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Critical Thinking, Pedagogy, and Jiu Jitsu: Wedding Physical Resistance to Critical Thinking

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Abstract

This paper argues that training methodologies similar to those used in Brazilian jiu jitsu and other realistic combat arts like Western boxing, Muay Thai, kickboxing, and college wrestling should constitute a pedagogical core of college critical thinking courses. To make this argument, first, we briefly define and explain "critical thinking" using the American Philosophical Association's Delphi Report; second, we describe traditional content taught in nearly all undergraduate critical thinking classes and explain why this content may not achieve its epistemological and educational ambitions; third, we discuss the pedagogy, termed "aliveness," used in jiu jitsu and mixed martial arts training; and finally, we detail how to thematically incorporate pedagogical aspects of aliveness into critical thinking classes through the use of the "I Method" (Introduction, Isolation, Integration).

Keywords: pedagogy, critical thinking, American Philosophical Association Delphi Report, aliveness, attitudinal disposition, MMA, jiu jitsu

Any mental activity is easy if it need not take reality into account.

Marcel Proust

Introduction: Martial Arts, Aliveness and Resisting Opponents

In 1993, Royce Gracie, a Brazilian schooled in the martial art of Brazilian jiu jitsu, started a revolution in the martial arts. Gracie entered the first Ultimate Fighting Championship—an eight-person martial arts elimination tournament with few rules. Matches were won by submission or knockout. Gracie dominated significantly larger opponents with a combination of ground fighting (similar to college wrestling) and striking. Overnight, the martial arts were transformed and Brazilian jiu jitsu, coupled with mixed martial arts (MMA), became the dominant combat art on the planet.

What was largely overlooked, however, was the pedagogy the Gracies used to accomplish this revolutionary feat. The Gracies used a training method also used in wrestling and boxing that consisted of engaging resisting opponents. A "resisting opponent" is a competitor who does not want to lose and who actively attempts to win. This is such a simple and fundamental idea that it is hard to imagine that training with resisting opponents was largely absent from nearly all traditional martial arts instruction. A large part of traditional martial arts training consisted of performing kata (also termed "forms"), in which the practitioner memorized increasingly complex patterns of strikes against imaginary opponents.

Engaging resisting opponents was not only an idea that never gained traction in traditional martial arts, but it was also a dramatic departure from the traditional mindset. Traditional martial arts relied on faith, the word of instructors, intricate multiple-person choreography, historical/mythical legends about how particular techniques achieved miraculous victories, or lore about how techniques were too deadly to test (Green & Syinth, 2003, pp. 2-11). Engaging resisting opponents thus offered practitioners a means and a process of testing their skills—the result was that the trainee became capable of evaluating the practicality, efficacy, and usefulness of the technique for herself. (In other words, does a particular technique work? Can it be used to win fights?) Beyond testing techniques, however, was the idea that techniques *should* be tested. The resisting opponent was means to that end. Practitioners now could, and should, test and verify techniques.

The purpose of this paper is to argue that training methodologies similar to those used in Brazilian jiu jitsu and other *realistic* combat arts like Western boxing, Muay Thai, kickboxing, and college wrestling, should constitute a pedagogical core of college critical thinking courses. To make this argument, first, we briefly define and explain "critical thinking" using the American Philosophical Association's seminal definition as articulated in the Delphi Report (APA, 1990); second, we describe traditional content taught in nearly all undergraduate critical thinking classes and explain why this content may not achieve its epistemological and educational ambitions; third, we discuss the pedagogy, termed "aliveness," used in jiu jitsu and MMA training; fourth, we detail how to thematically incorporate pedagogical aspects of aliveness into critical thinking classes through the use of the "I Method" (Introduction, Isolation, Integration).

Critical Thinking and the American Philosophical Association

The largest and most comprehensive study to date on critical thinking was funded and published by the American Philosophical Association (APA) in 1990 (APA, 1990). At the end of the APA's two-year research project, experts in multiple fields came to a consensus about critical thinking, how to define critical thinking, and why it is important. The report defines and details the ideal critical thinker. The following is the APA's consensus statement regarding critical thinking and the ideal critical thinker:

> We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon

which that judgment is based…The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focuses in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit… It combines developing CT skills with nurturing those dispositions which consistently yield useful insights and which are the basis of a rational and democratic society. (APA, 1990, p. 3)

This definition is further broken down into several categories and sub-categories (APA, 1990, p. 12-19), each of which is testable by a battery of valid and reliable instruments (Facione, 1998; Insight Assessment, 2010a; Insight Assessment, 2010b).

It is important to note that within this definition there are two fundamental components to critical thinking: a skill set and an attitude. The skill set consists of intellectual and educational competencies like interpreting, analyzing, evaluating, and making inferences. The attitudinal component includes qualities such as being inquisitive, trustful of reason, diligent, reasonable, and persistent. Virtually all critical thinking texts exclusively emphasize the skill set while almost none offer tools to address the attitudinal and dispositional component of critical thinking.[1]

The APA's report does not state that any one skill or attitudinal disposition is more important than any other. Moreover, neither the APA's report nor subsequent literature based upon that report promotes a particular pedagogical strategy. This paper attempts to address this gap in the literature by advocating a pedagogy that could be more effective in helping students achieve both the critical thinking skill set and attitude as defined and explained in the APA's Delphi Report. In section III of this paper we will discuss traditional content taught in nearly all college level critical thinking courses, and how, currently taught, it may not align with the APA's definition.

Traditional Critical Thinking Content, Skills, and Attitudes

Nearly all college-level critical thinking courses emphasize the same basic course content (Moore & Parker, 2007): Identifying syllogisms (e.g., modus ponens, modus tollens), naming fallacies (e.g., *argumentum ab auctoritate*, *argumentum ad hominem*), labeling invalid inferences (e.g., affirming the

consequent, denying the antecedent), and memorizing truth tables. There may be two fundamental problems with using this traditional content: one, it may not improve a student's critical thinking skill set, and two, it may not affect a student's attitudinal disposition. This section will now unpack and explain these two issues.

First, there is no substantive empirical evidence showing that the aforementioned content makes one better at, for example, "interpretation, analysis, evaluation and inference," and thus improves one's critical thinking skills (Abrami, Bernard, Borokhovski, Wade, Surkes, Tamim & Zhang, 2008; Facione, 1998; Facione, Sanchez, Facione, & Gainen, 1995; van Gelder, 2005).[2] It could be, for example, that identifying syllogisms only makes one better at identifying syllogisms, and that there is no relationship between being able to tag a particular syllogism with a label to becoming a better at critical thinking skills as detailed in the APA's Delphi Report. If this is the case then using traditional content is problematic not only because doing so does not achieve what educators think it will achieve (Facione, 1990; Paul, 1992; Resnick, 1987), but also because gaining proficiency with traditional content may not be portable and thus usable outside of a classroom context in any practical, meaningful way.[3]

However, if data emerged showing that traditional content aligns with the APA's critical thinking constructs and thus helps students develop a critical thinking skill set, this would not entail *any* connection to the attitudinal component of critical thinking (May et al., 1999; Ten Dam, & Volman, 2004).[4] That is, even if a student demonstrates high levels of proficiency manipulating traditional content, this does not mean that she will actually apply those skills. The attitudinal disposition to think critically is the essential link between knowing how to reason and action. This is illustrated in following syllogism:

> Premise: All animals feel pain
> Premise: Cows are animals
> Conclusion 1: Therefore, cows feel pain
> Conclusion 2: Therefore, we should not eat cows

The first part of this syllogism is deductively valid; Conclusion 2, however, "we should not eat cows," is an invalid inference. (The additional premise, "One should not eat animals that feel pain," would be needed for validity.) Being able to identify this conclusion as invalid, however, bears no relationship to whether or not one will accept its soundness (Boghossian, 2002; Kuhn & Lao, 1996; Lord, Ross, & Leper, 1979; Nyhan & Reifler, 2010) It could be, for example, that eating meat

and animal suffering have an emotional valence that influences whether or not the conclusion will be accepted or rejected (Verbruggen & De Houwer, 2007).

The concern that traditional content cannot achieve its epistemological and attitudinal ambitions is not limited to syllogisms. It is also unclear, for example, how memorizing truth tables help students to be, "habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, etc." Moreover, how does learning the names of fallacies, many of which are in Latin (*argumentum ab auctoritate*, *argumentum ad hominem*), nurture "those dispositions which consistently yield useful insights and which are the basis of a rational and democratic society" (APA, 1990, p. 4)?

Because there is insufficient evidence to support the claim that the traditional critical thinking content (found in nearly all critical thinking texts and taught in academic classrooms) improves the attitudinal disposition necessary to think critically, one conclusion is to call for critical thinking texts to limit claims regarding epistemological and attitudinal ambitions (Bassham, Irwin, Nardone & Wallace, 2011, p. xi; Brookfield, 1987, p. x; Browne & Keeley, 2011, p. 2; Diestler, 1998, p. viii; Groarke & Tindale, 2011, p. xi-xiii; Jackson & Newberry, 2012, p. xiii; Kirby, Goodpaster, Levine, 1999, p. xix, xxii; Moore & Parker, 2007, p. 2; Vaughn, 2008)[5]. If regurgitative behaviors, both in regard to traditional martial arts content and traditional critical thinking content, can be said to have any effect on a student's attitude, it may be that they further the student in the mistaken perception that they have gained proficiency in a practical, applicable skill set (Shermer, 2011, p. 4).

Ironically, student attitude could thus be causally linked to the skillful application of a technique that does not do what the practitioner thinks that it does. In the martial arts, for example, physically one could feel better about oneself and be impressed by one's ability to successfully engage a series of imaginary opponents; educationally, one could memorize truth tables and consider oneself proficient in critical reasoning—but this sense of self-esteem is predicated upon the technique accurately mapping onto reality. If the technique does not accurately map onto reality, that is, if it does not work, then the self-esteem one gains through proficiency is illusory. An unrooted sense of self-esteem would follow from the fact that many of the techniques that are learned, both in traditional martial arts and in traditional critical thinking classrooms, may be unhinged from reality. That is, the techniques are divorced from practical application and do not do what the practitioner thinks they will do.

Aliveness

The word "aliveness" was coined by one of the first Brazilian jiu jitsu black belts in the United States, Matt Thornton, and has been the subject of numerous articles in martial arts magazines, books, and journal articles (Angeles, 2000; Davies, 2012; Gutierrez & Seong, 2001; Sonnon, 2008; Thornton, 2000; Tanswell, 2003). The terms "alive" and "aliveness" have become pop culture memes in the MMA community to indicate a type of training. At its core, aliveness is both a way of engaging a resisting opponent, in other words, a method of sparring or fighting an opponent who actively attempts to achieve victory, and a way of testing ideas and techniques for oneself through the use of a self-correcting mechanism.[6] This section explains aliveness, unpacks the notion of resisting opponents, and explains what it means to test techniques and content.[7]

One reason an alive training pedagogy has garnered such a widespread following in MMA is due to the testable, zero-sum nature of the fighting arts. In cage fights there are no hermeneutics. There is a clear winner and a clear loser as determined by an opponent submitting or being knocked unconscious.[8] In the martial arts, if one wants to figure out who is the superior fighter, then two combatants compete in a "few-holds barred" cage fight. (The term "cage fight" came to prominence because these competitive matches take place inside of a chain link fence, which forms a caged circle or an octagon around the competitors). Even though there are a myriad of variables—the specific martial art, supplementation and even illegal drug use, diet, cardiovascular conditioning, family and friend support, physical measurements and weight, number of years trained, strength, dexterity, ability to endure pain, etc., that could sway the outcome, in MMA competitions those who regularly trained against resisting opponents consistently defeated those who did not.

Moreover, when techniques are identical or nearly identical, the martial arts practitioner who trains with an alive pedagogy will consistently beat an opponent in the same style who does not train with aliveness.[9] For example, Brazilian jiu jitsu uses an alive pedagogy; that is, practitioners engage in full contact sparring by training against resisting opponents—the match ends when someone submits or gets knocked out. Japanese jiu jitsu does not; that is, there is no full contact sparring in Japanese jiu jitsu. The techniques in these styles are nearly identical, the only difference being that Japanese jiu jitsu places slightly more emphasis on a standing opponent (Danaher & Gracie, 2003; Gracie, 1996; Martin, 2010). In competitions, even beginning Brazilian jiu jitsu practitioners consistently beat seasoned black belts in Japanese jiu jitsu (Bledsoe, 2008; Downey, 2007). When

other variables are controlled for, training pedagogies can be definitively adjudicated in cage fights.

Practitioners of college wrestling, boxing, kickboxing, Muay Thai, and Brazilian jiu jitsu, all of whom train against resisting opponents, consistently defeat traditional, seasoned martial artists whose style did not have an alive pedagogical base, e.g., Tae Kwon Do, Capoeira, Kung Fu, Aikido, Japanese jiu jitsu, Hapkido, etc. (Rogan, 2004, p. x; Martin, 2010). If these styles did have an alive pedagogical base—and since the advent of televised cage fighting, many instructors in the traditional martial arts have started to incorporate elements of aliveness into their training methodologies—then they cease to become styles. That is, the high kicks that define Tae Kwon Do would no longer be definitive of the style of Tae Kwon Do. An alive pedagogy causes an eventual convergence of techniques centered around what defeats an opponent, as opposed to what defines a particular martial art. In other words, if high kicks increased the likelihood of defeating an opponent, then MMA practitioners would incorporate those kicks into their existing suite of techniques. Similarly, if reliance on high kicks led to more losses than wins, then the style of Tae Kwon Do would cease to have definitive characteristics and techniques as those would be less likely to win a fight and thus less frequently utilized. The fading away of combat styles is a necessary outcome of training with an alive pedagogy.

With alive training one can see for oneself what works and what does not. Aliveness *is* a self-correcting mechanism. Practitioners no longer have to rely on the word of their instructor to adjudicate the efficacy of a particular technique—they can test a technique against an opponent who offers increasing levels of resistance. This affords one both the opportunity to differentiate between what works (reality) and what does not (fantasy) for oneself, and the possibility of correcting what does not work. Aliveness is a prophylactic against self-delusion.

Finally, if the pedagogical foundation of the style/activity is alive, then the technique that is introduced is immaterial. This is because pedagogy enables participants an opportunity to self-correct; one could even teach irrelevant content—such as basket weaving or algebra—in a martial arts class or a critical thinking course. If introducing algebra into an MMA curriculum increased the likelihood of defeating a resisting opponent (i.e., winning), then algebra would find its way into the curricula. If not, then it is discarded.

Thus the mechanism of aliveness operates as a sieve that enables people to identify and discard ineffective content. For example, if one believed that by using

only one's pinky one could successfully ward off an aggressive opponent, then this empirical proposition is easily testable. Introduce the "pinky technique" against resisting opponents and examine the results. Similarly, in the context of a critical thinking class, if one believes that developing a proficiency in basket weaving makes one better at spotting invalid inferences, this too is an empirically demonstrable claim: Teach students basket weaving, assess them to make sure they can successfully weave a basket, and then administer a reliable testing instrument.[10]

The next section of this paper explains what it would look like to import aspects of the pedagogical model of aliveness for use with traditional critical thinking content in an academic setting. It argues that though active resistance to ideas, arguments, and propositions, students may be more likely to achieve both a critical thinking skill set and an attitudinal disposition that aligns with the APA's disposition inventory.

The I Method: Introduction, Isolation and Integration

In an MMA context, engaging resisting opponents does not mean putting two combatants in a cage and encouraging a free-for-all. In a critical thinking classroom, aliveness does not mean throwing out a debate question, sitting down, and then letting students scream at each other.

Popular aliveness methods of instruction usually have three stages: Introduction, Isolation, and Integration (Wolf, 2006). To illustrate how an alive pedagogical method would be used in a critical thinking classroom, we'll explain the stages of aliveness using traditional critical thinking content.

Introduction

In the Introduction stage, content is introduced to students in a cooperative environment. In a critical thinking class, for example, after a brief discussion about what a fallacy is and why it is important to learn about various fallacies, students would be introduced to several fallacies and shown rudimentary examples of fallacious reasoning. In the introduction stage, the learning environment is cooperative because no challenges are made to students' reasoning. Content is presented non-confrontationally and students have ample opportunity to ask questions.

As an example of what occurs in the Introduction stage, I begin with the "attacking the person" fallacy as it is one of the most obvious fallacies. I start by asking students a question and then, regardless of the response, I'll raise my voice and say, for example, "What do you know, you have a green shirt on!" Virtually all students will immediately recognize my exclamation as problematic (and a few may even chuckle). Students are then given an opportunity to ask questions.[11] During this early stage the teacher should also fully explain why students are learning what they're learning; students should understand the learning objectives and how, through the content studied, they will achieve those objectives.[12]

Isolation

Continuing with fallacies as an example, in the next stage, Isolation,[13] specific fallacies are discussed in contexts in which they arise. Instructors could show television and movie clips, YouTube videos and comments, foreign and domestic newspaper op-eds, scholarly articles, etc. Fallacies occurring across a wide range of contexts should be covered, and the direct connection and application between the learning objectives and the material/content should be made explicit. (For example, "The reason it's important to learn about the 'attacking the person fallacy' is that it frequently comes up in debates among political candidates. You may be able to make better voting decisions once you've been able to identify this fallacy in action".)[14] In particular, focus should center on *how* the reasoning in the argument is flawed and how understanding the content in question can be practical and beneficial.

In the Isolation stage, students should engage content by reasoning through issues and doing the necessary intellectual work to, for example, identify fallacies. This can be accomplished in a group setting with a team of their peers, or as a solitary assignment, but the instructor should be cautious *not* to tell students that proposition P is a fallacy and why it is fallacious. This is because students need to reason to this conclusion on their own; if they reason to their own conclusions they'll not only have a better understanding of what they're studying and why, but also how that idea "holds up" under pressure, or resistance.

For example, after students identify the fallacy in question, I usually *defend* the fallacious reasoning and offer possible explanations either for why P is not a fallacy or for why their response is in error. Here one can see the beginning of aliveness, where the interlocutor—either the teacher or fellow students—offer dialectical resistance by questioning and challenging each other's claims and reasoning processes.[15] In this pedagogical model, students are not passive

knowledge receptacles but engaged learners who participate in an active, dynamic process. Students become claim defenders, and if a particular claim cannot withstand scrutiny then it must, at least temporarily, be considered false.

During the Isolation stage, the important elements come both from the process being modeled (found in other pedagogies like critical pedagogy, engaged pedagogy, and the Socratic method, while largely absent in behaviorism and constructivism) and from the give-and-take dialectical exchange (Boghossian, 2011).[16] The communicative process itself is an *exchange*. Students are not doing mental kata, i.e., they are not memorizing or reciting, but having their ideas progressively questioned and challenged. The process of having one's ideas challenged is an alive process—it helps students to see what approach works, what does not, how to hone their reasoning skills, and what attitude and behavior are appropriate in the face having one's beliefs challenged.

It is not, however, only the professor who is pro-socially modeling appropriate verbal and attitudinal behavior, the process itself models core attitudinal dispositions that one cannot get merely by memorizing or even by researching and writing about core content. Class content must be critically and substantively engaged for the dispositional aspect of critical thinking to be manifest. If there is no critical engagement of the material, no resistance, and no corrective mechanism, then attitudes cannot be learned, improved, or modified. Memorizing and reading from a text cannot improve attitudinal dispositions necessary for critical reason to emerge.

Integration

Integration is the final stage in an alive classroom pedagogy. Students synthesize, fully apply, and completely engage content while drawing upon their existing knowledge in other subject areas to dynamically tackle the subject matter. (In jiu jitsu, this is when opponents spar.) In the integration stage, it is less important that particular techniques be properly executed, and more important that students demonstrate an understanding of both the activity/exercise as a whole and how that technique may fit into that activity. All of a student's reasoning abilities, knowledge, education and experience should be integrated and brought to bear on the specific activity. Examples of ideal activities for comprehensive integration are structured debates, impromptu and extemporaneous presentations, and having students critique each other's arguments while the professor guides and models verbal behavior that comports, elicits and makes explicit the connection with the APA skill set and behavioral dispositions.[17]

Conclusion

This paper argued that fundamental principles from training methods similar to those used in realistic martial arts should constitute a pedagogical core of college critical thinking courses. Specifically, an argument was made for an alive pedagogy as the primary delivery mechanism for traditional critical thinking content. Without aliveness as a pedagogical core, traditional critical thinking content may not be sufficient to improve a student's attitudinal disposition or even a critical thinking skill set.

If an educator's learning objective is to help students learn to think critically, and have skills that applicable outside of an academic context, a classroom strategy for introducing increasing resistance may be a vital step to achieving this end. An alive pedagogy may effectively wed traditional critical thinking content to the objectives of an ideal critical thinker.

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Endnotes

[1] One reason for this is that while it is possible to assess an attitudinal disposition, it is incredibly difficult to do so (Petty & Krosnick, 1995, p. xi-xvi).

[2] It's surprising that after 25 years since the APA's Delphi Report there remains a dearth of reliable research on the relationships among pedagogy, critical thinking content, applied critical thinking, and attitudinal dispositions.

There is some evidence to show that argument mapping may be effective (van Gelder, 2002; 2005) in increasing critical thinking proficiencies. And, while not directly tied to critical thinking, there is evidence demonstrating the effectiveness of using syllogisms to measure certain psychological constructs across various populations (Stanovich & West, 2000).

The irony is not lost on the fact that the sub-discipline of philosophy that prides itself on evidence and reason has virtually no reliable empirical data to support claims that studying certain content makes one a better critical thinker.

[3] In the martial arts this is analogous to the fact that there is, at best, scant evidence that doing kata makes one a better fighter, though it certainly makes one better at doing kata. Similarly, a critical thinking student could demonstrate, for example, proficiency at manipulating syllogisms and naming fallacies, but there is virtually no empirical evidence that these competencies help one to achieve critical thinking skills as detailed in the APA's Delphi Report.

This is similar to the argument made by philosopher John Searle in his Chinese Room thought experiment (Searle, 1980). Here, without any knowledge of Mandarin, a man is placed in a windowless room with an enormous Mandarin-to-Mandarin database. Chinese characters are passed to him via a small slit in the door. He looks at the characters, finds them in his text, copies down corresponding characters from the text and passes what he's written back through the slit. To the person outside of the room, it appears as if the person inside the room understands Mandarin. However, there is no linguistic understanding that takes place. The only thing the person understands is how to look up the characters in the text and how to copy them. But in no sense can the man inside the room be said to understand Mandarin. (Philosopher Dan Dennett has an interesting argument against this position, which he calls a "boom crutch," or faulty intuition pump (Dennett, 2013)). A parallel can be seen in traditional critical thinking content and the way understanding that content has been traditionally assessed. Memorizing and manipulating are different from understanding and applying.

[4] Additionally, one faces the problem that psychologist Albert Bandura terms "moral disengagement" (Bandura, 1990, 1996, 1997, 1999). That is, one could know what to do, but one could disable or separate oneself from the action and thus, *pace* Plato, knowingly commit an injustice (Plato, ca. 420 B.C./1961). Even if

a student received a perfect score on every syllogism test throughout the semester, that doesn't mean that she would in turn engage in the correct moral action.

The Ancient Greeks had a similar idea termed "akrasia" (ἀκρασία) or weakness of the will. Knowing what to do and knowing how to reason critically doesn't necessarily translate into action (for example, knowing that smoking is harmful does not translate into quitting smoking). The philosopher Donald Davidson expanded this idea to the realm of cognitions and not merely physical actions (Davidson, 1980).

[5] A parallel may be made with traditional martial arts curriculum where the student is required to demonstrate techniques in the air, or against cooperative opponents. In the absence of empirical data as to the efficacy of these techniques in defeating opponents, traditional practitioners should also limit and confine their claims. For an in-depth discussion of this, see The Joe Rogan Experience #735 with Peter Boghossian https://goo.gl/k6Iln3.

[6] Aliveness is an expression of authenticity—accepting what is and what is not true, what works and what does not, independent of our wishes and how we want things to be. Intrinsic to aliveness is the idea that we test our beliefs and accept those results as true regardless of our preconceived ideas or wishes. Paraphrasing philosopher Russell Bertrand, we don't barter our wish to believe for our will to find out. For more here see Boghossian's 2013 TAM lecture, Authenticity https://goo.gl/IZJ4Uq.

[7] While it has not been termed "aliveness," the idea of a questioning, and challenging an interlocutor is found in dialectical pedagogies in general, and the Socratic method in particular. Specifically, in the Socratic elenchus there is a structured method for asking questions and a challenging of responses to those questions (Boghossian, 2002, 2013; Vlastos, 1971,1994). When, for example, Socrates asks a question and his interlocutor proposes an answer to his question, Socrates will respond with a counter-example. A counter-example is an example that calls the response into question. Socratic pedagogy is an example of aliveness because of the verbally resisting nature of the interaction. Responses are questioned, often methodically and exhaustively, until there is at least a tentative resolution to the issue.

A similar idea is found in philosopher Jürgen Habermas' work. Habermas argues that both the purpose and the end of the dialectic is not victory, but mutual understanding. Indeed, mutual understanding is an integral part of the Theory of Communicative Action (Habermas, 1985a, 1985b). In many if not all of the Platonic dialogues, Socrates' interlocutor attempts to "win" the argument.

This stands in stark contrast to both behaviorism and constructivism (Boghossian, 2006, 2011). Because there is no room in either pedagogy for an elenchus, it's unclear how learners could know what they think they know. The

more radical flavors of constructivism resolve this issue through epistemological relativism, while behaviorism privileges knowledge by authority of the professor or the cannon (Boghossian, 2006).

[8] This is far less conspicuous in academic domains where politics and ideology too frequently are the main pedagogy and content drivers. A professor's ideology and politics may influence the texts she selects, the content she teaches, and just as often determine the pedagogy that she uses. Philosopher and educator Paulo Freire (1970) made these connections explicit in the 1970s, and there has been more recent literature connecting pedagogy to ideology (Stoddard, 2010).

[9] One can look at this as a research experiment in which every other style acts as a control group to test the hypothesis: Those who train with aliveness have a greater likelihood of defeating opponents who do not.

Additionally, while there are clear winners and losers in other athletic pursuits, like swimming or golf, there is something uniquely "final" about an MMA victory when the loser either admits defeat before the match is over (by "tapping out" and thus admitting defeat), or is knocked out, or has his bones broken. It is this finality and its admission that may present an attractive springboard in methodological comparisons to the practice of critical thinking.

[10] If one wanted to take a more rigorous approach, then one could apply a pre- and a post- test, preferably with two groups, one of which receives basket weaving as an intervention and another, the control group, that does not. Then the results could be compared.

[11] Questions that challenge the importance of learning the material should especially be encouraged, for example, "Why is this important"? or "Why do we need to learn this?" (Bissell & Lemons, 2006; Heijltjes, von Gog, & Paas, 2004; Matthews & Rittle-Johnson, 2009).

[12] In the Introduction stage, clarity is indispensible. It must be made explicit exactly why students are learning what they are learning. In my critical thinking classes, for example, I echo the literature and tell students that the purpose of what they are learning is to help them to discern truth from falsity and to assist them in navigating real life, practical situations encountered out of the classrooms (Abrami, et al., 2008; Driver, Newton, & Osborne, 2000). I emphasize that learning how to identify fallacies is not merely an academic exercise, but has benefits and implications that extend beyond the classroom and into one's personal and professional life (Halpern, 1998).

[13] The Isolation stage is what separates aliveness from the pedagogy that many of the Gracies use. Only Rickson Gracie uses the isolation stage in his training (Thornton, 2009).

[14] The use of the word "may" is important. If students are told that they will be able to make better decisions and they are actually not able to make better decisions, then they'll be more confident in an ability that they don't possess.

[15] Of course this must be done delicately, as some students may incorrectly infer that a challenge to their reasoning process means the teacher thinks they are ignorant. This line of thinking can be deterred by referring to the reasoning and not to the person who reasons (Boghossian, 2002), and simply by stating at the beginning of the exercise that this has nothing to do with an individual's intelligence.

In the context of martial arts this is particularly important, with some researchers (e.g., Nosanchuk & MacNeil, 1989) arguing that the character of the teacher has a large role in influencing students' social attitudes. And if, as suggested by the APA, a key goal of critical thinking is to foster a rational and democratic society, how many of the outcomes of critical thinking will be at least partially determined by the character of the teacher, rather than simply by the syllabus? For on the interesting parallels here, and for a cautious overview of the evidence on martial arts and their effects, see Vertonghen, Jikkemien, and Theeboom's *The Social-Psychological Outcomes of Martial Arts Practise Among Youth* (Vertonghen, Jikkemien, & Theeboom, 2010).

[16] Pro-social attitudinal modeling can also occur in this stage. There are many ways for this to occur, for example, after students refute a particular claim, the professor can attempt to demonstrate key elements of the APA's definition of critical thinking:

> • a "willingness to reconsider" by assenting to an outcome that arose through a process of reason and reflection (if a student provides an example that is better than mine, I say so, or if the example I provided has weaknesses I also state that my example is weak),
> • "orderly in complex matters" by being systematically guided, and later systematically guiding themselves, through a careful and deliberate process of inquiry,
> • a "trust of reason and a focus on inquiry," because the entire process elicits and is orientated towards inquiry and investigation.

[17] At this juncture, readers may be reminded of Bloom's Taxonomy (Bloom, 1984). The I Method in general, and the integration stage in particular, is a deliberate attempt to incorporate some of Bloom's work (comprehension, application, analysis, synthesis, evaluation, etc.) into an aliveness pedagogical model (Matt Thornton & Cane Prevost, personal communication, February 13, 2013).