I know my students will be bored too, no matter how much feigned enthusiasm I can muster. So, in part, this emphasis on themes was fostered by my own preferences, but in fact, in discussions, I've found that students really are bored by many of the common themes we assign or suggest. No matter how "relevant" we believe we are when we rip an argumentation topic out of today's newspaper, our students tend not to be engaged. Nor, because they are writing about topics they already know well, do they engage in true critical or creative thinking. We'll look at that a bit later.

My solution was to offer themed classes that rigorously followed the guidelines of the COR but that took students out of their ordinary world and into an area of academic study that bridged several disciplines across the academy and involved materials developed elsewhere in the world – and that they were unfamiliar with. This allowed students to become original and creative learners.

I have taught three different themes:

- *The Intellectual History of the Revolutionary War*, which focused on the religious, philosophical, and sociological changes that allowed the colonists

² Although my friends claim that my disdain of "contemporary" begins with anything after the 16th century, this isn't quite true. I also like the 17th century. But I am wary of news, and I side with Thoreau: "And I am sure that I never read any memorable news in a newspaper. If we read of one man murdered, or killed by accident, or one house burned, or one vessel wrecked, or one steamboat blown up, or one cow run over on the Western Railroad, or one mad dog killed, or one lot of grasshoppers in the winter, - we need never read of another. One is enough. If you are acquainted with the principle, what do you care for a myriad instances and applications?" (Thoreau).

to think about the world and themselves in new ways and that were the impetus for independence and for the Deist grounding for equality and inalienable rights;

- *Myth and Mind*, which focused on the self and community as they were built and reinforced through classical Greek mythology, world mythology, and contemporary folklore; and
- *Brain, Body, and Learning*, which focused on how recent brain and body science has changed our understanding of how we learn and thus how we can function in new ways in the world.

This last class, *Brain, Body, and Learning*, taught me (and my students) enough that it was the impetus for this project, which focuses heavily on brain science and what it can tell us about teaching and learning in the context of critical thinking.

Each of these themed classes involved a variety of disciplines from across the academy: history, philosophy, sociology, psychology, religious studies, biology, physiology – even in some cases engineering and design. Each of these classes involved project-based learning, extensive discussion, and periodic formal presentations, both oral and written, with emphasis, of course, on critical thinking and argumentation.

Having three successful themed classes under my belt (and each of them taught in multiple iterations) made me aware that there was more to do in terms of course design and, especially, in terms of justification for these and other themed

courses. This project will examine the issues involved, focusing on the cognitive and other sciences from a layman's perspective, and will create the template for themed classes with four exemplar classes. The template and the classes will fully conform with the course outline of record.

It is my hope that this project will offer instructors some new material and new tools to work with as they develop their own approaches to critical thinking classes.

The Project Plan

I. The path forward begins with explorations and inquiries:

A. What is a critical thinking class for?

B. Wherein critical thinking is explored

C. Some thoughts on binary thinking

- *Complications*, the dirty word

D. Wherein the thinker is viewed as a brain athlete

E. Wherein thinking about thinking is considered (Metacognition)

F. Wherein some goals for a critical thinking class are established.

G. Concerning our students?

H. Concerning the brain with some notes about the young adult brain

I. The brain under stress (and the role of exercise)

J. On the (near) impossibility of changing minds

K. What is unlearning? And why does it matter?

L. Learning in community: social neuroscience

M. Mirror Neurons

N. What is my critique of traditional English 3 classes?

O. So, Burdick, what do you propose?

P. "I object!"

II. Once those items are completed, I will establish a list of principles for course design and pedagogy based on my educational philosophy as it has been informed by the scientific inquiries.

III. I will present four specific themed courses and show how they fit the goals of this inquiry,

IV. I will provide four "mini"-handbooks as possible replacements for expensive (and often underutilized) English handbooks and argumentation texts:

- *Rhetorical Analysis Handbook,*
- *Critical Thinking and Argumentation Handbook,*
- a general *College Writing Handbook* that will be useful for all levels of

- composition (This will be a substantial rewrite of *The Source of (Nearly) All Wisdom*), which I wrote several years and have revised), and
- A guide to *Studying* since so many of our students have never been called upon to study without instructor-provided prompts and crutches (This guide is consistent with the brain science explored throughout this project).

Each of these mini-handbooks will be available to any instructors who wish to use (or modify) them.

NB: For many years, my hobby has been reading cognitive science articles and books. I'm fascinated by how the brain works and fancy myself a minor league brain hacker, discovering how the brain works to help and hinder my studies. I teach snippets of brain science periodically in my classes, focusing on how to study and retain information. As such, I have a breadth of knowledge, though not great depth (meaning, I couldn't teach a class in the actual functioning of the brain including all of the fine points). So I am drawing on many years of general background reading rather than specific sources for some of what appears below.

And the inquiries are presented informally, not as a research paper. Sources are provided, but they are not exhaustive. Rather, they are indicative of the science that is available.

I. The inquiries:

A. What is a critical thinking class for?³

William Deresiewicz writes In *Excellent Sheep* that "The system manufactures students who are smart and talented and driven, yes, but also anxious, timid, and lost, with little intellectual curiosity and a stunted sense of purpose: trapped in a bubble of privilege, heading basically in the same direction, great at what they are doing but with no idea why they are doing it."(3)

Deresiewicz's book is specifically characterizing the students at prestigious colleges, but I think the description, to a certain degree, is true for many students who come to us from high schools where there is too much support – so much that students are not allowed to fail and learn the lessons of failure and therefrom develop resilience, and so much support that they are guided like children through their academic career and so lack the self-actualization and agency necessary for success. In addition, there is too much emphasis on the "right answers" instead of exploration and inquiry.

When we note that our students are underprepared for college, we really are noticing that they are underprepared for life: little intellectual curiosity, anxious, lacking goals. We are also noticing that they lack confidence because they do not have the assuredness that comes with mastery.

³ My original proposal for this project included an annotated bibliography, but I have found it far more useful to cite literature within the inquiries I've posed with reference to a works cited page. This places the information in context and allows me to show the integration of several strands of inquiry.

Deresiewicz also asks, “What is college for? “ and he answers this by saying that students have to *unlearn* because society is a conspiracy to keep itself from the truth.

We pass our lives submerged in propaganda: advertising messages; political rhetoric; journalistic affirmation of the status quo; the platitudes of popular culture; the axioms of party, sect, and class; the bromides we exchange every day on Facebook; the comforting lies of our parents tell us and in the sociable ones our friends do; the steady stream of falsehoods that we each tell ourselves all the time, to stave off the threat of self-knowledge (80).

Two things come to mind in this context. The first, because I was just referencing Thoreau in a footnote, is “When I know your sect, I know your argument,” which is an indictment of group-think and of lack of personal critical thinking. The second has to do with one of the larger themes of this project: becoming an adult means thinking anew and building a solid base of knowledge that fosters confidence. We want to transcend propaganda and the platitudes because we want to be masters of our own minds and lives.

So part of the task of a critical thinking class is to let the students catch up to their potential, to develop tools for thinking (and life) that will reduce their sense of purposelessness, and to begin the rigorous process of becoming thoughtful, dynamic, independent, and authentic thinkers.

Although I do not think of education as primarily job training, one goal is to

send students off into the future well prepared so they can be gainfully and satisfactorily employed, so the following list, compiled by the *National Association of Colleges and Employers*, is useful. It is a list of what skills employers say they need most in their employees:

- “Leadership
- Ability to work in a team
- Communication skills (written)
- Problem-solving skills
- Communication skills (verbal)
- Strong work ethic
- Initiative
- Analytical/quantitative skills
- Flexibility and adaptability
- Interpersonal skills” (“Job”)

English 3 is uniquely designed to develop skills in most of these categories when the class is taught as a problem-solving and discussion class as it usually is. Rarely do we find instructors focusing on lecture or drill-and-kill class methods.

However, Sir Kenneth Clark has quite a different goal in mind when he writes about a college education: “The most valuable thing about college life is the infection of ideas which takes place during those years. It is like a rapid set of inoculations. People who have not been to college catch these ideas late in life and are made ill by them.” (Stourton)

David Brooks suggests that “character is built in the course of your inner confrontation, ”and if character is part of the goal of education, then setting up confrontations for the self through the essaying of difficult questions can be a fulfillment of that.

But we have trouble with confronting the self precisely because we are drawn to confirmation bias: we recognize and embrace facts and arguments that support our biases; we reject facts and arguments that do not support our biases – in fact, we barely comprehend them. Why do we engage unconsciously in confirmation bias? Because we get right answers that square with our prior knowledge and biases; that means that we get hit with happiness hormones⁴; when we get wrong answers , we feel bad. It’s that simple (Tough 138). We fall into patterns of thoughts (see the sections on neuropsychology below) and reinforce them regardless of evidence that contradicts those patterns. So, one of the goals of teaching critical thinking is to acquire cognitive self-control, taking possession of our thinking process instead of letting it be automatic. We are lazy when it comes to thinking; we’d prefer to let what we know – even if it is incorrect – stand. (Much more about that later).

Acquiring cognitive self-control requires thinking in a way that most people rarely do. Daniel Willingham writes in *Why Don’t Students Like School*, “People are naturally curious, but we are not naturally good thinkers; unless the cognitive

⁴ The “happiness hormones” include serotonin, endorphins, dopamine, phenylethamine, and ghrelin. I’ve rounded them up and lassoed them under the “happiness hormones” label for convenience. Each works in slightly different ways and in different circumstances.

conditions are right, we will avoid thinking” (3). In fact, he points out that when people have a problem, they tend to do what they’ve done before. Memory replaces much of our thinking. **Only new problems require critical thinking** (5).

When we think about the spectrum of topics usually taught in critical thinking classes, we (meaning both instructors and students) tend to gravitate toward the big questions of our society: abortion, gay marriage, gun control, euthanasia, medical ethics, drug legalization, the effect of video games, etc. Yet, to be honest, is there a single unique argument to be made about any of these on any side of the questions? That is not the same thing as suggesting that these issues are unimportant – they are, to some people, fundamental to their world view. However, the argument lines are so well drawn, the facts so easily grasped, the preconceived notions so entrenched, that nearly every one of our students could knock out a sixty-minute in-class essay on any of these without working up a sweat. They know these issues, and they may be invested in these issues – but we can’t expect original thinking because the field is so well plowed.

This bears repeating: **Only new problems require critical thinking** (Willingham 5).

There is another field of inquiry that seems valuable: social problems like racism, xenophobia, religious intolerance, sexism. Certainly, these are worthy issues to think about, but are they issues that a student can contribute to with original thinking? Probably not. They might be able to contribute original experiences, and that is valuable, but the experiences are likely to lead to reinforcement of common narratives, personal beliefs, rather than to lead to valuable and new ends.

We have to keep in mind that a lot of these “hot topics” are also very, very close to people’s own lives. When we discuss racial inequity, we are facing a classroom where some of the students probably suffer from inequity and injustice—and some others simply deny that a problem exists. We’d like to prove the deniers wrong, but by doing that we place those who are already suffering from injustice in the position of being the center of attention as “them.” When we discuss abortion, we not only address the issue of right or wrong, which impinges on many religious and political beliefs, but we are likely addressing students for whom this is not an academic or “merely” moral question – some of the young women may have had to face this choice; some of the young men may have been involved intimately. So the inquiry becomes a threat of exposure: dare they speak up and share their experiences? Stay quiet and be conspicuous? Or, as is more likely, cringe and wish to be outside of the classroom? A similar situation happens when gay rights are addressed. Some of the students in the classroom may be closeted, and they will feel as if the spotlight is on them. Or, if they are openly gay, will they thrive under the open debate of whether they deserve to have equal rights?

The questions these topics raise have to do with learning above all else: will a young woman who is facing or has faced abortion, the young man fearing exposure, the immigrant being reminded of illegal status and the threat to his family’s future actually learn? Do we reach the indoctrinated xenophobe by teaching xenophilia? Probably not. We might persuade a student to fit into the class by adopting an “acceptable” point of view, but as the science described later in this project suggests, we’re not going to make the progress we’d like to see.

Do we want to be unkind in our educational process in our zeal to fix the world? I hope not, though I understand the impetus. We want students to acquire the skills of critical and creative thinking, and we want them to learn the tools of rhetorical analysis so they can interpret their own world. Surely, we can give them safety in the classroom and educate their minds without placing them in a threatening or uncomfortable environment.

If we expect creative and original critical thinking, I think it is useful – I even say imperative—to explore fields where the students are less well versed, where inquiry is an adventure, and where original thinking flourishes. Especially, I think it is useful to work in fields that grow individual students both through the exercise of critical and creative thinking – and through the acquisition of entirely new knowledge that concerns their own development.

In short, my focus will be on classes that explore issues that are intimately focused on students and their future success in life while not placing students in the midst of a controversy that might be too intimate or threatening.

Do I think students are so sensitive or so weak that they cannot withstand the scrutiny of issues that affect them directly? No, not at all. But cognitive science will tell us that learning in a threatening or uncomfortable environment is not likely to be successful. So, this is not argument that is somehow related to “political correctness” or a teacher-initiated “helicopter” pandering.

And do I think that students should be sheltered from the big questions? No, of course not. When they are prepared and practiced in critical thinking, they will (I

hope) view the world differently. They will have the adult, sophisticated, keen skills that will allow them to enter those discussions well armed.

B. Wherein thinking is explored.

Cognitive science suggests that we tend to fall back on patterns and memories rather than expend the energy to think. And so the next question is why don't we tend to think? Because thinking takes enormous focus and considerable energy compared to calling up memory so we can do what we usually do or believe what we already believe. We generally have the energy; we rarely have the focus.

We actually like thinking: new ideas flood our bodies with happiness hormones like dopamine (more about this later); we become bored with responses based on memory – there is very little pleasure involved. Stop and think of playing a game that is repetitive: some video games require a repeated path through lower sections before earning access to higher levels. We find those repetitions boring because we already know them. It is when we reach the unknown that our brains and fingers must kick in and do something new.

But we are creatures of habit – for good and bad. Good when we “automatically” brush our teeth in the morning without really making a plan; bad when we “automatically” react to an event in the world without thinking about whether our reaction is appropriate, takes in all of the information necessary, and is beneficial – or whether it is a “knee jerk” reaction that bears little relationship to the current event, but has a strong element of “what I always do.” Or, worse, “what *they* tell me I should do.”

There is an amazing phenomenon that we'll be looking at in the neuroscience sections in this project where the brain actually reforms itself with new pathways –

and even new neurons – in response to thinking deeply (Willingham 7). Our brains are capable of actually creating new neurons (neurogenesis) and of laying down new neural pathways. This is relatively new neurological science – and this project is predicated on an understanding of the potential for changing the way we learn – and therefore teach.

Paul Tough, in “How Children Succeed” suggests that cognitive self-control is key to cognitive flexibility, which “is the ability to see alternative solutions to problems, to think outside the box, and to negotiate unfamiliar situations.” By developing cognitive self-control, we acquire the ability to change our responses from the instinctual and habitual to the more thought-out and effective response (114).

Paul Tough also suggests that we teach *falsification*, which is the process of testing the validity of a theory to prove it wrong. People are quite bad at falsification. We look for things that validate theories (Confirmation bias), not contradict it. But the “smartest” people engage in falsification because when they can’t invalidate a theory, it stands stronger (138). We do not have the habit of falsification. [Note: I am not happy with the terminology of *falsification* because it will be too easy to misunderstand the purpose here as being so skeptical that nothing can stand. I think *challenge* is probably a better word to use with students.]

Falsification also requires that we suspend our judgment on an issue until it is fully understood. Whereas most people enter a discussion or an argument with preconceived notions and, often, established decisions on what is right or wrong, a good critical thinker will suspend judgment, look at all the evidence available,

assemble it with integrity and with a skeptical eye, and then come to conclusions that can be argued.

Of course, on a typical current event, that mind game becomes almost impossible: we are hard-wired to respond according to our philosophy or religion or political affiliations. Unlearning is difficult with issues that are engrained both in terms of topic and philosophy. A critical thinking class should develop the habit of falsification, and that is best done with topics that are farther from the heart.

It is fair to say that the recent national election demonstrated the need for critical thinking and rhetorical analysis for civic life. The political arena has demonstrated deep divides on nearly every major issue of the day. One side thinks one array of things; the other side thinks opposite. We have become so entrenched in a binary world that we cannot see nuances or conflicting views unless they are in an either/or form: We are for the environment or we are against it. You either accept my interpretation or you are wrong. This rigid and unthinking approach to the world is not limited to politics, of course. We see it in xenophobia, in demands for religious intolerance, in painting whole populations with a stereotype. And in this type of thinking, we do ourselves an injustice: we are stuck in the good/bad scenario of early childhood and stuck in group-think instead of becoming adults who choose pathways of our own. And so we are stuck in a divided world where little gets done to the benefit of the community.

C. Some thoughts on binary thinking:

Are there two sides to every story? Good versus evil. Black versus white. True or False. Man versus woman. America versus the rest of the world. Us versus them: Xenophobia. Gay or straight. Abortion: yes or no.

This is binary thinking, or dualistic thinking, which is a reductionist method of approaching answers. That is, it reduces our thinking to the type of thinking a computer does: yes, no. 01 10. We are trained from the time we are children to see the sharp edges between right and wrong. Our schools reinforce this with “The right answer is A.” Bubble sheets give us the illusion that there are four or five answers possible for a question, but there is only one right one and multiple wrong ones (binary, again). The testing that is required all through school requires the approved interpretation, the approved knowledge, the established fact.

And so we come to our adulthood well trained in precisely the wrong way. Our lazy thinking in binary terms is reflected in our computers, which follow a uniform logic of binary code: yes, no, endlessly repeated, and encouraged in nearly every avenue of our lives. Our computers are constructed to reinforce a natural – and harmful – reduction in complexity. [Quantum computers will make a change in this binary procedure as Justin Trudeau explains in a YouTube video. That change is unlikely to change our mental habit of binary thinking].

But this project is not aiming to eliminate computers from our lives – I like mine too much. It is aiming to complicate thinking so we take in much more of the world and entertain many different points of view and facts before reaching a conclusion. Inquiry comes first; advocacy comes later.

Binary thinking is a cultural construct, not a description of the real world. It may be rooted in tribalism, which we'll explore later, where "us versus them" was an existential imperative. But it doesn't serve us well in a world that is as interconnected as ours is –and should be: our strength does not come out of isolations but out of interconnected communities.

There aren't two sides to every story. There may be hundreds or even thousands, and the meaning of a story or event may be many different things, depending on the telling of the story, depending on the teller, depending on the circumstances, depending on the costs and benefits, depending on different moralities.

There isn't one right argument and one wrong one on any issue that matters: Good isn't always unadulterated. Bad isn't always unleavened by good. Male isn't the norm; female isn't a default position. That doesn't mean that we can believe anything we want or that our morality needs to be situational. Arguments established on fact and experience may still yield different answers, but they will be informed and more complete. They will still be grounded in personal philosophy and belief – but they will also be informed by an array of evidence that is tested and challenged. It does not mean that a faith-based argument is going to be correct only for a person of faith, for example. Nor does it mean that argumentation will reach final and perfect forms of truth.

And this brings us to a dirty word in the minds of many people: **complication**. That's usually a negative: "That's too complicated!" But complication is exactly the antidote to binary thinking and uncritical thinking. Complications arise

when we look at more than “both” sides to a story, when we see that something as simple as a high school dress code actually affects many different people and institutions in many ways – and that all those ways should be looked at before blindly leaping to a conclusion that dress codes are good or bad. Have we considered everyone and everything involved? And has that consideration been rigorously fair and evenhanded? Are we dealing with facts that are real facts? Or, to use this week’s shocking suggestion, are they “alternative facts”? Are we looking at studies that are reliable? Authorities who can be trusted? (How do we know?). And did we gather all of that information before making our decision about dress codes? In fact, is the value judgment of good/bad actually the right judgment to make?

But, of course, that example underscores a problem: what happens when we – in good faith—address an issue that our students have been intimately involved with? They fall into the patterns already established by experience: some of the young men were sent home for the high crime of not shaving before their 7 a.m. class; some young women were confronted by administrators with rulers to check the hem length of their shorts. [Is anyone else disturbed by how perverted these violations of young people’s bodies are by school personnel? Rulers on hems?] Victims of silly regulations are hardly going to be fair arbiters in the discussion. This is not intellectual laxity; it is biology: their brains have already established neural pathways that steer their thinking. To break those neural pathways down is difficult.

D. Wherein the thinker is viewed as a brain athlete.

I'd like to make an argument for mental fitness that is analogous to physical fitness. This returns us, in part, to *mens sana in corpore sano*, a classical ideal of a sound mind in a sound body. When we see young people working out at the gym or playing games on the field, we're aware of the dedication, the commitment, and the intelligence involved in these activities: they study texts to determine what should go into their bodies for maximum performance; they do hundreds of miles and thousands of repetitions to build the muscles they need; and they engage in the serious work of playing games with others to develop their skills, teamwork, and a kind of bodily intelligence that lets them play seemingly without effort with a kind of body knowledge and mental flexibility that serves them well. It serves them well on the field – it also serves them well in their personal lives: they are more attractive, healthier, and more confident. They develop their interpersonal skills, their self regulation, and their stick-to-itiveness.

It is my contention that an athlete of the mind, someone with the same commitment, the same dedication, and the same practice as an athlete, will yield similar benefits and set the mental athlete up for almost anything he or she wants to do in life and in a career. And it doesn't hurt that John Ratey, a clinical psychiatrist at Harvard Medical School, points out that "the point of exercise is to build and condition the brain" (3). Literally, physical activity helps build new neurons that can be used to build new neural pathways, thereby changing and improving the brain.

There is synergy here. (One of the themed classes I will develop will be building directly on the mind/body exercise connection).

John, Cardinal Newman, in *The Idea of a University*, presents an analogy that is useful: “. . . as the body may be tended, cherished, and exercised with a simple view to its general health, so may the intellect also be generally exercised to its perfect state; and this is its cultivation.” And he points out that body cultivation is similar to cultivation of the mind:

“[the] general culture of mind is the best aid to professional and scientific study, and educated men can do what illiterates cannot; and the man who has learned to think and to reason and to compare and to discriminate and to analyze, who has refined his taste, and formed his judgment, and sharpened his mental vision, will not indeed at once be a lawyer, or a pleader or an orator, or a statesman, or a physician, or a good landlord, or a man of business, or a soldier, or an engineer, or a chemist, or a geologist, or an antiquarian, but he will be placed in that state of intellect in which he can take up any one of the sciences or callings I have referred to, or any other for which he has a taste or special talent, with an ease, a grace, a versatility, and a success to which another is a stranger. In this sense, then . . . mental culture is emphatically *useful*” (125).

Steven Kotler and Jamie Wheal, in *Stealing Fire*, explain further integration of the mind and body:

In fact, we’re not smart and we have bodies—we’re smart *because* we have bodies. The heart has about 40,000 neurons that play a central role in

shaping emotion, perception, and decision making. The stomach and intestines complete this network, containing more than 500 million nerve cells, 100 million neurons, 30 different neurotransmitters, and 90 percent of the body's supply of serotonin (one of the major neurochemicals responsible for mood and well-being). This 'second brain' as scientists have dubbed it, lends some empirical support to the persistent notion of gut instinct. (97-98).

In short, we can put to bed the notion that we are mind and body and treat the entities separately. It is closer to true that there is a whole body-mind that is inseparable.

Mens sana in corpore sano might be a bit off.

E. Wherein thinking about thinking is considered (Metacognition).

Let's pause on the analogy of athletic development and brain development. Athletes get better in at least three ways: practice, coaching, and self analysis. The repetition of practice builds muscle memory, precision, and strength; coaching contributes objective, knowledgeable observations and specific patterns for development; self analysis contributes to self knowledge, an awareness of one's own body and its actions and strengths, and an awareness of mental energies and attitudes that contribute (or not) to success.

It is that last item that I want to focus on. Metacognition, thinking about thinking, is the self analysis part of thinking that is most often neglected by our students. An athlete misses a basket, thinks about why, adjusts something in her stance or ball handling, and tries again. She has thought about the why of the failure and has adjusted her motions (and perhaps her attitude and gaze) in order to perfect her performance.

Too often, a student turns in an essay, gets a "C" grade, and shrugs, perhaps rationalizes it: *"I didn't do as much work as I should have. I'm not good at English. He doesn't like me."* If a basketball player took that same attitude about her game, she would be cut from the team. Yet we rarely focus on what metacognition can do for a student.

Metacognition asks the student to reflect on the essay and its preparation with the goal of identifying what did and did not work so improvement will take place. Metacognition should be a major part of the student experience (and

professorial experience): what worked? and why? What didn't work? and why?
 What should I do next time?

This is especially applicable to critical thinking because metacognition is a constant “chiropractic” for the mind’s processes: I think X is against my religious principles – but how is it? And am I interpreting that correctly? Have I framed the question properly? Am I falling back on prejudice? Or am I thinking this through? Or, I spent hours working on this essay, but it didn’t work. Why? How did I actually spend those hours? How can I do better next time?

This process of metacognition yields tremendous results, and it should be a major part of the development of the critical thinker and become a habit for life. This is one way to break down binary thinking, but it is also a way to break down the mental and emotional blocks we take into learning environments. The line, “I’m not good at English” is one of those self-fulfilling prophecies that undermines student success.

I will pause for a story here. I grew up “bad at math.” I was told from my earliest days that I was great at language arts but that “math just isn’t your thing.” The thinking here is that some people are somehow born with *math brains* and others with *language brains*. I bought the label: hook, line, and sinker. And so I sunk.

This is something that we know about our brains: If we tell them something, our brains will believe it – and more importantly, they will work to make that thing true. I was bad at math, and I struggled mightily to squeak through the required math classes in high school and avoided any major that had so much as a hint of math lurking in the background (Yes, medieval English literature was primarily

chosen because there was no math requirement beyond learning how to read Roman numerals).

My brain was doing its work: If I was bad at math, it should certainly put up barriers in my way so it could prove to me that I was right. Such a nice, accommodating brain. Right? Wrong! but it is my fault, not my brain's. I fed it the instructions. I was "bad at math," and so when an algebra problem flopped onto my desk, my fear level rose, my brain flooded my body with fear hormones – and studying math was a horror.

Even when I got a problem right, my brain rewarded me with an infernal voice that said, "Well, that was a lucky goof, but you won't do that again." And when I got one wrong, I actually got some reassuring happiness hormones as reward: "Yes! You have lived down to your potential!"

So, I will leap from high school to my mid-30s when I was asked to design and teach a math program for the parents of students in my sons' elementary school. Math had been reinvented in many ways and in several iterations between my high school days and my sons' elementary school days: the language had changed, the introduction of algebra started in third grade, and manipulatives were common. When my two sons arrived home with math homework, I was joining them in despair: I didn't get this stuff. I relived the junior high days of literally pounding my homework table in frustration as I confronted this nonsense in front of me.

However, I would not allow my kids to be labeled "bad at math," so I talked with the principal and she pointed out that the state had a new program for parents

and she was looking for a volunteer to teach parents how to help their kids with math homework, and since I was right there in front of her, I was it.

Gulp.⁵

The result was a rousing success. The program was highly successful and often pulled in over 100 parents (and their kids) each week. I worked in the classrooms and had weekly sessions with the parents, and we raised our math scores to, if I remember correctly, the highest in the district. *I did this. I taught math.*

Good grief, will wonders never cease?

So, what changed? I thought about it, decided to refuse the label of “bad at math” and changed my label to, “I find math hard, but I can do it.” That is a result of metacognition: I thought about my label and decided consciously to change the label to something that allowed me the way forward. Subsequent development over the past thirty years has allowed me to say with some confidence, “I’m pretty good at basic math and statistics.” End story.

Metacognition can, over time, adjust a student’s relationship with his or her work: better time management, better thinking, better play time, etc.

In my classes, metacognition takes two primary forms: in discussion, one group member is responsible for reporting *how* the conversation took place, what disagreements there were and how they were handled, and how brainstorming occurred; in essays, I have students write the answers to three questions before turning in their papers: *What is the best feature of this paper? What gave me the most*

⁵ There is a curse in my life that will probably sink me one of these days. When asked to do something, I say “Yes” without actually deciding whether the task is (a) something I know anything about, (b) something I want to do, or (c) – certainly—whether I have any time to do it.

trouble? What do I need more work on? It is almost astounding how they nail each of these questions once they think them through. They are nearly always right about what they need work on, and that consciousness is a major step toward getting that work done.

F. Wherein some goals for a critical thinking class are established

In short, critical thinking in all of its manifestations is essential for our students' mental development, for their maturation process, and especially for the cultivation of skills that will be helpful throughout their lives. To that end, here is a list of goals to be used in reference to developing critical thinking classes.

GOALS: So, we are looking for critical thinking classes where students learn

- To open roads toward their own purpose in life and work;
- To develop their adult thinking potential;
- To build character through cognitive self control;
- To develop skills that employers will hire them for;
- To think freely, “catching” ideas that inoculate them for the future;
- To question the patterns that are already built into their brains, ready for lazy recall, and to reduce confirmation bias;
- To suspend judgment (inquiry before advocacy) until all of the evidence is in;
- To practice falsification (challenge) so when they arrive at an opinion, they are confident that it is the right one;
- To resist binary thinking in favor of complications; and
- To become mental athletes, ready for the future.

A very big list, to be sure. *English 1A: Composition and Literature* begins much of this development; *English 3: Critical Thinking* should be a major step in the development of our students, setting them up for success in college and careers

and—perhaps more importantly –for life. If we can instill new habits of mind (and that’s what that list is largely), they will carry their practice forward into their lives.

The pedagogical content of English 3 is well established in the *Course Outline of Record* approved by the English Department and the Curriculum Committee of Clovis Community College:

Lecture Content:

A. Critical Thinking Strategies

1. Reading for the argument

- a. Identifying purpose, thesis, premises, and conclusions*
- b. Identifying unstated premises*

2. Identifying inductive and deductive arguments

3. Evaluating arguments for validity and soundness

4. Evaluating authority

5. Drawing inferences from available data

6. Recognizing denotative and connotative language

7. Distinguishing fact from judgment and knowledge from opinion

8. Evaluating language choices

9. Recognizing common rhetorical devices

- a. Irony*
- b. Paradox*
- c. Satire*
- d. Overstatement, understatement*
- e. Pathos, ethos, logos*

10. Identifying logical fallacies including but not limited to:

- a. Faulty cause and effect*
- b. Faulty either/or reasoning*
- c. Faulty generalization*
- d. Argument ad hominem*

Students will be taught the critical elements and characteristics of argument. They will be taught to identify the components of an author's argument in nonfiction college-level readings from various disciplines. Students will be taught to recognize and evaluate written arguments, and they will then be expected to apply these critical strategies to assigned readings and to readings they select from outside sources for use in the development of their own writing. Students will read, discuss, and respond to material appropriate to the course's objectives.

B. Critical Writing Strategies: Constructing sound, focused arguments

- 1. Avoiding fallacies*
- 2. Supplying sufficient support for claims*
- 3. Researching and using outside sources*
- 4. Refuting*
- 5. Writing assignments such as:*
 - a. Summary*
 - b. Critical analysis*
 - c. Argument*
 - d. Synthesis / research*

Students will organize and write critical and persuasive essays to address critical issues and positions. All papers must include at least one substantially developed argument. The papers will be assigned to encompass a progression of critical thinking and writing skills.

The pedagogical content of the course (rhetorical analysis and argumentation, though they aren't labeled as such) is clearly established, but there remain to be determined the best approaches to this course and the purpose of the critical and argumentation papers described.

Keeping in mind the goals established above, I am proposing classes and approaches that establish critical thinking as a creative and complicated exploration that has specific tools of development. I am proposing class themes in fields in which the students are unlikely to have preconceived notions so they can think new. Most important, the themes I've chosen are deliberate attempts to improve the students' use of scientific knowledge to improve their lives and their communities. A student who understands the science behind learning, for example, will have the tools to improve his or her own learning. But that student will also be equipped to suggest improvements to the community.

The result will be students who develop in many of the ways listed above so they can carry the habit of critical thinking into their futures.

I am also moving into **a newer concept of argumentation**. Traditionally, an argument (in the academic sense) is an *I win/you lose* proposition. I stake a claim, prove it, perhaps include some counter arguments for the purpose of rebutting them, and I claim victory. That means that someone loses – or more likely turns away and ignores the argument.

This is true of many classic arguments and Toulmin arguments; it is less true of Rogerian argument. And, certainly, all forms of argument (and the various permutations of them) should be a part of the course content, but I want to go further into common ground, which is a natural result of the inquiry over advocacy methods we'll be using in these courses.

Barry Kroll writes in *The Open Hand: Arguing as an Art of Peace*, "I want to explore what it means to argue for common concerns, shared values, mutual benefits, respectful listening, and joint problem solving" (5).

If there is a prescription for a better public discourse, that's it.

I have taken his approach as a goal for my classes: Instead of a winner-take-all approach to argumentation, instead of just seeking common ground, a proper argument can be a creative act not only as a written document but as a creative act of the mind, seeking integrity with the mature self and with the community.

“In *The Shape of Reason* . . . John Gage says that in the ‘context of argumentative writing in college,’ the word *argument* “does not mean a verbal battle between opponents, each of whom desires to the silence the other. It means, instead, the search for reasons that will bring about cooperation among people who differ in how they view ideas but who nevertheless need to discover grounds for agreement” (Gage 2006, 43; qtd in Kroll).

Most of our real-world arguments are about problem solving or program design, not about *us versus them* arguments (outside of the silly world of politics). We argue in favor of building bridges (real and metaphorical), against polluting the stream, for a new wage for our weekend job, against a conception of a religion that makes it seem trite or dangerous.

G. Who are our students?

Demographics will tell us about our students: How many are male or female? (Though it won't show how many are outside of those binaries). How old are they? How much money do they or their parents make? What is their race or ethnicity? Are they first generation college students? There might be useful information in those statistics, though I'm increasingly unsure that profiling people by gender and race actually does much to help them succeed – or to help us to help them succeed, which is more to the point.

<A sidebar:> I have long been an advocate (at the local and the state level) for a more sophisticated data gathering and analysis model that takes us beyond the federally mandated race, ethnicity, and gender categories and looks more closely at factors that identify students who need specific types of help. Although the most likely avenues for exploration are socio-economic data, there are probably other data sets that would be useful. We know that one reason for failure or underperformance is mental health, yet we have no broad screening for mental health problems that might be identified and mitigated. We know that, for example, LGBT students are the most vulnerable students on our campus and are likely to drop, fail out, or commit suicide – yet we have no substantial attempt to identify them or to meet their needs. <End sidebar.>

But that's not what interests me here. I'm interested in what science can tell us about the adolescent and early adult brain and body that will influence how we teach and what we teach. I'm also interested in the sociological and psychological

differences that affect learning.

Science tells us that students in the primary age group we serve are advantaged in some ways and disadvantaged in other ways.

For the purposes of this project, *young adulthood* and *adolescence* are interchangeable since there is no definitive, useful distinction. Though we often think of our students – and should – as adults, the issue of brain maturation makes it clear that the process of body maturation might be done by about the age of eighteen, but the brain's maturation is completed in the mid twenties. This is specifically important because it is the frontal cortex, the area that develops personal control, that completes the maturation process last. It may not be accurate to say that our students are out of control, but their actions often are a result of weak internal controls. They take more risks, which is both advantage and disadvantage.

Louis Cozolino, in *The Social Neuroscience of Education*, notes that the period of adolescence is the greatest opportunity for neuroplasticity (changing the brain's function and capacity) since very early childhood, which is a great opportunity and advantage of the college years. But there is also great distress during this time: Young people in tribal societies are separating from their parents and procreating, which are evolutionary impulses; however, industrialized community norms and the need for advanced preparation for adulthood delay and stymie those impulses. The result is frustration that often takes the form of anger or depression or anxiety. While their bodies, flooded with hormones, send them messages about moving out,

hooking up, looking for opportunity, and often (disastrously if not educated to protection strategies) acting on those impulses-- a classic “id” impulse--their unprepared minds are struggling to play the role of “superego” in order to fit expectations. We instructors often think that the “superego” part of their brains is the one we are teaching. In fact, we get the whole student, id and all. [Yes, I know that Freud is under a shadow, but these are still useful ballpark terms].

And, as we will see later, anxiety, depression, and anger are all “fight or flight” triggers that prepare the body for action and thus restrict the full functioning of the mind. In short, what is happening to our students often is counterproductive to the learning process.

Parents, schools, and mass culture provide cultural context and activation, which, depending on the specific parenting styles, curriculum, and exposure to mass culture, can be a strengthening and freeing base for adolescents as they turn their cognitive development toward creating their own peer groups and establishing their own mental integrity (What do I believe? Who am I? What am I doing here?). In other words, given proper opportunity and support, this period, because of the plasticity of the brain, because of the energy of youth, and because of the availability of neurogenesis through exercise and the growth of new neural pathways through education, adolescence can be a period of remarkable change for the good.

And, of course, the flip side is also true: if parents, schools, and mass culture provide poor guidance, the kids will be struggling, often struggling against the cultural context, and the result will not be beneficial to anyone.

It is certainly true that adolescence is a time of conflict (internal and external), of searching (Who am I? How do I fit in?), and of adjustment (What in the heck is happening to my body?), and each of these requires a negotiation within the self and with family and with community. But as Thomas Gullotta et al. explain in *The Adolescent Experience*, most young people make it through this period in fine shape: they have strong bonds with families, they develop strong peer groups, and they figure out who they are – at least for now. We sometimes over emphasize the conflict and the problems of youth. Our students, often especially our students from minority populations, tend to have strong support systems. (Chapters 7 and 8).

H. Concerning the brain with some notes about the young adult brain.

This may feel like a detour, but it is essential to the teaching choices we make: a layman's description, focused on how the brain learns, retrieves, and uses information. I've attempted to reduce jargon and simplify processes for clarity, though that also means that some things are left on the cutting room floor. My goal is a basic understanding, not brain surgery and not a chemistry lesson. Often in this project paper, we'll be exploring exactly what the brain does with the information it has – and how it acquires it – because that's precisely what learning is about: how do we change the brain and how do we “feed” it so it yields the best thinking?

It is worth considering the difference between *brain* and *mind*. The brain, which is the primary focus here, is the wetware, the grey matter, the chemical interactions that take place in our heads; the mind is less identifiable, but we are aware of it as something unique to an individual and not merely the sum of the neurochemistry. As Levitin describes it, “We have a feeling of what it is like to be me, what it is like to be me reading a book, and what it is like to think about what it is like to be me. How can *me* be reduced so unceremoniously to axons, dendrites, and ion channels? It feels like we are something more” (83-84). To some people, mind and soul are closely related, and dualists recognize that the mind predates the brain and hook up with it when the mind finds a body/brain to live in.

Brains are remarkable things. Our brains make up about 2% of our body weight – but use about 25% of the energy we consume each day (Burnett 47). Science tells us that there are about 100 billion neurons with between 10 and

10,000 connections each. To put this in perspective, there are also about 100 billion stars in our galaxy. Daniel Levitin lets us think about this in another way:

Suppose each neuron was one dollar, and you stood on a street corner trying to give away dollars to people as they passed, as fast as you could hand them out—let's say one dollar per second. If you did this twenty-four hours a day, 365 days a year, without stopping, and if you had started on the day that Jesus was born, you would by the present day only have gone through about two thirds of your money (87).

The complexity boggles the mind: If we just look at the connection combinations possible for six neurons, we come up with 32,768 possibilities. Just six – and we have 100 billion neurons, not six or sixty (Levitin 88).

Neurons and hookups: A **neuron** is a nerve cell that transmits and receives information through chemical and electric signals. The part of a neuron that sends signals *to* other neurons is called a **dendrite**. The part of a neuron that receives signals *from* other neurons is called an **axon**. The axon is protected by a **myelin sheath**, sort of like insulation, which grows stronger the more the axon is used. **Neural pathways** are established connections between and among neurons, and the point where two neurons communicate is actually a space called a **synapsis**.

While a full explanation of how the brain works is beyond the scope of this paper, there are some points – especially some recently discovered points – that will be essential knowledge for what follows:

1. Historically, it was believed that we did not create new neurons. We were born with a set of neurons and we were stuck with them. In fact, everyone can create new neurons, a process called **neurogenesis**, and new neuron pathways throughout life. One of the most active times for neurogenesis is adolescence and young adulthood, though the process continues as long as we live.

2. Our brain is **plastic**, meaning it changes over time in response to stimuli. When we learn something new, we are actually creating new structures in our brains to store and use that new information. The neural pathways we establish in young adulthood stay with us, though they can be changed. This cuts two ways, especially in young adults: if their patterns of behavior include watching mindless TV and sitting on the couch, they are likely establishing pathways that will influence their whole lives; if, on the other hand, their patterns of behavior include energetic action and mental challenges, they are likely establishing pathways that will influence their entire lives. What does this mean? We can develop our intelligence and creativity—or we can lose them.

3. Building the brain involves **neurogenesis** (building new neurons) and then educating those neurons, which means connecting them to other parts of the brain. Neurogenesis occurs during vigorous and regular exercise; educating new neurons depends on giving the new neurons something useful to do: mental activity, for example.

4. **Neuron pathways** are communications highways. The more we use them, the stronger they become for two reasons: the signals accelerate through the axons and

the signals are protected by myelin sheaths (a sort of insulation that increases with use). When we memorize something and we learn the item over a long period of time, we create new pathways; when we re-use the information, we strengthen those pathways.

A useful metaphor is a path in the forest between two points: The more people walk on that path, the broader and more defined it becomes; when it is neglected, grass and trees over grow the area, and the pathway is lost. Something similar is true for new knowledge: If I learn a new phone number, for example, and it matters enough that I want to retain it for the future, I will repeat it, perhaps write it down, perhaps visualize it or practice the keystrokes on my phone. The result is a new pathway through the forest, and that pathway will be maintained by use of the phone number.

There is a strength and a weakness here. If we invest work in building neuron pathways, they become stronger – sometimes they become so strong that they become almost automatic. This is most easily demonstrated in sports where an accomplished basketball player can shoot a basket from nearly anywhere and in any circumstances, including being rushed by a phalanx of opposing players. Practice and coaching have created a solid pathway. And, of course, the opposite is true: if we do not practice and build our neuron pathways, they become weaker and may become unusable.

5. The pathway metaphor is useful, but it is incomplete. If we remember the first paragraph of this section, we'll remember that each of our 100 billion neurons is

linked to other neurons, from 10 neuron connections (forest pathways) to 10,000 neural connections. So, the pathways are networks with neurons as the knots in the net. And the net is interlocking so when neuron “A” fires, it may be lighting up 10,000 other neurons.

<a sidebar that fascinates me> Few people realize that a metaphor such as *My love is a red, red rose* is actually relying on the firing of neurons. *My love* may stimulate one constellation of neurons to describe the person in all his/her complexity, and the brain goes in search of other qualities and sensations that correspond with *red* and again *red*, and *rose*. The neural network strives to gather up all of the associations stored in the brain, including what the repetition means (intensification?) and pulls them together in order to create new meaning, and that meaning depends not only on cultural meanings (red is intense, roses are for love) but on personal meanings (that red dress my date wore to the prom, the roses I used to give to my mother before she died): *My love* in totality is intoxicating, passionate, perfumed, perhaps stickery, intense, nostalgic, and beautiful – and fading. The metaphor is an engine for lighting up whole networks in the brain. This is why we enjoy them and why poets use them: they involve the whole reader, and our brain happily sends out happiness hormones as the metaphor’s complexity is revealed.>

6. The brain is always playing with its network, even during sleep, trying to find connections that make sense. In a way, the whole world is a metaphor to mess around with: how do these things fit? And how do they mean? We’re usually unaware of this background program running, but it surfaces sometimes with a

flash: Eureka! That's how that works. It usually seems to happen when we're in the shower or on a walk or sound asleep. It is often exhilarating when it happens. However, sometimes, it is the product of conscious thought when we analyze a problem and come to conclusions. That's the same operation, conscious or unconscious –and both are creative acts.

All that raw material we have in our brains, the facts and experiences and studied materials, are building blocks for new creativity. This is why working on an essay over a long period is useful. Our first draft is the stuff our brain can do while half asleep; the later developments are the product of what our brain can do while it is playing around: new connections, new examples, better ways of expressing an idea – sometimes an entirely new concept. Our brains are infinitely creative if we give them the material and let them play in the middle of the neuron highways.

This operation requires that we feed our brains with the raw materials. This is why knowledge is so important. If we do not store facts and ideas in our brains (because we fail to read carefully enough or pay attention to lectures – or pay attention to our lives because we're too busy with video games or too interrupted to solidify information), we have nothing there for our brains to work with. **“I don't need to remember that because I can always Google it” is a very specific type of problem: if we do not remember stuff, we have no stuff for our brains to work with.** Bloom's Taxonomy lists *remembering* as its lowest order of intellectual skills for a reason: if we do not remember, we have no opportunity to do other, higher order functions because our brains have no Playdough to mess around with.

7. The **amygdala** is a part of the limbic system, which is the most primitive part of the brain (sometimes called the “lizard brain”). The amygdala is the primary part of the brain involved with pleasure and fear – basic survival. This small brain organ, approximately the shape of an almond, will figure large in our discussions of brain responses to learning and to other stimuli that either enhance or inhibit learning. For example, a student who is afraid or anxious will flood the brain and body with signals to shut down learning in favor of survival. On the other hand, the student who is in safety can focus energy on learning.

8. **Four specific processes** developing in the brain are significant for our exploration of young adult minds:

- **The prefrontal lobe** is in the process of development, and that development will not be completed until the early to mid twenties with males usually at the later end of the spectrum. This area of the brain is responsible for higher order cognition, future planning, inhibitive behaviors, and establishing and focusing on long term goals. In short, our students tend to be at varying levels of proficiency in these behaviors. They will often exhibit poor behavior and have trouble focusing on goals.
- **The amygdala**, also part of the limbic system (the “lizard brain” in popular vernacular and generally considered the most primitive part of the brain), is on full alert, which means that adolescents frequently careen between emotions, especially those having to do with fight/flight responses. Young people are especially susceptible to emotional signals.

- **The hypothalamus**, also part of the limbic brain, is also in the process of maturation, and since it regulates hormones, students are often moody and emotional with sudden (and sometimes unexplainable) outbursts.
- **The corpus callosum**, which links the two sides of the brain and which is a major factor in language acquisition and refinement, is developing. This is an opportunity for language development, but it is a quickly closing door: by the mid twenties, students lose the heightened ability to acquire language.

9. And there are **global changes** to the young adult brain that take two forms:

- **Myelination increases.** That is, the “insulation” around axons grows to speed up processing between neurons, and this increase is centered on axons responsible for higher order functions.
- **Synaptic pruning** takes place. In what seems like a drastic action, the brain begins to prune synapses so those that are used the most will have the energy they need and those that aren’t used will be trimmed away. This sounds ominous, but isn’t. Or, at least, it isn’t ominous if the right neuron pathways, those that will help the child become a fully evolved adult, are the ones kept. How does the brain make a distinction? Through use. If the neuron pathways for junk food, for couch potato-ing, and for puffing in clouds of noxious substances are reinforced, those will survive and crowd out the neuron pathways for intellectual pursuit, creative endeavors, and altruistic actions. Of course, the opposite is also true: Feed the brain with good food, good activities, and good study, and it will strengthen the pathways so they

are ready for a lifetime. In short, this synaptic pruning is readying the brain for what its future function will be, good or bad. Yes, it is possible to establish better pathways later, but it is more difficult and involves unlearning (which will be discussed later).

10. And there is a modern malady that is not confined to young adults, and that's digital dementia, a condition that is described in this quote:

Digital Dementia, a term coined by top German neuroscientist Manfred Spitzer in his 2012 book of the same name, is a term used to describe how overuse of digital technology is resulting in the breakdown of cognitive abilities in a way that is more commonly seen in people who have suffered a head injury or psychiatric illness.

Yes, quite literally, we are turning ourselves into people who share symptoms with Alzheimer's patients and brain-injured patients by relying on machine memory instead of wetware memory, for example.

I. Multi-tasking is not a thing because our brains are built to do one single conscious thing at a time.

The studies are absolutely solid: **the brain does one conscious thing at a time**; it does not do two or three or four hundred. It cannot simultaneously participate in a phone call and in the writing of an essay; it cannot listen to the lyrics of a favorite band and have a deep conversation; it cannot read an essay and play a video game at the same time; it cannot listen to a lecture and respond to tweets. People who claim to be good multi-taskers are actually bragging about their ability to switch from one task to another quickly⁶. **What they fail to recognize is that in that switching, time is lost, attention is lost, focus is lost, and depth is lost. Perhaps most importantly, retention is almost impossible.** If one of the tasks is physical, agility and facility are both lost. In short, the very things we need to strengthen if we are to become thinking, effective adults are weakened by the constant barrage of interruptions.

When we switch from, say, reading a text message to writing an essay, that switch in attention takes a full *twenty minutes* to return to full focus on the original task. If a student receives three text messages in an hour, virtually no focused, thoughtful work will be accomplished for school work during that hour. Stop and think about that delay: twenty minutes to return to full focus. It may be the most important thing for us to recognize about our students.

When I learned this a few years ago, I turned off my e-mail alerts except

⁶ In fact, some studies suggest that people who claim to be excellent multi-taskers are actually worse at task switching than people who claim they are lousy at it.

during specific times, and I always keep my phone turned off except when I actually want to use it. My productivity skyrocketed. I had no idea how much time and focus I was losing to interruptions. And, though it is almost impossible for some people to believe it, I have not lost touch with the world or with my family. When I open my e-mail, I answer it or place the tasks on lists or the calendar. Then I turn it off. When I visit Facebook, I do that, then I turn it off. I have not become a hermit or a Luddite – I still text and call, I still engage on social media, and I still surf the net, sometimes for hours as I blissfully explore the world. It is just that when I am doing something, I am doing that – and nothing else.

A quick Google search uncovered this frightening set of statistics from 2013, printed in *BusinessInsider*:

Young Americans send almost ten times as many texts as Americans over 55. According to Experian, U.S. smartphone owners aged 18 to 24 send **2,022 texts** per month on average — **67 texts** on a daily basis — and receive another 1,831. That's nearly double their slightly older peers, smartphone users aged 25 to 34. Mar 22, 2013

A bit of quick math: If the average teenager is awake 18 hours a day and the texting is roughly equalized throughout that time, he or she is sending 3-4 texts every single waking hour and receiving 3-4 texts every single waking hour. This leaves no time for focused thinking. No wonder we face students who say, “I read it, but I didn’t get it” or “I read it, but I don’t remember what it was about.” Truly, they didn’t actually read it even if they dragged their eyeballs across the pages. Reading takes attention,

and these students who are in thrall to their phones have no attention left to give.

The key word here is *conscious*: we cannot do two or more things at the same time that require conscious thought. We often walk down the street without realizing that we are walking or where we are walking while we (in my case) design class lessons or replay a memory or play amateur architect, redesigning the buildings I pass. We are relying on the unconscious art of walking, developed over time, with a sort of low level alert activated so if a car swerves onto the sidewalk, we will suddenly shift our focus from inside our head to outside on the sidewalk so we can react properly (see the fight/flight material below under stressors). If there are pedestrians coming our way, we will – literally without consciously thinking about it – move to an appropriate part of the sidewalk to avoid collision. Sometimes, we will step over curbs, cross on green lights, and scoot aside if a bicycle is heading in our direction – all without actually becoming aware of what we are doing. We are “lost in thought.” On the other hand, if our future spouse materializes in front of us with all his/her charm, our alert will yank our attention. We are quite safe when we are functioning in this background mode, usually. Our brains are whirring away, using what they know from previous experience to guide us on our unconscious way.

Interestingly enough, it was recently reported that pedestrian traffic accidents increased 11% between 2015 and 2016, and the culprits were cellphone use, texting, and alcohol. Using a cell phone or texting may well turn off the alerts we would normally have scanning for our safety.

But when we must be conscious for our activities (learning, navigating a

difficult path, making decisions, writing papers, reading textbooks versus reading the third text message in the last few minutes asking me what I'm doing, checking my social media site for a cat video, or paying "just a few minutes and a coupl'a'bodies" of *World of War*," the multi-tasking issue is certainly one of the biggest hurdles we have in our modern society. We are under constant assault by various messaging systems, and we develop habits (addictions?) of entertaining ourselves with social media and games that close us out of the conscious work we need to do. Our young adult students have had phones in their hands for at least a decade, many far longer, and the habit of "just checking" is fatal to the kind of thinking we need them to do (and that we need to do ourselves). Many study with a TV or video game in the background, half absorbing the noise and activity, and half trying to write a difficult essay. They fail. When we try to grade essays or write up a sabbatical report and check out Facebook every half hour, we fail, too.

Larry Rosen, in *The Distracted Mind*, reports that his lab did observations of middle school through college students and found that "students could not focus for more than three to five minutes *even when they were told to study something very important*" (italics original). And he cites work by Dr. Gloria Mark at UC Irvine which found that "IT workers were similarly easily and frequently interrupted." (Gazzaley 111). How can we reasonably expect to think critically when our attention span is so tiny? We can't, and we're dealing with a problem that is pandemic – and that is based on chemistry.

So, why do we check our phones incessantly, spend hours on social media,

answer every text? Because getting a response, a “like,” an acknowledgement of our existence triggers happiness hormones: we feel good. In fact, we feel so good when we get “like” after “like” after “like” that our bodies are flooded with happiness- feel good, cared-for feelings. In fact, so good when it is perpetuated that we believe that we are doing good work, and we are in a kind of gentle ecstasis, an altered state of pleasure and (seeming) enlightenment. We seek more of it, scroll down a bit further to make a comment with the hope that someone will “like” us and keep the hits going or send a text back with the expectation that our friend will respond. We believe – because we feel—that we are accomplishing great things, that we are getting things done, that our value is high. Thus, we are fooled and believe that we multitask well.

Meanwhile, we discover that we are losing the ability to single task, the exact skill we need to be fully present in a moment so we can think deeply. Gazzaley and Rosen report that “we appear to have lost the ability to simply be alone with our thoughts” (112). This loss of internal life weakens our external responses to the world.

We are even forgetting how to read when we move from printed matter to screens. Studies that rely on eye tracking show that screen readers read the top of a page or website, the left margin, and occasionally scan across the page, a sort of F pattern (Gazzaley 112). We aren’t truly skimming but scanning to discover whether there is anything we need to pick up. This, by the way, is a serious critique of on-line sources for classes. We simply don’t read as well on screen as we do on the page.

Interestingly, we don't have solid answers for why that is true. Some of it is the environment, which is full of distractions: read a paragraph, go off to *Instachatgram* and check for the latest penguin ballet which leads to the giraffe birth marathon which leads to just a quick look at Facebook's latest cat lipsynch – and the evening is gone.

But even people who are focused on reading and do not have those other distractions fail at retaining information they read on screen compared to their retention of material they read on paper. Some speculate that this is because of the lack of “geographic” memory: we remember where we read something on the page and that helps us cement the memory in our brains. But there needs to be additional research on this issue. For the time being, students should be required to do most of their reading on paper.

So why are we in so much of a hurry? We leap from one task to the next, from a glance at a page to a glance at our phones, from one page to the next, from one popup or hyperlink to the next in a furious frenzy. Why? We are seeking the titillating fix of happiness hormones.

We crave the feelings of ecstasis, so the key is to find replacements: Instead of checking our phones for reassuring texts, we need to find that jolt of happiness in study, in writing, in exploration and discovery. And, in fact, that can be developed.

And we want those skills to be highly developed. Among the benefits of increasing focus and working on a single project at any moment is an enormous

decrease in the amount of time it takes to study and an increase in retention (Gazzaley 124-7). For students who are “stressed out” because they can’t get everything done, this alone might be enough of a reason: they can study fewer hours and get better results. But the real benefit of increasing focus and working on a single project is to think better, to engage the brain in richer ways.

J. The brain under stress

Although *stress* is generally a dirty word, we must accept the fact that we are always under stress and that's a good thing. Stress becomes a problem when it is extreme and prolonged, but it is stress (hunger) that gets us out of the chair to throw a pizza in the oven, and stress (the inhalation of a perfume) that motivates us to get dressed up for a date, and it is stress (the unexpected arrival of a tiger in our bedroom) that allows us to scramble under the bed.

Our brain reacts to stress—that's its function: if I accidentally grab hold of the pizza pan without a potholder, the brain reacts to draw my hand back quickly before my skin is badly burned (and the pizza lands on the floor and I'm still hungry, but at least this gives me time to reconsider a salad). If a tiger leaps into the room, my brain provides me with the energy and focus to run away or to stand and fight. School: tests, homework, overscheduling, work, hunger, the future wife/husband in the row in front of me in physics class, and even this ridiculous chair that was made for someone five feet tall – these all are stressors. Compound those with family problems, relationship problems, and a broken down car, and stress can become overwhelming.

But for the moment, let us not become overwhelmed and look at stress in its natural environment: the human body. And in our particular subject, the young adult body.

All stressors involve both the body and the brain. As we begin thinking about the integration of mind/body, and since we have a fair understanding of how the

brain is operating, it is worth focusing for a little while on how the body acts in response to the brain's "orders." Young adults in college are in control of and controlled by bodies that are rapidly changing and, if they are active, those bodies are at –or near-- the peak of their physical development. And we will remember that their bodies get to full maturity before their brains do, so we'll have some pratfalls along the way.

A quick refresher: stimuli (everything from that physical burn I got, to the mental anticipation of next Friday's date, to the random daydream of walking into class without my pants) is delivered to the neuron network, which acts. The primary stimulation centers are the amygdala and hypothalamus. We can think of them as traffic cops waving signals off to the appropriate neuron pathways and flooding the bodies with appropriate chemicals.

[NB: much of the section that follows is taken from *Spark: The Revolutionary New Science of Exercise and the Brain* by John J Ratey, MD. It is a book I recommend highly, and it will be a text for *The Wisdom of the Body*, one of the class designs below.]

1. Stressor: Exercise. Response: neurogenesis

Exercise is one of the most important (and frequently neglected) stressors. We deliberately stress our bodies to raise our heart rates and so our aerobic capability in order to lose weight and to build attractive bodies. And we generally have fun doing it. It increases our sociability, our self esteem, self image, etc. It used to be a regular part of schools at all levels. In my college years, we were required to

do four semesters of physical education.⁷ However, in recent years, most K-12 schools have abandoned PE in favor of more time at the desks, a measure that is counterproductive to learning and that has been proven to be counterproductive to achievement in numerous and rigorous studies. Schools know the studies that show that students learn better and remain healthier – and develop lifelong healthy habits – by taking daily PE. However, they persist in cutting PE in the cause of increasing students’ test performance.

Cognitive dissonance is at work here: more hours behind the desk *seems like it should mean* that students will learn more and so they will test better so our school will get high scores and real estate values in my neighborhood will continue to grow – so, no, says the school board: those scientific “studies” are inconvenient and interfere with my preconceived notion that kids should be chained to their desks, so we’ll do what’s wrong so we look like we’re doing something right.

So what happens when students get regular, aerobic exercise? It is probably hyperbole to say that they transform their entire lives, but the evidence is overwhelming that there are huge benefits for the things that concern young adults most: social acceptance, self acceptance, even campus equity. And for instructors, exercise quite literally tires out students’ bodies so they can sit still and learn.

Hurray!

But two things are of paramount concern here: (1) exercise stimulates the

⁷ It is definitely not true that I was our school’s pterodactyl-slaying champion, though it is true that I said yes to two semesters of gymnastics and one of fencing – en garde!, and we were required to swim for an entire semester to prove that we were Californians. It is also true that I was lousy at both of the former and fair at the latter.

brain to build new neurons in a process called neurogenesis; (2) exercise encourages the growth of the executive function, that function of the prefrontal cortex that reigns in adolescent wildness and poor decision making.

The first, **neurogenesis**, is a recent discovery. It was always understood that we were born with the brain cells we'd have throughout our lives. Plasticity was gradually understood, but it was still thought that the brain was merely rearranging the neurons it had. Recent science has found that exercise stimulates the brain to make new neurons, and those neurons wait around for something to do. If they are provided something new to do, they stick around and are knit into the neural network; if not, they are lost.

That's worth some contemplation: we can actually increase the capacity of our brains. We can actually increase our intelligence (which also has been found to be far more plastic than used to be thought). And most importantly, we can actually increase our ability to process information in new and creative ways by physically exercising and – this is essential – giving the newly born neurons something to do: that means study or experiences. In addition, we increase the rate of learning when we exercise, up to 20% faster when the acquisition of new vocabulary words is tested (Ratey Chapter 2).

A common analogy is used about the brain as a muscle. It obviously is not a muscle, but like a muscle, the brain changes in response to proper use: use it or lose it. It is a useful analogy, though not perfect.

This gives new import to the idea of student athlete, and it reinforces the concept of *mens sana in corpore sano* [a sound mind in a sound body]. Exercise builds neurons, study gives neurons something to do: build more pathways and networks. In short, exercise creates brain power.

Which means we all have to get up and start doing jumping jacks and running miles and kicking around soccer fields and all that, alas. And after that, we have to hit the books so our new-born neurons have something to munch on. The payoff is immense (and encouraging to those of us reaching decrepitude since neurogenesis continues right on to the end of life).

I believe I'll go work out now, build some brain cells, and then put them to work in the next paragraph. Don't wait for me though, since by the time you're reading this, I've already returned to my desk and continued writing below.

Back again.

I have, however, misled you: the brain stem cells I just started creating by vigorously leaping about and stretching and then running around the lake in the rain will actually take about twenty-eight days to mature into neurons that are active in a network— and in order for them to mature, I have to give them something to do, a process of **environmental enrichment**. If I am not actively learning, giving those neurons something to process, those poor newborn neurons will simply be lost, wandering in the dark without a flashlight. Alas. (Ratey 49). The neurons from last month's rigorous snowshoe adventure are just now taking their places in my

brain, sending out profiles to see who will swipe right and left so they know whom they will hook up with for the network.

If I have been doing rigorous work with my reading and writing and studying, my snowshoe-born neurons will find useful places to reside and work; if I have spent my days staring at Facebook and cartoons, my neurons will probably decide to give up the ghost rather than to take up residency and work here. What we do matters because what we do is providing neurons a reason to be. John Ratey sums up the issue: “Learning and memory evolved in concert with the motor functions that allowed our ancestors to track down food, so as far as our brains are concerned, if we’re not moving, there’s no real need to learn anything.” (Ratey 53).

“If we’re not moving, there’s no real need to learn anything.” So, our brain doesn’t grow or improve without exercise. However, we’re not very good at learning material while we are exercising. This is a one-two punch: first exercise, then learn. So, if we try to learn while we’re sweating away on the treadmill at the gym, we’re probably wasting time. We might as well peer about and enjoy the sights. Read later.

What kind of exercise? Anything that involves aerobic stress will trigger neurogenesis, and it is complemented by exercises that require some sort of dexterity or facility or interaction with things or other people. John Ratey suggests that playing tennis, which requires both aerobic exercise and the skills of connecting with the ball and the interaction with another appropriately is a good example. Running, which is the cheapest sport, can be made more skills based if there is a difficult course that requires attention and dexterity (trail running, perhaps).

There is another – and essential – contribution of exercise, and that is the lessening of stress. When we exercise, we quite literally return the body to balance after a stressful event or even when stress is generalized, and so exercise is important for our health in other ways.

2. Stressor: Stress. Response: Brain shrinkage.

Here, clearly, “stress” is being used in a specific way since I’ve already made the point that all of the issues in this section are about stressors. And I’ve already made the point that stress is good – unless it becomes overwhelming. And that’s where we are here: overwhelming and/or continuing stress. Here, “stress” is when we feel agitated because of internal or external stimuli. “I am stressed out,” we say when we feel that way, that the world is too much with us, that too many things are coming our way that we can’t quite manage.

So, what is coming our way that we can’t manage? And why can’t we manage? (Actually, we can manage it).

Stress can be the result of physical stress (The student stayed up all night to study, or she ran a marathon this morning), emotional stress (her boyfriend stopped calling her; his parents announced their divorce), political stresses (her religion has been targeted as a danger to society), etc. The source actually doesn’t matter – the responses follow the same patterns: sudden stress alerts the body and mind to immediate action (there’s that tiger again). Moments of stress cause a release of fight or flight hormones that encourage us to respond with action, but if there is no action, those hormones sit around in the body and cause harm, so even a quick

moment of stress (Is he going to call on me and make me confess that I didn't do the reading?) does a bit of damage that can be waylaid with a quick run around the soccer field. However, chronic stress events (poverty, living in violence or disapproval, going through a difficult period in family life) alerts the body and mind almost continuously, exhausting the system.

“Fight or flight” is a very specific response to threats. The response is a strategy for staying alive. While walking across the savannah, early man confronted animals who were hunting him. A tiger appeared, and man's brain responded with a flood of energizing hormones and a change in circulation and breathing so that man was fully prepared to do one of two things: fight off the tiger or run away. All of his muscles were primed, all of his body's systems on alert for the most advantageous way to stay alive. If fighting, the blood flow to his arms gave him the power to punch the tiger out; if fleeing, the blood flow to his legs gave him almost supernatural speed. A flood of hormones supported his energy. He processed more oxygen than normal. Even his sight became more acute and focused. We've probably all experienced something that caused us to react with greater than normal responses. This response keeps us alive and alert to dangers.

This response also shuts off a lot of the energy going to our brains. All we need is enough to keep the body in the fight or in the flight so we can stay alive— and therefore almost all body/mind resources are focused on those needs. Which means the obvious: we do not learn when we are in fight or flight mode. Learning takes energy away. So, we act against the tiger, or we run into the next county to get away.

And in that fighting or fleeing, we burn off the flood of hormones that are helping us. We are exhausted at the end of a fight or flight episode: everything in our body was martialled to the cause, and when the tiger has been safely killed and put on a spit for BBQ or when we arrive at a safe haven, we feel drained. And in one way, we are quite literally drained: we have burned off the hormones that activated us, which is a good thing. Those hormones are so intense that if they remained circulating in our bodies, they would act like poisons, slowly wearing down our bodies and making us ill.

We need not have a tiger in our bedroom to activate the fight or flight response. Some of us feel it when we have to speak to a crowd, some when we stand at the edge of Half Dome and look down⁸, and some when Charlotte the Spider wanders down the web from the ceiling.

I think we can assume that our classrooms are free of tigers, grand heights, and spiders. But we can't assume that our classrooms are free of public speaking opportunities; reminders of racial, ethnic, and religious differences; and exams—all occasions for "hits" of hormones. To be referred to with a racial slur, to be charged that your religion is made up of terrorists, to be denounced that your relationship is sinful – aren't these also occasions for the fight or flight responses? How about too much homework, procrastination to the last minute before a deadline, or a case of severe shyness that makes it feel like the whole world is looking at you? Yes, they

⁸ I have climbed Half Dome five times and have yet to approach the very edge to look straight down. I do not believe that if I climbed it forty-seven times that I'd get any closer to the edge. I am convinced that the breeze will blow me over and hurl me to my death.

are stressors, though they may be at a lower level than the crouching tiger.

But they are more insidious. Remember that the hormones become poisonous if they stay in our systems: the fight or flight response should be accompanied by action (a boxing match or a 10K run), and that physical action serves to burn off the hormones before they become toxic. But it is precisely because lower level responses are not usually accompanied by physical activity that the stress becomes more dangerous. That racial slur may cause a shot of adrenaline to energize and anger the body, but if the student must sit and “take it” or merely object to it as an indignity or mildly protest the racism, the hormones course through his veins, the brain responds to the next stressor with more hormones, and the resulting lack of relief gradually sickens him.

Literally, the continuation of stress over a period of time causes brain damage. The hippocampus shrivels like a raisin (Ratey 74), dendrites shrink back to save the cells from the “bath” of hormones, and neurons die. “Stress becomes generalized, and the feeling becomes a free-floating sense of fear that morphs into anxiety. It’s as if everything is a stressor, and this colors perception and leads to even more stress.” (76).

Hmmm, so we’re actually back to neural pathways here, which shouldn’t surprise us at this point. The stress builds a continuous loop, a well traveled and well mylenated neural pathway, that allows stress to feed stress – and we’re in a pattern that may well lead to mental health issues or deteriorating physical health.

The antidotes are exercise, stress reduction (meditation, deep breathing, a walk in the woods, etc.), and a change of mind: we can learn to manage stress merely by changing how we accept stress. We are capable of turning stress to our benefit if we recognize that the flood of hormones is doing things that will allow us to perform better in a variety of ways. We've all heard of a performer who brags that he is nervous before every performance because he thinks it gives him an edge. He's right, and he's right precisely because he's decided to use that energy and channel it into his activity. His body and mind are primed for a very focused effort, so he just needs to channel it to the specific task at hand.

A few years ago, I was selected to be interviewed by a panel of about twenty people, and the subject was "anything in higher education in California." Yeah, fun preparation for that one. I read everything I could put my hands on, but I was well aware that I couldn't possibly prepare properly. And so I went into the interview with a real case of nerves. But I also went into that interview with the knowledge described in the previous paragraph: I could channel those nerves into intense focus, and my body and brain would cooperate – they had to: that is their job. I don't think I'm fooling myself when I said it was the best interview I've given. No question went unanswered, and I had almost magical recall of good illustrations for my points.

So, this fight/flight/stress discussion needs to be brought back into the specific issue at hand: How does this matter to teaching critical thinking?

There are at least two reasons we need to know about stress and its

benefits/dangers: (1) We need to teach this knowledge so our students are aware and can learn to manage their own stress – that is, quite literally, a matter of mental and physical health – and it is a required skill if students are to learn; without this knowledge, students will not be effective learners; (2) it is essential that we minimize and manage stressors in the classroom whenever possible. And, to reiterate something I've said earlier in this project, focusing on issues that cause angst or discomfort is not going to be an effective strategy.

3. Stressor: Anxiety. Response: heart failure, panic attacks.

Above, we had a whole cast of stressors: tigers and speeches and racial epithets. But when it comes to anxiety, we're talking about something quite different: a kind of stress that is caused by nothing immanent. Well, not truly nothing, but nothing real in the moment: we imagine the tiger, though tigers haven't been wandering around California for some time, and we become anxious, building up a fear of something that isn't quite attached to reality. Or we replay a memory of fear or anticipate a fearful moment until it becomes a major highway through the neural network and so we travel the road of fear again and again – sometimes constantly. And if that fear becomes chronic, we have generalized anxiety disorder or panic disorder or something similar. Since around 18% of the population in the US suffers from an anxiety disorder in any one year (Ratey 90), we can be sure that we have students who are in this category, suffering from this malady – and though the stimulus is imaginary, the illness and the responses are not. And in fact, anxiety is self-perpetuating: we fear something, and then we fear that fear will be realized. A

crippling cycle.

What's happening? The brain is stuck in a recycling process, sending out the fight or flight hormones, but not getting an "all clear" signal back so the hippocampus can stop sending the hormones. Eventually, the amygdala overwhelms the attempts of the hippocampus to tamp down the response, and the fear response actually grows, tapping into additional neural pathways. (Ratey 93).

What happens? A cycle of panic attacks, generalized anxiety, and a shrinking world: we become more fearful, more fearful of fear, more limited in our ability to act. And we die of heart failure.

What is the antidote? Exercise (we will have noticed by now that Ratey will tout exercise for nearly everything, and he has the science behind him to back up that prescription), provides distraction, reduces muscle tension, builds brain resources, teaches a different outcome, reroutes circuits, and improves resilience – and sets us free (107-8). [Note that the list above is a verbatim list without the explanations for the listed items, so not quite quoted]. Ratey also discusses medication and behavior modification to replace fear.

For our purposes, generalized anxiety disorder and panic attacks are things to recognize, though there is little we can do in the classroom except urge professional referrals. However, understanding these disorders is obviously useful for a classroom teacher.

4. Additional Stressors: Depression, Attention Deficit (and Hyperactivity), and Addictions.

We have students who suffer from all of these maladies, and each is a specific response syndrome of the brain. Each responds to exercise and drugs (though in the case of some addiction, a drug may also be the cause). Being aware that we are always returning to the brain and its operations and always attempting to reduce the stressors that contribute to these is essential.

I will tell another story that might help here because I used a creative approach to a problem. Many years ago, I was teaching a summer school English 1A class. A student came to me before the class began to let me know that he had severe ADHD (Attention Deficit Hyperactivity Syndrome), and though I had had many students with that condition in the past and doubted that many of them were actually diagnosed properly, this guy was the real deal: he was incapable of sitting still, incapable of maintaining focus unless he was in motion. He had failed the class three previous times, and he simply couldn't fail again. "I'll do anything." It sounded almost like a primal wail. He was a kid so frustrated with what his brain and body were doing to him that he doubted his future. But it was obvious that he was intelligent, so his will to succeed was well supported.

So, we brainstormed toward a solution: he can't sit still, so keep him in motion; he can't focus, so create artificial ways to keep him on task; he can't manage his time because he's nearly exploding out the windows when he tries to get homework tasks done, so chop his tasks into tiny units, and meet with me daily for office hours.

He paced the classroom, back and forth at the back of the room constantly, and that let him pay attention to what was going on. When we went into discussion mode, he became our “pollinator,” picking up an idea from one group to carry it to the next, constantly changing his focus and so never reaching the point of frustration and again being in frequent motion. He could not sit, though he was oddly comfortable perching on the chair back, feet on the chair seat sort of hovering over the groups. [I’m often asked whether the other students were bothered by his pacing, and the answer is no. On the first day, I said, “This is X, and he needs to move around a lot.” And no one had a problem.]. He met with me daily, and we set up one task for morning before class (write one paragraph), and one after class (revise that paragraph and decide on what will be in the next paragraph). It was mechanical, it was high touch, and it was successful. On the last day of class in front of everyone, he came to thank me and wrapped his arms around my shoulders, tears in his eyes. Those were six weeks of victory, and the whole class took pride in his accomplishment. All it took was recognizing that we were dealing with a real problem that had solutions – we just needed to figure out how those solutions worked in the classroom.

K. On the (near) impossibility of changing minds.

About ten years ago, I had an experience in English 1A that disheartened me. I taught “Black Men In Public Spaces,” an essay by Brent Staples. He writes about his experiences in New York City. He loves to go walking late at night to think and explore, and he discovers that he has a magical and unwelcome power: people cross the street to avoid him, whirr up their car windows, and lock their doors when he approaches. He is black, and they see him as a threat: because he is black, he is obviously there to mug or rob or rape. Pedestrians fear him. He doesn’t want to seem a threat, and so he chooses to disguise himself with music: He whistles Vivaldi as he wanders the streets, sending out a signal that he is cultured and therefore not a threat. It is a disturbing essay that involves identity and race and oppression and privilege and fear of the unknown and stereotypes and his need to disguise himself to be who he is. In a way, he is “passing” as white and therefore no longer a threat by whistling the “whitest” music his fellow pedestrians know.

This was a good class, full of energy and already feeling comfortable with discussions that often touched on controversy. They were not confrontational, but they were direct. There was quite a bit of discussion about how different this was from Clovis where they lived, that this wouldn’t happen here. In fact, some had the sense that Staples’s essay was an artifact of an earlier era. Most agreed that the disguise Staples needed to put on (his appropriation of “upper class” music) was an accommodation that he should not have to make.

One young man challenged the notion that this was not about their community: "What about DWBs? That happens here all the time." A question mark hung over the classroom until he clarified: "Driving While Brown, a violation that I do every single day." He nearly spat the words out with earned bitterness. The discussion that followed was enlightening to many of the students. I asked how many of them had been stopped by police just for being who they were, and I volunteered that in nearly forty years of driving, it had never happened to me. The majority of the hands that were raised were not white. Students who were simply a part of the class, our close-knit community, were suddenly divided into two camps: *us* and *them*. There was general and indignant outrage all around through the rest of the hour, which was gratifying, and I was just sure that these students had learned a valuable lesson: racism is alive and well today, and it is repugnant. And it is right in our own lives. In Clovis, our hometown.

We must fast forward a few weeks until we are reading Martin Luther King, Jr.'s, "Letter from Birmingham Jail."

"But those things happened a long time ago."

"Things are so different now."

"Now we all have equal opportunity."

Apply forehead to desk with great velocity, repeat several times, and admit failure.

The earlier lesson, dramatic and emotional and clearly a present issue in the

classroom, did not stick. There probably was not a single student in that room that I would consider racist or unfair or ignorant. They “knew” the lesson of two weeks previous, and they had bought into it wholeheartedly to support their friends, and they had condemned the practice of stopping people just for the color of their skin. But none of that carried over: we were in the same spot we had been before: What MLK described was something that happened a long time ago in a place far, far away, and it wasn’t something current in their lives. The students who were damaged by racism were probably appalled – but they said nothing this time, having already won – and lost – their points two weeks previous. [Yes, of course, I made the connection and brought it full circle, but that’s not the point here, nor was it, surely, a successful exercise in changing those students].

So, what’s going on? And why does this matter for this inquiry? **People don’t change their minds as a result of facts or moral arguments or nearly any other external proof that their beliefs are incorrect.** Argumentation persuades only those who are already persuaded. The white students who denied that racism was a clear and present danger were willing to suspend that opinion for the discussion that affected their buddies, but the denial was still a part of their neuron pathways. They were still sure that racism isn’t a real problem.

This isn’t an indictment; these are not stupid students; they are not harboring secret racism against their peers.

It is science, it is how the brain works.

For just a moment, let's take a look at climate change opinions. It is an oft cited fact that 97% of climate scientists have agreed that global warming exists and that, at least in part, it is caused by human action; 3% of climate scientists deny this. Yet a large part of the population sides with the 3%. We are tempted to call the climate deniers ignorant (or worse), and ignorance may well play into this. But a study from Yale suggests that those deniers who are trained in science and math actually have more adamant positions of denial than those who are less educated (Kahan, et al. "The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks." Summarized in Stafford).

Education in science, which includes a healthy dose of critical thinking, actually solidifies their stance, which to those of us who are sane [yes, an undermining statement] seems insane. They not only have the facts available to them, they have the training to interpret those facts – and they interpret them incorrectly (unless we believe that 97% of scientists who study this phenomenon are all wrong and part of a conspiracy). They have something in common with my students who couldn't see racism despite the evidence of their classmates' indignities and despite admiring and including those students in their circle of friends. They are dealing with something called *cognitive dissonance* and that is part of what makes it difficult--sometimes impossible --to change a person's mind.

Cognitive dissonance occurs in the mind when two (or more) contrasting points of view or mutually exclusive facts are presented (global warming exists; global warming does not exist) and when the listener favors one side for any reason

whatsoever: *My parents say it's not true; I remember hot days during Fresno's summer when I was a little kid and this is nothing different; If the weather changes, my parents' business is going to be destroyed; Heck, it snowed in Fresno last winter, so how can you say things are warming up? The world is too big and we're so small, so how could we make a difference? Carbon dioxide is sucked up by plants, and there are a lot of plants around, so there's no problem.* Some of these are obviously not relevant – yet we are married to our experiences and observations.

When we are confronted with two contrasting things and we can't accept both, we become queasy, unsure, uncomfortable. Our brains simply hate that feeling, so they go into overdrive, trying to reconcile the two. If that fails, the brain kicks into high gear to start building up one side with good reasons and/or shooting down the other side with critiques or contrary facts. The brain will do anything to stop the queasiness, the cognitive dissonance.

Remember my math story? My “bad at math” was fighting against any gain that I might have had because the brain was rejecting cognitive dissonance. If I got a problem right, it was a lucky guess; if I got it wrong, well, that's just the way you are, guy, a math dolt. You might as well embrace it.

Just yesterday, I saw an article in the *New Yorker* that focuses on this problem and the many, many experiments that have been conducted to investigate the problem of cognitive dissonance. And this deepens the issue: It is not just our minds feeling queasy and trying to reconcile two irreconcilable differences, but something far deeper: it is the way our brains evolved for our safety.

The author, Elizabeth Kolbert, summarizes the findings of two cognitive scientists, Hugo Mercier and Dan Sperber, who wrote *The Enigma of Reason*, published by Harvard:

Humans' biggest advantage over other species is our ability to cooperate. Cooperation is difficult to establish and almost as difficult to sustain. For any individual, freeloading is always the best course of action. Reason developed not to enable us to solve abstract, logical problems or even to help us draw conclusions from unfamiliar data; *rather it developed to resolve the problems posed by living in collaborative groups* (emphasis added).

We should, then, think about how we get along: we conform; we agree; we jump on the bandwagon. Thus, confirmation bias is a positive survival technique: if our "tribe" believes X, we are in good stead to agree and believe the same, so any evidence to the contrary is a threat – perhaps a threat to survival. We have evolved to agree for our safety.

Kolbert also quotes two other cognitive scientists, Sloman and Fernbach, who note that "Strong feelings about issues do not emerge from deep understanding" but on consensus so we can get along. If I have an opinion that isn't based on reality, but I have two other people who agree with me, we have the power of consensus and any evidence that contradicts our community of three must be wrong.

This is why people vote against their own interests, why teenagers do ridiculous, harmful things at parties, why the kneejerk opinion on most

controversies can be rendered in a moment: we parrot what we expect our community to approve so we are safe in that community.

F. Scott Fitzgerald defined “first-rate intelligence [as] the ability to hold two opposed ideas in mind at the same time and still retain the ability to function.” And it seems likely that the only way that can be done is when the opposed ideas are not also infused with personal issues of belief or ego: In short, when cognitive dissonance isn’t activated because the two ideas aren’t threats to the status quo.

Those climate deniers are not stupid. They are trapped in a position in which they have an investment. Those students in my classroom are not racists. They are trapped in a world view that tells them that they are living in a good time and place and the benevolence they feel toward their classmates is a universal.

And so they reinforce their views; they prune the offending facts from their consciousness or they undermine them with better reasons and perhaps personal experience (“Heck, Jamal hung out at my house for pizza last week. We’re best buds. Race just doesn’t matter”).

By now, it should be obvious that cognitive dissonance and the general inability to be persuaded to a new position by new reasons goes right back to neuron pathways: the pathway that says that racism isn’t a part of my community is well traveled and well myelinated, and so it is sturdy; the pathway that says that God is in control of the weather or that the weather is just going through a temporary phase like it always does is well traveled and well myelinated, and so it is sturdy. And

those pathways are shared across my community, so I change my view upon peril of ostracism.

So, we have something of a problem: critical thinking moves in two ways: one is inward, one outward. Inward: I will do the research and learn and create some sort of advocacy that I can believe in; Outward: I will write or speak that advocacy with supporting reasons to persuade others. But if the first half is focused on bolstering what I already know to be true and the second half is unlikely to have any opinion-changing effect, what are we doing here? **Is teaching critical thinking impossible?**

Dress codes have reared their ugly heads earlier in this paper, so here we go again. It is an issue that continues to rankle freshmen at college even long after they discover that our dress code essentially says, “Don’t show up to class naked.”⁹ They carry their indignity and anger with them and often speak heatedly against the ridiculous high school codes and the administrators who are supposed to be their facilitators and advocates, but who were their tormentors.

Alice enters the argument after she is sent home for the second time for minor infractions of the dress code. She is positive that the shorts she is wearing are long enough, maybe within ½ an inch, and that the hair she dyed blue for last Friday’s dance is nearly washed out – but home she goes. She arrives home to find that her brother Tom is hogging the bathroom after being sent home to shave off a

⁹ It is worth noting that in all my years of teaching, I’ve never had a student show up in clothing that caused a problem for other students. A few have worn things in questionable taste – but only a very few.

one-day growth of beard. Both are missing class. Both are angry. Both use their anger to increase their outrage (and probably pretty much guarantee that they'll violate dress code tomorrow just to get "them").

What argument can we offer that would convince them that another half inch of short hem, another shampoo of temporary hair dye, or the removal of a tiny scruff will change their educational opportunities? Or will (in the infinite wisdom of silly reasons) keep them from being distractions for their fellow students? Or will prepare them for their future careers? Or will increase safety on campus? Or, frankly, affect them in any positive way at all?

None. No one will convince these two perfectly normal kids that they are causing the downfall of Western Civilization with their recalcitrant activities.

Of course, this is a silly example since high school dress codes tend to be harmful and ridiculous. But what we focus on here is the investment these kids have in their own lives. For them, the cognitive dissonance is manifest in outrage, and that outrage is focused precisely on unfair rules, unfair administrators, and unfair withholding of education (Well, mom and dad are probably more focused on that last one). And since they are invested (passionately), they will not be swayed by any number of reasons or statistics or examples. They are (metaphorically) gouging neuron pathways as deeply as possible, reinforcing them with emotional angst and justice and charges of illogic. When they return to school, after having missed first and maybe second period, their peers will rally around them, increasing the happy hormones, and scraping the pathways a bit deeper. And those peers create the

community that reinforces the pathways. Tom and Alice would lose their place in their community if they suddenly embraced long hems, natural colored hair, and smooth faces.

Our ideas are not extraneous to us. They are us. They are made up of and influenced by our religious upbringing, our family teachings, our experiences, our self perceptions, our community – and a whole host of other things.

We want our critical thinking classes to be relevant to our students' lives and to be preparation for their futures. Yet we have a monumental problem because we carry around these brains that are incredibly powerful and that are hellbent on reinforcing what we already believe and on pruning off anything that conflicts with that.

So there is a remaining question: is it really not possible to change someone's mind? There are two answers to that, and both are *no*:

- No, it isn't true that we can't change someone else's mind, but it is hard and time consuming;
- No, it isn't true that we can't change our own minds, but it is hard and time consuming.

Changes in what we think come slowly because each change requires new strong neuron pathways to be built and old ones to become weakened. The tools are incrementalism and repetition. **Incrementalism** means that our brains are capable of baby steps: I won't buy into global warming wholeheartedly, but I will

acknowledge that sea level around New York City has actually risen more than one foot since 1900, and the data is clearly explained by New York State's Department of Environmental Conservation (New). More importantly, the dock I used to play on as a kid is now under water. But note that my brain will be messing with that fact, attempting to discredit it, but perhaps also beginning a neural pathway that tentatively acknowledges the fact and begins tying it to related neurons. The next fact I learn or the next person who is tremendously persuasive may nudge me a bit further. Eventually, I might buy the whole proposition of global warming and climate change. But it is a long, slow process. I must be willing to go on the journey. And I will probably need to change my friends, my tribe.

When we see someone suddenly change positions, it is usually because what he or she has been presented with is the last straw – the one that breaks the preconceived notion that has been weakened by all that came before. The neural pathways have been created but they are weak and not quite accessible because of resistance, but this last fact somehow jars things loose, and the floodgates are open: “Wow—you mean 97% of scientists are correct?”

That's a rare occurrence.

(There is another kind of occurrence, the religious experience, which sometimes dramatically changes a mind – though that's beyond the scope of this project, though not beyond the scope of my interest. (See Kotler's discussion of neurotheology 106-110).

Repetition is the other factor that contributes to changing opinions. This is most easily illustrated with affirmations to the self. For a long time, I thought affirmations were hoey, New Agey woo-woo, and nothing more than a waste of time. In fact, after a particularly bad and long bout with depression, I was urged to try affirmations. I repeated the same brief affirmations over and over each day. Over time, they were transforming: the negatives I had convinced myself were true were gradually replaced with positives that became true aspects of my personality. What was happening? Repetition builds new neural pathways, and the lack of repetition of the old messages meant old pathways were weakened. (We'll also remember that my "bad at math" was a negative, and when I replaced it with a more positive one, my math receptivity changed over time).

L. What is unlearning? and why does it matter?

Unlearning might be best described by a bumper sticker that is cited in Kyna Leski's book *The Storm of Creativity*: "Don't believe everything you think."

As we've explored above, we are absolutely sure that what we know is correct, and we go to great ends to bolster our beliefs (confirmation bias), which we often mistake as fact or knowledge. So, in order to think new, in order to be creative, in order to trip up our biases, we need to somehow unlearn what we know. That's way easier said than done. Something as simple as having a friend change his or her name requires us to unlearn the name to replace it with the new one, and that rarely goes well. We gyrate our way through syllables, trying to end on the right ones in the end, and we grapple with memory until we relocate face-to-name recognition. Often, there is an embarrassing blank while we shuffle through possible names that fit. That's quite a struggle for something as easy as a label; what happens when we try to change behaviors, patterns of thought, or ingrained prejudices? What happens, for example, when we suddenly decide to change our relationship with food so we can lose ten pounds? We struggle.

And we struggle precisely because of the neural pathways that are already well established in our brains: That's Jonathan, not Cameron, no matter how much he thinks we ought to call him something new. In fact, since the neural pathway comes complete with established neuron links that tie Jonathan, our good friend, to happiness hormones, we're missing out on little hits of happiness when we turn

away from the old name. Oh, and food, and the associations that are linked to our neuron pathways: custom, and tradition, and good taste, and happy feelings, and physical pleasure – just try to forge a new pathway through the brain that says that celery will evoke the same happiness hormones as potato chips.

Yes, it can be done, and it is done by some heroic people who actually manage to lose weight. They do it through mind games, trading flavor for a lean image in the mirror, reeducating their taste buds (really their neural pathways) to enjoy kale. But it isn't easy. (Actually it is impossible with kale, surely).

Unlearning can take place, and sometimes it must. When we change environments, like when we visit London, we look to the left at the curb only if we have a death wish and want to be flattened by a big red, two-decker bus. We adapt by paying attention, by weighing the consequences, by constant repetition of the mantra "Look right, dummy, right if you want to live." We are distracted on peril of our lives.

But these are merely responses to stimuli: remember a new name, change foods, look right. What happens when we move into critical and creative thinking?

I am currently confronted with a tiny problem: Should I vote for the newest tax increase to fund fire fighters in Madera County this month? It means that we'll be (1) raising taxes on ourselves, (2) causing a downturn of sales for major items like refrigerators and cars, which means (3) that some people's livelihood will be diminished. It also means that our (4) fire protection will be greatly enhanced and

(5) fire fighters, whom we admire, will be getting paid a little bit better. But we're (6) against higher taxes philosophically because if we give them a penny they'll soon take a dollar. But we also know (7) that our trees are dying in record numbers and (8) that means many more fires this summer. And we really think (9) that Madera county does a terrible job with their basic services. And the (10) guy down the street couldn't get a county building permit for a restaurant that would be really nice to have in the neighborhood. So why should we give the county more money? What's more, (11/12) two of our neighbors, one smart and one a certified idiot because he doesn't agree with me on nearly anything, have yard signs: the smart one says no; the idiot says yes to the higher taxes. Now what do I do? My natural inclination is "yes" so I can have better fire protection and so my fire fighting buddies get paid for their dangerous work – but that allies me with my friendly neighborhood idiot, funds a county that I'm not pleased with, etc.

Obviously, this is a tiny decision, yet look at the variety of contrasting gravity centers, tugging me toward alternative views. Each of these is involved with multiple neural pathways each connected in some way to pain or pleasure, and I find myself stalemated. I could reduce the problem (let's get back to binary thinking!) to Yes for fire protection; No to block higher taxes, and my decision would be clearer – but also less accurate since it prunes off the exact complications that make this decision difficult (and interesting).

Such a tiny problem – yet so many factors to weigh. Unlearning in this case is nearly impossible: I am too invested in too many of these reasons to get the distance

I need to make a truly uncomplicated and creative decision. Some of these reasons are silly, of course (my idiotic neighbor's view should not really be a reason that sways me, right? But see the section above where my tribe's view is essential for my survival -- so maybe in allying myself against my idiotic neighbor, I will be protecting my life). But few topics don't come with silly reasons: we have emotional ties that are sometimes nonsensical, or traditions that defy any sense of logic, but these have sway. And many come with unsilly reasons: Imagine what happens when an issue involves religious convictions, an oppressed race or ethnicity, injustice, and personal experiences with, for example, a fire on my property? (13) I did, in fact, have a fire on my property three years ago, and it weighs heavily.¹⁰

There is coercion in this case because there is a vote, and the ballot is sitting near my left elbow, and I always vote. And in that occasion, I am forced into the mental gymnastics that lead me to vote "yes" to the new taxes.

What I just did violates the whole idea of unlearning and critical thinking. I was given the circumstances and the solution (the vote), and I weighed it all within the context of the vote and with reference to the many reasons and made my decision – like a good binary thinker.

What would have happened if I had taken a step back, divorced myself from the obvious arguments, and thought new about the situation? What if I had placed

¹⁰ For the record, I voted to increase my taxes for the common good of the community and the firefighters and so my house would be less likely to burn down. Unfortunately, the measure was defeated, so we remain in high danger of fire.

myself in a position of self-imposed ignorance? In short, what if I unlearned those reasons? And what if I entertained the idea of not voting one way or the other, breaking the imposition of binary thinking?

I might have seen the problem from an entirely new perspective and that might have yielded a more creative and more satisfying answer: Why not vote “no” to the new tax and write a check for \$250 each year directly to the fire department foundation? That’s far more money than I would contribute through the taxes, and I would know exactly what I was paying for (and since the foundation would undoubtedly put my name on a plaque, I could feed my ego too!). The money would arrive unadulterated by county machinations, I wouldn’t have felt diminished by allying myself with the friendly idiot down the street, etc. In short, all of my good intentions would be realized and all of my fears, silly or not, would be negated.

That’s the goal: unlearn what we know so we can be creative and think new. But can we stipulate that for many issues, that just isn’t possible? We have a problem of inability – and a problem of desirability. It is nearly impossible to divorce our reasoning from the very real beliefs and knowledge that we have built up; and we don’t desire to give up our philosophy, religion, or sense of self. And hovering all around this is the issue of tribal cohesion: do we really want to unlearn the consensus of the tribe and become outcasts?

Kyna Leske’s book *The Storm of Creativity*, which was published by the Massachusetts Institute of Technology, focuses on unlearning as an essential skill for instructors to instill in their students. She defines her term as “Unlearning is about

questioning what you thought you knew.”(12). And for that reason, she criticizes the usual technique of brainstorming, which actually reinforces and encourages dumbed down and conforming strategies. Instead, she dislocates her students from their preconceived ideas by giving them difficult problems that they are not ready to tackle, thereby disrupting their ability to solve with what they already know. She teaches engineering for architecture, and this is how she begins the class:

Older students are given a daunting problem to solve, a challenge to surmount. The problem is chosen quite deliberately to take away what ever grounds for reasoning, for making decisions, the students may have brought with them to school (15).

They are placed, in other words, in a position of uncertainty: they don't know how to tackle the problem, so they must begin the process of creating new ways of looking and new ways of analyzing as they define the problem and work toward solutions. Periodically, she provides materials that seem unrelated, but that can spark imagination. For example, an engineering problem is accompanied by a session of peering through a microscope to see the structure of cells.

By placing students in an environment where they must invent meaning and solutions and where their previous knowledge is less useful (but still informative), they become original thinkers – inventing new ways to see, to analyze, and to solve problems.

John Keats, the great nineteenth century poet, has been lurking around these

pages since the beginning. He has appeared in several different articles and books about critical thinking, creative thinking, and now unlearning, so it is worth bringing him out in the open. He defined something he called “negative capability,” which is the ability of a person to be “capable of being in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason.” (16). That is, a person can entertain ideas while still being uncertain of where he/she stands on an issue. For critical thinking, this is a kind of “higher consciousness” if we were to put this in religious terms. A person with negative capability can look at the whole issue and all its reasons and various sides without leaping to the next step of advocacy or judgment. Keats mentions Shakespeare as someone with negative capability. It is an ideal, and it is an ideal that we can approach with our students.

So, let’s return to those design students who are now in a state of uncertainty and we hope beginning to acquire the gift of negative capability: since they are uncertain, they are willing to try. But something else happens: since they have a problem to solve and they are attempting to create meaning and solutions out of what they know, even though their knowledge isn’t perfect for the problem, they are also becoming hyper attentive: **they are fully focused:**

When you rid yourself of your preconceptions through unlearning, you leave an absence. That absence creates both the need and awareness. The need is the one to know, induced by not knowing something or no longer “knowing” what you think you knew before. That leads you to attentiveness to what is before you, an awareness of the here and now . . . (35).

A solution to the difficulty of unlearning is to enter a new field where prior knowledge simply doesn't help very much, as Leske suggests. I first discovered this when I did my first themed English 3 class, *The Intellectual History of the American Revolution*. True, some students knew a tiny bit about the war itself: the Liberty Tree, the Tea Party, and Lexington, perhaps. It was actually shocking to realize that few students remembered their three cycles of American History during their academic career. Virtually every student was adrift when Deism came up, when the Age of Enlightenment and its invocation to reason was central to our evidence. Ironically, this became an advantage. Because they were working in a new field and because that new field did not infringe on personal identity, they were open to exploration, and their papers were original, creative, and insightful. Their discussions, freed of established prejudices and preconceptions, became freewheeling – and for the first time ever, I had many students doing extra research so they had new material to introduce to the class – they were, in other words, becoming true thinkers. And they were thinking within a new community, a new tribe, that did not have established positions on the issues before us.

And what was equally interesting was that some of the hackneyed topics of today became entirely new when the historical precedents were involved: gun control took on a very different face when the conditions of the colonists were considered, injustice and slavery and women's rights – rather than being old and hackneyed topics suddenly were new and real, the roots of our current society. Even though I didn't introduce those topics, they arose in the students' own thinking (and papers), and the thinking was new.

Best of all, they were aware of how much their thought processes grew during the semester as they wrangled with difficult texts for rhetorical analysis and created arguments that were truly original to them. This class – and all of my critical thinking classes – are project and problem based. I present situations and problems and let the students work their way through them. I give them course corrections if they get wildly off track, but mostly let them explore. We'll take a look at the types of projects and the reasons for them a bit later.

M. Learning in community: social neuroscience

This inquiry builds on the material in the previous one regarding tribal consensus and the evolutionary necessity to get along with one's community.

Louis Cozolino, a professor of psychology at Pepperdine University, gives us the theme for this section in his book, *The Social Neuroscience of Education: Optimizing Attachment and Learning in the Classroom*:

Brains grow best in the context of supportive relationships, low levels of stress, and through the creative use of stories. While teachers may focus on what they are teaching, evolutionary history and current neuroscience suggest that it is who they are and the emotional environment of the classroom they are able to create that are the fundamental regulators of neuroplasticity. Secure relationships not only trigger brain growth, but also serve emotional regulation that enhances learning (17).

Our brains developed to create safety: part of that development was banding together in family and tribal units, and part of that development was centered in the responses to stimuli that we've already explored, especially the flight/fight response. It is only about the last 5,000 years that we have left the tribal construct, and evolution hasn't changed us enough in that time to make a difference: we are still tribal, and this matters to an inquiry about critical thinking. Although the original idea of tribes – families banding together to create a self-sustaining community that strengthened the individual and the community itself – has fallen

away for the most part, we still seek tribes: our church communities, our fandom of a sports team, our participation in a sport or club, a gang, a circle of friends -- even our Facebook “friends” make up a sort of loose tribe since they share certain opinions or qualities (or we viciously *unfriend* them).

It is true that we seek those tribes less for protection and more for fun and fulfillment (an exception is the inner city gang)– but fun and fulfillment are the bedrock of learning, and we do it best in our tribes. I remember going to a Padres game in San Diego with a true fan, a good friend of mine. We were surrounded by a “tribe” of fans, who, though they did not really know each other, soon became a sort of community that was created out of common fandom. They were trading statistics by the boatload, opinions based on wide reading and hearsay, and everyone (even I, who am hopelessly lost when a bat and ball arrive on the scene) learned to appreciate the game and the likelihood of certain actions on the field.

Most important, learning was taking place: the stats owned by one fan were passed along and remembered by others; the strategy of the game and the stories of past games were passed down from fathers to sons and daughters, who absorbed (and no doubt could place them into action in their own games) the lessons and the analysis, and the stories no doubt became a part of their own mythology. They were having fun, they were in community, and they were learning.

The elements of learning are not mysterious: we learn when we are in community, when we are having fun, when we share stories.

Louis Cozolino helps us again:

... humans engage more effectively in brain-altering learning when they are face-to-face, mind-to-mind, and heart-to-heart with caring others. This is how learning occurs in tribes and in tribal classrooms, where teachers and classmates are able to become family (17).

So, we want to create a tribe in our classroom, and that's not as farfetched as we might think. It is already being done. Examples: Umoja Community, Puente, etc. So, what does it take to build a "tribe" or community?

- A supportive, low stress environment where success is encouraged and failure is managed in a way that it becomes a learning experience rather than an exit point.
- A "tribe" that is approaching new problems so preconceived and "received" wisdom does not interfere with learning.
- A sense of belonging, which can be fostered by having a common project that everyone is contributing to.
- An emphasis on story to explain the project and the project development. (This might include whole-class metacognition where the class analyzes its own progress toward the goal and the stumbling blocks they've encountered to establish new trails of inquiry for the future).

So, working in community is certainly the way to go, but what about me? I'm a loner, an introvert who craves the opportunity to work alone (Sabbaticalville is my

favorite town since I am alone twelve hours a day, five days a week), who bristles at the suggestion that a group effort is superior to my individual brain's function. And aren't we privileging the extrovert who thrives in community?

This is something I've thought a lot about since it really is about me, and I am the center of my universe. I work in groups (committees, for example) for many projects, and I have discovered that as long as the group time is limited and I have adequate time between sessions to repair the damage that a group does to my equilibrium, I actually benefit hugely from group work: The group members (my tribe) inspire new ideas, refine the ideas I bring into the group, and lend enthusiasm and correction to the overall project. Especially, they draw me out of my solipsistic self.

I've also observed my introverted students over many years and gauged their responses to my classroom method which is focused on group discussion, projects, and problem solving. Although they are often reluctant to join group discussions at first, they grow to enjoy the interactions and they seem to do better when they have the mix of class work and home work.

An English 3 class meets about 2.5 hours a week, enough time to feel a part of a tribe, but also there is enough time away from the group to feel apart from the tribe and re-establish that sense of solitary self that we introverts cling to like Linus's blanket.

And there is a practical side: most employment involves working with other

people, and working together in groups and classes is a valuable practice ground for what we mistakenly call “the real world.”

N. Mirror Neurons and the trading of skills

Yes, here we are back in neuron world. And there's a reason this is here instead of way up there with the brain science. One of the more interesting recent discoveries is the presence and activity of mirror neurons. We see, and we do what we see. (And the corollary, we hear and we mimic what we hear and so we fit in).

We observe a group standing in a circle chatting. One person crosses his arms akimbo. What do the others in that circle do? They all cross their arms. They are not conscious of it – or if they are, there is a wry smile involved: why did we all do that just then? One student yawns and suddenly the instructor sees a classroom that resembles a birds' nest with baby birds, mouths wide open, begging for food. Yawning and arm crossing are contagious. This activity of mirroring those around us is fundamental to learning and it is, in the context of our classes, an essential one that reinforces the idea of group/tribe work. Neurons reacting to neurons in other people's brains is part of being human (we can even say that there is a sort of neural pathway between and among people).

If one person learns a skill that is beneficial, we almost instinctively mirror that skill to the best of our ability, and if it is a complex skill, we find ourselves practicing it until we get it right. It is likely that the first man who picked up a sharp rock and chopped firewood that fit in the fire ring was copied within moments by someone else. Wielding an axe, which had never been seen, suddenly becomes something that people just do.

The gymnast watches his buddy do a one arm giant with a release of the high

bar, a stunt he's never seen before. The crowd roars. He imagines doing that. He visualizes doing that. During his next time up on the bar, he's doing it – perhaps falling the first time, but he soon may master and then embellish the skill with a release and flip. The skill, appropriated, then grows more complex – and that new skill will be passed to the rest of the team.

Alice's blue hair at the Friday night party (It looked awesome!) caused a fad that nearly drove those poor high school administrators to distraction: oceans of dyed hair showed up on Monday morning. We “catch” what's going on around us. This is part of our tribal legacy. It is an exchange of skills and survival instincts that matter (becoming more attractive or more skillful are both a part of survival, so is sharing identical opinions and beliefs).

Now, this doesn't quite work with a skill like rhetorical analysis or physics except in the very general way of providing examples. But it does work with something that is fundamental to the classroom environment that will allow students to learn rhetorical analysis or physics: attitude. We mirror the attitudes around us, and certain attitudes, properly cultivated, will increase learning. Louis Cozolino, once again:

The discovery of mirror neurons may prove to be a milestone in the exploration of the social brain. They provide us with a brain-based mechanism for what we already know to be true—that brains are linked across the social synapse into dyads, families, and tribes. One of the many ways in which we impact the brains of others is by the expectations we have

of their abilities. Our expectancies often unwittingly affect others via our conscious beliefs, behaviors, assumptions, and predictions. Optimism, encouragement, and giving someone the benefit of the doubt have been shown to positively impact performance. Just as significantly, negative biases, prejudices, and disapproval can impede learning and impair performance (149).

In short, our interpersonal relationships are learning relationships. Our friend, our circle of friends, our classroom, our tribe – all are linked to us as if we share a bit of a common brain, complete with a sort of neural pathway network, and our learning can benefit from that linkage.

A classroom environment that places value on good relationships, on modeling the types of behavior that are expected, and on the fun of exploration will be a good learning situation.

O. What is my critique of traditional English 3 classes?

There is an argument for using contemporary events in an English 3 class: students are familiar with the topics and the topics are “relevant;” students have a basic background for the topics; since the materials available are as easy as picking up the latest news weekly or a quick Google search, a multitude of views is readily available; and opposing sides are clearly defined by religious or political philosophies.

But, in fact, each of these reasons is counterproductive.

Let me address **relevancy** first. We say something is relevant when it affects our lives directly, but there is a problem when we study what we already know: we are lazy. We fall back onto patterns, and patterns replace thinking. We think X about a topic, and we fall back on that canned position. The brain science in this field is solid, and it is summarized above.

The desire is that we will examine what we know more closely – and that’s certainly an admirable goal. But it doesn’t work: confirmation bias kicks into overdrive. Parental views and peer views and tribal views overwhelm thinking. Students engage in quote mining instead of original thinking, and plagiarism (unconscious sometimes) of words and ideas and concepts is rampant. Students are surrounded by these arguments, wallowing in them sometimes, and so they do not have to do the hard work of analysis and original thinking.

For example, we know what we think about abortion, and we know that it is right/wrong depending on our beliefs, and we've got the facts and opinions already at hand to argue our position. We also know the straw man arguments to erect in order to win our argument (though we think those straw man arguments are "the facts" the other side believes in). That's not intellectual dishonesty— it is human nature. Most important, it does not involve critical thinking. We seek to reinforce what we believe on topics that we are familiar with.

In the past, I've tried to waylay this problem by asking students to argue in favor of multiple points of view. The result has been desultory at best: They tend to do one view wholeheartedly, and the others are weak, grudging. This is not recalcitrance – it is simply the way our minds work: we "see" our side and denigrate other sides. Yes, there are students who are able to see a larger spectrum, but I am writing about the more typical student.

Almost certainly, on the major topics of the day, the typical student could whip out a three-page argument in less than an hour that would parrot "received" wisdom for his or her point of view, and it would even give lip service to the opposition. There is no thinking, no creativity, no cognitive development involved in such an exercise. Writ large: a 3,000 word research paper on the same subject would yield the same arguments, complete with quote mining and the plagiarism of ideas, though perhaps (we hope) not specific copying/pasting of work.

But what if it is a new topic? I'm thinking of the recent ban on Muslims from certain countries which was proposed just last week as I am writing this. Surely,

that's worth exploring? Yes, but. But without highly developed critical and analytic skills, which they haven't developed yet, most students will gravitate to what they've heard, their prejudices, their tribalism.

What we want to accomplish is deep thinking, analysis, research, and entertainment of a variety of arguments, in order to create new arguments, new reasons, and new approaches to solutions.

So relevance backfires on us. Instead of creating opportunities for new thinking, relevant topics tend to be reinforcement topics. We aren't capable of seeing the other side (See binary thinking) except through jaundiced eyes. We aren't capable of meeting the opposition without disdain. Again, this is not an evil impulse or necessarily a lazy one – it is a human one.

Familiarity is the other part of this point. Students are familiar with the issues involved in, for example, the multiple wars in the Middle East or trade policies with China. Those are relevant and current – but they depend on factors that matter: socio-economic conditions actually stratify students into those who are familiar and those who are not. What we sometimes think of as common knowledge is uncommon knowledge, and so some students come into the conversation with a much greater comprehension of the contemporary issues because their parents discuss it at the dinner table after reading the *NY Times* or because the household makes it a tradition to watch and discuss the nightly news. Others will come in clueless – not because they are uninterested or dumb, but because it is not in their environment: they may have worked thirty hours this week and had no time to read

the news; they may have no supportive family structure and so no base for learning these things.

When we assume our students know things, we privilege certain students and undermine others. This is a far more serious issue than most of us realize. “In 1976, 24% of Americans in their late twenties had earned a four-year college degree; 30 years later, in 2006 the figure had risen to only 28%.” That isn’t a record to be astounded by, but the next part of these findings should make us cringe: Rich students’ achievement rose from 61 to 68% during that time period; poor students’ achievement fell from 11.5 to 9.5% (Tough 148). [These stats are a bit old for a good reason: the economic dislocation caused by government de-regulation of banks and other financial institutions, which hit low income students far harder than high income students, would paint an unrealistic portrait of the situation]. We know that more poor kids enter college than in the last century, and know that opportunity in the community colleges is good because of open access and financial support – but there is a radical and hurtful disconnect in achievement.

I think it is because our “relevant” education is not as relevant as we think it is, that our concern for social justice issues and current events, which is a real and benevolent approach to educating young people, may actually be backfiring on us. Richer students come to us with a richer background in the workings of the world and in the topics of the day.

Although it might sound counterintuitive, I argue that one of the benefits of using themed classes is that, properly chosen, they place all students in a position of

relative ignorance regarding the specific field of inquiry. They level the playing field a bit (not to the point of perfection, of course, since more privileged students still tend to have a larger background of knowledge and skills). Everyone becomes a learner, and everyone has the opportunity to contribute discoveries to the class. My classes put students in the position of the design/architecture students above: they must invent their approaches to solving problems. Everyone can explore and come to new and creative arguments and solutions – and that is the basis of critical thinking. And since a themed, project-based class by necessity becomes a community of inquiry, the students are pooling new knowledge in community to reach their goals.

I will also note that I am not an authority on any of the themes I teach, and that is deliberate: I, too, want to enter the classroom as a learner. Sure, I am the one teaching rhetorical analysis and critical and creative thinking, and I'm the one teaching the basic composition of argument – but if I can be a subject-matter learner alongside my students, we all gain. [I have, however, read multiple books on each of the themes, so I am more knowledgeable than the students, though far from an expert].

Another critique I have with traditional English 3 classes is the **rush to argument**. I've even heard people refer to the class as an "argument class." While the end product should be the ability to write a fine, clear, and logical argument, the emphasis should be on the thinking that leads to that argument. I have used "Inquiry Before Advocacy" as a title on this paper for a reason: we should emphasize and

focus on the process of fair and insightful inquiry and analysis that involves a myriad of sources from a variety of points of view before we ever reach the point of sifting through them and reaching a stand we can advocate for.

In short, I think we can improve our teaching of critical thinking by paying attention to the brain science, including the brain's role in confirmation bias and the brain's delight in learning new things. If we propose a class in contemporary events that the students are already saturated by, we will be asking them to assemble hackneyed arguments; if we propose a class in a field that will improve their lives and that requires refereeing among different points of view, we will be asking for original critical and creative thinking – and that's the goal.

P. So, Jeff, what do you propose?

Briefly, what kinds of classes fill the bill? I am proposing four themed classes that I think will be useful for students' future school and career lives and that take them out of the mundane. Each of these classes involve solid science grounding, including the cognitive sciences, as well as broader fields across the curriculum. The classes include the following and will be developed more completely in section III of this project:

- *Our Distracted Minds*. Based on work done by Adam Gazzaley, a professor of Neurology, physiology, and psychiatry at the University of California, San Francisco, and Larry D Rosen, professor emeritus of Psychology at California State University, Dominguez Hills and a *Psychology Today* blogger, this class will focus on the reality of our modern age, which is an age of distraction. Although our brains evolved to do one thing at a time as a matter of survival and we have no way to increase our capacity for multi-tasking, our current age asks us to juggle many tasks while being interrupted almost constantly by stimuli from inside and outside our heads. In fact, we may be addicted to behaviors that are contrary to mental health and mental acuity. The class will explore two realms that are negatively affected by our distraction: the personal (How can I change my own world and/or my response to my world?) and the public (How can I change some sphere in my community?). These inquiries will lead to self knowledge and will turn the students' attention to the larger community to identify a problem and research to

- determine and argue for solutions. Examples of strategy to be included include meditation, yoga, exercise, and flow.
- *Thinking by Design*. The Thinking by Design movement has been influential in Silicon Valley and many other centers of innovation. It is, briefly, the use of design principles to solve problems. We often think of design when we do an analysis on a graphic image or when we visit a well appointed home. But those same principles are useful in re-designing our lives, as Bill Burnett and Dave Evans have done at Stanford University in a ground-breaking class, and in our communities and businesses. This class, too, will have two realms of inquiry (How can I change the design of my life so it works better?; how can I use these principles to change the larger community or environment?).
 - *The Wisdom of the Body (or the End of the Dumb Jock Jokes)*. Modern science has learned remarkable things about how the body and the mind work together, and the separation of mind and body are largely seen as a false separation. The athlete has wisdom that we can emulate; the body has faculties that we can exploit in fields other than sport. This class will examine research into the mind/body connections, the application of sport psychology and physiology, and the science of motivation and apply it to personal realms and community realms.
 - *This is your brain on nature*. Recent science has focused on the uses of nature for healing both body and mind. The findings are often startling with gradual drops in anxiety and depression, and quick changes in blood pressure and other stress markers. This goes beyond the general sense of feeling good

because we're out in the forest. Peer-reviewed studies show that our lives are enhanced in many ways by living in nature or visiting nature, and such things as student performance are measurably changed by nature visits. This class will examine the research about nature's impact on our brains and body and look for opportunities to change ourselves and our community.

Q. "I object!"

I have no illusions that I will dissuade instructors from their social justice agendas, their search for "relevancy," or their desire for contemporary issues. I share the messianic complex that leads us to want to change the world for the better by educating students on topics of current interest.

But I will remind them of the scientific issues outlined above and especially the example of the climate change deniers who, even in the face of solid science, persist in disbelieving climate change, no matter the consequences.

What is described in the last 100 or so pages is science. We know how the brain works and how it undermines critical thinking, so we ignore it at our peril.

If we put our students in a position of dis-ease (not to inflate the issue to real fear or anxiety because of the current political environment), and if we ask our students to evaluate their own lives and the community they live in, about which they already have strong opinions (and religious and moral positions), we will not be teaching critical thinking, nor will we be equipping them with tools that will allow them to waylay the brain's tendency to reinforce what it knows and what it believes.

The science is solid. I don't want to be a brain "climate change" denier. I want to teach the fundamentals of critical thinking as it is elucidated by brain science (and I want the students to learn about how their own brains work so they can begin the process of re-programming themselves).

II. Consideration of principles for critical thinking classes.

Let's return to the goals I established for English 3 classes:

A. GOALS

We are looking for critical thinking classes where students learn

- To open roads toward their own purpose in life and work;
- To develop their adult thinking potential;
- To build character through cognitive self control;
- To develop skills that employers will hire them for;
- To think freely, “catching” ideas that inoculate them for the future;
- To question the patterns that are already built into their brains, ready for lazy recall, and to reduce confirmation bias;
- To suspend judgment (inquiry before advocacy) until all of the evidence is in;
- To practice falsification (challenge) so when they arrive at an opinion, they are confident that it is the right one;
- To resist binary thinking in favor of complications; and
- To become mental athletes, ready for the future.

Truly, this is not a list confined to *English 3: Critical Thinking* but one that would be useful throughout the curriculum. But I'm focused on this specific class for now. So, if we take what we know about our students' brains and how we all learn, the task now is to put these two things together.

We will meet these goals through a structured plan for *English 3:Critical Thinking* that is based on the following explorations:

Jeff Burdick / English 3 Sabbatical project: *Inquiry before Advocacy*

- A. Critical thinking is not an English thing
- B. Why don't skills transfer from one course to another?
- C. What is critical thinking? And how is it connected to creative thinking?
- D. The Brain: A whole bucket of metaphors
- E. What purposes do interdisciplinary *English 3: Critical Thinking* classes have?
- F. Sidebar: A diatribe against writing first and editing afterward, with detours into erudite owls, proper grammar, and second language learners
- G. Assignments and methods: Purpose, strategy, and objectives

B. Critical thinking is not an English thing.

Critical thinking classes on our campus include English, Communication, and Philosophy classes, and many students take the English version. All three are acceptable for CSU and UC credit as critical thinking classes. But we must recognize that critical thinking is not an English thing (nor a Communication or Philosophy thing). Critical thinking is a life skill, a career skill, and so certainly a whole curriculum skill.

This brings us to a problem that we frequently encounter: students often are unable to transfer skills from one class to another. Students who write brilliantly in an English class may well produce a term paper in Biology that is nearly unreadable. “Why don’t those English teachers teach writing??” echoes down our hallways, and we English folk cringe. It even happens inside of our own department: a student may earn top marks in English 1A and not transfer the same writing and research skills to English 3. We glare menacingly at our colleagues, just sure that they aren’t doing their jobs.

But they are – *we* are. What isn’t sinking in is that these skills aren’t class-specific skills but life skills.

So the question is, why? Why don’t students who learn to write a well organized argument in English 1A transfer those skills to a history class and argue cogently for the interpretation of a primary historical document?

There are two considerations here, I think, and I’m not running into research that would help, though John Bean suggests that “students [don’t] transfer

knowledge from the business writing course to the finance course, apparently because they regard[] the curriculum as a sequence of isolated courses with little connection to each other.” (45)

First, I think this is a matter of student perception: We write essays for English; we write something else for other classes. Students simply don't connect the basic skill of writing to more than one discipline. When they write an essay, they have methodology and strategy and instructions; when they arrive in a Biology class and need to do a disease report, for example, they flounder because they don't know exactly where they are situated, nor do the directions give them similar grounding.

We would be surprised if students didn't notice that walking across campus is like hiking in the mountains with the difference being the surfaces and probably the footwear. In fact, we'd be surprised if students didn't notice that running is just an elaborate and lively form of walking.

Yet, the evidence is clear that students leave an English class and find themselves helpless in a new writing situation, which suggests that we (collectively) aren't making the necessary connections by being more flexible and more proactive in our writing and reading assignments. When we teach a student to read an essay, we are teaching a very specific skill. Why not also teach them to read a research study, a scientific analysis, etc.?

But there's something else that tends to happen in an English class that doesn't often happen in other disciplines: since we are so focused on the writing product (form, style, presentation, etc.) more than the content, we give tremendous scaffolding help through outlines and drafts – and perhaps most important in our

directions, which tend to assume very little expertise. The prompts I've seen for other disciplines tend to assume that the students know the conventions and expectations.

The “cure” for this is a more comprehensive view of writing and reading for our critical thinking classes, an awareness of genre--especially domain-specific genre—and the conventions of various disciplines. Evidence for an English essay may well be unacceptable evidence for a physics paper, but an awareness of various conventions can grow through the use of interdisciplinary classes that dip into other fields' practices.

The classes I am writing are particularly useful in this regard. Since they are interdisciplinary and will require reading across many disciplines and writing that serves many purposes, they should enrich the students' ability to move from one rhetorical situation to another and to decode prompts from different disciplines.

C. What is critical thinking? And how is it connected to creative thinking?

We're a little bit hampered on the first question because so many texts leap to the product—argumentation—before the thinking process, which I see as an enormous problem that compounds the issue of making decisions based on what we know as opposed to what we can learn. See, for example, John Mauk and John Metz's *Inventing Arguments*, which is a popular text for *English 3*. The very first page introduces argument, yet that is the final product of critical thinking, not the initial step.

Gary Kirby and Jeffery Goodpaster, in *Thinking*, open right up with a challenge: "In this book we encourage you to engage your mind and plunge into thinking." (1). *Engage* and *plunge* are excellent verbs here for they focus on the energy and the immersive fun of critical thinking. And though Kirby and Goodpaster will go on to explore thinking, the hows and whys, they won't reach a definition that helps us.

Linda Elder, quoted in *The Critical Thinking Community*, tries to nail it with one sentence: "Critical thinking is self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way." ("Defining").

On the other hand, "nailing it" might be an exaggeration when we're confronted with this:

A statement by Michael Scriven & Richard Paul, presented at the 8th Annual International Conference on Critical Thinking and Education Reform, Summer 1987: "Critical thinking is the intellectually disciplined process of

actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.”

(“Defining”).

Golly gee. This appears to be a horse designed by a committee: a cameleopard, perhaps. And worthless. But oh so carefully crafted to impress us! All that stuff crammed into two sentences!

Stella Cottrell in *Critical Thinking Skills* argues that critical thinking is a process, and she has summarized the steps in that process:

- Identifying other people’s positions, arguments, conclusions;
- Evaluating the evidence for alternative points of view;
- Weighing opposing arguments and evidence fairly;
- Being able to read between the lines, seeing behind services, and identifying false or unfair assumptions;
- Recognizing techniques used to make certain positions more appealing than others, recognizing false logic and persuasive devices;
- Reflecting on issues in a structured way, bringing logic and insight to bear;

- Trying conclusions about whether arguments are valid and justifiable, based on good evidence and sensible assumptions;
- Presenting a point of view in a structured, clear, well reasoned way that convinces others (4)

This list actually isn't a process that makes sense as a task list, but it does cover the basic territory of what needs to be accomplished, so it is a useful touchstone.

My stab at a definition: *Critical thinking is the internal, deep, and rich play of evaluating an issue or problem from as many points of view as practical to reach a solution or proposal. The external product of critical thinking for our purposes is an argument where original and creative findings are presented and supported to the benefit of the reader or listener.* [italics for emphasis].

I want to focus on “original and creative.”

We're returning to those neural pathways for a moment. We'll remember that when we start thinking and experiencing things, our neurons are firing up pathways which in turn ignite whole networks of neurons. And we'll remember the illustration of the metaphor (My love is a red, red rose) where the brain seeks high and low to find connections that will yoke together all the disparate images and sensations into meaning. That, in chemistry, is creativity. When we present our brains with a unique problem, they go to work, and the product –if we have “fed” our brains with enough disparate facts and situations, if we have given them time to work, and if we've exercised our brains so they are flexible –the product is

something that is new. That really is what creativity is all about: connecting things that haven't been connected before. We create something new, sometimes startling.

Ken Robinson (whom many have seen on Ted.Com where he dismantles the modern educational system) writes the following in his book *Out of Our Minds:*

Learning to be Creative:

Teaching for creativity involves asking open-ended questions where there may be multiple solutions; working in groups on collaborative projects, using imagination to explore possibilities; making connections between different ways of seeing; and exploring the ambiguities and tensions that may lie between them. Teaching for creativity involves teaching creatively (269).

That is a fine description of the classes I teach.

I read a study many years ago that made me realize something quite horrible about modern schools. It was said (and I'm doing this from memory since I haven't been able to track down the article) that a child of five who is given a metaphor or simile, will come up with ten or more connections in a few minutes, whereas a child of seventeen in the same situation will be lucky to come up with three or four. What kind of simile? "School is like baseball." Some possible answers: *education and sport both require dedication. There are goals. Both can hurt. Both can end in victory. Both can end in defeat. Both require special equipment. There are stars in both. There are duds in both. Some people have advantages in one sport or one discipline over other people. A pencil is like a bat – both can score, both can strike out. A ball is like an idea that we toss around. We have to do them in special places. Etc.*

What has happened? Why can a five year old come up with a whole list?¹¹ And why can a seventeen year old come up with only a couple? Creativity (the ability to connect neurons across the brain to “unrelated” things) has been severely damaged by the schooling that children go through. There’s only one answer in our schools, and it must be the right one, so we mustn’t take risks.

I actually have done this in some of my English 1A classes. On the first day of class, we get into groups of four with a single piece of paper in the middle. I establish the simile and time the students: seven minutes. A group of four students, working together (and usually laughing like crazy as they come up with often ridiculous connections, which I encourage) can generally come up with five to seven answers in seven minutes. At our final, after eighteen weeks of working together on critical thinking, we do it again “just for fun.” I think the record is twenty answers in seven minutes.

What has happened? We cultivate creativity by exercising our critical thinking, seeking solutions, opening the floodgates for our neuron pathways. And we cultivate laughter in the classroom. I’m convinced that laughter is a creative lubricant. My goal is to free creative people so they can have the mental dexterity of five year olds.

Yes, engage minds and plunge into the play of thinking. Think broadly, imaginatively, and rigorously. The brain enjoys it.

Seriously, our brains love the process of thinking and pump out a charge of happiness hormones, especially when we create a new connection, a new idea.

¹¹ My list was done in 120 seconds, as fast as I could type them, which means I’m closer to five years old than seventeen, which my wife will attest to.

So, in my view, critical and creative thinking are precisely linked, and a good class will encourage students to play around with ideas as they do their research and thinking until original solutions come to the fore.

“Let’s play!”, we should say at the beginning of each class.

And what are we playing with?

D. The brain: a whole bucket of metaphors.

Creativity is common to everyone. We are in constant creative mode, though many of us deny it – or stifle it. We create through metaphor, letting analogies lead us to meaning. When we recognize that Mom is warmth and smiles and lunch, we've already begun the process of creating meaning through metaphor.

What's happening? We are creating neural pathways:

warmth → Mom ← lunch.

Those pathways become more sophisticated networks as we learn more about her:

\$\$ allowance → Mom ← "Clean your room!"

get added to warmth and lunch.

In short, we think in correspondences. As Kirby and Goodpastor note, At the heart of creativity, language, understanding, and thinking is the metaphor. . . . When we take the old and change it, we are using the metaphorical ability of our mind, the ability to look at one thing and see another. . . . We know and understand the world through metaphors. If language is the mode in which our mind understands the world, and if metaphors are at the heart of language, then metaphors are at the heart of our understanding of the world" (126-127).

Our thinking is made up of metaphors. In fact, much of this project has been predicated on established metaphors that allow us to grasp chemical reactions in our brains: neural pathways and networks are fundamentally visual representations of something that we can see (a pathway in a wood; a net like a

spider web or a fisherman's tool, or a network like interconnected computers) so we can grasp the meaning. There are, in fact, no recognizable pathways through our brains, no interlocking nets.

But you might remember when I extended the metaphor to make a point. I said that certain experiences "gouged" the pathways deeper. Surely, this is completely at odds with the operation of the brain since what is actually happening is a strengthening of the axon and its protective myelin sheath – but the image of *gouging* made the point better than the more prosaic, truly scientific explanation. Why? Because it is more visceral, more descriptive, and so immediately grasped by the brain as a true representation of the complicated idea I wanted to convey. I asked your brain to find representations, both connotative and denotative, of *gouging* and apply them to your pathway representations – and your brain did it. And your brain probably delighted in it and rewarded itself with a tiny hit of happiness hormones.

Every time we add something to our knowledge, we build new pathways through metaphor. In 1964, *Mary Poppins* came out to great critical acclaim and, among fifteen-year old boys, to general horror. We were far too sophisticated for that kid stuff. But we had contests to say the word of the year as fast as possible, *supercalifragilisticexpialidocious*, a word that almost everyone on planet earth learned and understood within moments of first hearing it. (Yes, I just typed that without a typo without even thinking about it, so engrained it is in my neural networks after fifty-three years of only occasional repetition). Diabolical Disney composers sent a new portmanteau word into our brains and let it ricochet around

the pathways to find ways of meaning. “Where shall I connect this?” says the brain, and it goes in search for likely neurons: *super* is easy. *Fragile* is also easy, but does it quite make sense? What do I do with *Cali*? Perhaps California beach days and long sunsets? The entire brain lights up, stores the word everywhere it goes as it picks up possible pieces of meaning, and then tries to make it into one thing. This word is connected to fun and funny and something stupendous, the brain decides – and keeps on working to enrich that initial definition. It also, by the way, connects to its actual context of flying nannies, dancing penguins, dancing chimney sweeps and the fact that chimney sweeps in the nineteenth century were small children who died awful deaths, and Dick Van Dyke and Mary Tyler Moore, and then Mary Tyler Moore as a news reporter who just recently died and the memory of us standing in the middle of the street (we were always in the middle of the street for some reason) chanting the word under the summer sun – in an ever-expanding cloud of meaning.

We’ll also note that that cloud of meaning is made up of the external suggestions (the word) and the internal, highly personal connections. Someone else might not know about dying chimney sweeps or sitcoms from the distant ages of TV, but I do, and so my meaning is universal in part and personal in part, public and private. That word evokes what Disney wanted it to evoke – but much more in my private world.

And both universal and personal depend on something specific: we need stuff in our brains. The more we have in our brains, the more our brains have to work with, the more neurons that giant, silly word can rub up against to see whether there is potential meaning there.

And this brings us to an observation about the evils of our modern world that may be the most important problem we teachers need to address.

Quick: Can you name ten people whose phone numbers you know without looking them up?

Ten years ago, most people would have said, “yes.” Now, almost no one could say, “yes,” and most of us would confess that we really need to think in order to dredge up our own¹².

Can you recite the opening paragraph of the *Declaration of Independence*? Probably not, though it contains some of the most important declarations in the history of the modern world, and you’ve probably read it a hundred times. How about the *Ten Commandments*, which you probably have seen hundreds of times?

No. Almost no one has basics memorized.

We have all the information we will ever need in our pocket: a quick search can give us the population of Zanzibar, a recipe for a wicked frat party drink, and the best place to eat sushi. We can scan through Aquinas’s proofs for the existence of God. We can, with one touch of a button call anyone we want. We can always look up what Thomas Jefferson wrote.

But as long as we keep our memories in our pockets and in our hands, we keep information from residing in our heads where our nifty brains can go searching for connections.

¹² Oh, boy, synchronicity is at work. A few minutes after I typed this paragraph, someone asked me my cell number – and I had trouble coming up with it until I actually tapped the keys of my desk phone to renew the pathway. No, senility hasn’t set in – I just don’t call myself.

Unless we populate our brains with stuff¹³, our brains will flail around helplessly, making commonplace and hackneyed connections that don't grow our understanding.

We need to look stuff up and remember it. We need to memorize stuff so it resides in our brains. We need to create new stuff so the stuff in our brains becomes more accessible and more interconnected. And, especially, we need to explore new fields that will matter to us to give new context and new stuff for our brains to play with.

Presenting new information, new disciplines, new contexts is a moral imperative for educators. That's how students learn something new – entirely new – so their brains have new playgrounds.

“The limits of my language are the limits of my life.” (qtd in Kirby). That quote from Ludwig Wittgenstein introduces a specialized type of knowledge that we need to develop more fully: our vocabulary. It is literally true that we cannot think what we have no words for. So we need words, thousands upon thousands of them with all of their connotative and denotative meanings and associations. Our brains crave words, and new words are put to work in the neural pathways, increasing what we can think because we have more connections to work with.

When we enter a new discipline (as my illustrations below will show), we learn a new vocabulary, and with that new vocabulary, new neurons and pathways are born.

¹³ *Stuff* is from a Greek word that means “to draw together.” Old French picked it up and modified it to mean two things: “to furnish,” as in drawing together a room, and the stuff that one furnishes with, “the furniture.” Old English brought those meanings over under the word *stuff* both as a noun and as a verb. This is nearly perfect for our use: stuff draws together the furniture of our minds, and that furniture is the stuff we stuff into our brains.

<A sidebar on something that fascinates me. Remember mirror neurons and their ability to help us learn new things? That is also reflected here with the idea of vocabulary. If we think of the gymnast who was doing a one arm giant with a release, he was presenting a new “vocabulary” word in the high bar world, and that became a new communication with his buddy who picked it up, embellished it by combining with another “word” (flip), and created something new. This is why so much progress, scientific and otherwise, is incremental: Darwin did not discover the idea of evolution just because of his own observations. He was building on a body of knowledge that gave him vocabulary that allowed him to take that next step.>

An illustration: In high school and college, I took a bunch of exploratory courses. This is when educators actually thought that wandering around the academy and finding interesting things to do was valuable. We have forgotten that in the rush to the goal post of a diploma – to our detriment.

I took a music theory class. I had a voice back then, and on my balmiest days, I considered a career in music to augment my acting career.¹⁴ Basic music theory, some composition, a lot of listening and transcribing. None of it “relevant” to anything I’ve ever done since. Yet rarely a month goes by that there isn’t some connection, some explanation I’m trying to make, that doesn’t involve harmonics or intervals or something else I learned from that class. I learned to think differently because of music theory. I learned facts and processes and ways of thinking and new

¹⁴ Truth be told, I wasn’t talented enough in music, but I wasn’t admitting that. The acting career fell by the wayside when I discovered that talent and hard work weren’t enough – it also meant very late nights every night and being with people all of the time. I don’t believe there are many hermit actors. I am an ensemble of one.

structures that my brain could use for other purposes – and it does. Above all else, I learned a new vocabulary that my brain can play with to make new connections. I regularly teach metaphor to my poetry students in terms of harmonics, and it works.

The same thing happened with linguistics when I learned to transcribe with the International Phonetic Alphabet – a fine skill, painstakingly learned in hours and hours of practice, that is absolutely useless in my current life– except that I learned to listen in a way that I had never done before and I learned the patterns of language. These are skills that matter when I am listening to a L2 learner struggling with English. Steve Jobs attributes much of his success to a calligraphy class he took on a whim, which informed his sense of design and elegance.

Everything we learn can become stuff our brains play with, and our brains are ridiculously resourceful, glancing around the neighborhood to find connections that we might never have dreamed up—but the brain did. I never would have thought of teaching metaphor through harmonics, but my brain startled me one day with the news: “Wow! Aren’t the multiple meanings of a metaphor like the harmonics of a chord?” Why, yes they are. Thank you, brain.

But the brain needs stuff. Lots of it. Tons of it. Petabytes of it. Remember that we have 100 billion neurons to entertain, and each of them is seeking to hook up with up to 10,000 other neurons. The least we can do is feed our brains.

Experiences. Readings. Memorized facts and passages. Structures from many fields of thought. Interpersonal conflicts and loves. Pain. Conversation. Pleasure. A memorable tasting of wasabi. A walk in the woods. A religious practice that centers our whole selves. And words, words, words. In short, a life that allows memories to

be stored safely in the brain, not stuffed into a pocket with the remnants of crumbled breath mints and an old – what’s this? A month old Girl Scout cookie.

New fields, new interdisciplinary inquiries, new facts, new structures for thinking – these are among the goals of themed classes.

Which brings us back to where this section started: metaphors. When we are making these correspondences to create and expand meanings, we are also making choices – often unconsciously, sometimes privately and sometimes as a part of a community (tradition), and those choices often direct the approach to a subject. George Lakoff and Mark Johnson, in *Metaphors We Live By*, illustrate this:

Argument is War.

- Your claims are *indefensible*.
- He *attacked every weak point* in my argument.
- His criticisms were *right on target*.
- I *demolished* his argument.
- I’ve never *won* an argument with him.
- You disagree? Okay, *shoot!*
- If you use that *strategy*, he’ll *wipe you out*.
- He *shot down* all of my arguments. (4, italics original)

Their list continues for a full paragraph, and they explain that this is how we see argument, as a life and death, win or lose proposition. But it is more than just seeing argument as war – **it creates the experience of argument as war**. We often get heated up by argumentation because we become so invested –because we are in danger of losing. Lakoff and Johnson continue:

It is in this sense that the argument is war metaphor is one that we live by in this culture; it structures the actions we perform in arguing. . . Imagine a culture where an argument is viewed as a dance, the participants are seen as performers, and the goal is to perform in a balanced and aesthetically pleasing way. In such a culture, people would view arguments differently, experience them differently, carry them out differently, and talk about them differently. (4-5).

In short, metaphors are not merely a way to illustrate but a way to embody the idea so the idea is an experience, and that experience, often vivid and visceral, creates the environment the idea lives in: When we argue, we go to war.

This idea, of course, folds back on one of the aims of this project: to look at common ground arguments as a superior form of argumentation, for common ground arguments do not attempt to *demolish* the opposition but to find ways to cooperate and reach understanding. We will change the metaphor, and we will change our behavior.

At one point in my career, I directed our writing center, so I went to writing center conferences. At one, a woman (whose name I have forgotten, alas), said that she had changed the culture of her department, and even to some extent her college, by refusing all war metaphors in meetings. That's worth some thought: when we change our metaphors, our attitudes change, too. Why? I suspect it is because we are drawing on neuron pathways that are unrelated to strife, and so we "see" the discussion as something different.

E. What purposes do interdisciplinary *English 3: Critical Thinking* classes have?

I tipped my hand very early in this project: I am proposing critical thinking classes that sprawl across multiple disciplines we teach in college. An ideal class will include opportunities for exploration and application of ideas in the social sciences, liberal arts, hard sciences, maths, and physical education. So, why?

- The more entry points (connections to their own worlds and majors) we provide for students the more playful and receptive they will be.
- I believe firmly in the idea of a liberal education, which eschews early specialization in favor of educating the whole person so the student has a broad context in which the specialization may live.
- I am convinced that critical thinking requires the whole brain since it is always engaged in attempt to bridge disparate ideas, and the more neuron centers we can engage, the more in-depth our thinking; the more disciplines we engage, the more approaches we have to any problem.
- I am convinced by science that students who are threatened or under stress will not learn, so our subject matter should be outside of their fear zones, but still firmly applicable to their own life experiences. I want to reduce the stress of having a class that focuses on sensitive issues of self (race, religion, socio-economic status, etc.).
- I want to increase the everyday applicability of what they learn.
- I also want to take students out of their comfort zones (which may sound a bit contradictory to the previous point) where they already know their minds

on a subject. This is to undermine the confirmation biases that were discussed earlier and to undermine the leap to conclusions before the thinking.

- I want students to engage in the ways that they are most comfortable. Once I introduce these courses, some of them will naturally attract certain career-bound students (kinesiology and pre med for the body class, for example) because they will feel “at home” in the discipline and it will enhance their understanding of their own careers, but even general students who haven’t yet made up their minds or students who have disciplines that are not directly affected by the inquiry will find ways to engage from their own interest centers.
- I want the student community to have a shared body of knowledge to work with where they—and I—are all learners.
- I want to introduce classes that are focused on improvement of the self and of the community, and each of my classes does that by focusing on issues of the mind and body as they influence learning and the quality of life.
- Especially, I want students to learn new vocabularies and new metaphors that they can take back into their own disciplines, more playgrounds for their brains.

F. Sidebar: A diatribe against writing first and editing afterward, with detours into erudite owls, proper grammar, and second language learners.

En garde, Peter Elbow.

It has been popular among English professionals for many years to encourage a writing process that tells students that they should just write without any worry about grammar, punctuation, etc. “They can always fix that later,” says the adherent to this ridiculous, hurtful, diabolical plan.

This is a disservice to writers, and it is one of the reasons that employers frequently rail against schools: “They don’t teach writing any more!” And it is a reason that so many hopeful applicants for English teaching positions are unable to write coherent and correct letters of introduction.

It is also contrary to the writing process of nearly every educated person I know.

Most of us write grammatically (not perfectly, but substantially), and for most of us, punctuation and the other finer points simply drop into the text while we are writing. Why? Because we were taught the basics and we practice the basics in everything we do. In former lives, I worked for companies across California, working primarily with top executives, and I remember only one who did not write fairly well (In fact, my primary work for him was rewriting memos that were nearly indecipherable, which means that I was frequently establishing policy – though I don’t think he ever realized that.). Writing was simply one of the skills that allowed executives to find themselves in the big corner office.

We write grammatically because we practiced writing grammatically.

When we suggest that our students “worry about that later,” we are causing patterns that are incorrect to be engrained as habits (and we’re back to neural pathways: the who/whom conundrum is a neural pathway network that, when strengthened with the correct orders, serves us well and turns us into erudite owls who recognize the objective *whom*).

Yes, of course, any careful writer returns to the text to refine, and no doubt some errors have crept in and need to be corrected.

But when we “worry about that later,” we must substantially rewrite every sentence where an error occurs because correcting errors really means rewriting – and that means new thoughts are coming in (which *might* be useful) – but that will change what follows, so more rewriting will follow. In short, we’re piling on extra work for our students and crippling their writing. No wonder so many students simply loathe writing essays.

We are also taking away a skill that is essential in business and professions: the ability to quickly tap out a memo or program plan or a bid without painstaking and time-consuming editing. The days of talented grammar-savvy secretaries are mostly over.

Let’s move to a sports analogy. Instead of shooting 1,000 baskets with concentration, finesse, and evolving technique, the player simply shoots without paying attention to form, without real focus, and without self-evaluation. “I can always go back and fix the baskets later.” That flies in the face of everything we know about learning.

This is not an argument for diagramming sentences, which probably turns more people into axe murderers than good writers. It certainly isn't an argument for *drill and kill* grammar exercises. But it is an argument for teaching and re-teaching and exhibiting and especially requiring proper English use in everything, including e-mail ¹⁵.

Am I a fuddy-duddy? Yes, enthusiastically so. It is, in fact, my primary claim to fame.

I want my students to leave my classes confident that they can write quickly and accurately – and get a job. I want them to be aware of language and the quiver of tools they have in their language so they can fit into any situation necessary.

So, back to *who/whom* and the complete and utter horror those two words and many other niceties of the English language cause. Why should we know that *who* is the subject of a verb and *whom* is used for everything else? (that, by the way, is the whole rule). In casual conversation, *who* stands in for everything. But we don't write the same language we speak unless we are English professors who simply love to *whom* people to death. Nor must we all begin to ask people out by saying, "With whom will you dine on Saturday?" That's artificial and silly.

But there is something important about language subtleties. For good or bad, our language is a primary tool for society's judgment of us. How we speak and write determines whether we will get the job; how we speak and write may well determine whether we keep the job and move up the career ladder. Elevated but

¹⁵ Yes, it is still hyphenated as long as I am on planet earth; the future can destroy our language after I am gone. Why? Because if we write it *email*, we must pronounce it *eh-mail* or we must violate one of the few pronunciation rules left that is fairly stable. It should not be our goal on earth to create nonsense unless we are Lewis Carroll who does it better than we do.

grounded language is a status indicator. (On the other hand, hyperventilating language that tries to impress is also a status indicator, but it evokes the wrong status judgment). It should be our goal to teach them that language and to have them practice it in our assignments.

In a delightfully pluralistic society, all sorts of language subtleties and varieties swirl around us. And we speak many different Englishes: I speak one language when I'm with English colleagues (Yes, we *whom* with great zeal and alacrity), another with my wife, another with my students, yet another when I am in a high-stakes meeting. I listen to my students speak in their ordinary language, sometimes tinged with accents and jargon, and I enjoy it immensely. Their language is usually appropriate for casual conversation or discussions. But we must choose the appropriate language for the audience, and that means learning the appropriate languages – and learning what's appropriate in what circumstances – and that means that we want the entire symphony of English “instrumentation” at our fingertips. When *whom* is correct, we want to use it when it will benefit us.

But if we start answering the phone with “To whom do you wish to speak?” we'll probably get a bunch of hang-ups—or gales of laughter from our friends.

A student who speaks or writes with a clear ability to negotiate the appropriate language for the situation has an enormous advantage over a student who has just one language to draw on. Standard English isn't stuffy or ornate, but it does allow levels of expression, and correct usage and grammar are elevated forms of standard English – the forms that signal that we are educated.

What should we do when a student writes in a language that isn't quite correct? I'm thinking especially of L2 learners who are wrestling with the ridiculous rules governing articles (a, an, the, etc.) or are still figuring out the peripatetic -s that governs much of the subject/verb agreement. Native speakers tend to do these correctly just by ear; L2 learners struggle to develop that ear. The best way, I've found, is to silently correct these little errors on their papers. I mark through the incorrect word, supply the correct one, and where appropriate, give a very, very brief explanation. I don't allow these to influence the final grade until very late in the semester, and even then, I'm lenient. It is my observation that most L2 learners want to reach fluency, and so my silent corrections are appreciated –and studied. English is an infuriating language, so support is necessary. Kindness is always necessary.

G. Assignments and methods: intention, purpose, strategy, and objectives

Establishing specific goals for different types of assignments is essential. A thoughtful approach to designing a course is not only a way to ensure that the overall arc of the class takes students to the destinations necessary (student learning outcomes and all that), but also focuses the instructor's attention on intentional teaching: what is it I want to accomplish with this assignment, and how will I know it has done its work?

Constant reflection on the efficacy of assignments leads to re-invention, and that is what keeps our classes fresh and alive – and it is something that students pick up on. Students know whether we are making stuff up along the way, finding something to occupy them, or just getting through a day—and they rebel by tuning out. On the other hand, intention, clearly exhibited in the syllabus and in the assignments and class plans, is a surefire way of engaging students. They know we have purpose, and that means they have a reason to go along on the journey.

Below, I've divided the types of assignments I am building into my class plans into three categories: class preparation, class time, and major papers. Each of these spills into the other categories (We discuss papers in class, discuss readings on-line and in class, etc.).

To recap the basic structure of the classes: The whole class will engage in a semester-long exploration of the problem posed by the class (distracted minds, for example) from a variety of viewpoints: scientific, personal, societal, psychological, etc.). Students will be developing two research/argumentative projects, one of which will address a personal approach to solve the problem (not necessarily

personal to the individual student but to an individual person): In personal life, how does one work with the disconnect of the one-track mind in a multi-track world?, and one of which will address a community or societal problem: In a workplace or in a community, how does one address this same problem to increase, for examples, productivity or sanity?.

1. Class preparation (homework and on-line discussions)

Readings

The readings for each class will include two or more books (1) to establish the field of study and create a common understanding, and (2) to present “solutions” or approaches to mitigating the problems in the field. For example, for the class, *Our Distracted Minds*, we will be reading a book by Adam Gazzaley and Larry Rosen *The Distracted Mind* to explore the cognitive science exploration of multi-tasking and its challenge to productivity (personal and public), and *Finding Flow: The Psychology of Engagement with Everyday Life* by Mihaly Csikszentmihalyi¹⁶, which offers solutions to the distracted mindset. These two books will be augmented by articles from different disciplines that either complicate the original understanding or provide a variety of possible solutions to consider.

Students will be conducting original research to develop claims and arguments, which means they will be looking at additional books and articles from a variety of disciplines as appropriate.

¹⁶ Amaze your friends by casually citing this author as “me high, cheeks sent me high.” Fortunately, he goes by “Mike.”

2. Responses, summaries, and rhetorical analyses

There are a variety of ways to learn how to read at the level required for proper critical thinking, and those start with two different types of writing assignments: **responses**, which are personal observations of one's own reaction to the reading material and which are informed by personal experience, and **summaries**, which are mostly objective, focused reductions of the material to the essentials. The third is the most rigorous – and most useful: the **rhetorical analysis**.

Responses or reflections (around 700 words, typically) are often useful ways to engage students. As they read, they respond to the text in a variety of ways, some of them quite personal and judgmental (I hate this stuff! because . . .) and others personal because they begin the process of connection and application of ideas (I remember that time when . . .). I assign responses periodically and they earn a low number points. And, though I skim them and assign established point values, I do not *grade* them except in two cases: (1) the student has gone well beyond the expectation both in terms of word count and critical analysis, which earns bonus points and encourages future responses that are insightful; (2) the student has done a cursory and sloppy job, which causes the grade to be dinged. Otherwise, the assignment stands as a student's opportunity to explore a bit, and that earns points so they do the work.

A summary is a basic building block of critical thinking. A summary of an article, a chapter, or an idea is an objective distillation of an idea and its unique presentation in an article or book to (1) capture the idea for the student's own use and (2) demonstrate understanding of the idea to other readers. A summary is often

required in arguments and other critical thinking documents to establish the territory of inquiry, and they are essential to the required annotated bibliography. Developing the ability to summarize accurately in various lengths (required for different purposes) is a key component of learning to read difficult material as the student must develop full understanding before summarizing. Summary also requires objective thinking that moves the idea away from the “I” and personal experience and personal reaction into a more universal stance. Summaries are graded with relatively low points but with strict attention to accuracy, objectivity, and completeness. I sometimes require three different summaries of a single short work: a 25 word summary, a 100 word summary, and a 200 word summary, for examples. This requires the student to think deeply about essential points, but this also gives students flexibility for various uses of summary.

Rhetorical analysis is the most important learning tool for students embarking on the path of critical thinking. It requires objective consideration of a work (an essay, for example) to determine a variety of rhetorical (language) techniques and why they are used. Mark Longaker and Jeffrey Walker write in *Rhetorical Analysis: A Brief Guide for Writers* that

Rhetorical analysis is the study of persuasion in order to understand how people have been and can be persuasive. We analyze rhetorically for two reasons (1) so that we can become better judges, and (2) so that we can become better advocates. . . . rhetorical analysis will not immediately answer the questions that most people would like to ask: Do you agree with the argument. (3).

I would take another step in the reasons: (3) we also analyze rhetoric so we can fully understand what is – and is not – obvious on the page. Deep reading not only attempts to understand what the writer is presenting, but also to understand the writer, why he/she is writing, how the writer's stance matters, and who the intended audience is so the idea(s) does not live in isolation but within the larger conversation of community or a specific dialogic exploration.

But perhaps the most important point in Longaker's and Walker's passage is the suspension of the critical decision: "Do you agree with the argument"? When we can take in information, various points of view, factual studies, and considered opinions without leaping to a decision, we are engaging in high order thinking. We are undoing (unlearning) our preconceived notions about a topic.

We discussed the difficulty of unlearning earlier in this project – and those caveats pertain here. The hardest thing we do as critical thinkers is to take ourselves out of the situation so we truly understand other points of view before re-introducing ourselves into the topic. If we go back to Alice and Tom and their dress code adventures, seeing and understanding the point of view of an administrator is nearly impossible because they are too invested in their peer-group conversation: dress codes are stupid and evil and so are the administrators who impose and enforce them.

It takes practice to suspend belief and decision, and when we attempt to do that on an issue that matters directly to us in an emotional way, we nearly always fail. This argues for working with argument topics that (1) are distant from our self definition (our religious creeds, our history of discrimination, our personal identity)

and (2) that still enhance our personal experience and growth in life and community.

So, how do we do effective rhetorical analysis? I've prepared a mini-textbook on the steps (See Section IV), but the gist of the process is to answer this involved question using elements of the text (word choice, syntax, allusions, rhetorical devices, etc.) as evidence of an argument about the complete and complex meaning of the work:

Who said/wrote what to whom for what purpose and in what circumstances?

The **WHO?** is the author as he/she presents the self on the page. If we look, for example, at Martin Luther King's *Letter from Birmingham Jail*, we know the *who* is himself, the historical civil rights hero, preacher, husband, and father. But that's only a tiny piece of the *who* who wrote this. It is his presentation of self, his choice of vocabulary, his expression of his own importance and purpose, his syntax, and his stance toward his opposition that we look at closely. We want to know the *who* who appears on the page, who is explaining the civil rights struggle to us. By knowing the author intimately through his writing techniques and choices, we create a stronger bond with him or her, and we understand the issue on more than a surface letter.

The **WHAT?** Is the material presented, and that includes the historical background that provides context for the discussion of, for example, just and unjust laws. But it also includes *how* the material is presented. The fact that MLK presents his material with copious use of biblical allusions, for example, enriches the *what* by making it more universal and more applicable to the morality/religiously-based audience that he was addressing. It also includes the structure of the essay, and in

MLK's case, the structure is informed by the letter that the clergymen sent him – but it is also a structure that is fractured by the dissent of groups he considers to be natural allies – and that fracturing of topic is reflected in the structure of the essay, giving us a sense of discord and complexity that matters to our understanding of the overall essay.

The *to WHOM?* question addresses the issue of audience. We know that MLK was addressing nine clergymen who wrote him a letter – but he published it in the *New Atlantic Magazine*, a publication that was largely read by New England liberal and educated citizens, so we know that the audience was larger than he purports. Internal evidence (again, word choice and rhetorical analysis) suggests that he was writing for multiple audiences from his fellow (and often undereducated) civil rights victims to his fellow clergymen and highly educated peers.

The *FOR WHAT PURPOSE?* Is focused on motivation: Why did he write this? and the answer is, on the surface, fairly obvious: he wanted people to join the push toward civil rights legislation and fair law enforcement. But as we look carefully at the document and establish what he actually does in it, he is revolutionizing our view of justice, among other things. He redefines what justice is (not laws, but God's laws and laws that equalize all men under the umbrella of true, immutable justice). But there are other purposes here, and they seem to expand the more we look at the document (and I've probably taught it fifty times by now). He establishes himself as a great fulcrum point between conflicting interests groups: white moderates versus black oppressed people; white churches versus black churches; complacent black citizens who accept the status quo versus the Nation of Islam, a radical and often

violent opposition party to normal society. So the answers to *for what purpose* are far more informative and fundamental than we would expect on first reading.

Rhetorical analysis requires very close reading, usually of just a portion of an essay to dig down below the surface and get at the guts of a piece to establish what we call the **rhetorical stance**, the overall impression and expression of an argument that presents an idea.

The product of rhetorical analysis is an argument, and so these assignments are frequently the first introduction and attempt at argumentation: we argue for a specific interpretation of a work that is informed by our reading and by very close analysis of the text itself. Since rhetorical analyses are major stepping stones toward the goal of critical thinking and the base work for final arguments, they are assigned higher point totals, and the grading is more focused on coaching than the grading for responses, for example.

On-line discussions (class integration, problem solving, application of principles within the community, sharing resources and insights)

I enter the on-line world kicking and screaming. I am a “high touch” instructor, and when students aren’t in the room with me, I am just sure I am losing them. However, I have discovered that one part of on-line instruction is an excellent tool, and that’s on-line discussion. In fact, I have used this tool more and more over

the past few years and am actually contemplating the possibility of moving some of my classes to full hybrid status in order to maximize the discussion feature.¹⁷

What do I and my students gain from on-line discussions?

1. More writing practice. The more a student writes, the better writer he/she becomes. (I often send e-mails to students who are exhibiting writing problems with a gentle reminder of a rule or convention. I also send e-mail to students who are doing excellent writing or contributions to the discussion to praise and thank them for developing the community's discussion. This type of interaction is essential – and greatly appreciated).

2. More considered discussion; more thoughtful responses.

3. The ability to synthesize arguments.

4. The ability to pose problems or scenarios that require deep thinking, and the consequent group development of multiple solutions (sometimes conflicting, sometimes harmonious and able to be reconciled).

5. The ability to draw out reticent in-class speakers.

What do I lose by using on-line discussions?

1. Time. If students aren't aware that I am reading their posts and reacting to them, they don't take the conversation seriously. However, answering posts is incredibly time consuming. I have determined that my time is worth investing in this – probably even more than grading shorter papers in terms of student responsiveness.

¹⁷ Hybrid classes also relieve pressure on classrooms, and that is becoming more important as we grow our student body faster than our buildings grow.

2. Class time. Which means that class hours must be carefully constructed to maximize learning and to apply those solutions proposed in the discussion.

4. Class time

Lecture

Carl Wieman, an atomic physicist at the University of British Columbia, notes that lecture “defies decades of findings from cognitive science, not the least of which show our severely limited capacity to retain the volume of information regularly thrown from the lectern . . .” and he continues with what the article’s author calls his “characteristic frankness,” suggesting that lecturing “is like relying on medieval medicine while boxes of antibiotics abound. It’s the pedagogical equivalent of bloodletting.” (Scott).

Lectures are nearly always a waste of time. The literature is full of declarations that students lose concentration after ten minutes, though that is not actually established by studies. But unless we believe that learning is a passive activity, that we instructors are the *sages on the stages* who can fill our students’ heads like they are empty grails, we have to admit that lecturing does not actually teach what we want students to learn: to actively engage with material so they “own” it. This long quote from Alison King in *College Teaching* makes some good points:

This model of the teaching-learning process, called the transmittal model [lecturing], assumes that the student's brain is like an empty container into

which the professor pours knowledge. In this view of teaching and learning, students are passive learners rather than active ones. . . . According to the current constructivist theory of learning, knowledge does not come packaged in books, or journals, or computer disks (or professors' and students' heads) to be transmitted intact from one to another. Those vessels contain information, not knowledge. Rather, knowledge is a state of understanding and can only exist in the mind of the individual knower; as such, knowledge must be constructed--or re-constructed--by each individual knower through the process of trying to make sense of new information in terms of what that individual already knows. In this constructivist view of learning, students use their own existing knowledge and prior experience to help them understand the new material; in particular, they generate relationships between and among the new ideas and between the new material and information already in memory (King).

So, I don't put much emphasis on lecture. A ten-minute introduction to an idea or a skill, and we're off into a task.

In fact, I think it is fair to say that my classroom is nearly completely "flipped," so students do the "lecture" work through their at-home reading so class time is full-involvement time: discussions, problem solving, and projects.

5. In-class Discussions: problems and projects; presentations; metacognition

Machiavelli runs into John Locke at Starbucks. There are only two seats left, so they sit in a corner together and strike up a conversation: what will they talk about?

and what agreements/disagreements will they have? Develop a dialogue or summarize their conversation, being sure to distinguish specific points with examples. Be prepared to present your dialogue or summary to the class – and present your analysis of your own methodology (metacognition) in accomplishing this task.

That's an actual assignment for a discussion in my English 1A class. It requires that students understand Machiavelli right down to the core, John Locke right down to the core – and then it requires them to project themselves into a creative space where the dialogue is possible and then into a referee mode to manage the conversation. Then, they need to move into a presentation mode so they can present the argument and the justification for that argument to the class. Finally, they have to present a narrative/analysis of their methodology, in other words, a metacognition report: how did they go about doing this? what worked? What didn't? We know, for example, that every group will go off topic during the discussion (students are human, after all, and like all humans, their lives are intimately interconnected with their readings, so Machiavelli's political discourse might well remind them of the movie they saw last weekend – and that sidebar is encouraged so long as it is short and they are soon back on topic). The question to report on is whether that diversion was helpful or hurtful to their project. This is a self-correcting mechanism in the class. When students discover that certain types of diversions free the mind to greater creativity, they continue to allow it; when they discover that other types (jokes, gossip) hamper their ability to do the assignment, they put brakes on their own conversations.

So, what's going on here? Is this just my ploy to sit and play computer games while the class dreams of Starbucks? No, I'm fully engaged, and so are the students. I am moving from group to group, nudging, offering complications, correcting where someone is off base – but mostly observing IQ points rubbing together to make fire. And fire of imagination is alive and well in the classroom.

So, what has been accomplished?

- First, they must regulate themselves and organize their work, choosing which parts of the different authors' works they will address.
- Second, they need to set parameters for the discussion.
- Third, they need to exercise their knowledge of the authors in order to find the conflicts and spin them out.
- Fourth, they need to organize their material for presentation.
- Fifth, they need to stand and present before the class, which exorcises the greatest fear students seem to have: public speaking.
- And sixth, they must reflect on the work they've done. The work they have done is original, imaginative, difficult – and finally rewarding. This is critical thinking.

Near the beginning of the semester, these exercises last for 20-30 minutes; by the end of the semester, a full two hours might be spent on a single, complicated scenario like the one above.

For *English 3: Critical Thinking*, the exercises tend to take the form of problem solving. For example, for the *Myth and Mind* class, students were given an ancient Australian myth with no context at all. They had to interpret it in the light of

what they had discovered through our explorations of various theoretical frameworks for myth: Levi-Strauss's structuralism and Jung's collective unconscious, for examples.

But my favorite in-class assignments for critical thinking are class projects that last several weeks and that require extensive cooperation, research, and organizational skills.

My Brain, Body, Learning class was focused on how we learn and how that learning can be applied to "real world" problems. So, their project was to design a sports medical clinic from the ground up, deciding on every element of the building as an enhancement for learning and healing: what color should the walls be if we are to be in a healing and learning environment? What will increase patient receptivity to physical therapists' teaching of new body movements and exercises? How will pain be mitigated by elements in the waiting room? How will the contrasting desires for privacy and camaraderie be served by the architecture? How do we lift mood and communicate the professional demeanor that a medical clinic needs?

These questions were not developed in the assignment: these and a hundred other questions arose as they started applying the considerable knowledge of learning they had developed to this specific scenario.

The kicker? Every single decision they made, right down to the color of the floor tile needed peer-reviewed research to justify the decision.

The results? Without any prodding from me, some of the groups built scale models. One built a CAD model on a computer screen so we could actually "walk into" the facility and peer around. "Footnotes" appeared as floating references so we

could see the basis of the decisions. A waterfall was a major feature of one waiting room with the accompanying research on positive ions and how they affected mood and healing.

So, let's take a moment and look at what this assignment required:

1. The group had to organize itself and its considerable workload in some fashion.

2. The group had to invent its own assignment with only the bare instruction to build a sports medicine clinic, which meant that they had to refine their ideas, argue about the various approaches, and consult people (and articles and websites) to determine what a sports medicine clinic should look like.

3. Design the clinic.

4. Do outside research, which meant division of responsibility –and required interdependence and trust.

5. Make a hundred or more decisions about various elements they were putting into their design.

6. Create a finished product.

7. Observe themselves throughout the project and record the processes, problems, solutions, and dead ends (most groups assigned a specific metacognition reporter who spent most of the time recording the *how* rather than work on the project, but that was a choice the individual groups made).

8. Create a coherent “sales” pitch for their clinic, an argument for its efficacy and beauty (the conceit was that they were to sell their plan to investors).

9. Present and report on the process.

Amazingly fun. Great learning on several processes that matter.

So, how do I grade something like this? First, I NEVER EVER grade a group on anything. I once left a graduate certification course because the idiot professor could only grade groups, which meant that I did the work and everyone got the “A.” I’m not naming names, but don’t bother to sign up for the community college instructor certification at CSU Fresno. Stupid, idiotic waste of time.

So, how do I grade something like this?

I don’t.

Seriously, I don’t.

I assign X points to the project. Everyone who participates fully earns full points. People who miss more than one class period during the project get dinged. Is the point learning? Or is the point a set amount of points and the negotiation for “is this enough to earn the “A”?” How does one grade an introspective student who thinks deeply and interjects really fine points occasionally while the rest of the group energetically jousts through ideas? Is one method superior to the other? I don’t think so. So, my measurement is full involvement.

Don’t people just sit in the corner and contemplate their phones or check their eyelids for leaks? That hasn’t happened yet – and *yet* includes four years of projects, at least four to six a year. There is so much work to do, and it is so much fun, and there is so much peer pressure that I haven’t encountered a student who didn’t leap in. If it happens, I’ll simply ding the grade.

So, you've now visited my classroom and discovered that it isn't at all what a normal classroom looks like, which means that you either think I should be banned from education forever or you are joining the brigade. I hope you'll join.

6. Major writing assignment types (2 iterations in the basic class structure).

Writing is finally the heart of a critical thinking class. The process of writing not only helps students think in critical and creative ways, but it also records their thinking so it can eventually become a formal presentation (an argument). I believe firmly that the more *mindful* writing a student does, the more he/she improves. By *mindful*, I mean writing that is not just slap-dash, but writing that is thought about, ruminated about, and massaged into shape in its informal iterations, and formally outlined and strategized for its formal iterations.

My English 3 classes will incorporate two cycles of writing from informal to formal: the first as a fully coached progression of tasks and skills; the second as a more confident and comprehensive presentation of mature thinking. The two cycles are progressions from (1) informal to formal and from (2) exploration to presentation. *Informal* does not mean sloppy or ungrammatical or unstructured; *formal* does not mean stuffy and academic. We strive toward a natural, standard, slightly elevated English (no jargon, no slang, etc). Each cycle progresses as follows:

1. A prospectus, which might be a letter addressed to 'dear reader' who is someone who knows nothing about the subject. This is an informal and tentative

presentation of the idea the student wants to write an argument about. It will lightly survey the field, pose a research question and summarize a few of the major arguments (on various sides) or present evidence that leads to conflicting interpretations. This paper gives me the opportunity to approve the topic (As long as it meets the criteria I outline in the prompt, I say “yes” unless it is a hackneyed topic or one that I’m not comfortable with because it might put other students in an uncomfortable situation – or, as often happens, the student proposes something that he/she might actually be embarrassed to present to the class. Topics are public because they are often discussed in on-line discussions and in class, and the topics are the impetus for oral presentations. For some reason, students don’t think about standing in front of their peers when they are suggesting topics for themselves.

2. Exploratory report (including annotated bibliography), which might be in a journal form and which surveys alternative points of view and approaches to the subject. Sometimes this is a review of literature; sometimes it is a survey of ideas – the subject of the project dictates the form here. This is not rigidly structured, but takes the form of inquiry and exploration: what do we know? Why do people think that? The point is to survey as many credible points of view on the topic as possible without taking any sides. Yes, of course, we are realists: we know that everyone takes sides, but the point here is to stay as noncommittal as possible and present each of the points of view accurately and fairly.

NOTE: I avoid a rough draft until this is done. The problem with rough drafts (as explained by John Bean) is that students think most of the work is done in a draft so all they have to do is polish it up a bit. In fact, if we can stay away from rough

drafts while the initial thinking process is taking place, we can avoid setting the argument in stone before the thinking takes place.

3. A draft outline (*in any format*) that includes a rock solid, fully developed claim and clear development points (topic sentences). The student and I are both aware that this will be modified as the project moves forward, but this is an opportunity for discussion, tinkering, and re-strategizing. I require one of two actions before this comes to me: an office hour chat to discuss the outline, or a 25 minute writing center visit to discuss the outline. I expect the outline to be marked up with alternative strategies, questions, re-orderings, etc.

4. A draft essay, which approaches formal status, that includes a metacognition report, full citations, and a submission to turnitin.com to catch any errors. This is a peer-review opportunity, and I urge writing center sessions and visits with me. The point is to catch errors and opportunities so the student produces an “A” paper in the end.

5. The formal argument. Polished, professional, complete.

Grading writing

I have a few things to say about grading student writing. The first is that I always read everything a student writes. Yes, this is a crushing load, but I am fortunate that I've trained my attention span to bridge hours instead of minutes, and thanks to my knowledge of brain research, I turn off every kind of alert and enter the Great Cone of Silence. When I am reading papers, nothing gets in the way of my focus.

Some reading is quick and my feedback minimal: "Nice job. Watch out for comma splices." But for major assignments (exploration, draft, final—though if the student has been paying attention, the final requires almost nothing but a metaphorical pat on the back), I write extensive commentary that includes what the student is doing right and what the student can improve – and how to improve it. I often set a goal for the next paper, "Use more illustrations that will involve the reader," and I look for evidence that the student attempted it in the next paper. This is truly a time suck – and unfortunately for carpal tunnel sufferers, this is also a strain on the hands and wrists. I have recently started dictating my comments using speech-to-text software (in fact, about 20% of this project has been dictated and all of my research notes were dictated).

The worst of the grading is the on-line discussions, and I have never learned how to do that more quickly. I must respond to writers, yet thirty writers with three or four posts each is crushing – and when discussions from various classes overlap, it is madcap. I try group responses, picking up strands of conversations, and I don't

respond to every post but at least once to each person – but that’s easily 30 responses every few days – for each class.

Unless students are regularly getting constructive criticism and unless they feel that their work is valued, they will not improve – nor will they be committed to their writing.

So, I spend many, many, many hours reading student papers. Fortunately, I mostly enjoy it. One last point: I pick up each paper with the expectation that it is an “A” paper no matter what the student’s prior essays were like. It is up to the writer to prove that the “A” is warranted. This allows me to “catch” the underperforming student who suddenly breaks through and “gets it.”

III. The Courses

There are four course proposals below. The first one *Our Distracted Minds* is done in some detail with reference to the COR Student Learning Outcomes and Course Objectives and with specific assignments presented as examples. Additional assignments along with detail, points, and grading standards will be added on the Canvas course management system when the course is offered; additional syllabus-specific information will be provided on the syllabus.

The other three course proposals do not go into as much detail since that would be redundant. The four courses include the following:

A. *Our Distracted Minds* focuses on an evolutionary conundrum: our brains evolved to become useful in a life that no longer exists: the hunter/gatherer tribal life of the African savannah. That life required intense focus on one thing at a time. However, we carry those same minds around in twenty-first century cities and expect them to function well. We ask them to multi-task, but cognitive scientists have proven definitively that multi-tasking is impossible. What we do is multi-switching, which sacrifices accuracy, insight, and speed for the appearance of getting a lot done. Our brains are amazing, but they are programmed for a life we no longer live. So, we'll be looking at the science of distraction and ways to "hack" our brains and our lives so we can function effectively and without mental, emotional, or physical harm. The class is supported by groundbreaking work in the cognitive sciences.

B. Thinking by Design. The Thinking by Design movement, partly developed by Stanford faculty, has been influential in Silicon Valley and many other centers of innovation. It is, briefly, the use of design principles to solve problems. We often think of design when we do an analysis on a graphic image or when we visit a well appointed home. But those same principles are useful in re-designing our lives, as Bill Burnett and Dave Evans have done at Stanford University in a ground-breaking class, and in our communities and businesses. This class will have two realms of inquiry (How can I change the design of my life so it works better?; how can I use these principles to change the larger community or environment?).

C. The Wisdom of the Body (or the End of the Dumb Jock Jokes). Modern science has learned remarkable things about how the body and the mind work together, and the separation of mind and body are largely seen as a false separation. The athlete has wisdom that we can emulate; the body has faculties that we can exploit in fields other than sport. This class will examine research into the mind/body connections, the application of sport psychology and physiology, and the science of motivation and apply it to personal realms and community realms.

D. This is your brain on nature. Recent science has focused on the uses of nature for healing both body and mind. The findings are often startling with gradual drops in anxiety and depression, and quick changes in blood pressure and other stress markers. This goes beyond the general sense of feeling good because we're out in the forest. Peer-reviewed studies show that our lives are enhanced in many ways by

living in nature or visiting nature, and such things as student performance are measurably changed by nature visits. This class will examine the research about nature's impact on our brains and body and look for opportunities to change ourselves and our community.

Commentary on the goals (from section II).

GOALS: We are looking for critical thinking classes where students learn

- To open roads toward their own purpose in life and work;
- To develop their adult thinking potential;
- To build character through cognitive self control;
- To develop skills that employers will hire them for;
- To think freely, “catching” ideas that inoculate them for the future;
- To question the patterns that are already built into their brains, ready for lazy recall, and to reduce confirmation bias;
- To suspend judgment (inquiry before advocacy) until all of the evidence is in;
- To practice falsification (challenge) so when they arrive at an opinion, they are confident that it is the right one;
- To resist binary thinking in favor of complications; and
- To become mental athletes, ready for the future.

Each of the following course descriptions meets these goals. They remove the lazy thinking problems, encourage falsification without personal cost, and

especially provide the opportunity to learn life skills. For example, by learning about how our distraction-heavy society harms us and how to mitigate one of the largest problems we have in learning, students are learning to take control of their own lives. In fact, these classes have the potential to effect extraordinary personal growth.

English 3: Critical Thinking

Theme: Our Distracted Mind

We begin with a poet's lament:

It is a silver morning like any other. I am at my desk. Then the phone rings, or someone raps at the door. I am deep in the machinery of my wits. Reluctantly I rise, I answer the phone or I open the door. And the thought which I had in hand, or almost in hand, is gone.

Creative work needs solitude. It needs concentration, without interruptions. It needs the whole sky to fly in, and no eye watching until it comes to that certainty which it aspires to, but does not necessarily have at once. Privacy, then. A place apart—to pace, to chew pencils, to scribble and erase and scribble again.

But just as often, if not more often, the interruption comes not from another but from the self itself, or some other self within the self, that whistles and pounds upon the door panels and tosses itself, splashing, into the pond of meditation. And what does it have to say? That you must phone the dentist, that you are out of mustard, that your uncle Stanley's birthday is two weeks hence. You react, of course. Then you return to your work, only to find that the imps of idea have fled back into the mist.

It is this internal force—this intimate interrupter—whose tracks I would follow. The world sheds, in the energetic way of an open and communal place, its many greetings, as a world should. What quarrel can there be with that? But that the self can interrupt the self—and does—is a darker and more curious matter.

-- Mary Oliver.

This is a class about dark and curious matters: the world conspires to interrupt us, our internal voices interrupt us, and our minds, willingly—eagerly—go along.

Our best intentions to think, to study, to write, to read, to have dinner conversation with friends, to watch the game, to get out and exercise so we grow strong, to hike in the woods for renewal – are crushed because there is a cute puppy chasing a squirrel on the screen in front of us.

Or a friend texts: “Sup?”

Or a phone rings

Or an advertisement pops up in front of our reading

Or someone interrupts to say, “Did you hear?”

Or a news alert beeps

Or a pesky little brother barges in

Or our own jackrabbit minds decide to go on a wander through last weekend, or anticipates the test next week, or replays an argument with a friend, or plays an endless game of “what if?”

Or we’re thirsty

Or hungry

Or just really want to go outside and play catch.

We live in a world of interruptions from the outside and generated within ourselves. That's reality. So what will we do with it? How does it affect us?

This is not a class that trashes technology or leads us back to a golden age when we didn't have technology. We love our stuff: Phones and tablets and computers and Xboxes are practically glued to us.; televisions dominate our rooms¹. These are tools that make our lives better in many ways. And we love the feeling of being connected to friends, being in the middle of action, receiving information by the bucketful at every minute. It is stimulating, energizing.

But this is a class that asks a simple question that has enormous, complex, and essential answers: ***How it possible to live a full, productive, happy, and creative life while being constantly interrupted?***

Our study will be focused on the brain and the body as they relate to our ability to function in the real world. We are stuck in an odd evolutionary conundrum: The physical and chemical evolutionary development of our brains has brought us to the height of intelligence so we use language better than any other species on earth – and so we can actually think about our own thinking, a skill that might be unique on earth. We are creative and often startlingly innovative. Hamlet muses:

¹ I own one iPhone, one iPad, two desktop Macs, one MacAir, one Dell laptop, and one TV. They are all in use nearly every day. I have a Facebook account. I am not a Luddite.

What a piece of work is a man! How noble in reason, how infinite in faculty! In form and moving how express and admirable! In action how like an Angel! in apprehension how like a god! The beauty of the world! The paragon of animals!

A paragon– who can't quite keep the mind under control long enough to listen to a whole song on the radio without the brain dashing around looking for something else to do. A paragon who is constantly aware that life is happening somewhere else to someone else and so doesn't experience life itself. A paragon who finishes a night of studying and then says, "I read it, but I don't remember what it said."

Plus, our bodies are built for action: long runs, dashes from the tigers, scaling trees for fruit. But we sit on our rear ends for hours each day, relegating motion to an hour here or there: the gym, a run, a walk, perhaps.

Yet, that intelligence and chemistry, configured as they are, make us perfect for hunting and gathering on the savannah and for avoiding being eaten by tigers. Our brains are capable of thinking intently about one thing at a time, so when we hear the rustle in the bushes we judge instantly that it might be a hungry tiger looking for lunch. Not wanting to be that lunch, our brains and bodies respond with hormones and operating instructions: Flee! Fight!

We turn our full attention on the bushes around us, remembering which fruits are poisonous and which are delicious. An error, and we will die, so our brain is focused intently on searching the ground – but also searching memory through

neural pathways – to decide whether to scoop that fruit into our basket or turn away. Our brains are perfect for avoiding tigers and finding fruit.

But since we don't live on the savannah and tigers are rare in our neighborhoods, we're living with brains that don't quite fit the world we are living in. And we are living in bodies that are built for other things.

Since we don't get to trade in our "primitive" brains for "advanced tech" brains, we need to explore ways to "hack" our world so it fits our brains or "hack" our brains so they fit our world. A little of each, most likely. Our research will take us into a variety of fields: cognitive sciences, sociology, psychology, kinesiology, and maybe even philosophy and literature.

Wait! I signed up for an English class!?

Yes, this is a critical thinking class, and it fulfills the critical thinking element for transfer. We will be focused intently on learning the skills of critical and creative thinking, rhetorical analysis, and argumentation in this class. And we'll do it within the context of the inquiry above. Since the topics under consideration are not "English" topics, we'll be ranging far and wide across the academy, likely hitting on approaches in common with many different disciplines: sociology, psychology, anthropology, biology, etc. This interdisciplinary approach will broaden our horizons and give students options to use their own fields of studies and personal interests.

The explorations we will do and the arguments we will create will have real world applications in our individual lives and in our communities and workplaces.

The goal of a critical thinking class is to develop the skills and practices of critical thinking so they become part of our intellectual DNA.

A summary of the class plan.

Assignment specifics will be found on the class calendar and on the individual assignment pages on Canvas

My motto, which I hope you will adopt:

If you aren't having fun, you aren't doing it right.

1. **Lectures:** I generally do not lecture for more than about ten minutes of each class to present ideas and problems. Class time will mostly be spent in discussion or in problem solving. We learn by doing. That places a responsibility on each student: we must do our reading and we must come in prepared for discussion. That means that the reading is done and there are ideas and questions jotted down for discussion.

[(Examples are for the project, not for the student introduction:) Lecture on *ethos, pathos, and logos* with examples as preparation for identifying those three rhetorical principles during group discussion].

2. **Quizzes:** I do not quiz under normal circumstances. However, if people come into class unprepared, pop quizzes (horrible ones with high point totals) will suddenly

become a part of the class. Handy hint: Be prepared and actively participate, and if someone else isn't prepared, urge him or her to be prepared in the future.

[Example: a true/false test that requires student recall of reading that was to be done for the day's class. The pop quiz would be given only if students were clearly unprepared, and would take no more than five minutes of class time].

3. **Assignments:** All assignments will be posted by me on Canvas, and most assignments will be submitted through the link to turnitin.com on Canvas.

4. **Grades** will always be up to date and posted on Canvas. Check grades frequently. Although I try very hard to record scores accurately, my fingers sometimes have other ideas.

5. **Help!?** I am always happy to help with assignments (That is why I am here). I will read drafts of papers up until 24 hours before the assignment is due. Simply drop by my office and we'll go over the paper and look for ways to improve. Do not rely on me to proofread – that's a skill students need to develop.

Don't just e-mail drafts to me. If my office hours conflict with a class or work, contact me and we'll find another time. Also note that I am often in my office at other times, and I'm happy to help.

In addition, we have an excellent tutorial center. Many of the tutors there have had my classes and know what my expectations are. Use them. Note that for each argument, a meeting with me or with a tutor is a requirement.

And don't overlook the great help that our research librarians offer: Need a source?
They will help find it.

6. Books & Readings: We will be reading three books, each of them fairly short and filled with excellent information.

The Distracted Mind: Ancient Brains in a High-Tech World. By Adam Gazzaley and Larry Rosen. MIT Press. 9780262034944²

This book will introduce us to the brain science and the ramifications of that brain science in our lives. It is relatively short but thorough.

Hamlet's Blackberry: Building a Good Life in the Digital Age. By William Powers. Harper Perennial. 978-0-06-168717-4

This book will provide some insight and some historical context for the distracted mind topic.

Finding Flow: The Psychology of Engagement with Everyday Life. By Mihaly Csikszentmihalyi. Basic Books 978-0465024117

Mihaly Csikszentmihalyi is someone we will call Mike – because that's what he asks people to call him, though you can amaze your friends by glancing at

² The long number at the end of each of these entries can be used on Amazon, Chegg, etc., to ensure that you are getting the proper book.

that name and slurring slightly through this phrase: "Me high, cheeks sent me high."

Since we are looking for ways to live in this chaotic world of interruptions, this book's findings will serve as one model. Flow is something that athletes are more in tune with usually (that sense of being so in the moment that anything is possible), but it has great applications in the rest of our lives. I depend on flow for my task-filled life, including grading mountains of English essays.

We will be supplementing these readings with articles from journals and perhaps from various news sites. Students will be doing original peer-reviewed research to support explorations and arguments.

7. Writing: We will be doing a variety of writing assignments to reinforce our reading skills, encourage creative and critical thinking, and present arguments.

A. Responses, summaries, and guided writing. These short projects (250-750 word minimums, depending on assignment) help students develop skills and explore topics such as identifying fallacies, applying principles to individual situations, etc. There will be seven assignments; students will choose five to turn in, though the first response assignment and one summary assignment are required of all students). There is no extra credit for turning in all seven.

[Examples: A *response* is an informal musing on a reading. We might, for example, ask for a response on an article about distraction from a *Wired* magazine article; a *summary* is a formal and impersonal reduction of an

article; *guided writing* is an answer to a specific insight or problem such as the insight that it takes approximately twenty minutes to recover from an interruption.

B. Three rhetorical analyses (750 word minimums)

[See the rhetorical analysis handbook elsewhere in this project for examples].

C. Two formal argumentation projects each of which will include (1) an informal prospectus of one or two pages, (2) a 2,000 word review of literature on a topic with an annotated bibliography, (3) a draft outline with consultation, (4) a 1750 (first project)/2500 (second) word draft of the argument for workshop and commentary, and (5) a final argument paper.

[There will be two formal argumentation projects for this class: one will focus on an individual response to the issue of distraction in a specific environment. This need not be personal to the student. For example, a student who has an internship in a legal office could research the loss of productivity, increase in error rates, and personal cost of interruptions and argue for mitigation strategies. The second project will be focused on a larger community: using the same scenario, a student could redesign the workflow to avoid interruptions as a part of the office culture and argue for the program's adoption (students need not stick with the same scenario). Each project will consist of the same steps ranging from informal to rigidly formal, encouraging the "gear shifting" required for different audiences, and each is

cumulative in terms of gathering information and expanding critical thinking].

8. In-Class Discussions and Project. Full participation is required for discussions and projects in class. Students are expected to have completed their reading with excellent comprehension and are expected to bring in questions and items for discussion. Some discussions and projects will be graded for individual participation, and absences will cause grade deductions.

[Examples: in-class discussions will take place during each class meeting. We will (1) review readings and expand our thinking about them. (2) argue for specific application and/or interpretation of readings and related ideas, or (3) play the what-if game of applying our knowledge to specific scenarios. In-class small group discussions generally lead to whole class reports and discussions. A project for this class might include creating a solution to a large-scale problem. For example, a redesign of an elementary classroom and procedures to maximize student attention and therefore student learning].

9. On-line discussions. We will have a minimum of two on-line discussions, and we may have more. On-line discussions are asynchronous, so students will be able to drop in at any time convenient during the discussion window, typically a minimum of one week. Specific parameters will be set up for each discussion.

[Example: On-line discussions allow for more thoughtful exchanges between students because they allow more rumination time and more research during the actual discussion. We might look at Plato's *Phaedrus* and the issue of

distraction and critique the dialogue and apply it to modern times: is it a fair critique of the human condition today?].

10. Oral presentations: in addition to discussion group report-outs to the class, which are informal, there will be two individual presentations to the class, one following the submission of the first argument, one at the final exam meeting. Students who are doing closely related papers may choose to present together.

[Examples: we report out in groups nearly every class period, sometimes quite informally, sometimes formally with a fully developed but brief argument established and supported by the group. Groups share their findings with others, which increases value to everyone, and each person has the opportunity to speak up in a classroom environment. Given that public speaking is one of the great fears, these mini-presentations break down the panic. We also present each of our major projects in a formal but short (7 minutes or so) presentation that may be accompanied by slides or other visual aids. The second project is the basis of our final “exam” since that time is reserved for the final presentations (and we eat cookies)].

English 3: Critical Thinking

Theme: Thinking by Design

*If I had asked people what they wanted,
they would have said “faster horses.”*

--Henry Ford³

Henry Ford did not invent the automobile. He did something far grander: he made automobiles accessible to nearly everyone. He dreamed up a car that was less expensive and more reliable than previous ones. He dreamed up a way to build them that was faster and less expensive. And he dreamed up a way to make people *need* cars.

But is “dream up” the right way to explain what he did? He didn’t get hit by a lightning bolt out of the blue or awaken one morning with a fully formed idea. He wasn’t born with the ability to invent car manufacturing. And certainly no dream fairy came and conked him on the head. He prepared and thought and experimented. He talked with other people. And he focused on the customer/consumer. In short, he was just like us – but he went farther than most of us go and achieved more than most of us achieve.

He designed a car, and he designed a method to manufacture it – and he designed a way to market it. He made a fortune.

³ All of the quotes in this section are from “72 quotes about Design and Creativity.” blog.invisionapp.com/design-and-creativity-quotes/

What is the difference between *dreaming up* something and *designing* something? The difference is *intention*. Ford set out to do something and methodically solved problems, building toward a future.

- **He was curious,**
- **He tried stuff out,**
- **He reframed problems,**
- **He created the process, and**
- **He asked for help** (Burnett xxvi-xxviii).

The result was that he built a revolutionary product in a revolutionary way: the automobile and all that has come with it. Yes, he had setbacks and false starts along the way.

Sometimes when you innovate, you make mistakes.

It is best to admit them quickly,

and get on with improving your other innovations.

--Steve Jobs

“Great design is a multi-layered relationship

between human life and its environment.”

–Naoto Fukasawa

This is a class on thinking by design: that is, thinking with intention to produce something that is better, new, revolutionary, more pleasing, more useful, or more outrageous if that is the desire. Thinking with intention and by design is a mindset and a set of skills that we will develop in this class. And each of us will approach design in an entirely different way, depending on who we are, our authentic selves.

So, why? Why study and practice a different approach to thinking? Daniel Pink explains:

“The future belongs to a different kind of person with a different kind of mind: artists, inventors, storytellers--creative and holistic ‘right-brain’ thinkers whose abilities mark the fault line between who gets ahead and who doesn’t.”

Did we just cringe a little? We need to do art? We need to invent? We have to become “holistic” (whatever that might be)? Daniel Pink isn’t really suggesting that we must all paint Mona Lisa portraits. We can be creative in many different ways, and the most important way is how we think and organize our work and our worlds. That’s important because that is why we will be better than the competition when we go into our careers. Better at what? We will be better creators of value, better creators of organization, and better creators of ourselves and our own lives.

Better than whom? Our competition, which includes robots. Some futurists think that robots will be taking up to 50% of traditional jobs in the next several years. Our value to an employer is our ability to think in new, non-linear ways.

There is no design without discipline.

There is no discipline without intelligence.

–Massimo Vignelli

We can design nearly anything so it works better: our lives, our careers, our business, our relationships, our bicycles, our gym equipment, our studies. So, for this class, each of us will choose two focus points: one an individual design problem, and another community design problem. We will focus on the problems in order to intentionally build toward a process or a product. Our research will take us into a variety of fields that examine both the interior life (cognitive sciences and psychology) and the exterior life (sociology, perhaps manufacturing and business) – depending on the specific paper topics we choose.

My motto, which I hope you will adopt since it is fundamental to the thinking by design process:

If you aren't having fun, you aren't doing it right.

Books required:

Designing Your Life: How to Build a Well-Lived, Joyful Life by Bill Burnett and Dave Evans. NY: Knopf. 2016.

Although this sounds a bit like a self-help book that one buys at the grocery store, this is a bit different. Bill Burnett and Dave Evans are Stanford professors who teach the single most popular course on that august campus. They have used the same design principles that have turned Silicon Valley into the center of the technological world to teach bright and committed students to find their own life paths and goals.

Design Thinking by Nigel Cross. NY: Bloomsbury Academic. 2011.

An introduction to the world of design: racing cars to lemon juicers. We'll use this to learn the fundamentals of designing toward a goal, using creativity, method, and intention.

Out of Our Minds: Learning to be Creative. Ken Robinson. Capstone. 2011.

This classic book reminds us that we are creative and explains how we can develop our creative intelligence. It will also critique traditional education (which kills off creativity in favor of binary thinking and “correct” reductionist answers).

These books will be augmented by additional readings that will be available on the web and in databases.

English 3: Critical Thinking

Theme: The Wisdom of the Body (or the End of the Dumb Jock Jokes).

Cogito ergo sum

I think, therefore I am

René Decartes suggests that the body and the mind are separate entities and that the brain and the mind are separate entities: the mind inhabits the body and is superior to it. Much of our thinking about ourselves is based in this basic belief. And, in fact, many of us live as if our bodies are merely vehicles for the brain: we sit and stare at a monitor or a phone screen for hours working with our brains, entertaining our brains, and perhaps creating new ideas with our brains.

But we aren't brains residing in bodies. In fact, it is clear that our brain functions are not wholly located in our skulls – we have neurons throughout our bodies that communicate sensation, for example. Our bodies and our brains make up a single, inseparable system. And it is a brilliant system when we nurture the partnership. But too often the partnership is broken.

We feed our bodies –and too often overfeed them—so they can support our brains. And we exercise because we should. Some few of us are athletes and exercise because it makes us feel better and look better or because we get joy from running headlong into each other for a tackle or making goals. We like the camaraderie, the feeling of being fit, and the achievement of a fine back flip or the swish of a basket.

We even divide people artificially into *athletes* or *brains* (jocks or nerds) as if athletes can't have strong brains or nerds strong bodies.

This class will focus on the body and its many strengths: it heals itself, it protects us, it “thinks” before our brains have a chance to think in an emergency. But most important, as Dr. John Ratey explains in *Spark: The Revolutionary New Science of Exercise and the Brain*, “the point of exercise is to build and condition the brain” (3). Recently, scientific studies have revolutionized how we think about the body and exercise: proper exercise can actually improve our intelligence and our capacity to learn and retain information. Proper exercise can also reduce stress, mitigate the effects of several modern maladies like depression and ADHD and Alzheimers, and improve our IQs. Literally, we can become smarter through exercise.⁴

This class is about our bodies in motion and how the partnership between the brain and body functions – and plays. Especially, students will have the opportunity to develop play and movement plans for their own lives if they choose to.

When we are exercising, what are we generally doing? Playing games: running is a game played against others or against the clock. Football and ping pong are games. Dance is a game. Weight lifting is a kind of a game as we increase weight and out lift our buddies. We enjoy games. In fact, our primary goal seems to be to have fun, and fun is good – and it is beneficial to our brains.

⁴ So, why are schools cutting out recess and physical education in the name of improving test scores? That is a question we can ponder, but the short answer is that school boards frequently ignore science in favor of honoring their prejudices (sort of like climate change deniers).

This is a good time to mention my motto, which I hope you'll adopt:

If you aren't having fun, you aren't doing it right.

The science of the body/brain connections is relatively new. In fact, neurogenesis (the production of new brain cells) through exercise is very new – and startling to researchers. So, we'll be working with a lot of recent peer-reviewed scientific articles to supplement the two books below. Those will be available on the web and through our library databases.

Books:

Spark: The Revolutionary New Science of Exercise and the Brain. John J Ratey and Erik Hagerman. NY: Little Brown. 2008.

This book focuses directly on the benefits of exercise, which mitigates much of the stress and many of the illnesses of modern society but which also improves our brains and ability to function in a variety of ways. A fascinating read.

Homo Ludens: A Study of the Play Element in Culture. John Huizinga. New edition?

This is a classic on game theory. We are players (that's what the title means: Man the player) and set up much of our lives as games. Even school is a game in many ways. We'll use this as one approach to looking at how the body and mind work as an example we can use to develop our own theses.

English 3: Critical Thinking

Theme: This is your brain on nature.

*“It is a scientific fact,” [Frederick Law Olmstead wrote in 1865],
“that the occasional contemplation of natural scenes of an impressive character ...
is favorable to the health and vigor of men
and especially to the health and vigor of their intellect.”⁵*

Actually, Olmstead didn't know that as a fact in 1865, but science has now proved that he was right. Olmstead, the man who argued for making Yosemite a park and who designed the great Central Park of New York City, was intuiting something that seemed true – and is proved true now that science has been able to measure the benefits of spending time in nature: we are smarter, more creative, less stressed, and happier when we spend time in nature.

Man is, by nature, a part of the natural world, yet most of us avoid nature as if it were poisonous. We go to great lengths to separate ourselves from nature, and we do so at our peril. The depression, stress, busy-ness, and aimless boredom that we feel is partly due to our separation from nature.

So, this class will focus on the brain and body science that explains what goes on inside us when we are (1) confined away from nature and (2) free to explore and play in nature. This will allow us to range far and wide in our research into various

⁵ qtd. in Florence Williams “This is your mind on Nature” National Geographic 5 April 2017. Nationalgeographic.com

fields including philosophy, biology, cognitive sciences, etc. as we learn to energize our lives and our communities.

We might even hug a few trees to thank them for their service.

Walden by Henry David Thoreau. NY: TarcherPeriger 2016.

This classic of American literature is really fun to read. Thoreau moved to a small cabin, which he built himself—badly, and spent much of his time doing nature studies and critique of “modern” American society.

Becoming Animal: An Earthly Cosmology by David Abram. NY: Pantheon. 2010.

Abram argues that we must recapture ourselves as animals in order to become fully human. He argues against the modern separation of body and mind. A brilliant and fun to read book.

The Nuts and Bolts of Course Design: Adherence to the student learning outcomes and objectives in the Course Outline of Record. (Examples are from the course proposal “Our Distracted Minds”).

The Course Outline of Record is the basis of course design because it is also the basis of transferability and articulation. We must meet the COR requirements exactly. In this section, I will show how each of the elements of the SLOs and SOs are met in course design for *English 3: Critical Thinking; Theme: Our Distracted Minds* as an example of how they will be met in the other course themes proposed.

As a reminder, this is the official approved COR SLO and SO requirement. The elements here will be discussed and illustrated below.

Upon completion of this course, students will be able to:

- 1. Identify and critically evaluate the differences between cogent and fallacious arguments in a culturally diverse context.*
- 2. Examine and interpret college-level texts including visual media and literature, with preference for non-fiction.*
- 3. Write multiple synthesized and documented critical analysis papers of at least 6000 words, with one essay of at least 2000 words.*

In the process of completing this course, students will:

1. Produce multiple synthesized and documented, critical analysis papers of at least 2000 words which:

- exhibits a sophisticated introduction, multiple body paragraphs, and a conclusion that expresses an arguable claim that aims to contribute to or alter pre-existing ideas on the subject matter*
- shows supporting details that exhibit critical thinking and use credible, multiple secondary sources*
- identifies researched and evaluated sources for use in the development of their own writing*
- demonstrates correct usage of MLA format with correct use in-text citations and a works cited page*
- illustrates appropriate and purposeful use of quotations*
- employ causal analysis, advocacy of ideas, definition, persuasion, evaluation, refutation, and interpretation effectively in college-level prose*
- employs an annotated bibliography of multiple sources*
- differentiate plagiarism from cited source material and correctly employ in-text citations*
- locate logical fallacies in others' writing and avoid them in their own writing*

- *match details to main point and with complex analysis*
- *recognize errors and revise compositions*
- *demonstrate awareness of third person/universal*
- *demonstrate awareness of a scholarly audience*
- *apply controlled and sophisticated word choice*
- *recognize and employ sentences that exhibit a command of the complex/compound with minimal comma splices, sentence fuses, and fragments.*

2. Demonstrate an ability to read and critically evaluate college-level non-fiction material from a variety of sources on themes from different content areas

- *recognize the difference between valid and sound arguments and invalid and unsound arguments*
- *classify deductive and inductive language*
- *recognize factual statements from judgmental statements and knowledge from opinion, identifying the deliberate abuses and manipulations of rhetoric*
- *propose logical inferences from information presented*
- *identify and employ denotative and connotative aspects of language*

3. Be able to communicate analysis/synthesis through class (and/or group) discussions.

SLO	SLO unpacked	Course elements	Comments
I. Identify and critically evaluate the differences between cogent and fallacious arguments in a culturally diverse context.	<p>A. Identify the differences between cogent and fallacious arguments</p> <p>B. Critically evaluate the differences between cogent and fallacious arguments.</p> <p>C. Do so in a culturally diverse context.</p>	<p>1. Rhetorical analyses</p> <p>2. Literature review</p> <p>3. Annotated bibliography</p> <p>4. Practice structure and logical construct as a building block of ethos for the authors – and for the student through outlines.</p> <p>5. Assignment of studies from other cultures in order to open discussions about the differences culture might have on the studies and findings.</p>	<p>Consistent with this project’s overall method, inquiry precedes argumentation, so these steps (literature review, rhetorical analyses, annotated bibliography, and outlining) are thinking tools, preparing the mind and the materials for a proper argument.</p> <p>Much of the work on the cognitive sciences is developed in an international context, so finding studies that will allow students to compare cultures and methods will be a natural outgrowth of their research.</p>
II. Examine and interpret college-level texts including visual media and literature, with preference for non-fiction.	<p>A. Examine (read) college-level non-fiction texts</p> <p>B. Allow fiction texts as adjunct materials.</p> <p>C. Interpret those texts.</p> <p>D. Include interpretation of visual media</p>	<p>1. All proposed texts are college-level.</p> <p>2. Storytelling is a part of the exploration papers and reflections; and storytelling is a part of the presentation of ideas in articles, so fictional elements are considered as adjunct to the hard science.</p> <p>3. The major text, <i>The Distracted Mind</i>, offers charts and illustrations that will be used to demonstrate and practice analysis of visual media.</p>	<p>Story telling is an effective argumentation technique and is encouraged as a part of the assignment. In fact, a student might use fictional elements (novels, plays, etc.) as ways to develop their research.</p>

<p>III. Write multiple synthesized and documented critical analysis papers of at least 6000 words during the semester, with one essay of at least 2000 words.</p>	<p>A. Write at least 6,000 words of critical analysis papers.</p> <p>B. One paper must be at least 2,000 words.</p> <p>C. Each critical analysis paper should include synthesis (bringing together evidence from the discourse community with the students' insight) and all sources should be properly documented.</p>	<p>1. Students will write 2,250+ words in rhetorical analysis and 5,000+ words of original argumentation.</p> <p>2. Each of the major arguments will be 2,500 words and will be supported by a 2,000 word critical review of literature.</p> <p>3. All papers require appropriate documentation schemes (MLA or a substitution, depending on the paper).</p> <p>4. Each critical analysis (argument or analysis) will require synthesis of sources.</p>	<p>Writing is the key for this class, so there is a strong emphasis on writing as part of the critical thinking process and as the presentation methodology for the majority of the class content. However, oral presentations and a considerable amount of discussion will also be involved in the thinking and argument development processes. (See outcomes for oral expectations).</p>
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Some notes on the Student Objectives that go beyond the SLOs.

Most of the items in the student objectives are in support of the SLOs. However, there are some that are mentioned here in support of general education and pedagogical best practices or that extend the SLOs, so these are addressed separately here.

Course Objectives	Unpacked	Course elements	Comments
<p>#1 includes</p> <p>A. a long list of specifics regarding the essay presentations including critical thinking elements and mechanics</p> <p>B. Student revision of own work.</p> <p>C. Demonstration of audience.</p> <p>D. Mechanics of writing expository prose.</p> <p>E. Annotated Bibliography.</p>		<p>A. Every writing assignment is presented as an exercise in basic critical thinking, mechanics, and presentational elements.</p> <p>B. Students revise major arguments with a formal preliminary draft. Workshops assist students in revising essays and recognizing audience.</p> <p>C. Audience is discovered through rhetorical analysis and practiced in a variety of exercises targeted at different audiences (a response versus a formal argument, for example).</p> <p>D. The mechanics of formal writing are reinforced with mini-grammar lessons and with extensive notes on student papers.</p> <p>E. Annotated bibliography is a part of the reviews of literature required as a building block of each argumentation project.</p>	<p>Course objective #1 is a constant focus of this class. Assignments are designed so students learn by doing, and feedback and corrections are ample.</p> <p>Revision is not only a part of the writing process but a part of the thinking process: as we write, we think and reform thinking.</p> <p>There is a considerable discussion about the way to encourage formal academic/business writing. I believe that formal writing is a skill that one continues to grow in with detailed notes on essays and through a modest amount of instruction.</p>

<p>2. This objective has to do with</p> <p>A. reading deeply for example and for information and for the development of language skills.</p> <p>B. Multiple content areas</p>	<p>Reading is sort of the flip side of writing. What we read becomes our writing. If we read well with attention to structure, techniques, etc., we can “translate” those skills to our own writing.</p> <p>B. Breaking down the silos of individual disciplines helps students see their arguments as a part of a larger discourse of the academy and of society.</p>	<p>We read a multitude of texts including three textbooks and many, many peer-reviewed articles for our research. We begin the semester with instruction and practice on rhetorical analysis, which is the formal process of exploring a text.</p> <p>B. Assignments, especially the argumentation assignments, are specifically designed to require research in many different disciplines so the arguments are a part of a larger discourse.</p>	<p>Students tend to arrive in English 3 with good comprehension of the material in the essay but not comprehension of the larger context of the works. This is what the rhetorical analysis papers are designed to teach.</p>
<p>3. Class and/or group discussions.</p>	<p>This does not appear in the SLO but does support GELOs and good pedagogy.</p>	<p>This element is essential: we learn as a community, and so we must learn to communicate well in groups.</p> <p>Most class periods are spent in discussion. We solve problems or discuss the texts we are working on.</p> <p>In addition, we do at least two formal presentations each semester to encourage students to feel more comfortable in presentation mode and to share findings with the class to enhance student learning.</p>	<p>I am a firm believer in problem solving and discussion. We learn best in a “tribal” mode, sharing ideas, rubbing IQ points up against each other to make fire, and increasing understanding of our differences. This goes a long way toward multi-cultural understanding and toward a reduction of solipsism.</p>

In short, the classes presented by this proposal fully support the CORs and work toward a broad liberal education that encompasses disciplines across the academy.

IV. Introduction to the handbooks

Textbooks are ridiculously expensive and English handbooks are some of the worst in the humanities: hundreds of pages, most of them never consulted, and a price tag that pushes toward \$100.

Nearly a decade ago, I wrote a basic composition handbook for my students, which I called *The Source of (nearly) all wisdom*. It has been a popular resource, and it is a common occurrence to receive e-mails from long-lost students who want new copies. All it does is explain some basics and set out common problems and how to avoid them. That's really most of what students need. I've revised that resource here – and it is available to any instructors who want to use or modify.

Using that same model, I've added three additional resources: *A Rhetorical Analysis Handbook* and an *Argumentation Handbook*, both targeted at the English 3: Critical Thinking students, but also useful for 1A students.

I've found no good rhetorical analysis handbooks that aren't so overblown and jargon filled that they are useless, and though there are many argumentation handbooks, they tend to be bloated and expensive.

In addition, I've added *Studying*, a guide that draws on brain science and gives specific strategies for studying effectively. I've learned that because high

schools provide extensive (and debilitating) study guides and work sheets, students have no idea how to sit down and study material.

Students need references that they can carry with them (notebooks or phones or laptops), that are easy to reference, and that explain what they need to know without burying them in stuff and nonsense. And, free is way better than \$100.

So, turn the page and enjoy and use:

A. Rhetorical Analysis: Reading beyond the text

B. Argumentation: Creating new approaches and new meanings

C. The Source of (Nearly) All Wisdom.

D. Studying

Critical Thinking and Argumentation

This is a very brief grounding for critical thinking and argumentation. Textbooks are far too expensive and bulky, so this brief guide will introduce the skills necessary to start students on their way to competency.

This brief guide is available for use by instructors for any class. And instructors should feel free to modify the text (Just send me an e-mail, and I will provide an editable Word copy). I do ask that my name be included with a notation of revisions.

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Critical Thinking and Argumentation.

What is an argument?

An argument with a friend is a sad event: two people start dredging up old stories and accusations, hurling insults or spitwads, and perhaps ending a relationship. That's not what we mean when we use the same term, *argument*, in writing or public speaking.

An argument is a presentation of an idea that is backed up by evidence and reasons, often in order to persuade readers or listeners to agree with that idea. Arguments sometimes take the form of visuals (an advertisement is an argument in favor of buying the item or the service; a film is often an argument for a specific interpretation of an event).

But as we will look at it here, an argument is a specific type of essay, a professional presentation that engages with the existing **discourse**.¹

This brief handbook will provide students with steps toward developing an argument. Too often, students grab a subject and start writing, so they turn out work that isn't thoughtful or professional. These steps will suggest a pathway through critical thinking and then into the construction of a formal argument.

Much of the information below is grounded in cognitive science (the science that studies the brain and how it works to help and hinder us).

¹ **Discourse** is a conversation on a particular topic. If there is a discussion, usually written, among professionals about the cause of a specific disease, that is a discourse. When we write and use materials from their discussion, we are entering that discourse.

1. We aren't very good at critical thinking, so we have to work at it.

We think of ourselves as open minded and fair – and in many respects we try to be. But our brains have quirks that limit good critical thinking:

A. We like to be liked, and so we agree with those around us. If we've been taught that X is wrong and if we hang around with people who think that too, we'll agree almost automatically. That's the brain at work. That doesn't make us evil, but it does mean that critical thinking takes a back seat to our "tribal" thinking. This is a natural outgrowth of human evolution: Our brains evolved for safety, and there is safety in numbers, so we formed large family groups and tribes for safety.

How does a tribe stay together? By agreeing with each other. We've all felt a bit awkward when we're in a group that is rooting for one team when we secretly wanted the other team to win – we were afraid that we'd be laughed at or ostracized. That's the power of a tribe – and that's the power of friendship.

Example: 97% of the world's climate scientists are said to believe that global warming is real and is, at least in part, attributable to human activities. However, a large minority of people agree with the 3% who believe that science is wrong because they hang around with people who have a variety of reasons (including propaganda) to doubt the science.

They aren't dumb, and they aren't evil – they are being swayed by peer pressure, though mostly they are unaware of it. If our friends think that global warming is a hoax, we're likely to jump on the bandwagon with them – even though we might rationally recognize our foolishness (but we keep it to ourselves out of fear of being outcast or of being laughed at).

B. The second reason we don't think critically very well is because of **cognitive dissonance, which is what happens when we are confronted with two things that contradict one another.** When we suffer cognitive dissonance, our brains go into overdrive to try to reconcile the two things. If they fail at reconciliation, our helpful brains go to the next step: discredit one side of the contradiction so the other can stay put.

Example: Those of us in Clovis are well aware that the weather has become worse over the past several years, and science will tell us that this is a part of global warming. But, sputters the brain, it snowed in Fresno just last year. But, remembers the brain, my folks said it used to be so hot in the summers and so stormy in Fresno winters that they barely went outside. Our experiences and knowledge are based on our lives; science is based on studies that establish facts. When we're confronted with our own experience being contradicted by studies, we get queasy – and unsure. So, our brains get to work: We must reconcile these two

contradictory pieces of knowledge because we hate ambiguity: science says warmer; my experience says normal. Can our brains reconcile these two things? Nope. So, in the absence of reconciliation, one of these must die: My brain will choose to deny the science because “I KNOW” that my experiences are real. Is this evil? Is it dumb? Nope – just human. But it leads us to believe and do silly things.

C. The third reason we don't critically think very well is because of **confirmation bias, which is when we have an opinion and we look for reasons to prop up that opinion.** This is closely related to cognitive dissonance. We believe we are right, and so we look for evidence that proves that we are right – and we discount or disparage any evidence that might prove that we're wrong.

Example: Remember those 3% of scientists who don't believe in global warming and/or don't believe humans are culpable? It is easy to dismiss them as crackpots, but these are highly trained professionals who are looking at the same evidence that the 97% look at – and they come to completely different conclusions. They know how to read the evidence. They know how to do their own experiments. Yet they buck the trend that nearly the whole community of scientists agrees on. They don't believe in climate change, and so they go looking for evidence that props up their

belief. Are they evil? Are they dumb? No, but they probably are guilty of sloppy science and of selectivity in evidence. The evidence against them is overwhelming – their brains work against acceptance.

D. The fourth reason we aren't very good at critical thinking is that it takes work and **we tend to be lazy**, so we simply grab the opinion that is most available to us: the one that we've always "known." Our laziness allows our brains to over rule critical thinking.

So, we have some critical thinking handicaps because none of us is immune to these hard-wired errors: (A) our brains want to agree with the brains around them, (B) they want to reconcile cognitive differences because disagreement is uncomfortable, and (C) they want to confirm what they already believe. Finally, (D) critical thinking just takes more work than grabbing a convenient opinion. But we can overcome those handicaps and tell the brain that we're in charge. That is what critical thinking is about: take charge of the brain and weigh evidence carefully to find a true response.

Our brains are powerful, and a short story from my life will illustrate that. I grew up being "bad at math." Everyone told me that I was "good at literature" but "bad at math." I believed it. More importantly, my brain believed it, and so my brain worked overtime to be sure that I would fail math. When a math homework

sheet was in front of me, my brain flooded my body with fear hormones so I couldn't think and couldn't focus. I remember pounding my desk in my bedroom with frustration: all the other kids were out in the street playing games and skateboarding, and I was chained to my desk with the math monster. When the paper was returned, marked with huge red circles and a low grade, something in me felt vindicated: I was bad at math, and I lived according to that definition. My brain was sending a small surge of happiness hormones into my body to congratulate me for living down to my potential. It gets worse: on those few occasions when I did "get" the math homework, the message was loud and clear inside my head: "Well, that's a goof. Don't count on that happening again, you math dolt."

The story has a weird ending. Much later in life, I taught math. I became the teacher of a subject that had nearly devoured my school days. Yes, true.

What happened? I decided to reject the "bad at math" label and I replaced it with "I find math hard, but I can do it." When, through repetition, my brain absorbed this new definition, it conspired with me to get better at math. It gave me the fortitude and rewarded the accomplishments so I could "do it." I still am not a math wiz, but I am fairly good at statistics and can solve most ordinary math problems without much work (and no angst).

I rejected confirmation bias, and I worked against cognitive dissonance: when my brain said "No math!", I said "Yes, math."

In short, we can change the wiring in our brain, and that has real relevance for critical thinking: we must trick our brains into doing what we want to do, not what they are wired for. The evolutionary brain was created to keep us safe in communities, but we're asking it to do something else: think critically so we can build better communities.

2. How do we get good at thinking critically?

A. Accept our brains' limitations. We acknowledge that our brains are hard-wired for agreement with those around us, for confirmation bias, and for eliminating cognitive dissonance. When we encounter evidence that we resist, we can ask ourselves what operation is blocking us. That recognition will allow us to work around the limitation. We are in control of our brains; it isn't the other way around. In a way, we are reprogramming our brains.

B. Recognize that there aren't two sides to every argument. There may be three or ten or ninety different positions possible in an argument. There are rarely just two. When we reduce an argument to two sides, we are often simplifying an issue to something that no longer matters because we've taken the issue out of the real world.

Example: Should schools reduce or eliminate physical education in favor of more academic study time? There is, in fact, a move toward doing exactly that. School districts throughout the country have eliminated

physical education, reduced or eliminated recess time, and have curtailed after school sports for two reasons: they want to encourage students to attain higher test scores, and they want to save money. Some very abbreviated examples of arguments follow:

- *School board: If students spend more time in instructional and study time, they will perform better.*
- *Parents: I want my kids to go to the best universities, so higher scores are good. PE is a waste of time that could be spent on Latin or Ancient History.*
- *Other parents: The kid is great at volleyball – I want her to get a scholarship so she get her degree.*
- *Students: I love PE – it's the one time of day that I feel alive.*
- *Other students: I hate PE. What a waste of time.*
- *Other students: Yeah, like I really want to go to my next class sweating and reeking.*
- *Other students: But I want a scholarship, and sports is my way in.*
- *Teachers: Yes, send them out to burn off some of the energy so they can sit still and learn.*
- *Other teachers: They come in so tired after gym class that they can barely function or so hyped up that they can't sit still.*
- *Scientists: Studies show that students perform better when they have regular physical exercise.*

- *Sociologists: Students perform much better when they learn how to interact with other students on the playing field.*
- *Psychologists: Students build their sense of identity in many ways including sport, and they gain confidence by playing games.*
- *Physicians: A young person needs regular exercise to stay healthy.*
- *Emergency room physician: One more concussion from high school sports, and I'm going to visit the school board and demand that sports be eliminated.*
- *Neurologists: Exercise stimulates neurogenesis – these kids need to be building their neurons and their neuron pathways.*

From these very brief perspectives, we can see that the original question, *Should PE be eliminated*, is an extremely complicated one. Some of the arguments here are silly and have more to do with feelings than with thoughts; others are quite serious and have studies to bolster their views – they are all worth listening to. There aren't two sides, but many. There isn't a yes/no answer that will be useful.

C. Seek and embrace complications. The more complications we address, the truer our argument is. If we look at the arguments above, we can see that if we can address all or most of these issues in our answer (regardless of whether we are for or against physical education), we will be making a solid

argument; if we seek to hang our entire argument on one point of view, our argument will be easily defeated. How do we develop these?

- My favorite strategy: **talk** over the topic with friends and family. This is a great way to spark ideas. Listen carefully to a variety of ideas and jot them down. This is what dinner tables are for, and this is what the benches and lawns are for around campus: talk to one another.
- **Brainstorm**, taking down every single idea (good or bad) in any format: mind maps, or journaling, or sketching. (Why write down bad ideas? Because they frequently trick the brain into arguing for better ones). Keep the brainstorming document handy and keep growing it.
- **Read** journals and blogs and web pages and editorials (note that journals are the reliable ones, but they are not necessarily the only place to get ideas – they are, however, the primary place to find solid evidence for the paper). Once the topic(s) is established, journals will be the source of much of the research. Keep jotting down ideas.
- **Think like someone else**. What kind of people will be influenced by the question? Police, parents, students, employees, hospital workers, counselors, research scientists, etc. What will each of them think about the proposal? Jot down ideas and choose those that are useful (and useful doesn't mean that their ideas bolster a specific argument).

D. Suspend judgment. This is hard, but it is fundamental to good thinking. We all have an opinion about whether PE is good or bad, and that opinion is bolstered by experiences and arguments we've heard from our community. It may also be bolstered by our self interest, by our fundamental belief system, and by our desire (I love to run, so I think running is a good idea— regardless of any arguments). And so it is difficult to look at the opposition arguments without dismissing them (confirmation bias alert!).

- Focus on evidence and reasons that contradict the established opinion.
- Work to understand and fairly summarize each argument, especially ones that are challenging or that seem wrong.
- Build cases that positively support alternative points of view especially if they sound alien, strange, or wrong.
- Avoid writing a draft of the argument until as much evidence and as many opinions as possible are understood.

Why not get a draft on paper?

Because once a draft is written, it is too easy to simply stop thinking and just tinker with the draft as if all the thinking is done. We want to be able to write a draft that exhibits clear and complicated thinking in a well organized way.

E. Take a break. Seriously, once you² have gathered all these materials, go for a trip to the beach or head up into the mountains for a day. If you only can get away for a few hours, head to a park and wander around, skateboard, do handstands, do pull ups on the monkey bars – just be a kid (even if you are as old as dirt). Don't think about the topic. Don't try to pin down an argument. Just let it rest in your brain while you are out having some fun and getting some exercise.

Why fun?

Why the beach or the mountains?

Why exercise?

Why a break?

1. **Fun** because life is supposed to be fun, and fun re-creates us (that's why we call it recreation). If all we do is study and stare at video monitors or fiddle with our phones, we will be bored and boring and dull. There is good science behind the benefits of having fun.

Besides, it's fun.

Do we really need a justification for that?

2. **The beach or the mountains** because the science is quite clear that being out in nature benefits our mental health and our intelligence. Just getting

² One of the rules in writing is not to use "you" in essays, and I've decided to break that rule here. Why? Because I am addressing each one of you individually, urging you to get outside and play.

out for a walk in a park can raise our mood – and increase our ability to learn – by a lot. Trees are quite literally medicinal, so go hug a tree.

3. Exercise because exercise does several things for us: it burns off stress hormones, builds brain cells (literally making our brains more useful and functional), and builds stronger hearts and bodies. There are whole books on the benefits of exercise for brain development and stress reduction. Exercise even helps alleviate anxiety, ADHD, depression, and general malaise (just feeling cruddy for no particular reason). Many physicians are now prescribing exercise, especially out in nature, instead of drugs.

4. A break because our brains are sneaky: they keep working when we're unaware that they are doing anything. While we're hiking in the woods, thinking about friends, sleeping, or charging up a hill, our brains are working in the background, making connections. It is sort like a dating app where one set of brain cells (neurons) goes in search of other brain cells that are somehow related. When they find them, swipe right. So, if we have "programmed" our brains to think about exercise and school, it will go in search of what else we know, what related things are wandering around in our brains. Suddenly (probably when we least expect it), our brains will blurt out something we've never thought of: *The issue of physical education in schools isn't about whether they should be eliminated– but what kind of physical education is the most*

beneficial for learning. There – that’s a far more original argument and one worth exploring. Are team sports or individual sports more useful for learning? Are aerobic sports (like running) more useful than anaerobic sports (lifting weights)? Are exercises like yoga more beneficial than playing football?

If we have been filling our brains with information and thinking (and not thinking) about the subject, we will be ready to start building an argument. And *building* is exactly the right word for the process.

Decide on a tentative approach and informally write it out to establish a real sense of where the argument is headed. This paragraph is not a finished product, but a working copy that we can rewrite as often as necessary as we discover new material from research or as we think of other things:

“Although there is a controversy about whether eliminating sports from schools will yield better test scores, the science available clearly indicates that the question is already decided: sports help students in their academic pursuits, and eliminating sports would have a deleterious effect, driving down test scores while placing students under tremendous stress. So, the question is better reframed: what kinds of sports are the most beneficial to obtain the higher test results that are desired? (And we might even look at the question inside that statement: are test scores the best measurement of student success?).

Note that this is not the claim that will appear in the paper, merely a general statement of the purpose of the paper, which can serve as a research guide.

From this, start brainstorming: What research do we need? Examples:

- Background research to show that the issue has already been decided by science including specific studies.
- Research that counters that science (we need this so we can answer objections)
- Research to show that exercise is beneficial for student success (or higher test scores)
- Research on what causes the relationship between exercise and school performance (the science of the body/mind interaction).
- Research on individual sport types (aerobic versus anaerobic) and the drawbacks (football is aerobic, but there is a serious concern about injury, and that will have to be acknowledged).
- Etc.

Building the evidence

1. Evidence will take many forms. Personal interviews are often useful (Go talk to that guy who hates to go into his class dripping sweat from playing basketball and find out if he has ideas). Personal anecdotes might be used to illustrate points (I remember gym class as being a ridiculous waste of time: we had to dress out, go stand in a baseball field for 30 minutes while people mostly

struck out, and then we had to shower and redress and rush to class). But the best evidence will come from peer-reviewed³ articles and books. Statistical evidence is often available through government sites.

Question: What are peer-reviewed sources? And why do we need them?

Answer: A peer-reviewed source is one that has been examined by experts in the field of study who attest to the reliability of the research and opinions in the article or book. We use them because we can be reasonably sure that the information is accurate and substantiated.

Question: How do I find peer-reviewed sources?

Answers:

Let's begin with **what is NOT peer reviewed**⁴: web pages, magazines, podcasts, blogs, vlogs, open source pages (Wikipedia, for example), and encyclopedias. All of these might yield interesting stories that could be used as illustrations, and all of these might be useful as we think of ideas – but they are **not acceptable** as the bedrock of an argument. I could easily publish a web page about do-it-yourself brain surgery, but I don't think anyone would want to follow my advice.

³ The hyphenated version of *peer-reviewed* is used when it modifies a noun like *articles*. The non-hyphenated version is used when it does not modify a noun. English is hopelessly confuzzled, isn't it?

⁴ Here is an example of the non-hyphenated version of *peer review*. This does not modify a noun directly (as it would if the sentence ended with *peer-reviewed sources*).

Peer-reviewed articles can be found on some databases, such as Jstore and EBSCOhost, both available through college library webpages. For JStore, look for articles that are marked “Journal.” For EBSCOhost, look for a checkbox in the left column that limits a search to peer-reviewed articles.

Non-fiction books by established publishers are peer-reviewed. Most periodicals that have “Journal” in the title (except the *Wall Street Journal*) are also peer reviewed, but check with a librarian to be sure.

HELP!

When in doubt, ask a librarian. When information just doesn’t seem to exist, ask a librarian – they are magicians when it comes to finding information. Librarians can even help identify some websites that are reliable because they have been checked out by experts in the field.

Do not use *Google Scholar*, which is terribly unreliable and often includes unscholarly and even crackpot sources. And obviously, do not search *Google* and expect peer-reviewed material.

Question: What kind of material are we researching for?

Answer: We are looking for evidence that will support our case’s specific development points. We are looking for statistics, studies, informed opinions, stories, and illustrations that will make our case.

- Each specific point we want to prove needs to be backed up by at least some evidence. (Keep thinking of TV police and attorney shows – if they don't have the evidence, they can't make their case).
- We are also looking for the best arguments **against** our point of view and the reasons behind those arguments. We will use those to strengthen our own argument by answering those points.

2. Evidence handling. We've all seen TV programs where police and detectives safeguard their evidence, placing it in plastic baggies and logging in each piece of potential evidence. Keep that in mind. We must account for all of our evidence (citations) and use it properly (accurate and suitable).

- **Keep a single file for research notes** and transcribed quotes.
- **Start a separate file to build the works cited page** (We'll cover that bit later). Every time you consult a source, capture the MLA citation so you don't have to go searching for it later. This step will save a lot of time later.
- **Read journal articles and books** carefully and take notes. Do not just grab a quote that sounds good from an article. Often, the quote, extracted from its article, will be misleading. After reading the journal article, decide whether there are some quotes that are essential (or might be essential) for the paper; transcribe those (or cut/paste) into the research document.

- A **quote** should only be used when it makes a point that can't be captured in summary or paraphrase. Readers tend to skip quotes so avoid them unless they are specific and necessary.
- **Paraphrase or summarize** the information needed to prove the case.
- Do the same for all sources.

While doing this research, keep thinking: does this support my main points? Does this undermine my argument, and if so, how? (That's not a reason to skip the material).

The process of doing research is a thinking process. As the evidence accumulates, the topic and a specific stance (a particular approach to the topic) should become more focused. Perhaps the paper will argue for a mix of different types of sports, or perhaps for a "sport hour" at the end of each day with a variety of activities available. Periodically, return to that tentative planning paragraph and refine it. As we refine this, focus on critical thinking and placing the evidence into some shape.

Building an argument

A. Choose the word, the sentence, the paragraph, and the argument structure for the reader's benefit, not for the writer's.

Every word we write involves a decision.

Each unit of speech one types requires thoughtfulness and choices.

Why does one prefer the first sentence above and not the second? Both communicate essentially the same idea, but the second one is going to be harder for the reader because it is wordy and unnecessarily fussy, so we have to puzzle it out. When we write, we want to communicate as clearly as possible because we aren't just writing for ourselves but for our audience. That first sentence says exactly what it needs to say. It doesn't dither or wander or require the reader to pause and ponder.

For a moment, think about reading. Mostly, readers want to get the ideas off the page and into their minds quickly and clearly. So, keep these hints in mind:

1. **Words** should be straightforward and clear. Don't run to the thesaurus to find a word that sounds impressive. Generally shorter words have more impact than longer ones. Words that are specific to a field (*deconstruction* for example) should be briefly defined in the text: *Deconstruction, which is a process for literary analysis that focuses on language instability, was a popular critical*

technique in the late twentieth century. Don't use dictionary definitions in the paper unless absolutely necessary.

Avoid contractions, jargon, and substandard English. Remember that arguments are formal presentations of an idea, so propriety matters.

2. **Sentences** should be straightforward and clear. This often means that we must rewrite sentences until they communicate exactly what they need to without misleading the reader. This often means that we should break long ideas into smaller units. Avoid interrupting sentences with a lot of extra information.

Do not write in passive voice. Passive voice is when we are trying to hide the subject for some reason: "The vase got broken, Mom." We can guess that the vase did not actively leap off the table in order to smash itself into smithereens. The speaker here is trying to hide guilt so he takes himself out of the sentence and pretends that the vase is committing suicide. That's passive voice: the real subject of the sentence is hidden from view. Active voice would be, "I broke the vase, Mom." Yes, the poor kid might get grounded, but at least he is speaking in active voice – and telling the truth. (Examples: The race was won by John → John won the race; The murder was committed by a psychopath → A psychopath committed the murder; The ballet was performed by a lovely giraffe – > A lovely giraffe performed the ballet.) Passive voice drains energy from writing.

A lot of the time we spend rewriting and polishing has to do with **clarifying sentences** so the reader can read without pause – and without confusion.

C. Paragraphs are the basic building block of an argument. Each paragraph should accomplish one part of the argument, and each paragraph should address exactly one topic. It is useful to think of paragraphs as individual stepping stones on a pathway. Each stepping stone supports an idea that will eventually bring the reader to the destination of the conclusion.

1. Each paragraph should be straightforward and clear. And it should have structure:

- Each paragraph should begin with a sentence that clearly establishes the topic of that paragraph. Every sentence that follows should support that topic sentence.
- A paragraph should clearly develop the topic by presenting specific points that are supported by evidence including research findings and illustrations or examples (see “Evidence” below).
- A paragraph should generally end with a bridge to the next paragraph, marking a transition so the reader moves through the essay without losing track of the path.

2. Each paragraph should be clearly tied back to the **claim** of the essay, which we’ll be covering below.

Question: How long should a paragraph be?

Answer: As long as it needs to be to fully develop the topic. Some rare paragraphs may have only one sentence, but a string of short paragraphs suggests that the argument is underdeveloped. Some paragraphs may take two or three pages of type – but that strains the reader’s attention span, so finding logical ways to cut a very long paragraph into separate ones is sometimes useful. A good rule of thumb is to average around 8-12 sentences in a paragraph. That gives us room to develop most topics without straining the reader’s patience.

D. The argument. Building an argument takes time and creativity – and lots of planning. There is no template for argument building, and if someone tries to impose one, walk away. The structure depends on the topic and individual approach to that topic; it depends on the intended audience; it depends on the type of evidence presented; it also depends on the type of discourse one is entering.

(Remember that a discourse is an academic conversation about a topic that takes place in classrooms and journals and books – and it is a conversation we enter when we write about the topic. If I write about Shakespeare’s *Hamlet*, I am entering the discourse on that play that has lasted for nearly 400 years. This means that I need to be aware of the various strands of discussion on the topic before I enter the fray so I am not just parroting what someone else said but contributing new information or a new opinion to the discourse).

Question: But I was taught the five paragraph essay, and that's easy.

Answer: **Kill off the five paragraph essay**, which is artificial and which forces students into lazy thinking patterns that are detrimental to critical thinking. Go back to the teachers who taught that and explain that they are doing violence to students' intellect. We do not use the five paragraph essay (with the exception of essay test taking, which we'll address separately).

Question: So how do we decide how to structure our essays?

Answer: We play with our material, seeking the best way to present it to the reader.

We want to appeal to our readers on several levels:

- We want to establish our credibility by writing in a logical and effective way and by using authorities (our evidence) that is reliable and useful (*Ethos*)⁵
- We want to create a rigorously logical and well structured essay (*Logos*)
- And we may want to include some appeals to emotion either by expressing ourselves in a way that will be perceived as emotional (rage, pity, melancholy) or presenting material that will elicit emotion from our reader (a child being bullied, for example) (*Pathos*). *Pathos* will be used sparingly in our essays since these are professional presentations of ideas.

⁵ The three rhetorical devices here are from Aristotle. They are in Greek, so we always italicize them when we use them: *Ethos*, *Logos*, and *Pathos*.

Some approaches to structure:

1. (A) Start with something that will engage the reader: a story, a surprising fact, a question, or a problem that forces the reader to pay attention. (B) Follow that with background about the topic (enough background that readers who may know nothing about the subject can be confident about their understanding of the points). (C) Next will come the claim, which directly and fully states the purpose of the paper and the methodology for development. And then (D) many paragraphs to develop the claim. (E) Raise the best arguments against the claim and answer them. (F) Finally, close with a conclusion that does NOT restate the claim or summarize what the reader just read (the reader has not already forgotten the argument, we can assume) but takes us forward in some way.

2. Or, begin with the opposition arguments and state them fairly, and then follow the structure above to rebut each of those opposition arguments (skipping the opposition (E)).

3. Or, move the claim to the very beginning if it is clear enough and strong enough to engage the reader. Then “flashback” to the background to place it in context.

4. Or, move the claim to the last paragraph, which means that we will be developing the topic and leading the reader along without a clear destination until

the end.⁶ This is the hardest structure because the reader can become easily lost, so the writer's responsibility for guiding the reader is much greater.

The best thing to do is to **storyboard the essay**: write brief summaries of each point on index cards and then play with them, moving them around the table until the best structure for the reader emerges, the most effective (and perhaps dramatic?) way to present the material.

Some thoughts and warnings:

- **The claim probably does not belong at the end of the first paragraph.**
We generally need space to instruct readers about the topic before revealing the specific point of view to be argued.
- **Opposition arguments must be scrupulously fair**, even if we privately think an argument is idiotic. It should be explained in enough detail that the sensible reader will understand – and so the reader who also believes that (idiotic) argument notices that the treatment is fair.
- **Answers to the opposition (rebuttals) need to be nuanced and should be substantiated** with research.
- **Each point (and so paragraph) in the essay needs to be related to the original claim**, and each point needs to be linked to the points before and after it.

⁶ An essay that states its claim early and then supports it is called a *deductive* essay; an essay that proves a case and then states the claim at the end is called an *inductive* essay.

- **The conclusion should not recap the essay or restate the claim.** It should take the reader forward in some way: if the proposal in this argument is followed, this will be the result. (Yes, this probably contradicts conventional wisdom, but think about it: Are we writing for readers who are so dumb that they've already forgotten what we wrote?).

Two types of argument

Although there are many different types of argument, we generally write one of two types for college classes, and each is useful in our careers as well. It is worth remembering that when we are in “the real world” as some people choose to call that time after college, we are constantly writing, and nearly all of that writing is argumentation: a nurse’s report, a police report, a memo to acquire the latest robotics, a directive to the employees, a report on a scientific study, a bid to get a contract – all of these are arguments. That’s why we learn this –not just for an English class.

The first form of argument is a traditional one (Toulmin) where the writer presents a case for the reader to understand (and perhaps agree with); the second is an argument (Rogerian or common ground) where the writer constructs a new understanding of a disagreement with an attempt to reconcile the various sides.

Stephen Toulmin was a British philosopher who took rigid forms of argument and made them informal – and therefore more useful. The point of a

Toulmin argument is to present a case clearly and logically in a way that will prove a case stated in the claim. This type of argumentation is mostly one-sided: We state our case and prove it. We might think of this as a courtroom argument where we want to “win” the argument. There is, as we can see below, a consideration of opposing ideas, but only to refute them. Mostly this argument will focus on winning a point. His method is often called the Toulmin method, and it is based on a unique and simple vocabulary with just a few terms to learn:

- **Claim** is a statement of what the writer will argue for (See following pages for an extensive description of claims and how they are formed).
- **Data**⁷ are all sorts of evidence that will support the claim. Data are not only the statistics one might use but also the anecdotes, informed opinions, studies, personal interviews, etc.
- **Warrant** (or bridge) explains how the data supports the claim and may articulate the assumptions that connect the data to the claim.
- **Backing** (or foundation) explains what other information, especially steps in reasoning, might be necessary to support the warrants.
- **Counterclaim** is an opposing claim to the writer’s claim.
- **Rebuttal** is evidence and explanation that negates (or attempts to negate) the counterclaim.

A silly example:

Claim: Dogs should have the same civil rights as people.

⁷ *Data* is plural; the singular is *datum*.

Data: Dogs are a part of our families; dogs rarely do terrible things to people or other animals; dogs are 93% more likely to be cuddly than teenagers; dogs have been shown in scientific studies to learn a vocabulary of several hundred words, making them equivalent to young children; dogs are loyal companions; some dogs are essential caregivers and helpers; dogs serve in the armed services and the police departments of the country.

Warrant: Since dogs are a part of our families and our communities and are accepted into our human families, and since they demonstrate loyalty and usefulness like humans, and since they demonstrate intelligence and give love to humans, they should be seen as fully a part of our communities and have the rights given to their human counterparts.

Backing: The history of the US has been the unfolding of equal rights to live up to Thomas Jefferson's "All men are created equal," which was written at a time when that line was aspirational, not true. Extending rights to those disenfranchised people (women, other races, etc.) has been part of the march of history, and those who have opposed equality have lost time and again. Continuing the expansion of rights is simply the decent thing to do.

Counterclaim: But dogs and people are simply different species and we have never granted rights to other species.

Rebuttal: This is not a true statement. We have animal protection laws to guard animals against cruelty. We allow certain dogs almost unrestricted access to human spaces (seeing eye dogs, for example).

Yes, of course, this is a silly argument (or is it? Is anti-species-ism the next fundamental rights struggle?) But thinking about each of these categories of proof is useful as we put together arguments. It isn't enough to say that our claim is supported by evidence unless we also explain to the reader *how* that evidence supports it.

See <https://owl.english.purdue.edu/> And search on "Toulmin method" for additional examples.

Rogierian (or Common Ground) argument is a second type of argument that has quite a different goal in mind: a Rogierian argument will focus on opposing sides and attempt a reconciliation of sorts. Rather than seeking to win the point and force the opposition to capitulate, the point here is to find out what's important to all sides and come to a resolution that will, at least, honor the various points of view. Rogierian arguments are harder to construct – but they also have the potential for creating original and useful solutions to vexing

problems. The key to a good Rogerian argument is to respect all of the members of the discourse, even especially those whom we disagree with.

Question: Why use the Rogerian argument structure?

Answer: We've seen what normal arguments yield in our national politics: one side says and does one thing, and the opposition rails and fights – and very little gets done for the common people who are supposed to be in charge. We've also seen what happens in our own lives when we fight (I'm right, you're wrong): the end of relationships and the end of progress. Rogerian argument asks something else of us:

- Respect those who disagree with us and listen to them carefully
- Understand the various sides and figure out how to honor those
- Come up with solutions that everyone can live with – or at least that everyone will listen to.

In short, this may be a bit more idealistic, but it also proves to be much more effective.

(A side note: the single lesson I've learned from a lifetime of reading history is that people who are ignored will rise up and take over from those who ignored them. This is the lesson of history that leads to wars. When we understand one another, when we “see” other people's points of view, we learn and grow).

How to build a Rogerian argument

Rogarian Arguments are values-based arguments that seek to build rather than destroy. Sometimes, they are called common ground arguments, for that is the basis of the approach: find common ground to build on.

What follows is a miniature of a Rogerian argument that is provided as a model outline. Obviously, the real argument would be fully developed. Each section will be a fully developed part of the paper that may range from a paragraph or two, to several pages, depending on what needs to be presented.

I. What is the conflict, and how does it manifest itself in the community (or other place)?

Example: The traffic around the Clovis Community/Clovis North campuses is far too heavy for the roads, causing congestion, wasted time and energy, and unsafe conditions for students.

Notice that this is a statement of fact, and there is no “side” to be on at this point. I would back up this fact with statistics, expert opinion (in this case, bicycle riders and walkers, school administrators, students who are stuck in traffic, and traffic engineers), and personal observations or events.

II. Allow the reader’s point of view to take the first position. (The reader we imagine is someone who disagrees with our basic point).

Assuming we are for a specific traffic plan or change in schedules, our opposition might be people who want the status quo, and they are the reading

audience. This chunk of the essay is a clear, unbiased, and entirely fair presentation of those people's position. It should be fully and fairly researched. Avoid any language that might cause a negative reaction by either side. We want the reader (the opposition) to recognize that we not only acknowledge his/her opinions but the reasons behind those opinions. Our assumption is that the opposition is principled, reasonable, and fair—though we disagree with them.

Example: Neighbors argue that the traffic is actually advantageous because it slows everyone down and keeps people aware of the kids in the roads during specific times. The drop off and pick up times are relatively brief. They note that there are school personnel available for peak times to establish student safety and good traffic flow.

This side should be bolstered with proper research and observation. It might include such stats as lack of actual accidents, and it might include neighbors' comments regarding the short time span that traffic noise is a problem. A traffic engineer's study of similar circumstances might also be useful. And the principal might be called in to explain that getting faculty out to the road multiple times is difficult.

III. Think and explain: what values are behind this argument?

They want the kids safe, they want the neighborhood to be quiet as much time as possible. These are not radical sentiments, but practical and useful ones. We are going to use these values as a way to sway our readers. This section of the

paper will convince the opposition that we understand their arguments and values. In fact, at this point in the paper, our opposition will probably believe that we not only understand -- but we agree with their point.

Example: Neighbors are seeking admirable goals: safety for their children and a quiet and sane neighborhood, and these are goals worth working toward.

(Oddly enough, this is the section that is most often neglected in student essays, yet it is the single most important step: establish the values so we can work them into our own argument).

IV. Our turn. It is now our turn to present our side of the issue. Again, fairly, accurately, and in neutral language, explain how we see this same issue.

Evidence is key: We will need actual stats, informed opinion, observations of near misses between autos and bicycles, etc. Show that safety and quiet (their values) are also valuable to us. Note that we are NOT refuting their arguments.

Example: traffic statistics show that there are more than XX cars on roads that were designed for X cars during peak periods; five students have been knocked off their bikes, and one student was hospitalized; decibel levels are not appreciably different during the pick up of after school sports compared to after school dismissal, etc.

V. Explain the solution, keeping the values front and center. Show how the solution would work according to their own value system. Recall the research already presented, and place it within the values they value.

Example: the three affected schools should stagger their release times so there can be one third the number of cars on the road at each release time. This will keep the children safe, and it will actually decrease the noise level during the time period. With staggered start times, students will have less traffic to dodge, parents will be able to move in and out quickly and quietly – and will contribute less smog and noise to the community.

Notice how sneaky we are being: we are offering more than they expected – but it also means that they must change their positions, which isn't easy. Do not cajole them into agreeing; merely offer them a solution that honors their values.

The keys are the following:

Non-inflammatory rhetoric

Clear and unbiased presentation of both sides

Very careful delineation of values

Values-based solutions (use their values to frame the argument)

Excellent and comprehensive research that supports both sides;

anecdotes and other evidence that give the opposition its due and that help support your point.

Claims: How to build a good claim for an argument.

A claim is one of the most important building blocks of an argument. It must set the reader up for the reasons and reasoning behind the argument, and it must be clear enough and interesting enough to engage the reader. Frequently, the claim must be rewritten after an argument has been completed because the process of writing frequently changes the exact and necessary terms of the claim. Below are some steps to consider.

Topic: The claim must be arguable (there is no argument if the issue doesn't have multiple sides). Smoking causes health problems that often lead to disability and death is not a claim. It is a statement of fact, and there is no controversy – hence, no argument. However, Smoking should be banned on college campuses is a claim since some people will have different opinions.

Limitation(s): Cut the issue down to size. Global warming is not a paper topic; it is a book topic.

Definitions: NEVER use a dictionary quotation unless a word can't be defined clearly in common language, but do explain any specialized words or jargon. If we are writing about "fracking," we may need a layman's description of it and what it entails.

Active verb: Claims are rarely static, and claims nearly always take a very specific stand, so use an active verb – not “to be.” *Euthanasia is a good idea* is a very weak and vague claim. It makes it sound like we should run around and do it to everyone.

Because (reasons): While the word might not always occur, a snapshot of the argument to come is very useful as a part of the claim. If the reasons are placed in order, they become a useful “outline” for the reader.

EXAMPLE of developing a claim:

Dumb claim: Euthanasia is a good idea.

Limited: Euthanasia for terminally ill patients who are in pain is a good idea.

Defined: Euthanasia, which is physician-assisted suicide after a judicial review of the patient's mental and physical health, is a good idea for patients who are in pain with a terminally ill disease.

Active verb: Euthanasia, which is physician-assisted suicide after a judicial review of the patient's mental and physical health, should be allowed through legislation for patients who are in pain with a terminally ill disease.

Because: This legislation will reduce suffering, avoid unwanted and unnecessary end-of-life health care procedures that are invasive and expensive, and acknowledge the fundamental right of a person to be in possession of and in control of his or her own life.

(Note how each of these statements was re-crafted so the information was readily available to the reader. Also note that this claim is stated in two sentences. Sometimes claims will be a full paragraph long when the material warrants it).

Additional points about argumentation

1. The **claim** must be

- A. Debatable
- B. Strong (*to be* verbs are usually weak)
- C. Narrow enough to fit in the page count

Types of claim

- A. Fact or definition
- B. Cause and effect
- C. Value
- D. Solutions or policies

2. **Grounds (Evidence)**

- A. First hand knowledge, research, interviews, experiments
- B. Researched materials by experts in the field.

Considerations for grounds:

Appropriate source? Quoting me on global warming is silly. I don't have the qualifications.

Appropriate evidence? Because giraffes don't fly is no reason to avoid cages.

Credible author? What is his/her authority? A PhD in physiology does not qualify me to be a radio talk host on a psychology show.

Timely? If this is a paper on a literature or history subject,

the source might be quite old; if this is a science

paper, it should be current. If it is on politics, it probably should be

from yesterday's paper.

Bias? If the article is by a group or person who is obviously

biased (Fox news on the President, for example), that

bias must be taken into account. Bias does not always disqualify an

opinion. Nearly everyone has biases, so we must evaluate before

using: is it accurate, fair, and useful evidence?

Caveat: Web sources are notorious for being wrong, biased, and sometimes just plain crackpot. Avoid web sources unless you can prove they are reliable. Use databases to find peer-reviewed material. Database articles may still be biased, but those biases will be clear.

3. Opposition and Rebuttal (or refutation)

Nearly all good arguments will present good arguments against the claim.

These opposing arguments should be clearly and fairly stated without invective or bias.

This sounds like we're giving in to our opposition, but in fact, we are anticipating the reader's objections to our argument. If I do a good, fair job of representing the opposition and showing how the opposition is wrong, my reader

can't discard my claim without also answering my refutation of the objection. And, besides, I sound so reasonable that my reader's anger is waylaid (we hope).

Additional points to think about:

Ethos, Pathos, and Logos are from Aristotle's work on rhetoric. We should think about all three approaches and mix and match as they suit our argument. Most really effective arguments will use some of each in order to fully involve the reader.

1. Ethos is the ethical appeal we project in our writing: it is our character on paper, including our reliability and good character. We must be fair (note the fairness issue in rebuttals, for example), respectful of our readers and our opposition, knowledgeable (and we may borrow knowledge from informed people to bolster our ethos), and especially clear and proper in our writing. If we think of every essay as a job interview or a presentation before a large audience, we will also be thinking about how we "look" and "sound" – and that attitude will show up on the page.

2. Pathos is the emotional appeal to our audience. We will want to appeal to our audience's values and emotional sensibilities. Don't use too much *pathos*. But if we know our audience is largely religious, there's nothing wrong with using examples and arguments that will appeal to religious sensibilities.

3. **Logos** is the appeal to the reader on the basis of logic and reason. This relies on solid facts, informed opinion, and logical constructions in my argument. Errors in logic undermine logos.

When we state something, a premise, we examine it to be sure it is true.

All men are mortal.

True? Yes.

When we add another premise to that sequence, called a syllogism, we ask the same question.

Socrates is a man.

True? Yes.

The trick is to keep from falling flat on our faces when we go to the next step in the series, the conclusion, which attempts to use both statements to construct a third.

Therefore, Socrates is mortal.

True? No, that doesn't follow.

Therefore, Socrates is mortal

True? Yes.

Leaps of logic are frequently the cause of essays going kerfluey. Even when the logic isn't incorrect, it is often incomplete. Be sure that the reader can follow every step of every piece of every argument.

How can we avoid logical errors? Pretend to be on the other side of the argument, and hunt through our papers as if we wanted to demolish the argument.

The pratfalls. We sometimes goof in our logic, and some examples below will show us common errors, which we call logical fallacies.

Fallacies in logic. These are goofs, and they destroy our arguments.

1. **Slippery slope:** If I take one baby step, I'll inevitably take the next and the next until I've landed in China and worn out my shoes.

Example: If we let gay people marry, we'll have to allow people to marry farmyard animals (This logic, paraphrased, was actually used on the floor of the Senate).

2. **Hasty generalization:** one bit of evidence does not necessarily lead to a logical conclusion.

Example: I stubbed my toe on the way to class today, so the rest of the semester is ruined, and I'm not at all sure I won't be dead by Tuesday.

Example: The spaghetti was good, so she must be a great cook.

3. ***Post hoc ergo propter hoc***: (Latin is such great fun. Use this one on your next date). Translation: After this, therefore because of this. Translation of the translation: This happened, and I remember something happened before, so that must have been the cause.

Example: She said yes to a second date. I wore my lucky jeans yesterday, so that must have caused it.

Example: She said yes to a second date. I wrecked my car on the way home by running into the only hippopotamus in town. So, she's bad luck.

4. **Genetic fallacy** (I've known people who qualified, but that's not the point). The origin of something determines the character or quality.

Example: Picasso was a terrible person in many ways, so his paintings are junk.

Example: I thought she was the most beautiful woman in the world when I met her, so I know she's a great surgeon. My brain surgery will be uneventful.

5. **Begging the claim**. We validate our conclusion by skewing the claim.

Example: Idiots and reprobates should be thrown out the window. If we changed the terms to something less inflammatory, we might not agree with the defenestration.

6. **Circular Argument.** This is a claim that restates itself as if the claim itself was the proof.

Example: Attractive people are beautiful.

Example: Learning to read must be the process of acquiring the skill of reading. (This is far more pervasive than one would think).

7. **Either/or** false choices. We give false choices in an effort to avoid alternatives that may be reasonable.

Example: He is guilty of leaving a can of Coke on the table, so we either execute him or ban him to Siberia for life.

Example: You can go to college or you can starve to death for the rest of your life.

8. **Ad hominem** (more Latin!). I have no good argument, so I will attack someone and pretend it is an argument (this will be familiar from politics).

Example: Senator X can't possibly have an opinion on health care because he cheats on his wife.

9. **Ad populum** (*And yet more Latin to use on your next date! This class practically ensures you an endless round of happy relationships based on intelligent, if indecipherable, conversation in a language you don't know*).

Emotional appeals on the basis of people's beliefs. This might be positive or

negative. Often, there is absolutely no connection between the belief and the argument.

Example: As a true believer in the American dream, you must support the right of gerbils to their own turbo-charged exercise wheels.

Example: We don't believe in terrorism, do we? So, we should support the right of sixth graders to free pizza lunches every Friday.

10. **Red herring.** A red herring is a fish. That's not a logical problem until we realize that a red herring, as used in logic, isn't a fish at all. It is something that distracts the reader from the real point at hand, and it may well be totally unrelated to the argument.

Example: Dress codes make absolutely no sense, but what will administrators do if they don't have to stand in the hallways and bust people? (full employment of high school administrators is not the point, but it has distracted us from the real issue of whether dress codes do or do not make sense. The hapless principal is the red herring.

11. **Straw man.** "Somewhere over the rainbow" is playing somewhere in your head about now, and it isn't far off. You will remember that the straw man is lacking a brain. A straw man is a person set up for an argument (or the argument

itself) that is lacking substance. Most likely, the writer is choosing the worst and weakest part of a person's position to attack. He's there in the argument to make the argument easy. But arguments aren't supposed to be easy because easy arguments fall apart too easily.

Example: Congressman X voted against health care because he wants old people to die. (No kidding, that is also an argument that was used in Congress).

Example: The food industry uses a lot of corn syrup in their processed foods, so I have no choice but to be fat.

12. Moral equivalence. The fallacy comes up when the analogy is wildly and hyperbolically out of kilter. Often, this involves Adolph Hitler, who is someone who should always, always be kept out of essays and language unless it is about addressing events preceding or during World War II.

Example: My coach learned his techniques from Hitler.

Example: Swimming those last laps was like being in the lower rungs of Hell for all eternity. (We should note that swimming in the lower rungs of Hell would be impossible because it is frozen down there according to Dante. Perhaps one could play ice hockey?).

Rhetorical Analysis: Reading Beyond the Text

Rhetorical Analysis is a fundamental skill for critical thinking. It is not difficult, but it is a new way of reading a text because it focuses not only on meaning (what is written) but on the text itself (how it is written). Textbooks are far too expensive and bulky, so this brief guide will introduce the skills necessary to start students on their way to competency.

This brief guide is available for use by instructors for any class. And instructors should feel free to modify the text (just send me an e-mail, and I will provide a Word copy for editing). I do ask that my name be included with a notation of revisions.

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Rhetorical analysis

Hmmmm, sounds scary doesn't it? We know what analysis is: we take something apart to figure out how it works. An autopsy is an analysis, for example, but one that doesn't let the person live. We take the body apart, figure out how each part works, then put it back together. In the case of a body, the body is dead. With any luck, the essays and other literature that we'll analyze will survive.

Google tells us that rhetoric is "the art of effective or persuasive speaking or writing, especially the use of figures of speech and other compositional techniques."

So, rhetorical analysis will be a close examination of writing or any text to determine how effective it is and how it works. Analysis should also help to deepen our understanding.

The professor stands at the front of the class and begins taking roll:

Mr. Smith?

Here.

Ms. Roberts?

Present.

Mr. Chen?

Yo!

Ms. Kaur?

Good morning.

What can we tell from these four students' responses? Mr. Smith is quite conventional; Ms. Roberts is a bit formal for the classroom; Mr. Chen is communicating that he's unconventional, probably a bit witty and enthusiastic; Ms. Kaur is immediately approachable. We know these people (a little) from just a word or two. If we are classmates, we've already identified someone like us (I'll go sit with Kaur and Chen, probably; the other two sound too conventional for me).

Each of these students made choices, and those choices were designed to communicate something.

What we just did is a bit of rhetorical analysis, in brief. We read the content and understood it: All four class members are signaling exactly the same thing: they are present and accounted for, so they don't get marked absent or tardy.

But we also read the meaning behind the words they chose: the tone, the context of the words, etc. It was their choice of expressions that made us aware of who they are. We even noticed the exclamation point that indicated the force of Mr. Chen's response.

Can we “read” anything behind the professor’s method of calling roll? His use of titles suggests that he is old fashioned or is teaching in a formal setting like a military academy. But his use of *Ms* instead of *Miss* might suggest that he isn’t old fashioned in everything. He calls roll out of alphabetical order, which suggests that he isn’t conventional in every way. Perhaps he uses a seating chart or identifies students in groups. But there’s one more thing that the text gives us: he queries each student rather than just reading the name – the question mark tells us this. Think back to other roll calls: how often has it just been a rote call out of names without any inflection? Why did he do that?

The answer might be speculative, but we’re often dealing with speculation in rhetorical analysis: we are making the best guesses from the evidence we have. And that means that we have to look carefully, not just skim through a passage.

Overview of rhetorical analysis

Let’s begin with a piece of writing, which we might recognize, by Martin Luther King, Jr., a hero of the civil rights movement in the US:

16 April 1963

My Dear Fellow Clergymen:

While confined here in the Birmingham city jail, I came across your recent statement calling my present activities “unwise and untimely.” Seldom do I pause to answer criticism of my work and ideas. If I sought to answer all the criticisms that cross my desk, my secretaries would have little time for anything other than such correspondence in the course of the day, and I would have no time for constructive work. But since I feel that you are men of genuine good will and that your criticisms are sincerely set forth, I want to try to answer your statement in what I hope will be patient and reasonable terms.

Steps for analysis:

1. We are trying to figure out how the author presents the piece, not what he wrote. So, we are focused on writing strategies, not on content.
2. We do not summarize in an analysis since the obvious content is secondary to the strategy for the purposes of this analysis. (However, depending on the instructor, a summary may be required as an introduction to the analysis).
3. We look closely at words, sentences, paragraph structure, images, and metaphors to see what evidence they provide.
4. We work toward answering four things which we can summarize in the following sentence for ease of remembering:

Who wrote to whom for what purpose and in what circumstances?

Who? Who is this person who wrote the essay? We know in this instance that it is Martin Luther King, Jr. But that's not really what we're asking. What reveals or clues are there in the writing that tell us who he is and what he is like? Point to specific words and passages that will explain.

- How does he establish **ethos** (personal credibility)?
- Does he come across as knowledgeable? Fair? Biased? Cranky?
- Does the speaker's writing voice convey authority? Or some other quality?
- Do we connect with the author – and why?

Examples:

He establishes his ethos with a heightened vocabulary and sophisticated syntax (sentence construction). Where we expect, *I seldom pause*, we get *Seldom do I pause*. This is more formal, and it calls attention to itself, and so we readers begin

* **Ethos** is one of Aristotle's three appeals in rhetoric: **ethos** has to do with personal authority (do we believe the author's authority to speak on this issue, and why do we believe it?); **pathos** has to do with the emotional content and tone of an essay (pathos works two ways: the author may be angry and we can sense that anger through the way the essay is written; the author may want to make us angry, and so plants seeds of that anger in his writing); **logos** is the frame of logic (if it is strong and sensible and without flawed logic, we believe; if it is weak, we don't). A good essay will generally mix all three of these methods, though pathos is less used in academic essays.

slowing down, paying attention to the sentences. He also notes that he has multiple secretaries, which suggests that he is a man of importance and power. He bends over backwards to acknowledge his critics as fair and sincere men, which suggests that he is a fair and sincere man. But he also allows the reader to be aware that he is a persecuted man since he can't stop his work to answer every criticism.

Who wrote to whom for what purpose and in what circumstances?

To whom? This (the object) is the audience, both intended and unintended. We know, for example, that we readers are one audience, but it is also clear in this case that he is addressing some clergymen. But that's not quite what we mean, either. What reveals or clues are there in the writing that explain who the audiences are and how they are addressed here?

- Who is the intended audience?
- What values does the audience hold that the speaker appeals to?
- Who are secondary audiences? And what values might they hold that are/are not addressed in the essay?

Examples: We are aware of his first audience, the clergymen, because he tells us that. But his emphasis on his busy-ness and his mention of his secretaries is hinting that he is talking to a larger audience, which will become clearer later in the essay when he uses images that will appeal to several different audiences.

Who wrote to whom for what purpose and in what circumstances?

For what purpose? We know the occasion of this letter: MLK was in jail for leading a demonstration to gain rights for people, and he is answering clergymen who had written that his actions were "unwise and untimely." But what is he hoping to accomplish with this letter? How do we know?

- To attack or defend?
- To exhort or dissuade from a course of action?

- To praise or blame?
- To teach, delight, or persuade?

His purpose is to answer the clergymen's criticisms of his work. He will expand this purpose later in the work to preach about religious matters and how they relate to the civil rights struggle. He will also enlarge this to address issues regarding the politics of the civil rights struggle between black and white churches, between different groups of African-American people, etc.

Who wrote to whom for what purpose and in what circumstances?

In what circumstances? This is key to the rhetorical situation.

- What is the occasion for the text? (History and the text tells us when and where)
- Where (metaphorically) does the author stand in relation to the audience? (The text will show us this)
- Where (metaphorically) does the author stand in relation to the community as a whole? (History and the text will show us this).

Example: he's in jail, and that is a circumstance that shadows this entire long essay. He is writing under duress – but he also has a lot of free time on his hands. And, as he tells us later, he is writing this on scraps of paper. Since he is a preacher, his stance toward his audience is different than if he were, for example, a teacher.

But the larger context is within the civil rights struggle when people (Black and White) were jailed for demonstrating peacefully for equal rights. And the proximate circumstance is the publication of the letter by the clergymen.

He is a clergyman from a great line of clergymen: his grandfather, his father, and he were all prominent pastors of the same church. And he is a leader of the Civil

Rights movement after his leadership of the bus strike. All of this gives him authority and reflects back on the WHO we looked at earlier.

And to us? King is a revered figure in our history, one who opened doors so our classrooms include people of all races and creeds. We, his new audience, read this in new circumstances with an eye to history and an appreciation for the world we live in now, which is far from his dream, unfortunately, but also far from the conditions he was fighting. Our reading places his letter in new circumstances.

That snapshot explanation of rhetorical analysis will be enlarged as we move through this brief handbook. The best way to learn is to do (Yoda had something to say about that), so let's do rhetorical analysis.

Let's try our hand. Look closely at the three following passages:

- A. A long time ago, guys who lived here set up a new government that valued liberty and said that everyone was equal. They had a war to see if they could keep it together.
- B. Eighty-seven years ago, our grandfathers and grandmothers established a government that rested on liberty and equality. Now we have a war to see if that kind of government can last into the future.
- C. "Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure."

We recognize selection C as the Gettysburg Address by Abraham Lincoln. The other two are restatements. What do we notice about each of these? The chart on the next page will line up the elements for comparison.

A	B	C
A long time ago	Eighty-seven years ago	Fourscore and seven years ago
Guys who lived here	Our grandfathers and grandmothers	Our fathers
Set up a new government	Established a new government	Brought forth on this continent a new nation
That valued liberty and equality.	That rested on liberty and equality for all men and women.	Conceived in liberty and dedicated to the proposition that all men are created equal.
They had a war	Now we have a war	Now we are engaged in a great civil war
To see	To discover	Testing
If they	If that kind of government	whether that nation or any nation so conceived and so dedicated
Could keep it together	Can last into the future	Can long endure

Do each of these versions express approximately the same ideas? Yes. But they are quite different. They use different words and expressions (*guys* versus *our grandfathers and grandmothers* versus *our fathers*), different syntax (word order for effect), and so the overall effect is quite different.

If we go back to our central summary question:

Who wrote to whom for what purpose and in what circumstances?

We come up with very different answers for each of these selections.

Before turning the page, jot down some observations about wording, sentences, etc. What are the differences? And what do those differences tell us about the three authors from these observations?

Selection A was written by someone who is used to casual conversation. He/she is remote from the events mentioned. Likely, this selection was written by someone who is more aware of popular culture than history. Note that there is nothing ungrammatical or substandard about this selection, but there is a lack of seriousness, a lack of self-conscious public presentation.

Look at some comments below and then read through the analysis below the chart.

A long time ago	A casual opening with echoes of a popular phrase (in a galaxy far, far away)
Guys who lived here	<i>Guys</i> is casual and although we sometimes think of women as guys, it maintains the masculine sense. <i>Who lived here</i> is not very specific.
Set up a new government	<i>Set up</i> is casual and it suggests that it was inconsequential. We might set up a patio table. We're also aware that this is something that happened, not something that we are involved in.
That valued liberty and equality.	This is impersonal: a new government valued these things, not the people.
They had a war	<i>They</i> creates a sense of remoteness. Notice that <i>we</i> in the other two versions will include the writer. This doesn't. <i>Had a war</i> is casual and remote. And this sentence illustrates how simple the syntax is (the sentence construction).
To see	<i>To see</i> is a physical reference: we see the birds out the window. It suggests that the writer didn't really think about the operation here: they were testing or trying or investigating – not just seeing.
If they	Again, <i>they</i> creates a sense of remoteness – these aren't my people, not really my history.
Could keep it together	<i>Could</i> is conditional and suggests the writer isn't sure whether it was successful. <i>Keep it together</i> is a Madonna song and a popular meme.

So, what do we make of these observations?

Casual conversation is indicated by two things:

Word choice: *A long time ago, guys, set up, had a war, keep it together.*

Syntax (word order and sentence strategy), which is simple and conversational: *They had a war.*

Remote from the events is indicated by tense and pronouns:

Tense is signaled by the opening lines, *A long time ago*, and by the verb choices: *set up, valued, had*. The *could* in the last line also suggests the conditional – a sense of being unsure about the outcome.

The pronoun *they* is telling. Rather than the *we* encountered in the other two versions, the writer is distancing the event.

The effect of these choices by the writer is a sense that the writer is not as involved in the action as other two writers.

Popular culture is hinted at with two choices: *A long time ago* (in a galaxy far, far away) and *keep it together* (a Madonna song and a popular meme).

From this brief passage, we already have a sense of WHO this writer is: a contemporary of ours, speaking casually about something that happened a long time ago to people he /she isn't really connected to.

TO WHOM is this writer communicating? An ordinary contemporary person who also sees this event as a distant one that really doesn't matter too much. This appears to be a conversation rather than a statement, a speech, or a formal written document.

The WHAT is the same information as Lincoln's but stripped down to basics.

FOR WHAT PURPOSE seems to be merely informative: this happened a long time ago and then they had a war.

UNDER WHAT CIRCUMSTANCES is vague. It seems conversational or like an essay written at the last minute.

The whole of this passage tells us much more than just the information – the writer is revealing the self, the attitude, and the involvement with the events at hand.

That's what we are looking for in rhetorical analysis: what does the text tell us that is communicated through *how it is written* rather *than what it says*.

Selection B:

Eighty-seven years ago	Accurate in the numbers, but prosaic (commonplace, ordinary).
Our grandfathers and grandmothers	This acknowledges both sexes in a move that is quite contemporary. In Lincoln's day, the inclusion of grandmothers would have been odd.
Established a new government	<i>Established</i> is not only accurate but it suggests permanence and some sense of decorum.
That rested on liberty and equality for all men and women.	<i>Rested</i> is a nice touch, suggesting that this is a coming home, a permanent place to remain. Again, both men and women are included.
Now we have a war	In contrast to selection A, this is immediate, but it retains the simplicity and directness of <i>They had a war</i> . This simplicity and directness has a different quality though, a bit more considered, perhaps? <i>Now</i> places the occasion as being immediate.
To discover	<i>To discover</i> is more elevated and accurate than <i>to see</i> . It also suggests an adventure.
If that kind of government	This is more accurate than "if they" and it changes agency from the first one, which puts the onus on the fighters to keep it together to a more disembodied and passive result of the government lasting.
Can last into the future.	<i>Into the future</i> is a bit artful since the sound and rhythm suggest movement. <i>Can</i> is somewhat of a problem since what <i>can</i> last does not necessarily last, and so the writer has allowed some uneasiness here.

Selection B was written by someone who is elevating the language a bit by being more specific (*Eighty-seven* as opposed to *A long time ago*, *grandfathers and grandmothers* as opposed to *guys*, etc.).

The writer is far more contemporary in the references to both sexes instead of the "default" male choice that was normal during Lincoln's time.

There is greater awareness of language here: *established*, *rest*, *can last into the future* are all instances of language that relies on the reader's participation. When we *establish* something, we are creating something that endures. *Rest* suggests a coming

home, a comfortable base for cherished ideals. *Last into the future* demonstrates an awareness of the sound and rhythm of language, with the last few words launching the reader forward.

Selection C:

<p>Fourscore and seven years ago</p>	<p>Ornate, deliberately elevated, and echoing the “three score and ten” passage from the Bible, which was to be the length of a man’s life. By implication, Lincoln is suggesting that this is just a little beyond man’s ordinary life, which means that the nation is aging and perhaps near death itself.</p>
<p>Our fathers</p>	<p>This echoes the Lord’s Prayer, which Lincoln’s audience would have recognized immediately. It refers to the founding fathers of the nation, and the double reference ennobles the founding of the nation.</p>
<p>Brought forth on this continent a new nation</p>	<p>Deliberate springing of the syntax (sentence order) to call attention to itself as a rhetorical flourish. We would expect <i>Brought forth a new nation on this continent</i>. We listen more carefully when our expectations are dislodged – and this places the primary emphasis on the final word, <i>nation</i>.</p> <p>Notice also the rhythm of this sentence, <i>brought forth / on this continent / a new nation</i>. The rhythm throughout this passage sounds biblical, formal, and musical.</p>
<p>Conceived in liberty and dedicated to the proposition that all men are created equal.</p>	<p><i>Conceived</i> as in the conception of a child, which makes it more fundamental and holier than just <i>established</i> or <i>set up</i>. <i>Dedicated</i> as one dedicates a life to a cause.</p> <p><i>All men are created equal</i> is a an echo of the Declaration of Independence, which suggests that this speech is a continuation of a great movement.</p>
<p>Now we are engaged in a great civil war</p>	<p><i>Now</i> signals immediacy. We remember that this speech was delivered on one of the greatest, most deadly battlegrounds in the history of the war (around 46,000 men killed in three days). <i>Engaged</i> is an elevated word, and it carries associations with marriage, which is ironic. <i>Great</i> not only suggests the size but the importance of the war.</p>

Testing	<i>To see, to discover, testing.</i> Those are the three choices, and <i>testing</i> removes the casual sense of seeing, the adventurousness of discovery. It is accurate, precise, serious, but without flourish.
Whether that nation or any nation so conceived and so dedicated	Notice how these lines universalize the test: it isn't just whether the US will survive but whether any nation that is established on equality can survive. Notice also the repetition of the idea of conception, which draws us back from the brink of death to the original conception. The repetition is echoed with the repetition of <i>so</i> .
Can long endure.	This is far more sober than <i>could keep it together or can last into the future</i> . And <i>endure</i> doesn't suggest any kind of celebration or triumph, merely survival, which is fitting for the battlefield graveyard.

There is much more to say about the rhetoric of these few sentences, but the notes will suffice to summarize the writer's rhetoric: This is elevated, musical, deliberate in its echoes of the Bible and the Declaration of Independence and therefore self-consciously aware of the moment and importance of the war.

WHO? Abraham Lincoln is the easy part. But this seems to be a man who recognizes the holy and sacred occasion, who needs to communicate the contrasting senses of exhaustion and dedication. He has raised his rhetoric to the level of ritual.

TO WHOM? A war-weary nation that may have lost its bearings.

TO WHAT PURPOSE? To remind the listeners what the dead had died for, but also to remind them what they are living for: liberty and equality.

IN WHAT CIRCUMSTANCES? The dedication of a graveyard in a field of battle, speaking to an audience that would have shared the biblical knowledge he draws on, and who probably knew many of the dead.

It isn't just what Lincoln said. Selection A said essentially the same thing. It is how Lincoln said it that makes this speech memorable. It is considered one of the greatest speeches in world history – yet it is only about 270 words long. Every word counts, and we read them carefully to uncover (1) *what* they mean and (2) *how* they mean that by drawing on what we experience with the language.

Why do we do rhetorical analyses?¹

- We do them to learn about the choices one author makes and what the effect is on the reader.
- We analyze the language to understand how a writer is presenting information so we can emulate the strategies in our own writing.
- We analyze the language to understand the meaning of the text at the deepest level, understanding that more is communicated than is obvious (note that when we speak, we have hand gestures, facial expressions, voice tone and volume, and maybe even body language that helps us communicate to our listeners).

A rhetorical analysis depends on (1) a good reading of the text, (2) a thorough and separate reading to “mine” the text for rhetorical evidence, and (3) the development of an argumentative essay that explains what that evidence proves.

Reading the text

We all know how to read, but we’re asked in college to read with much greater depth than we generally do. We want to fully engage the text so we not only understand the words on the page but the purpose, ramifications, and suggestions that lurk behind those words.

Writers, including college writers, are constantly making choices, and those choices matter. It mattered for all three versions of the Gettysburg address: one chose an informal and distant retelling, one tried for some art and inclusion, and one went full speed ahead into majestic language. Each of those versions asks us to look at the words and sentences very carefully.

Some choices make great art (The Gettysburg Address); other choices don’t (Selection A).

When we are reading, our whole purpose is to remember what the author wanted us to know. And we don’t want to have to read the same work many, many times. So, we focus on the text intently so it sticks.

¹ We do one analysis and two analyses. One of the many hundreds of infuriating things about English is that we choose many different ways to show plurals.

Hints for Reading:

- Set aside time and turn off distractions. Yes, really. Turn off the phone and the TV and the music and any miscellaneous little brothers.
- Keep a pencil or pen in hand. Students who can't stand to mark up books, should buy great stacks of yellow sticky notes. (Don't use highlighters, which actually help readers forget what they are reading).²
- Scan through the text. Look for titles, italicized words, any text boxes, etc. This preview will prime your brain for the work ahead.
- Ask: "What do I know about this subject? We know that learning is built on earlier knowledge, so this step helps prepare the brain for a reading. If there is no prior knowledge, why not spend a moment on Wikipedia and fill in the blanks?"³
- Ask: Why am I reading this? (The answer might be because the professor assigned it, but try for another answer that makes the reading worthwhile).
- Then read deliberately. Mark key sentences (main points, supporting points, thesis statements, particularly interesting or important examples, etc.) Don't mark everything, or the markup will be useless.
- Make notes in the margins, lots of them. Argue with the text. Write questions that need answers. Question the writer's sanity. The more we interact with the text, the more it will stick with us.
- When finished, close the book and mentally review the main points. Are each of the main points stuck in memory? Are the main points clear? If not, re-open the book and glance through your notes and underlines. Make it stick.
- Tomorrow before class, open the book, glance through the notes, and memory will fill in the blanks. Genius ideas will flow.

² No, I didn't just make that up. It seems that when we use markers, we do two things: (1) we get carried away with the process and pay more attention to the highlighting than we do to the content, so we don't remember it; (2) weirdly, we are signaling our brains that we are crossing out the information, and so our helpful brains forget it.

³ Wikipedia is not evil. It is also not the most accurate source available to us. But it is great for quick lookups. When we do research to support our arguments, we don't go to Wikipedia. We use peer-reviewed sources.

Mining the text for evidence

Once we have finished reading and remembering the text, we return to it to look more closely at the language and how it is put together (the rhetoric). This is what we did in those three versions of the “Gettysburg Address.”

Sometimes, the best strategy is to take a few paragraphs or a page from a larger work for analysis rather than trying to do the entire text. But when that is the strategy, we must be sure that the selection is representative of the whole, or we will misrepresent the author.

Some things to look for:

- **Words**, for their denotative and connotative meanings and also for associations.
- A **denotative** meaning is the dictionary meaning of a word: Gold is a heavy, soft metal that is valuable.
- **Connotative** meanings are things the word evokes: Gold represents wealth, gaudiness, glitter, importance, marriage, etc.

Gold is **associated** with money and awards and a test of worth (That tennis player is golden – which doesn’t suggest that she is made of gold or is wealthy, but that she is as valuable as gold to the team).

Sometimes associations are attached to class. If a writer is correctly using *whom* in an essay, we can assume a well-educated and likely upper class writer. We will remember the association in the *Gettysburg Address* of “conceived,” which we related to the conception of a child as being analogous to the conception of a nation.

Wait! Do we have to look at every word?

No. Just like a TV detective, we are looking for the clues that matter. In the sentence, “Rashad bolted out the door, took a flying leap off the porch, and landed on his rear end in the flower bed.” We’d be interested in *bolted*, *flying leap*, *the porch*, and *rear end* – and maybe *the flower bed*. Why? Those are the things that tell us something about Rashad – and about the writer. The writer is trying to capture the energy of his character, and what kind of house he lives in (porches tend to be on older houses) and the neighborhood he lives in (flower beds are not common in apartment complexes but are in suburban homes), and he’s making a judicious choice about describing how he fell with *rear end* as opposed to the other, cruder words he might have chosen here. He is aware of his audience.

So, we're looking for words that help us build a case about the writer and the essay or story.

- **Sentence structure** can reveal sophistication, elevation in language, straightforwardness, simplicity, etc. *They had a war* versus *Now we are engaged in a great civil war*.
- **Paragraph organization** can reveal order or chaos, sophistication or simplicity, great detail or generalization, pedantic or clear. And that's true of the whole **essay organization** as well.
- **Images** are picture-like things in the text. Rashad's sprawl in the flower garden is a visual image that we recreate in our brains. We probably "pictured" the tennis player on the previous page, filling in the words with a visual image that fit our idea of a golden player. Images that are vivid stick in our minds. An image that has some humor (Rashad's crash and fall) evokes one kind of feeling; the arrival of a favorite movie star in the text evokes quite another. On the other hand, an image that is over used ("white as snow") is likely to bore us because there is no originality. Images mean something within the text, and our impressions of them will matter.
- **Metaphors** often appear in texts, and they work similar to images. A metaphor is simply expressing one thing in an analogy with another thing: My gym teacher was a monster; my love is a red, red rose. No, my gym teacher didn't have horns, and I'm not in love with a rose bush. Those are comparisons or analogies, and our brain likes to play with them.

Remember Lincoln's "conceived in liberty" and how we recognized that as like the conception of a child? His point was that the country was also conceived and born, and like all children was vulnerable – and now in war, we are in that vulnerable position again. He didn't say that. Our brains recognized the correspondence and started playing with it.

Vocabulary:

There are a few terms we need to learn so we're speaking the same language as other rhetoricians. There aren't many terms, and they aren't hard. With a few modern exceptions, these words come to us from Aristotle, a Greek philosopher who lived in the fourth century BCE.⁴

- TEXT may be an essay, a poem, a book, an advertisement, a photo, a painting, or an event (Burning Man, for example) that is open to interpretation.
- AUTHOR is often the writer or film maker or whoever it was who produced the text. We are primarily interested in how the author is revealed in the work, not in the author we can look up on Wikipedia. Lincoln is the author, but we are more interested in how he is revealed through his allusions to biblical material and his heightened rhetoric.
- THE RHETORICAL SITUATION is defined by the circumstance(s) of the work: why did the writer write it? in what circumstances? Those circumstances may include cultural traditions or religious assumptions or current political events. What community and/or discourse (discussion) does the text occur in?
- DISCOURSE is a fancy word for conversation. When two Shakespeare scholars write articles on the same topic, they are in discourse, and the student who uses their work as evidence for a paper is entering that discourse and adding to it.
- LOGOS refers to the text's logic and structure. A writer appeals to the reader through *logos*, assuming that the reader wants a well structured and logical argument to follow. Logic is the clear presentation of issues without stumbling into errors like this: I named my tortoise Thor⁵; Thor is a Greek God; therefore, all tortoises are named after Greek gods. Obviously, my choice of a source for a name is not necessarily the choice everyone will make, so this is fallacious (wrong). Structure is the clear presentation of

⁴ BCE may be unfamiliar. We divide the calendar into two parts: Before the Common Era [BCE] and the Common Era [CE]. We used to use BC [Before Christ] and AD [*Anno Domini*, the year of the lord], both of which referred to Christ. In an attempt to be more inclusive, someone decided that we should get away from the Christ references, so they came up with CE and BCE. What's the dividing line between them? The birth of Christ. What did we accomplish by changing the forms? I'm not sure, but I don't make up the rules.

⁵ We really do have a tortoise named Thor, though he is a girl (we didn't know that when she moved in), and she now lives in Montana with my son.

issues in a manner that leads the reader forward toward the essay's conclusion without confusion.

- *ETHOS* also appeals to the reader because it suggests that the author is well informed and reliable. *Ethos* refers to the author's authority, which is established by what we know about him/her from history and, more importantly, established by what we glean from the text: The ability to present examples clearly and fairly suggests that the author is interested in clear expression, and we value the author for that. *Ethos* is also reflected in the author's choice of research and facts; if the evidence is reliable, we trust the author.
- *PATHOS* has to do with emotional appeal to the reader. An author may use pathos in a story about a little girl whose puppy has run away, and we feel sorry for the little girl (and for the poor lonely puppy), and so *pathos* is working on us through that story. An author may also use *pathos* when outraged about a situation, and the passion of the language enflames us. *Pathos* will be relatively rare in academic writing.
- *TELOS* is the purpose of a work. Mr. Chan's "Yo!" was designed to set him apart from the other students. President Lincoln's purpose was to dedicate a battlefield graveyard and to rededicate the nation to the war and to the future.
- *KAIROS* means time, and we use it in two senses: The time or occasion for the text's presentation, and the timeliness and appropriateness of the text in that situation. If we look back at the first version of the Gettysburg Address, we can see that it fails the *Kairos* test: it is neither presented for the occasion it is designed for nor is it appropriate.

The process of rhetorical analysis illustrated.

This is a short passage from Thoreau's *Walden*.

I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived. I did not wish to live what was not life, living is so dear; nor did I wish to practise resignation, unless it was quite necessary. I wanted to live deep and suck out all the marrow of life, to live so sturdily and Spartan-like as to put to rout all that was not life, to cut a broad swath and shave close, to drive life into a corner, and reduce it to its lowest terms, and, if it proved to be mean, why then to get the whole and genuine meanness of it, and publish its meanness to the world; or if it were sublime, to know it by experience, and be able to give a true account of it in my next excursion. For most men, it appears to me, are in a strange uncertainty about it, whether it is of the devil or of God, and have somewhat hastily concluded that it is the chief end of man here to "glorify God and enjoy him forever."

I begin with what I notice first:

- This is in first person (I),
- It has some archaic language (*to front only the essential facts of life*, where *front* is where we would substitute *confront*) and unfamiliar spellings (*practise*, where we would spell *practice*),
- The sentences race headlong from one idea to the next with lots of ideas and images crammed sequentially into the four-sentence paragraph,
- There are vivid images (*suck out all the marrow of life*),
- And muscular images (*live so sturdily and Spartan-like; cut a broad swath and shave close*)
- And there is an odd ambiguity to the closing sentence, as if he might be flirting with the idea of life being both good and bad, and him being subject to both the devil and God.

Already, I have the impression of energy, of a masculine self sufficiency, and of passion. I also see a rebel, someone who will fly in the face of popular opinion and side (perhaps) with the devil.

And let me be blunt: rhetorical analysis isn't a one-hour task. We read, re-read, think, re-think, re-read, doodle, mess around with words, and finally start figuring it out. After that, we come up with a claim, and then write and re-write until it is done. The example I'm doing here was spread over several days, not because I was lazy or surfing puppy videos but because I had to let the ideas arise over time.

After reading this over several times and taking into account both the content and the rhetoric, I land on a tentative claim for my analysis:

Henry David Thoreau, a nineteenth century writer, philosopher, and abolitionist, establishes himself as an outsider, a rebel against the status quo, through his language which is supported by his rhetorical stance, vocabulary, syntax, and images.

Having established my claim (which is subject to revision as I continue to think about it and work with the text),⁶ I will begin looking for the best evidence for each of these points: rhetorical stance, vocabulary, syntax, images. This is a step that most of us would sketch out on the backs of old essays or on a whiteboard, probably. I'm presenting the process more formally here for illustration.

Rhetorical stance evidence:

- He goes into the woods to live, suggesting that to stay in society is to be in some sort of living death.

⁶ Later note: I did, in fact, revise this but this first stab at a claim helped me organize my work

- In fact, he calls what he lived in society *not life* and contrasts that with *living is so dear*.
- He defines life through vivid, bloody images (*suck the marrow, Spartan-like*)
- He enters the woods without a preconceived notion about whether nature and the world are good or bad. If bad (*mean* is the word he uses, and we'd probably substitute *meager* and *hard*), he wants to experience the truth of that meanness; if good, he wants to experience the truth of the sublime.
- He writes with some defiance, I think, as if he is justifying his position against naysayers, and that may explain why he rushes through these sentences, creating a freight train of ideas and images, each one colliding with the next.
- He also explains that he is writing to explain whatever he finds, putting the reader on notice that what follows will be genuine.
- He quotes without citing the Westminster Shorter Catechism in the final words, "glorify God and enjoy him forever" as the purpose of man's life. This relies on his audience's knowledge of conventions of the Church of England (Anglican/Episcopal), and appeals to their satisfaction with their knowledge ("Ah, yes, I know that is true") and ironically and wryly to their fears ("Uh oh, maybe he's right--But I mustn't think that").

Word and image evidence

- *I* centers this selection directly on his person with eight iterations in the first few lines, insisting that this is a personal declaration.
- The words and images about life are abundant and also suggest insistence: *to live deliberately, facts of life, I had not lived, wish to live, not life, living is so dear, live deep, marrow of life, to live so sturdily, to put to rout all that was not life, drive life into a corner*. And these are contrasted with dying and living outside of the woods in *not life*.
- Specific words and images are vivid and muscular, often suggesting a battle: *nor did I wish to practice resignation (surrender), live deep and suck out all the marrow of life, live so sturdily and Spartan-like (warrior-like), rout, cut a broad*

- swath and shave close, drive life into a corner.* He, unlike his city-dwelling readers, will stand alone in battle against complacency and for true living.
- And specific terms are used to communicate truth: *whole and genuine, true account.* And these stand in contrast to those terms that are about the opposite of truth which, here, is not falsehood but uncertainty: *strange uncertainty, whether, somewhat hastily concluded.*
 - Intimations of an afterlife? Thoreau hints at an afterlife in two places: *my next excursion* and the final line. Both of them sound a bit like a joke, though. The afterlife as an *excursion* sounds like he's taking a boat to Europe. The last is the wry hint that the *forever* just might include the devil.
 - Finally, we see arithmetic in use: *reduce it to its lowest terms, proved, true account,* which calls attention to a strange balance sheet we can organize this material into: life in one column, death and society in the other.

Syntax and organization evidence

- Since the “balance sheet” was mentioned just above, let’s look at two sentences as examples of how this essay selection balances the two sides in three of the four sentences in the paragraph:

- Life Not life

<p>I went to the woods because I wished to live deliberately</p> <ul style="list-style-type: none"> • To front only the essential facts of life • And see if I could not learn what it had to teach 	<ul style="list-style-type: none"> • And not, when I came to die, discover that I had not lived.
---	---

<p>I did not wish to live what was not life, Living is so dear</p>	<p>Nor did I wish to practice resignation, unless it was quite necessary.</p>
--	---

They are not equal, but there is a balancing act going on here.

- The other thing going on in the syntax is the headlong rush to get everything in there, a sign of impetuous energy. Look at the many parts (separated by lines here) of this sentence, and though it is complicated, it is not difficult to read:

I wanted to live deep and suck out all the marrow of life

To live so sturdily and Spartan-like

As to put to rout all that was not life

To cut a broad swatch and shave close

To drive life into a corner

And reduce it to its lowest terms and

If it proved to be mean,

Why then to get the whole and genuine meanness of it,

And publish its meanness to the world;

Or if it were sublime,

To know it by experience

And be able to give a true account of it in my next excursion.

The sentence is both straightforward and complicated. It is easy to read and comprehend, though it packs so much into a sentence that we find ourselves overwhelmed –breathless if we read aloud.

The combination of the long involved sentences and the balance between life and death and between meanness and sublimity reinforces the idea of Thoreau as an outsider, arguing for life against the non-life of society.

So, let's now put this argument together. I chose representative evidence, not all of it, and I am remembering that our rhetorical analysis should cover all four parts of the rhetorical question though not necessarily in that order:

Who wrote to whom for what purpose and in what circumstances?

Example: Rhetorical Analysis of Walden

Henry David Thoreau, a nineteenth century writer, philosopher, and abolitionist, establishes himself as an outsider, a passionate rebel against the status quo, in a passage from *Walden*. He writes to explain why he went into the woods to live and left behind what most people would consider *civilization*. Especially for an audience of contemporaries in the 1850s, before the Civil War, his choice to live in the woods would have been outrageous – even revolutionary. Even today, his choice to live in a small cabin in the woods would be considered counter to the status quo, so the modern audience is also intrigued by his explanation.

His language and method of presenting his ideas create an argument between civilization and real life, and it is clear that he values real life in the woods over what most people would consider civilization. He pits civilization against life throughout, though he hides the reference to civilization behind a contrast to life in the words *not life*, and he suggests that living in civilization would be a *resignation*. He counters this with many references to *life* (nouns) and *live* and *living* (verbs), such as *to live deliberately, facts of life, I had not lived, wish to live, not life, living is so dear, live deep, marrow of life, to live so sturdily*. The paragraph is bursting with life references, and we immediately discern the urgency of his desire. We learn the temperament of the man through this intensity.

The contrast between *life* and *not life* is reflected in his syntactical choices. His sentences burst with energy because he almost breathlessly takes us through his sentences, cramming almost too much into each one – but also keeping them so orderly that we read without confusion. He does this by creating balances between parts of the sentences, part for *life*, part for *not life* – and always the balance is in favor of life. This sentence, for example, places two clauses on the life side, then two on the not life side (marked with // at the fulcrum)

I did not wish to live what was not life, living is so dear, // nor did I wish to practice resignation, unless it was quite necessary.

Though they are approximately the same length and so should balance, the interjection of *life is so dear*, a plaintive declarative sentence dropped into the middle, certainly gives the weight to the *life* side.

In fact, so urgent is his desire for an authentic life that he draws on battle imagery several times. He will battle for life – and even combat life itself to be victorious: *nor did I wish to practice resignation (surrender), live so sturdily and Spartan-like (warrior-like), rout, cut a broad swath and shave close, drive life into a corner*. Each of these expressions has to do with battle, and all except the first have to do with victory. Thoreau is the champion of *life* over *not life*. And he is declaring his independence from the polite society he has left (and is addressing).

Thoreau underscores the contrast with a few arithmetic terms, which are subtle reminders that we're reading a sort of balance sheet with *life* on one side and *not life* on the other. These references, *reduce it to its lowest terms*, *proved*, and *true account*, insist on his duty of rendering a faithful account of what life is, whether good or bad.

At the heart of this passage is a startlingly vivid metaphor: *I wanted to live deep and suck out all the marrow of life*. Though few of us eat marrow any more, we understand the impulse to get right down into something and draw everything possible from it, every bit of life and experience and sensation. That, in brief, is what this selection is about. Thoreau wants us (readers then and now) to understand how essential it is to live fully in nature and to see reality, good or bad as it may be, instead of existing in the strictures of polite society. And he wants us to understand why he did this: *and not, when I come to die, discover that I had not lived*.

There is one more point worth noting that separates him from his audience. He flirts with blasphemy in the last line, quoting the Westminster Shorter Catechism, a document that would have been as well known to most of his readers as we'd know the pledge to the flag, to make the point that he, unlike his audience, questions whether God is in charge – or the devil. There is a hint of humor here with his note that *most men . . . have somewhat hastily concluded that it is the chief end of man here to "glorify God and enjoy him forever"* [my underline added], but it is his final note to separate himself from the common man of civilization.

Thoreau establishes himself as a rebel with a cause about which he is passionate. He will live fully, and he will fight for his choices in life.

Commentary: Did we accomplish what we set out to do?

Who? We have a sense of who Thoreau is: passionate, rebel, in love with life, defiant, and energetic.

To whom? We know about his contemporary audience, but we find that we, too, are the audience for this paragraph since we will either be attracted to his ideas or repelled by his idea (mosquitoes and all that).

For what purpose? This is an explanation and a declaration of independence from polite society. It is also a celebration of life.

Under what circumstances? We have a hint of his polite society in the contrast with what he presents, and we know that he wrote this in answer to a puzzled society.

This is what rhetorical analysis can do for us: We have seen far more in this tiny passage than we saw when we first read it; we have created additional meaning; we have a much deeper understanding of Thoreau's writing. And we now understand the basic tools for writing our own analyses. That's good.

But this also accomplishes something else. We as writers are constantly making choices in our own writing. How many of us have thought about the images we choose and what effect they have? How many of us have played with balancing sentences in order to reinforce meaning? Now we have additional tools in our quiver to take out and play with when we're writing our own stuff. Maybe next time we write, we'll be digging down into the marrow to get the last bite.

But we're not always analyzing words, words, words.

I picked up a magazine, *The Atlantic Monthly*, and inside the front cover is an advertisement for a watch – a very expensive watch, no doubt. A rich brown leather watch band, an elegant watch face set at 10:10 with tiny markings, and a signature on the face. The watch sits in a field of misty grey with a stylized crown in lighter grey behind the watch. Tiny words near the bottom of the page say “Cellini Time.” That’s it. No description of the watch’s functions or price. No beautiful model to show how it will look on a beautiful wrist.

Is this, too, an occasion for rhetorical analysis? Yes. My first words about this watch were that it was “a very expensive watch,” yet I have no idea how much it costs. The advertisement almost screams money through understatement. The subtle message is that if I must ask the price, I probably can’t afford it (and I am sure I can’t, nor am I impressed by expensive watches). By spending time with this advertisement, I begin to see how it works: The crown is reminding me of something that vaguely registers: this is the trademark of Rolex watches, and when I peer carefully into the elegant watch face, I find the tiny word *Rolex*. And of course, a crown is a sign of royalty. The grey suggests understatement, elegance, quiet wealth. The simplest of ads works subtle magic on those who desire fine things. They will lust after this watch and need to acquire it so the royal wealth somehow rubs off on them, so they will be this elegant.

A friend went to *Burning Man*, which is an annual event in the middle of the desert. For one week a year, a sort of magical and radical socialism reigns: no one uses money; everything is bartered or given away; art is everywhere; sandstorms whip through blinding nearly everyone and making everyone hide inside tents; great bonfires and dances occur all night; even clothes are optional. Wikipedia’s description follows:

Burning Man is an annual gathering that takes place at Black Rock City—a temporary city erected in the Black Rock Desert in Nevada. The event is described as an experiment in community and art, influenced by 10 main principles, including "radical" inclusion, self-reliance and self-expression, as well as community cooperation, civic responsibility, gifting,

decommodification, participation, immediacy and leaving no trace (“Burning”).

Is this, too, an occasion for analysis? Yes. Rather than critique the write-up above, let’s take a look at what this event might mean. In many ways, this festival is a critique of our society. The impetus to give away and share is commentary on consumerism and capitalism. The saturation of art installations shifts the focus off doing tasks and onto experience. The lack of schedules (staying up all night to dance) critiques the busy-ness of our ordinary lives. Living in an ecologically sound way (leaving no trace) and being open to the elements (the sandstorms) critiques the hermitically sealed way we usually live.

The world is an opportunity for analysis: what does it mean? How does it mean? Why does it work that way?

One last example of rhetorical analysis, this time on a scholarly article.

Barney, David and Joe Deutsch. "Elementary Classroom Teachers Attitudes and Perspectives of Elementary Physical Education." *Physical Educator*, vol. 66, no. 3, Fall2009, pp. 114-123. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=aph&AN=47938026&site=ehost-liv

Because of the lack of respect physical education has in the educational community, it is one of the first content areas to be eliminated. Cook (2005) discussed how elementary physical education has been eliminated from an elementary school in the Pacific Northwest. For this reason parents and others in the community of this above mentioned elementary school have held fundraisers sponsored by the Parent Teachers Association (PTA) so that they can raise enough money to support a physical education teacher in the school. The author finds it interesting to note that even though some schools are losing

physical education classes, logic should dictate that physical education programs should expand faster than the waistlines of today's youth.

I've chosen a single paragraph to analyze, and when I finish, I will go back and look at the rest of the article to determine whether my analysis is a fair one for the whole document.

I (being an English teacher) immediately notice some errors: in the title, the missing apostrophe (*Teachers' Attitudes* would be correct), and in the final line, the authors have substituted *then* for *than*, both fourth grade errors. This makes me wonder how reliable these authors are. Neither they nor their editors were educated enough to do the basics correctly.

"Cook" is introduced as if we know who he/she is, but we don't since this is the first mention in the article. Cook might be a notable authority – or might be someone they ran into in a fast food joint. "An elementary school" is vague. Can we rely on their characterization without being able to track it back to a specific school? What are they hiding?

The paragraph has three "chunks" of material: an assertion of the unimportance of physical education that leads to cuts, a case history that doesn't really reinforce the idea of unimportance because it backfires when the parents attempt a rescue, and an authority's quip about waistlines. We doubt these authors' preparation.

We note that the authors did not eliminate redundancies: *elementary* is mentioned time after time as if we'd forgotten the topic.

Finally, we note that we are left hanging: did they raise enough money? (No, the article doesn't mention it later).

So, our analysis would focus on the shoddy presentation of an important idea. We would check the rest of the essay to determine whether this paragraph is atypical (alas, it is not) and we would find the article unreliable—and therefore

unsuitable for citing in a serious essay as evidence. Our claim might be something like,

Barney and Deutch, in an article that sets out to support physical education for elementary children, undermine their effectiveness with shoddy grammar, poor organization, and a lack of logic. Their ethos is so damaged by these errors that this essay must be seen as unreliable evidence for a research paper.

That's it. Rhetorical analysis is mostly about looking at a text carefully, figuring out what's interesting about the presentation, organizing it – and writing it up as an argument to prove a point.

How do we learn to do rhetorical analysis? We play with the text, prodding it for clues. We arrange the material and determine what we can say about how the text works. And then we argue for that point of view.

A guide to studying for success.

Note that I have violated the standard rule about not using “you” in texts. That is deliberate since I am addressing you, the individual student, and this is an informal document, not a formal essay or presentation.

Studying is hard work. It is also essential for success in school and in life.

College is hard, and it is supposed to be hard.

Often, I am told by students that they breezed through high school by paying attention and writing at the last minute. All “A” grades!

That doesn’t often happen in college. There are a few things that destroy college careers, and they boil down to these for most:

1. Lack of focus.
2. Procrastination and lack of time management
3. Lack of the study habit.

Focus is essential. We cannot study and learn when our phones are ringing, the TV is blaring, the headphones are pumping rap into our heads, and Facebook alerts are ping-pong.

It just does not work.

Turn everything off for the time set aside for studying: everything, even your computer unless you are actively using it for the study session. Efficiency experts have shown that a single e-mail or phone interruption disturbs our learning process for twenty minutes. Three text messages in an hour? You will have learned nothing, though it will feel like you’ve been studying for a whole hour and “just didn’t get it.” Of course you didn’t.

“Oh, but I’m good at multi-tasking.” Let’s get this straight: There is no such thing as multi-tasking. No one is good at doing two things at once because our brains are wired to focus on one thing at a time. People who claim to multi-task are actually switching from one thing to another rapidly – and doing nothing well. Studies show us that knowledge is shallower and more easily forgotten when acquired during multi-tasking sessions. Studies also show us that a task takes much, much longer when interrupted, which means that study time is increased.

Who wants to spend even more hours to get worse results?

I do one thing at a time, and I have time to kayak, run, snowshoe, take day-long hikes, and read fun books – and my schedule is probably far more hectic than yours. (Sure, I'd be happy to compare calendars with you). In college, I worked thirty hours a week and maintained a full load as a literature major and philosophy minor. Was it hard? Absolutely. Often, it was exhausting. Everything that we do that has value comes down to hard work.

Procrastination doesn't work. “I work best under pressure” might have worked when teachers didn't actually read your work or when tests were simply made up of multiple guesses on bubble sheets or when retention wasn't important. But in college, instructors read your work, often very closely. They check your sources and watch for grammar and structural errors. They expect good, deep thinking that is demonstrated clearly and effectively. College work takes time; thinking takes time to develop.

Tests are given to see what you will retain for future lessons and for your career, not what you can retain until lunch. That means that memory needs to be functioning well. When you memorize a chemical formula for photosynthesis five minutes before the test, it will be gone when you need it for future lessons because your memory has no reason to hold onto it. You might ace the test today, but you will probably fail the next step in the class –or fail the next class – or lose your career.

Avoiding procrastination is hard. Yes, it is. Get a calendar, mark down everything that you need to do and schedule blocks of time for studying, reading, writing, and practicing skills. Give yourself some fun breaks (Facebook is not evil; Facebook taking over your entire evening is a waste of talent and time). Take some days off. Schedule time for sport or exercise. But when it is time to work, work. Be adult about your choices.

Make lists of things to accomplish. Cross things out when they are done. This strategy is satisfying: one can see what has been accomplished. “Write English essay” is not a very good entry because it is huge and involves many steps. “Write outline. Write research questions. Find peer-reviewed articles.” – Those are do-able tasks that will build to the larger goal.

Working ahead is a gift. It took me years to realize this. If I stay a week or so ahead of my scheduled due dates, I am always free to say “Yes” to my wife's suggestion to go for a hike or a kayak trip. I even have the option of giving myself a random weekend off if I just don't feel like studying. I almost never have to say, “No, I have something due tomorrow.”

The study habit is like any other habit: one must cultivate it and practice it until it becomes second nature. The more you memorize, the better

your brain will adapt to memorization; the more you read and comprehend sophisticated material, the easier it will be to retain material; the more you write grammatically and properly, the easier – and faster -- it will be to write without extensive editing.

Studying should be thought of in the same terms we use for sport: energetic, involving, muscle building (if we think of the brain's improvement the way we think of the body's improvement in form and function). An athlete practices for hours to attain skill, and that skill takes several forms: speed, endurance, strength, intuition, proper form, team compatibility, and, perhaps most important, muscle memory.

A well-trained basketball player does not think about her knees and her back and her arm position and her head position – she has already done all of that in practice. Instead, she sees the opportunity to shoot, and her body already knows how: A perfect arc, the whispered swish of the basket, and the crowd roars.

A student who has practiced will discover that same fluidity in thinking and doing tasks. Math will become intuitive; an essay will seem like it flows from the brain to the paper almost without effort; creative ideas will leap forth during discussion and surprise us. That student is “smart,” and we think it is easy for him or for her. It isn't.

We don't get to that point without a heck of a lot of work. We create our own genius.

You need a place to study. Dedicate one or two places (perhaps one at school and one at home) where all you do is study. It should be isolated and without distractions. Beds and sleep-inducing easy chairs do not qualify as study places. Sitting in the family room with the TV blaring is not conducive to studying.

Games are played elsewhere. Surfing the web takes place elsewhere. The phone is a long way away – and silenced. Equip yourself with a snack, a bottle of water, a dictionary, and all the supplies you are likely to need. Be sure it is well lighted. Be positive that family, friends, and any stray marauding animals know that you are incommunicado for the duration of your study session.

When you are here, study. Period.

You may need to be inventive: I grew up in a home that was, to put it mildly, chaotic. I had two places to study: a desk in the university library and a picnic table at a nearby park. Everything I needed for my studying was in a briefcase, including my lunch. When I arrived, I unpacked, focused, and stayed put until the work was done. I did not interrupt myself; I did not allow others to

interrupt me. When my mind wandered, I jerked back on the leash and required it to stay on task.

Eat and hydrate. Literally, your brain cannot work properly if you have not eaten and if you have not hydrated properly. Complex carbohydrates and proteins are fuel; potato chips are nap inducers. Water hydrates; colas and the like tend to dehydrate and increase stress. Some studies have shown that skipping breakfast actually lowers IQ by ten points for the morning. Even a genius would be worried about dialing down his or her IQ by ten points.

Get HELP! The reason people work at a college is to help students. Your professors, librarians, counselors, clerks – everyone is here to help you, so ask for help. You are not alone. We want you to succeed. Get to know your professors, visit them during office hours, chat them up before and after class. Don't be shy about this or think that you are bothering someone – you aren't.

So, what is studying? Studying is the hard work of filling your brain (1) with raw material that you can use in other ways and (2) with structures and patterns (equations, formulae, templates, etc.), so you can (3) create original, informed work that uses the body of knowledge you have attained through studying and through living a fully informed life.

For this class, your studying will be focused on reading, writing, and memorization. Your studying will be used to move you toward more sophisticated, deeper, more informed thinking.

Bloom's taxonomy is a chart (see below) that shows the structure of thinking skills from the most basic (remembering) to the most complex (creating). You will note that the most basic skill in thinking is simply remembering things: memorizing a formula for algebra or a definition of a word is the most basic of thinking skills. Your goal in reading for this class is to be able to perform all of the functions listed from top to bottom. When we read Machiavelli, for example, you must not only be able to remember what he said, but you must also be able to work with that new knowledge, evaluate it, apply it to a different situation (the 21st century, for example), and create a new idea or a new response to his views.

Bloom’s Taxonomy of Intellectual behaviors. The lowest orders are at the top; the highest at the bottom. We should be able to respond at every level.

Intellectual behavior/skill	Verbs to describe	suggested assignments
Remembering: Can we recall and retain the information?	define, duplicate, list, memorize, recall, repeat, reproduce, state	Summary, outline, graphic organizer, journal of reading with impressions and important points/quotes.
Understanding: Can we explain ideas and concepts to another?	classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase	Set the work in context of history and of personal experience
Applying: Can we use the information and concepts in a new way?	choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write	Pose a question from the modern world or personal experience and explore it first from the point of view of the author – and then through a personal point of view, which leads to analysis
Analyzing: Can we distinguish the different parts? Can we ask and answer intelligent questions?	appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test	Place this author against another author’s point of view or pose a question from one author to another. Or, create a “real world” scenario that tests the author’s claims.
Evaluating: Can we justify a stand or position? (or are we just going to accept what the author says?)	appraise, argue, defend, judge, select, support, value, evaluate	Write a response that answers questions similar to these: Does this author’s point of view stand up to scrutiny? And does the author’s style/stance/argument enhance or detract?
Creating: Can we create a new idea or a new point of view? (Or are we just going to parrot someone else and be his or her slave?).	assemble, construct, create, design, develop, formulate, write	Write an original response to the author

The nuts and bolts of studying:

Memorization takes practice. The more things you memorize, the better you become at memorizing. No, your brain won't get full and explode.

1. Memorization of random stuff is hard; memorization of related and organized stuff is much easier. So, organize the material into logical pieces: if you are memorizing a group of animals for zoology, put all the four-legged furry guys in one list and all the winged, fire-breathing dragons in another. If you are memorizing poetry terms, put all of the scansion terms together in groups: *dimeter, trimeter, tetrameter, pentameter, hexameter* are in one group; *metaphor, simile, and metonymy* go in another. If you have hundreds of things to memorize, put them in smaller groups, perhaps in tens or twenties.

There are some fine “flashcard” apps for cell phones that will help with memorization.

Relate new information to things you know. Often an example from your life can illustrate a tough point you are trying to understand and remember. Pavlovian response makes more sense when you remember the Sunday when you arrived home after a long run and the smell of your favorite breakfast filled the house – your mouth watered, your stomach growled, memory was stimulated – and you rushed through your shower so you could belly up to the table.

Creating your own study guide is an invaluable step toward mastering the material because creating the study guide is giving your brain a path toward remembering.

2. Memorization takes time and repetition. The brain is designed to push stuff out if it isn't needed. If someone gives you a phone number to call, you will retain it just long enough to call it, and then your brain tosses it into the trash bin unless there is reinforcement, and that reinforcement comes from repetition and reward. If you learn the phone number now, repeat it later in the day, and repeat it once or twice again the next day and the next, you will retain it because you have convinced your brain that it is something that needs to be kept out of the trash bin. Remember that formula for photosynthesis? If you learned it, repeated it, reviewed it a few times over a few days, it would be yours for life.

Repeated, spaced practice is more effective than one cram session because you are teaching your brain to fire its neural networks. When your brain is trained, it responds.

3. Flash cards work. So do cell phone flash card programs that are smart enough to mix up the facts and learn which ones you know and which you need

to keep working on. Instead of surfing silly videos during a break, you can review anatomy vocabulary.

4. Writing material out works, especially if you write in cursive. Studies show that there is better retention with cursive than with printing; there is better retention with printing than with typing.

5. Above all else, **reviewing information with full engagement** several times over several days will work. Full engagement means that you are questioning yourself, posing problems that utilize the material and actively answering them on paper or in discussion with friends and family. Dragging your eyeballs across a page of notes does nothing.

Reading isn't passive. Reading has more in common with full body combat than with dozing in front of the TV and hoping that something sinks in. Engage the text.

1. Start asking questions even before you begin reading: What is this essay or chapter about? What do I know about it already? How will the headnotes and illustrations or other visual aids help me? How many pages do I need to read, and how long do I think it should take? A quick scan will tell you whether you need a dictionary at hand (this is what cell phones are really for: buy a good dictionary app) or whether the text is written in familiar vocabulary and without jargon.

2. Pick up a pencil and start marking up the text.

NOTE: studies suggest that over lining the text in bright colors probably *reduces* retention for most students. You are actually informing your brain that you don't need the stuff so you are crossing it out. This seems like a cruel trick after you bought all those nifty yellow markers, but using a pencil, a pen, an eraser, and maybe a small ruler seems to be more useful.

3. Mark up your book?? Horrors! For twelve years, you were punished for marking up your book, and now a crazy professor is telling you the opposite. Trust me, I'm right. They were wrong, but they weren't thinking about learning – only about having to replace expensive books. At the end of the semester, a well-marked book will yield about the same (puny) resale price as a pristine one.

4. Develop a very simple code: I use a star for the main point(s) of an essay, and there are rarely more than 6 or 7 stars in an average reading assignment. I use vertical lines in the margin where a particularly interesting point is made. I underline only those brief passages where the language is so succinct or so important that I know I need to come back to them during my review and read them word for word. I circle words that I need to look up (or that I want to

test my students on). Definitions go in the top or bottom margin. You should develop your own code. Make it simple, and be consistent.

5. Argue with the text right in the text. “Has this guy lost his mind? Doesn’t he know that Aristotle proved the opposite?” “What application does this have for modern life?” “If he’s right, what do we say to Thoreau’s point about government?”

6. When you finish the reading, close the book and **recreate the chapter from memory**. A five-page essay will probably yield a full single-spaced page of remembered notes. You might want to do this as a narrative or as an outline with bullet points. At the beginning, you’re going to fail miserably; you will get better just the way an athlete gets better with practice. You might start by closing the book after every three paragraphs, then after five, then after the entire chapter. You are building retention “muscle.”

7. Open up the chapter again right away, and **test your recreation against the reality**. Fix the recreation. It will be your study guide so you don’t have to go back and read the whole essay again.

8. Tomorrow morning, spend ten minutes to **skim through the chapter**, bringing it alive with those underlines and notes, and then **read your recreated chapter**. Do it again tomorrow evening for maybe five minutes. And again in a few days. You’ll remember Mary Wollstonecraft’s nutty ideas when you are eighty years old.

9. If the chapter holds specifics that you must memorize, like patterns, formulae, or historic dates and treaties **create a study guide or a stack of flash cards** and return to the memorization notes above.

Listening to a lecture; getting the lecture into your notes – and into your head.

Lectures may be new to you, but they are probably the oldest form of education delivery. We are not used to listening actively. Our brains are so full of last Saturday’s football game and next week’s rock concert and that beautiful person two rows down who just might be the one true happiness in our lives and that song we just can’t stop in our heads – that the professor at the front of the room is merely an annoyance.

Lectures, however, are how you will receive much of the information you need to know for tests, papers, and careers. You must learn to be good at listening, taking notes, and making study guides out of the notes.

“Be here now.” If you need a life’s slogan, that should be it. Sitting in a lecture hall is hard work. Your body wants to leap up and run out to the field to kick a ball around; your mind wants to wander in its own corridors and explore something new. Discipline is what will make the difference: for the next fifty minutes, your job is to listen with your whole body and whole mind. Like anything else, practice makes perfect.

If possible, **sit near the front of the class.** Studies often show that proximity to the professor is a good indicator of grades: students who sit close receive the “A” grades at a much higher rate than those at the back.

Have a specific place in **your notebook** for notes. A random piece of paper that you’ll later stuff into your backpack is useless. Pack these things: a notebook that is always with you and that is well stocked with paper, assorted pens or pencils (which will go dry or break if you do not have multiples), a small ruler, and a toy.

What? **A toy?** Many of you are what I call “twitchy people,” who simply cannot sit still: a knee jumps up and down, the pencil is a miniature baton that you twirl in your fingers, a pen gets clicked a thousand times an hour, an alligator clip gets twisted into every permutation possible over and over and over.

For years, you were told to “Sit Still! Stop that!” But if you try to sit still and stop the movement, you will spend so much energy focusing on sitting still and stopping the behavior that you will hear nothing of the lecture. I’m saying, entertain your body’s need to move so your brain is free to be still and listen. Find something that is quiet and unobtrusive, and manipulate it to your heart’s content (Silly Putty works). Let your knee bounce. Twirl your pencil. Draw bunny rabbits. And listen.

Prepare by reading the text. Annotate liberally, review the material before the lecture, and think about what you do and do not understand. That gives you a reason to listen. More importantly, the text gives you a context for any new material. Going into a lecture cold, without any background knowledge, is a recipe for permanent confusion.

Listen actively. Almost always, there is a formal structure to a lecture: introduction, main points with illustrations, specific references to material in the textbook (which you already read and annotated), and the applications of the material. Your task is to ask questions and capture notes that will allow you to answer them: what does it mean? How does this process work? How do you integrate this new material with what you already know? What is the professor emphasizing? (That is what is likely to be on the test).

Take notes. You cannot write down everything the professor has, nor should you try. If you are actively listening – that is, not only hearing *what* the professor is saying but figuring out *how it fits* with the knowledge in the text and in the course – you need only take down the structure and a few key points that the professor emphasizes. Leave lots of empty space on the page for later additions.

If **questions** are allowed during the lecture, ask for clarifications, restatements, or examples. Demonstrate in your question that you were listening and that you have done the reading by briefly recapping the part of the issue that you do understand, and then ask for the clarification of that part of the lecture that you did not understand.

Often, professors ask that questions be held to the end of the lecture. In that case, use a “parking lot” on your notes. I write down the question when it occurs to me and draw a big box around it with enough room for the answer. Often, I find that the answer comes up in a later part of the lecture. If not, I’ll ask and jot down the answer.

Immediately after the lecture, sit down with your notes and flesh them out with what you remember. Make notes about points you aren’t sure about so you can look them up or ask the professor (answers will go in those blank spaces). Diagram anything you can so your visual imagination is stimulated.

Annotate your notes the same way you annotate a textbook: what are the main points? What do you need to memorize? And what are the applications for what you learned today? Do you need to make flash cards for memorization? If so, do them now. Review your notes later in the day, again tomorrow, again the next day – and they will stick.

The Cornell note taking method is worth trying. Many students find it works. The next page illustrates the method. It is possible to buy paper that includes the Cornell fields; it is easier and cheaper to draw lines on ordinary paper. Or, you can download a template from www.freeology.com.

During the lecture, you focus on the left column, leaving plenty of room between main points. In the right column, record key words and phrases that will help you recreate the lecture as soon as it is done. The bottom box is used a bit later, after the material has “digested” and you understand all the points.

The nice thing about this system is that your notes are always in the same format, so review is quick.

Writing isn't easy. You are trying to communicate complicated ideas to someone who isn't in the room. You don't have the tone of your voice, the waving of your hands, or even eye contact to engage the reader. It must all be done with little black spots on white paper.

Every moment of writing presents a series of choices: What do you want your reader to understand? How do you want the reader to perceive you? How will you persuade the reader? Which point goes first, and why? Which point needs a story to increase the reader's receptivity (pathos)? Which point needs a hard-boiled statistical study to force the reader to face reality (ethos)?

Every word is a choice. Every sentence is a minefield of choices: the wrong word may send your reader away, a misspelling or poor grammar may persuade your reader that you are an idiot and not worth reading.

Above all else, a written essay is a snapshot of your brain that is exhibited to the whole world. It had better be good, for everyone is judging you – not just your English professor. In the world of business, poor grammar is a free ticket to the worst jobs available – or to the unemployment line.

1. Learn the conventions of proper college and business writing.

They are not negotiable. They are status indicators: people who write (and speak) properly are viewed as more intelligent, more forceful, and more effective than people who don't. Is that fair? Sure it is: People who care about how they present themselves will also care about the job they do.

There are fewer rules for grammar and punctuation than there are rules for driving a car. Most of you have licenses to drive, so you are capable of learning the rules of writing in a few days of work. You have help: English handbooks, the *Source*, the tutorial center, and me.

If you have been taught to “just write, and worry about grammar and punctuation later,” you have been taught poorly by dolts. Educated people write grammatically on their first drafts because they think grammatically – because they practiced writing grammatically. If we take that same advice to the Department of Motor Vehicles, imagine the fun of a driving test where you barrel through red lights and bang into cars, pleading that you'll fix all that later when it really matters.

2. Understand your assignment. Ask for help decoding the prompt if necessary. Read the assignment carefully and be positive that everything that is asked for is presented in the best possible way.

3. Start early (see procrastination and time management above). The day you receive the assignment, sit down and think it through. No, you shouldn't spend five hours on it the first day, more like twenty minutes, but you should think about what you want to write about and what you do know – and what you have to find out. Ask a question that might lead to a solid claim or, at least, to an exploration.

Starting early allows most of the work to be done in short study sessions instead of marathon sessions. It looks like a lot of steps, but spread out, they will take less time than a crammed writing session that produces junk.

NOTE: the stupidest ideas you have will be the first ones: trite, obvious, and hackneyed. That's why writing an essay at the last minute is deadly: you are writing off the top of your brain where you aren't nearly as smart as you want or need to be.

4. Let your brain work. It is a strange fact that your brain loves to fiddle around with ideas while you are doing something else. Once you have planted the idea, "Is it possible to regenerate mitochondria, and what would be the consequences of that?," your brain will start fiddling with what it knows, what it remembers, what associations it might make. If you feed it periodically (a pun because your best source of information might be reading a professional periodical article on mitochondria), it will keep fiddling away, trying to make sense. This is why you suddenly get brainstorms while in the shower or while running through the park. Your brain has been toiling away and coming up with good stuff. When it has a "Eureka!" moment, it blurts, usually at the weirdest time imaginable – and almost always when you don't have a notebook around to write it down. Let's face it: our brains are way smarter than we are if we give them the time and material to work with.

5. Jot down ideas in a specific place, a notebook or a specific file (which you e-mail to yourself each day so you don't lose it when your computer bursts into flames).

Write a bunch of stuff that you plan to throw away, just to experiment with the ideas. Experiment with blind writing like I do. I turn off my screen so I can't stop and edit, then I write every idea I can think of about the subject. I often will write for an entire hour, never looking at the text until I'm done. Often, I don't even save or read the work – it has cleared my brain and solidified those items that are most important.

6. Do research. Every paper requires research; not every paper requires specific articles and books. Check your prompt and follow it. If peer-reviewed

research is necessary, it is necessary. Always think about the appropriateness and the validity of your research.

If it is a paper based on your life, spend time trying to recreate the exact conditions of an event so you can go beyond the obvious details. If it is a movie review, think about the history of this type of movie, the genre of the movie, the actors' previous roles, etc. The more you give your mind to play with, the more depth your eventual essay will have. Talk about your subject with friends and family. That's what dinner tables are for: talk and an occasional bite of food. Find out what your parents and friends think of your subject, and listen carefully for their perceptions and misperceptions. Their experiences may help you understand the issue more deeply. More important, your engagement will feed your brain.

7. All this, and you haven't even started writing the actual paper. True. And you aren't there yet. **Outline your topic.** Then, outline your topic in a different way, using a different approach. Keep tinkering until you create a structure that serves your purpose. Create a clear path from the beginning to the end of the essay, and think of each paragraph as a single stepping stone on that path: each paragraph has one topic that is fully developed and illustrated. Each paragraph transitions to the next logically.

What is the purpose of an essay? To communicate your unique and brilliant idea to a good reader in the best way possible while using the best and most effective information and illustrations.

What about the five paragraph essay? Kill it dead. Bury it in the backyard. Stomp on its grave and plant a whole flat of daisies on top of it. If it rises up, pound a stake through its heart and rebury it deeper.

But doesn't the thesis statement have to come at the end of the first paragraph? No, no, and again no. It might be there. It might be two pages in after you have fully informed your reader so he or she will be receptive to your claim. It might be the very last sentence in your essay. You are a writer, and you want the most effective presentation possible. Your material will work best when it is organized in the best way.

But my conclusion has to restate the thesis, right? Only if you think your reader is so dumb that he or she has already forgotten what you wrote. If you were effective, the point is remembered. If you were not, restating it at the end is just cruelty. Use your conclusion to take the reader forward: What will happen if your proposal is adopted?

8. Write the paper. Assume that you will rewrite this as soon as you are done with the first draft. Rewriting does not mean tinkering – rewriting means slashing, burning, rearranging, cutting/pasting, etc. Think about the reader: How will the reader “digest” this information?

NOTE: E-mail copies of every draft to yourself so when your computer melts into a puddle of goo, you can still retrieve your work.

Get HELP! It bears repeating: The reason people work at a college is to help students. Your professors, librarians, counselors, clerks – everyone is here to help you, so ask for help. You are not alone. We want you to succeed. Get to know your professors, visit them during office hours, chat them up before and after class. Don't be shy about this or think that you are bothering someone – you aren't.

9. Put it away and go out to play. All of the bad points of your paper are rising to the surface while you are out whitewater rafting or while singing karaoke. They will leap off the page at you when you return to it and read it carefully, which you will do tomorrow. Go – have fun first.

10. Go back and read the original assignment one more time. Create a checklist: number of words required, number of sources, formatting conventions, etc. Be positive that everything that is asked for is in your essay.

11. Rewrite carefully, always keeping the reader's needs in mind. Print. **Proofread on a hard copy**, not on screen where typos have learned to hide. Have a friend read it critically. If your friend says, “Good!” get a new friend. You want someone who will actually read it and show you where the transitions don't work or where confusion reigns. Proofread it again. And again. Sloppy proofreading signals sloppy thinking, even when the thinking isn't sloppy. (Again, e-mail copies of every draft to yourself).

12. Print it at least 24 hours in advance of the due date. Your printer will explode into flames if you wait until right before class. If you are to turn it in to www.turnitin.com, submit it and READ THE REPORT. If there are plagiarism errors, fix them and resubmit in advance of the due date.

NOTE: www.turnitin.com is a useful source, but it is a dumb program: it identifies only direct borrowings of words, and it sometimes misses things that your instructor may recognize. Plagiarism also involves using people's ideas paraphrased into your own words without citation and acknowledgement of the originator of the material. The program will not see these; your instructor will. Therefore, a clean report may not be the same as a plagiarism-free essay.

13. Turn it in on time, neatly stapled, in accordance with whatever format the professor has asked for.

Oh, man, that sounds like a lot of work.

Yes, it is. Hard work is the only way to get good.

All the shortcuts lead to failure.

Choose your favorite sport heroes, your favorite musicians, your favorite brain surgeons, and ask the question, "Did they do the minimum to get by? Or did they practice endlessly and sweat and shed tears along the way?"

Yes, they did.

I did.

You must too.

The Source Of (nearly) all wisdom

This is a brief manual for the academic writer. It includes the major conventions of academic and business writing, and it includes some basics of English usage, grammar, and punctuation.

Students are responsible for knowing and using everything in this packet from the beginning of the semester, so read it carefully, return to it often, and use it as a checklist before turning in any written work.

Need help with any of the material here? See me, visit the tutorial center, or Google on “Purdue OWL” where explanatory information is available.

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MLA Format:

First Last

Instructor name

Class title, day, and time (English MW 1A 8:00 a.m.)

Due date

Centered Title

Begin the first paragraph right here. Notice that everything has been double spaced, and there isn't any skipped space anywhere. It is appealing to add additional spaces to set off the title, but we don't do that. Even when one paragraph ends, there is no extra space. Margins are one inch on all sides.

In the upper right corner in a header, enter last name and the page number. I'm limited from doing that since I'm in a larger document, and I don't want this on every page.

For this class, please use a 12 point clean font (nothing fancy).

MLA format is a convention of college writing. Most papers in college will follow this format except social sciences classes, such as psychology, which use a slightly different format. It is useful to set up a template in the word processing program to avoid setting it up anew for each paper.

This format is established by the Modern Language Association (MLA), an organization that appointed itself the arbiter of all things having to do with humanities research and grammar. Often, their guidelines are contradictory and infuriating, but they are not negotiable. We follow them and learn to love them – or else.

Cardinal crimes

We write a slightly different language than we speak. And our language is evolving and devolving constantly. Academic and business English is conservative: Changes that take place in our common conversation and e-mails haven't yet influenced the board room and the classroom. Some of the conventions below may be surprising—but they are not negotiable, so we learn them. When we make the types of errors listed here, we send the message that we are ignorant and/or sloppy. And our grades suffer. Mostly likely, our careers will suffer.

The items on these first pages rate high on my personal rage factor. If I throw essays against the wall, stomp on the remains, and then set them alight in my fireplace when I encounter this error, it is on this list. Pronoun errors, which are right at the top of my rage factor list are covered on a later page. Students should not make any errors of these types.

You	<p>We do not use “you” in formal essays. Ever. Period. End of discussion. We do not know who our audience is, and anything we may say about our audience is likely to be wrong. “You have to agree that dress codes are ridiculous” is asking an unknown person to agree with a personal opinion the reader may not share.</p> <p>Exception: If a quoted source uses “you” inside the quote, it should remain.</p>
I, me, mine, myself, etc.	<p>Academic essays are not about the writer. They are about ideas, concepts, events, etc. Therefore, personal references are rare. Save them for an example from life that helps to explain a point. If “I” occurs frequently, it means that the writer has decided that he or she is more important than the topic. That may be true, but the reader is here for the topic, not personal revelation.</p> <p>Exception: When a student is specifically asked for a personal essay that focuses on something in life, this rule is waived. Also, there are personal genres that we'll be discussing where the “I” is important. That, by the way, will probably be a rare occurrence. Even then, try to keep the personal minimized.</p>
Its / It's	<p>Once and for all, memorize this or tattoo it somewhere conspicuous: Its is possessive: The book got its cover torn. It's is a contraction of it + is or it + has: It's a sad day when the sun doesn't shine.</p>
Their / There / they're	<p>They all sound alike, but they are three different words: Their is possessive: The students had read their books. There is an adverb that explains where something is: The trophy is over there. There is also used as an empty subject: There is rain today. They're is a contraction of they + are: They're in the swimming pool.</p>
Your / you're	<p>Again, they sound alike, but they are different words; Your is possessive: That is your book. You're is a contraction of you + are: You're going to pay for this.</p>
Then / Than	<p>Then is a time signal (remember the timE and thEn): Then we left. Than is a comparison: He is taller than I am.</p>

Some quick-fix (but significant) errors:	
Accept Except	<u>Accept</u> is a verb. <u>Except</u> is usually a preposition that means to exclude. "I accepted all the gifts except that one."
Affect Effect	<u>Affect</u> is usually a verb, meaning to influence. <u>Effect</u> is usually a noun meaning result. (handy hint: if we can place "the" before the word without losing meaning, "effect" will be correct. Remember thE Effect). With hard work, he can affect the grade with the effect that he'll get an "A".
Alright	There is no such word in academic English. <u>All right</u> is the correct spelling, but it still will be rare.
A part Apart	We are a part of a group; we stand apart from a group. (Yes, English is an infuriating language).
As to	I have no idea what this means, so cut it. The sentence will nearly always be improved.
A lot	Always two words; it is NEVER <u>alot</u> except for the rare form that has to do with an allotment.
Coarse Course	<u>Coarse</u> is rough; <u>course</u> is a path, a class, and, of course, an expression that means certainly.
Complement Compliment	A <u>complement</u> is something that goes well with something else (cake and ice cream complement each other); a <u>compliment</u> is a nice thing said (She's beautiful).
Could have Could of	<u>Could have</u> is correct; could of sounds right, but it is always wrong. Should have, not should of –the same situation.
Every day Everyday	Every day is a time signal: Every day, I brush my teeth. Everyday is an adjective, describing a noun: These are my everyday shoes.
Farther Further	We go <u>farther</u> in distance; we go <u>further</u> into an idea, an event, etc. This is custom, not a rule, but it is a custom that is useful, I think. If the other one seems to sound better in context, use it. (People love to fight about this one, by the way – it isn't a war worth having).
Get, got, gotten.	Avoid this verb. It has so many vague meanings that it rarely means what we want it to say. The form "gotten" is so ugly that it drips off the page, runs across the floor, and burns up shoes.
Loose Lose	<u>Loose</u> means not tight. <u>Lose</u> means not found.
Numbers	Spell out numbers from zero to ninety-nine unless they are complicated by a fraction or decimal: ninety-eight, but 98.6. Use numerals from 100 to infinity.
Principal Principle	A <u>principal</u> is the head of a school or business, or, as an adjective (descriptor), it is the main or most important thing; The PrinciPAL is our pal (though he was my nemesis). A principle is a basic truth or law.
Such so	He was so tall! We say, using our voices to indicate the stress. But when we write, we must finish the sentence: He was so tall that his head hit the ceiling. Also with <i>such</i> .
Use(d)	For some reason, we have an epidemic of sentences like this: I use to go to the store. The correct past tense form (it happened before now) is USED.
Whether (or not)	<i>Whether</i> suggests both things: to be or not to be. So, "or not" is usually redundant. "Whether 'tis nobler in the mind to suffer the slings and arrows of outrageous fortune, or to take arms against a sea of troubles, and by opposing end them?" (Hamlet, III.i). Not "whether or not 'tis . . ." We can <u>generally</u> cut the "or not" and streamline our sentences – but not always.
In Which	<i>In which</i> is a rarity and it must refer to something that actually goes inside of something else. This is the pocket in which I found the golden coin.

Pronouns:

Pronoun misuse is pandemic. There are historical reasons for this, which we'll discuss in class, but there is no reason not to learn the three simple rules that govern pronouns and no reason not to use them correctly. Pronoun errors destroy a writer's credibility.

A pronoun is a word that stands in for a noun. This allows us to avoid a sentence like this: John wanted John's hat to be placed in John's room → John wanted his hat to be placed in his room.

John is the **antecedent** in this sentence. That is, John is the thing the other pronouns refer to.

Rules:

1. The pronouns **MUST** be the same **gender** (male to male; female to female): "The boy had her head screwed up" is nonsense because "her" can't refer back to a boy. However, there are instances of people whose gender is fluid or whose gender may not fit the binary male/female division. Pronouns for these people must be thought about individually and with care.

2. Pronouns must be the same **number** (singular to singular; plural to plural): *The boy had their head screwed up* is nonsense because their can't refer back to a boy since their is plural and the antecedent is singular.

"They had his head screwed up" is nonsense because "they" can't suddenly mutate into a single person. (NOTE: This is the single most common pronoun problem, so watch out for it). There is a chart on the next page that shows singular and plural pronouns for reference.

3. Pronouns must clearly refer back to a specific **antecedent**. *Bill and Jim had pooled their money to buy him a surfboard.* (who is "him"?) So, Bill and Jim had pooled their money to buy Bill a surfboard.

NOTE WELL : Some pronouns that sound plural are really singular:

Another, anybody, anyone, anything, each, everybody, everyone, everything, neither, nobody, none, no one, nothing, one, somebody, someone, something.

The words **they, them, and their** will **NEVER** refer back to one of these pronouns. Memorize them.

Personal Pronouns

Subject	Object	Possessive
I	me	My/mine
You	you	Your/yours
He, she, it	Him, her, it	His, hers, its
Who	whom	Whose

Plural pronouns

We	Us	Our/ours
You [all]	You	Your/yours
They	them	Theirs
Who	Whom	Whose

The “to be” verb:

am, is, are, was, were, be, been, being, had been, will be, etc.

This verb is the most ubiquitous verb in the English language. We can hardly write a paragraph without it. However, there are some things we need to learn about this verb:

1. **It is weak** because it carries no real action. We do not run into a room and are with great vigor. It really means the same as an equal sign [=]. *John is tall* → *John = tall*. It is good for definitions, but it should be minimized whenever possible.

2. If we are writing many sentences in a row that depend on a “to be” verb, we are not thinking of ways to communicate the action and concept to the reader. Choose muscular, energetic verbs: *John rushed into the room, ducking under the door jamb*. By rushing and ducking, we know something about John’s activity and his height. This also works with ideas: *Einstein’s theory is difficult to understand* → *Confronted with Einstein’s theory, many students break into a cold sweat*.

3. This verb is sometimes used as a **helping verb**, which ties it to another verb: *I am thinking*; *I will be taller by that time*. These uses indicate the tense of the verb. When that occurs, rule #4 below does not apply.

4. There is a **special rule** for some words that follow the “to be” verb and other linking verbs:

Remember that this verb is basically an equal sign, and we know from math that both sides of an equal sign must be equal: $2+2 = 3 + 1$.

The same is true in a sentence: On both sides of an equal sign, the subject form will occur: *I am he. It is I*.

(No, we don’t talk like that; we do write like that).

Punctuation in brief

Learn and apply these rules. If a rule doesn't fit, don't put in punctuation. Yes, there are more rules, which we'll cover in class, but these will cover the basics. Punctuation is for one thing: clarity.

Commas:

1. Put a comma after an introductory adverbial and before the subject. An introductory adverbial is a word or group of words that explain when, where, why, or how the rest of the sentence takes place. It occurs before the subject of the sentence. *When we arrived, the party started. When the snow fell, the kids left the swimming pool.*
2. Put a comma after each item in a series – even before and. *The colors include red, white, and blue.*
3. Separate two complete sentences that are joined with a conjunction (for, and, nor, but, or, yet, so). Because the first letter of those words make up “Fanboys,” we call this the Fanboys construction. *John ran, and he swam.*
4. Surround information that interrupts the sentence with commas. *You, sir, can't handle the truth. Yes, indeed, he is a gnome.*
5. Surround information that is not essential to the sentence's meaning with commas: *John, who was captain of the swim team, won the race.*
6. Mark a complete reversal of a sentence with a comma. *She was beautiful, but deadly.*

Semi-colons ; This is a fairly rare mark and should be used to join two closely related sentences that are not separated by a conjunction (see comma rule #3 above). A full sentence MUST occur on each side of the semi-colon. In all cases, we could substitute a period. *John swam; he ran; he biked.*

Colon : This is a fairly rare mark used to introduce a list or example or an answer to an implied question. A full sentence MUST occur before the colon. *We had dessert: cake, ice cream, and stewed buffalo.*

The exclamation point ! is so rare that each student gets a ration of only one for the entire semester, and that's when, on the last day, the victory is announced: *“I got the A!”*

The question mark ? ends every question.

The period . ends every sentence that is not a question.

The ellipsis dots . . . only occur in quotations when words are left out.

The apostrophe

The apostrophe has two uses:

1. To show **contraction**

(do + not = don't; can + not = can't). Common contractions are sometimes acceptable in essays, though often we can raise the tone a bit by avoiding them. Could've, for example, sounds awkward and substandard, but don't is generally acceptable. Some instructors ban contractions completely.

2. To show **possession** (John's bike, the novel's plot, the concept's best expression).

A. To determine whether something is possessive, turn the word group around and add "of" to the phrase:

The bike of John – Yes, possessive, because that makes sense → John's bike.

The plot of the novel – Yes, possessive → the novel's plot.

The best expression of the concept – Yes, possessive → The concept's best expression

B. If it is possessive, use -'s at the end of the word: John's bike, the novel's plot, the concept's best expression, James's hat, the woman's shoes, the women's shoes, the governess's mood.

C. There is only one exception to this rule: If a possessive word ends in -s AND is plural, then the apostrophe hangs outside the -s: one bike's tires, two bikes' tires; one novel's plot, two novels' plots.

Some people decorate their papers with apostrophes, putting them everywhere they see an -s at the end of the word. Don't become one of those idiotic people. Often it is fun to find these on signs and advertisements (often even in national brand advertisements).

Parts of Speech

The vocabulary of grammar is very easy to learn. These definitions and examples will get us started. We will use these to explain grammar rules and punctuation rules.

Verb	<p>A word that changes according to the time it occurred.</p> <ul style="list-style-type: none"> Usually, a verb is an action word: ran, thought, believed. Sometimes a verb links two ideas: is, are, was, were, etc. <p>Forget the rule that says “an action word because actions are often not verbs (<i>Running is fun</i>, where the action is the subject).</p>	<p>Yesterday, I <u>swam</u>; today I <u>swim</u>; tomorrow I <u>will swim</u>.</p> <p>Yesterday, swimming <u>was</u> my favorite sport; today, swimming <u>is</u> my favorite sport; tomorrow, swimming <u>will be</u> my favorite sport. (Notice that <u>swimming</u> is an action word BUT it does not change, so it is not a verb).</p>
Subject	A word or group of words that performs the action of the verb OR controls the link with the verb.	<p>I swam</p> <p><u>Swimming</u> is my favorite sport.</p>
Object	After some verbs, the object answers the question, “What?”	I gave <u>presents</u> (I gave what? presents)
Subject complement	After a linking verb (see above), a subject complement may appear. It will be a noun or pronoun that restates the subject.	<p>John is <u>the captain</u>. (John = captain)</p> <p>I am <u>he</u> (I = he).</p> <p>It is I (we say, It is me, but that’s slang).</p>
Adjective	A word or group of words that define a noun or pronoun. Adjectives answer the following questions about a noun or pronoun: which one? What kind of? How many?	<p><u>Tall, brown-eyed</u> Jennifer, <u>whose math skills were awesome</u>, took the <u>first</u> prize.</p> <p>Which Jennifer? Tall, brown-eyed, and whose math skills were awesome</p> <p>What kind of skills? Math and awesome</p> <p>Which prize? First</p>
Adverb	A word or group of words that answer these questions: When? Where? How? Why?	<p><u>After the storm in a far-away land</u>, the boys ate cookies <u>quickly</u> <u>because they were starving</u>.</p> <p>When? After the storm</p> <p>Where? In a far-away land</p> <p>How? Quickly</p> <p>Why? Because they were starving</p>
Nouns	<p>A noun names something: people, places, things, ideas, etc. The easiest way to find a noun is to determine whether we can have one or more of them. This will cover nearly all nouns.</p> <p>Proper nouns are capitalized; generic nouns are not.</p>	<p>two <u>books</u>, two <u>ideas</u>, two <u>colors</u>, two <u>beliefs</u>.</p> <p><u>Bullard High School</u> is a <u>high school</u></p>

Academic Writing

DEFINITION: Academic writing is formal, impersonal, well-reasoned, carefully argued, substantiated with facts and authoritative opinions, and idea based.

Formal does not mean stuffy or full of jargon (specialized language and fancy words). Formal means orderly and clear without slang, buzz words, or experimental prose.

Impersonal does not mean that we don't care. Impersonal means that it is not "me" directed. Academic writing is not about the writer: it is about ideas. Therefore, the words I, me, my, mine, and myself will be rare and will generally be limited to those examples that introduce or illustrate the topic.

Well-reasoned means that we will rely on logic to make our arguments, not emotion or unsubstantiated opinions, though we may use emotional appeal to reinforce our arguments.

Carefully argued means that we will not sling opinions, generalizations, or haphazard pronouncements at our readers. We will build our essays in an orderly and easy-to-decipher way with each topic introduced with a topic sentence that is developed and substantiated in an orderly way.

Substantiation for arguments will be based on verifiable (and researched) facts or based on the opinions of verifiable experts in the field of exploration. All substantiation that is not common knowledge will be cited properly (See MLA citation, below)

Ideas will be the basis of the essay. Our lives and experiences are not ideas. They may sometimes be used as illustrations of ideas, but the focus is on the idea, the concept, the opinion, or the fact that we are trying to elucidate.

Gender neutral language

PROBLEM: We often discriminate against men or women when we write.

A student should pick up his own books.

A housecleaner should always care for her employer's things.

The first sentence assumes that there are no women students, which is only true in an all-boy's school; the second reinforces the stereotype that housecleaning is women's work. However, getting around these problems is sometimes difficult.

A sentence like this sounds like it was manufactured by someone who is tip-toeing across a mine field: *He or she should remain cognizant of his or her abilities when planning his or her birthday.*

A sentence like this sounds like it isn't about people but about snooty robots:

One should remain cognizant of one's abilities when planning one's birthday.

SOLUTION: There are two ways to approach this.

1. Use the plural to include everyone:

People should remain cognizant of their abilities when planning their birthdays.

2. Specify a gender for the sentence if it does not reinforce a stereotype.

A man should remain cognizant of his abilities when planning his birthday.

NOTE: Some instructors are adamant that every sentence avoid gender bias. I, however, think it is perfectly natural to read a passage where the writer has made a choice in favor of one or the other gender, usually the writer's own, so long as it does not reinforce an unwanted stereotype. But I also hope that the writer will occasionally switch the references in another passage so long as it does not create confusion.

Respect: We want to remain aware that we are surrounded by people who are different from us: different races, different religions, different views, different gender preferences, etc. We should avoid statements and references in our writing and in our discussions that are insensitive to those differences. If a person has specified non-traditional personal pronouns, that request should be honored.

Academic Reading

The object of reading is to lift ideas, facts, and opinions from the page and let them live and breathe inside the mind. This requires active participation. If a student drags his eyeballs across the page, looks up blankly, and says, “What in the heck is she trying to say, “ he has failed himself.

I didn't get it. Never accept not getting it. In fact, banish the phrase forever for two reasons: (1) we avoid “get” in all its forms and (2) the job is to keep working until the material is fully understood – even if it takes hours and tears and sweat and modest amounts of blood. College is supposed to be hard; if it were easy, everyone would have a degree and no one would get paid the big bucks for having an education.

1. Look up words. Keep a list to review frequently. The only way we know how to grow our ability to think is to grow the number of words we understand. Do not guess about meaning – look it up and use the definition in context. As we'll discuss, vocabulary building is essential for improving our thinking.

2. Use scaffolding. Web pages and encyclopedias often give background information and summaries – use them. I use Wikipedia almost every day to assist my reading, though we never rely on open sources for research. They are useful for a quick look-up, however.

3. Annotate heavily (that means, mark up the book a lot): mark the thesis, the main points, and nifty quotes that might be used in a paper or discussion. Argue with the text by asking questions, pointing out errors or idiotic statements, and figuring out ways to refute the points. And reflect on the text by summarizing, applying the knowledge to personal experiences, and comparing to other writers. [It is hard for some students to mark up books, but it is the very best way to make the knowledge stick – and the bookstore will buy back books that are marked up so long as the book isn't trashed].

4. Choose two or three questions, challenges, or insights to bring to class. Be prepared to lead a discussion on those points. Write a brief paragraph or two that summarizes the ideas for personal use.

5. Re-read important material. We know that our memories work in a three stage process: (1) we remember something briefly: a friend gives a phone number we need to call right now; we call it and forget it immediately. (2) The friend says the number is for someone we might want to date, so we should try it again in an hour or so – so, we ask our memories to hold onto the number by repeating it a few times. If, after the successful phone call, we decide we want to remember the phone number forever because he/she is the best human on the planet, (3) we review the number a few times over the next 24 hours – and we'll probably never forget it.

That's the process: Read, review, review again tomorrow – and we've convinced our brain to store it in long term memory.

Writing the Essay

There is no template for an essay. The writer needs to gather ideas and supporting materials and assemble and reassemble them until the best organization and approach is discovered. This discovery process is really a thinking process: as the ideas are manipulated, they grow and mutate.

Rule 1: The **first idea** is usually the dumbest and the most trite. Discard it as soon as possible and start searching for something more interesting.

Rule 2: The **best prewriting** is often done with others: talk about the topic and listen carefully. Ask for others to challenge and to provide alternate views.

Rule 3: Some of the **best ideas** will come when the writer is doing something else IF the seeds of those ideas have been planted by thinking and jotting down bad ideas. Long walks or runs and showers seem to be my best idea generators.

Rule 4: The **first draft** should be done very quickly and at least a week before the due date. It is junk and **should be thrown away as soon as it is done**. The draft isn't wasted work – it is the necessary step of engaging the writer's brain. Now, the writer should think and re-think and chat with friends until the ideas become new and, perhaps, profound.

Rule 5: Now **write. Revise. Proofread**. Discover a new idea that should be incorporated. Write. Revise. Proofread. Go back to the first pages of **The Source** and do a checklist revision. **Proofread again**.

Rule 6: At the end of every session of writing, **e-mail the essay draft to a server** so when the computer melts into a puddle, the draft is available.

Rule 7: **Print** it up at least 12 hours before the due date so when the printer bursts into flames, the essay is ready to go.

Just what are the chances that an individual student can have an original idea to write about?

By my estimate, about 100%. Each student comes with different experiences, beliefs, opinions, prejudices, and world views, so each student has the potential to offer something completely new. But new ideas take work, insight, and more work to come to the surface and to be expressed clearly.

Essay strategies

There may be no template, but there are strategies.

The Opening: Three things should be near the top of an essay:

1. Something that grabs the reader's imagination: a **"hook."**
2. **Context** for the essay so the reader knows the field of inquiry: A summary of the material, an authority who has an opinion or insight, or a description of a problem or controversy.
3. A **claim** that states exactly what the reader should understand by the end of the essay and that **maps** the territory ahead. Consider where the claim should go. Often people think it must come at the end of the first paragraph, but since your reader is learning new information, why not spend a page or two giving background and then get to the claim?

If, for example, a writer who wants to prove that Mary Shelley did not actually write Frankenstein might use a claim like this:

Although scholars generally agree that Mary Shelley wrote the novel, the historical evidence, the manuscript evidence, and a comparison to the later writings of Ms. Shelley suggest that she was assisted by her husband, the poet Percy Shelley.

This claim not only makes the point clear, but it also shows the reader what kind of exploration will be pursued (the map): historical evidence, the evidence provided by the manuscript of the novel, and a comparison to later writings. The essay that follows will stay on a direct path through that evidence.

The best claims avoid "to be" verbs (is, are, was, were, etc.) because those are weak, passive verbs.

The Body:

Think of an essay as a set of stepping stones that make up a walkway for the reader. Each paragraph should advance the essay, and each step should logically lead to the next.

The body is made up of paragraphs. Most paragraphs will begin with a **topic sentence**:

The historical evidence for Percy Shelley's involvement in the writing of Frankenstein depends largely on the journals of their acquaintances. Every word in the paragraph that follows will explain, explore, give examples, and give authority to that statement. There should be no extraneous information, and there should be full development of that point.

Paragraph length: The average paragraph should be eight to fifteen sentences, not two or three. There are many exceptions on both sides of these numbers: occasionally, a paragraph must be one sentence long, occasionally several pages. But if a paper is filled with short paragraphs, the reader is sure to notice that there is no substance and little development of ideas. And if a paper is made up of paragraphs that stretch for miles, the reader will become exhausted.

Transitions: Each paragraph should lead logically to the next. When the Frankenstein paper reaches the end of the historical material, the writer will include a transition sentence something like this:

“Not only does the historical evidence lead to a question of authorship, but the manuscript shows different hands, different inks, and even different writing habits.”

A transition sentence allows the reader to blissfully progress through the material without getting whiplash or falling off a chair when the subject brutally and mercilessly changes without warning.

The number of paragraphs depends on the material, but virtually no topic will be fully explored and presented without a minimum of eight or ten paragraphs.

The Conclusion:

Conventional wisdom suggests that a good essay will be in three parts: (1) tell them what the point is, (2) make the point, (3) then tell them what the point was. This leads to a conclusion that basically re-states the opening paragraph.

What for? This assumes that the reader is a dolt who can't remember what he or she read just ten minutes ago.

Instead, when the conclusion looms ahead, explain what difference the paper makes to our understanding of the issue, or explain what will happen if the proposal is adopted, or show us the results. Move the reader forward.

The last step:

It cannot be said enough times: proofread, proofread, proofread before turning in anything. Many times students receive back papers that look like they've been attacked by the ink monster, and the students recognize that they know how to avoid most of the errors. They just forgot to spend the minutes necessary to get things right.

(Handy hint: read the paper backwards: last sentence, then penultimate sentence, and so forth through the paper. This will interrupt expectations and force more careful reading).

Arguments

An argument is a special kind of essay, and it is the basic writing form in college courses (and in business: what's a memo or a business plan if it isn't an argument for a specific action?). In brief, an argument is the process of putting an idea on trial. We will be covering this at great length in class, but this guide will help introduce the topic.

An argument isn't a fight. An argument is a forceful and fair presentation of an idea to the reader. Arguments are always based on something about which there can be disagreement.

Arguments depend on claims, grounds, and opposition (and some other things we'll cover in class).

CLAIMS: A claim is a thesis statement that presents a specific point of view that the paper will attempt to prove. A claim will be specific, make a point that can be proven about which there is some controversy, and will control the argument that follows (three claims above serve as examples). Rarely will a claim rely on a "to be" verb since the claim needs to be forceful and clear. A **map** is a continuation of the claim that shows how the claim will be proven: a preview of the evidence, for example.

GROUNDNS: A ground is evidence or proof of the claim. Grounds may take several forms:

1. Facts

A fact should be true, current, and relevant. It must be interpreted properly and used properly. Facts that are not common knowledge must be taken from a reliable source which is credited in the text.

2. Informed opinion

We turn to authority (experts) for two reasons: we want the best information from recognized experts, and we want our papers to "feel" authoritative because of the association with those experts. Usually, authorities should be paraphrased; occasionally, an authority will be quoted when the words are so specific or so memorable that paraphrasing will lessen the impact. All authorities, quoted or paraphrased, must be credited in the text.

3. Logical constructs

We can't always find the exact proof we need, but we can rely on logic to explain things properly to a reader. If, for example, the Clovis Mall and the Fresno Mall have similar population demographics and similar stores, we can logically use Fresno statistics as an predictor of Clovis's statistics. Those won't be exact, but we can establish trends. The use of demographics in this case would need to be explained carefully, and the demographic facts would need to be cited in the text.

4. Illustrations and examples

Sometimes a story about a single mom whose only time away from her family is a weekly trip to the mall will be more important in terms of proof than all the statistics in the world. If the story comes from a source, even if re-told and paraphrased, it must be credited in the text.

5. Emotional appeal

If shopping by computer runs the corner florist shop out of business and leaves a neighbor jobless, use that emotional appeal.

Opposition

Since an argumentative claim is, by definition, something that can be argued, there will be opposition to the point in the paper. It is the writer's job in argumentation to anticipate the opposition and to answer it. This means that the writer must think like the opposition, figure out what arguments might be made against the paper's point, and answer those points directly. This requires a fair summary of the opposition's argument (no bias or slant) that is refuted by the grounds. Often, the best place for the opposition's point is in the introduction: "Although X claims that Y is true, the evidence proves that X is wrong . . ."

Plagiarism – what it is and how to avoid it.

Every semester, we fail many students because they choose to cheat on their papers. There is no excuse for cheating, and there is no mercy available.

NEVER NEVER NEVER

1. use someone else's **words** without credit to the original author;
2. use someone's **ideas** without credit to the original author;
3. use someone's **facts or studies** without credit to the original author;
4. or pass **someone else's work** off as original
5. or **recycle** a paper from another class.

NOTE: Even if the words are changed, the original work is still the source.

Plagiarism of all sorts causes assignment failure with no possibility of rewrites.

This is serious. That's why it is in big bold text.

We English teachers read a lot, and we know how to use search engines. More important, we are very good at detecting professional prose and writing that is not in a student's own voice. When we detect possible plagiarism, we use www.turnitin.com, which returns the paper complete with the stolen passages reprinted in brilliant colors.

We may require the writer to produce original drafts, the original sources, or other documentation to investigate a potential case of plagiarism. Refusing or being unable to produce the requested material will cause failure.

The chance of getting away with plagiarism isn't good – and it certainly isn't worth taking a chance of failure. If a student cannot pass a class using his or her own brain, that student should not be in college.

So, the way to avoid plagiarism is to give credit where credit is due: to the books and articles and web pages that contributed ideas and facts to the paper. We do this with two tools: a works cited page and an in-text citation.

Works Cited page

A works cited page will be the last page(s) of any paper that uses sources. It will list every source used in the paper in alphabetical order, using the first word of the citation for the alphabetization.

The page will be double spaced, just like every other page in the paper. The first line of each entry will begin at the left margin; the subsequent lines will be indented so the hanging alphabetized word can be seen easily.

Since MLA standards change periodically, the library keeps an up-to-date handout for your use. That is posted on the web page for your use. Also, the library links to some pages that will help you develop your works cited. DO NOT USE citation generators that are not linked to the library page. Many are wrong.

Here is a typical entry for reference. This is for an article in a professional journal, and it is copied from the MLA Handbook, 8th edition:

Baron, Naomi S. "Redefining Reading: The Impact of Digital Communication Media." *PMLA*, vol. 128, no 1, Jan. 2013, pp. 193-200.

Notice that the entry starts at the left margin. The second line is indented. Every items is double spaced without extra spaces between them.

Annotated Works Cited (Or Annotated Bibliography)

Sometimes, an annotated works cited page is requested. This will take the same form as a regular works cited page for the citations, but it will also include a paragraph or two after each citation which will (1) summarize the major points of the source, (2) evaluate the audience for which the source was intended, (3) explain how the work will be used in the research paper. The individual assignment may require different elements in these paragraphs.

The citations and the paragraphs will be double spaced, and there will be no additional spaces between the citations and the paragraphs – just double space the whole page.

In-Text Citations

Once the works cited page is done, in-text citation is easy. At the end of any sentence or paragraph where material from a source has been used, place an in-text citation in parentheses.

(Author's last name "title" page #)
(Baron "Redefining" 37).

That's the maximum material that will occur in any in-text citation. The URL for a web page will NEVER occur here. Notice that no punctuation separates the three pieces of information, and the period for the sentence follows the citation.

However, like magic, we can reduce what goes into this citation:

1. If the author's name is mentioned in the text (see below), the name isn't required in the parentheses.
2. If the author has only one title listed in the works cited page, the title is not required.
3. If there are no page numbers in the source or if there is only one page number the number isn't required.

That leaves the reader with one piece of information: the author's name, which is mentioned in the text:

"According to John Smith, yoyos rarely require major brain surgery."

The reader turns to the works cited page and finds this entry:

Smith, John. "Yoyo Repair for Geniuses." *Journal of Intellectual Pursuits* X.i
(2009): 37. Print.

There is no question that the reader can find the information needed. That's all that is needed to cite the source.

How many citations are necessary? As many citations as necessary: one for each fact, opinion, study, idea, or other information used from sources. In an average research paper, citations will occur in every paragraph, often several citations in a single paragraph.

How many sources are necessary? That will depend on two things: the project's needs and the instructions for the paper. More research is usually better. Be sure to clarify whether the professor requires peer-reviewed sources (see research sources, below).

Research sources

1. **Avoid** web pages unless there is a reason to believe that the web page is authoritative. Web pages that are sponsored by major research foundations or organizations and those sponsored by the state or federal government are generally reliable. And web pages run by universities are frequently reliable, but it is necessary to check the qualifications of the author since crackpots show up on university pages, too.

2. **NEVER use open sources like Wikipedia** for research. They are useful for quick look-ups, but they are notoriously inaccurate and constantly in flux.

3. Use the databases

available through our library's web page. EBSCOHOST is among the best. Always be sure to check the "peer-reviewed" box for any database search. "**Peer Reviewed**" means that the source has been reviewed and approved by experts in the field. Passwords may be required and are identical to your e-mail sign in.

4. **Books** published by major publishing houses are reliable and are peer-reviewed.

5. **Journals** are generally reliable and are peer-reviewed except the *Wall Street Journal*.

6. **Magazines generally are not reliable** except some major ones like the *Atlantic*. However, *Time*, *Newsweek*, etc., have interesting articles that may lead to good research topics, but they cannot be relied upon since they are written for the general public by popular writers; the material tends to be dumbed down.

7. **Personal interviews** are great sources of information to use in addition to peer-reviewed material. (Citation for a personal interview: Last, First name. *Personal Interview*. Date.).

How can we know something is reliable? Talk with a librarian.

How can we get help finding sources? Talk with a librarian.

Research Topics: some notes

Often an instructor will give very specific instructions about research topics, but sometimes the student may choose. Here are some guidelines to help.

Avoid hackneyed topics like prayer in school, medical marijuana, abortion, gay marriage, gun control, creationism vs. natural selection, flag burning, cell phones, social networking, capital punishment, euthanasia, etc. These are serious issues, but they have been argued so much that there are no new arguments on any side of these issues. Choose topics that have some room for original thinking.

How does one find a research topic? Read research. Go to the library and pick up a journal or go to a database and start reading things of interest. Look for an article that could be used as a backstop – something to toss ideas against.

- Fukuyama claimed in 2000 that history was done, that democracy had won for all time. Is that true? Why not kick some sand in his face and point out how he was wrong? A quick glance at the resurgence of communism in South America will suggest that he doesn't have a clue.
- The popular movie, *The Road*, which is based on a fine novel by Cormac McCarthy, seems to suggest that the cause of the catastrophe was a nuclear blast. Is that true? Readers of the book find something quite different if they have a religious background. Why not look carefully at the book and argue with the movie?
- Boorstin claims that modern technology has attenuated experience so much that our lives are now flat and uninteresting. Is he right? Or does he misunderstand modern life entirely?
- Shakespeare's *Tempest* has three characters that seem to be embodiments of the id, ego, and superego described by Freud. How do we interpret the play if that's true?
- Recent gene research has shown that a smoker causes many gene mutations – perhaps thousands of mutations that contribute to cancer growth– with every single cigarette. With that in mind, should insurance companies be allowed to turn down insurance coverage for smokers?
- Edgar Poe was an alcoholic. Is there evidence in his short stories that show manifestations of his disease? If so, what does this mean for our interpretation of his stories?
- Keats was dying of tuberculosis when he wrote some of his best work. Is there evidence in the poems that show how the disease affected him?

Do use **personal beliefs** as the basis of an argument, but don't rely on belief to win the argument. I once had a Jehovah's Witness who was adamant about her belief that blood transfusions were wrong. Her religion teaches that, but she did not rely on her faith to prove her point: she used medical advances, blood transfusion dangers, etc. to show that blood transfusions are unnecessary and dangerous.

That's a perfect example of how one's religious beliefs can lead to a good argument

That can be won without relying on faith.

What's wrong with faith? Not a thing, but it can't win an argument unless the reader accepts the identical faith—and that's a small audience, and one that probably already agrees. So, what's the point of the argument?

See? The fields are wide open for fascinating ideas if we just poke around the research in the fields we are interested in and ask, "Is this true?" "What does that really mean?" "Is this guy nuts?" "Can I logically prove something new?"

How to Win the School Game

1. **Show up to class every day.** The biggest single reason students fail is bad attendance. One missed class will probably mean missed points either because of class points or because something is covered that shows up on a later assignment. In fact, there is solid research that shows that even one missed class in the first several weeks of class *probably* will lead to a C or lower grade in the class.
2. **Get to know the professors.** People teach because they love to teach and enjoy the interaction with students. But only a few students stand out because they visit office hours, get involved with the class, send e-mails when a question comes up, and contribute excellent work. Anonymity does no one any good.
3. **Get a calendar and use it.** Procrastination is the #2 reason students fail. Figure out due dates and how each day can be scheduled so the work is done on time. Don't over schedule: play time is as necessary as study and sleep.
4. **Understand and use today's lesson today.** If something presented in class isn't clear, get help immediately. Knowledge is cumulative: students who skip steps are soon behind. Use the tutorial center, web resources, classmates, and the professor – all of these resources are here for success.
5. *Always turn in work on time; always do the assignment exactly as required.*
6. **Keep copies of every graded assignment.** Professors aren't perfect when it comes to recording grades.
7. **Exchange contact information** with other classmates. Stuck on an assignment? Get on Facebook and discuss it. Forgot a handout? Ask a classmate to e-mail it. Need to talk about an assignment? Set up a study session with a group from the class.
8. **Eat breakfast**, especially before an early morning class. People who skip eating breakfast actually lower their intelligence because there is no fuel for their brains: it becomes almost impossible to focus or think. Caffeine is not a substitute for food (but some of us believe it is essential for life).
9. **Turn off all media during study time.** Multi-tasking does serious damage to our concentration, including our long-term ability to multi-task. In short, it cripples us. Multi-tasking may be popular, and it may seem like more is being accomplished, but the research shows the opposite. This article is worth reading:
<http://www.wired.com/wiredscience/2009/08/multitasking> Or read
this one, where a neuroscientist sums the situation up nicely:

"People can't multitask very well, and when people say they can, they're deluding themselves," said neuroscientist Earl Miller. And, he said, "The brain is very good at deluding itself."
<http://www.npr.org/templates/story/story.php?storyId=95256794>
10. **Don't make excuses.** Do the work, do it on time, and excuses are superfluous.

ASK FOR HELP. We're here because we want you to soar through school, transfer to a university, get a degree or two – and then go out and make this world a better place. Ask for help any time you need it.

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