The Use of Evidence in Young Adolescents’ Argumentation

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Abstract

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This study examined the various ways in which students who participated in a two-year-long evidence-focused argument curriculum use evidence when engaging in argumentation. The experimental group was compared to groups who received either no such argument curriculum, or one year of an argument curriculum without focus on evidence. A total of 93 students participated in the study; at the end of the two-year period, all students were assessed on various dimensions of their evidence use during an assessment of their argumentation on topics not part of the intervention. One assessment was dialogic, the other an individual argumentative essay. In addition, intervention dialogs of the experimental group were studied at the beginning and end of the second year, to assess change.

Both final assessments showed that experimental group students more frequently incorporated evidence - in particular, shared evidence- in their arguments, relative to the comparison groups. Also, students in the experimental group generated more factual questions that would help inform their arguments on the topic. Analysis of experimental students’ evidence use during dialogs throughout their second, evidence-focused year of the curriculum showed an increase in meta-level dialog with their peers about the use of evidence. Across the intervention dialogs and both final assessments, however, the functions which evidence served in students’ argumentation remained consistent: At most one third of statements invoking evidence sought to
weaken a claim of the opponents. The more common function of evidence, occurring in about two thirds of uses, was to support one’s own claims. Implications are discussed regarding our understanding of how evidence is used in argument and how sustained practice in argumentation, afforded by the curriculum studied here, affects this use.
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Dedication

To my grandmother, whose love and encouragement will always lead me through life’s big steps.
Chapter 1. Introduction

The prospect of engaging in argument with another person is all too often considered neither positive nor worthwhile; it stands in conflict with culture that values the pursuit of compromise, if not actual agreement. We prefer to hone our opinions and place great value in the freedom of expressing them. We also expect those opinions to be respectfully received, even if met by another’s contrasting equally committed opinion. Not often do contrasting opinions engage one another.

Not only is arguing with another person an activity seen as best avoided, but it’s one that people feel they know very well how to do. Yet not only is it not a natural progression in the course of human development (Kuhn, 2005; Pontecorvo & Pirchio, 2000); few people are able to do it well by the time they become adults (Kuhn, Goh, Iordanou, & Shaenfield, 2008).

Argumentation is a cognitive skill that develops over time. Being good at it is of far more benefit than merely as a means of persuading others. By externalizing thoughts, argumentation helps to enrich and define them (Habermas, 1985; Kuhn, Katz, & Dean, 2004), to monitor our thought processes, and to maintain a watchful eye on sources of our knowledge at the meta level (Kuhn, 2005). It serves to clarify written as well as verbal expression of our ideas (Graff, 2003).

Sound inference, problem solving, judgment, decision making, and the cognitive flexibility to modify beliefs all involve skill in argumentation. Argumentation serves us well not only in personal life realms, but in academic fields, particularly science, where argumentation plays as critical a role in good science practice as does experimentation (Kuhn, 2004; Lehrer et al., 2001).

Perhaps most important, debate with others is critical for a healthy democracy; we must be able to collectively address the complex problems society faces (Michaels, O’Connor, & Resnick, 2008). Yet many people currently seem to cling to the notion that any opinion, however unfounded or untested, rightfully stands on equal footing with more justifiable ones. For all of the broad benefits that arguing well offers, the current educational climate sends a discouraging
message against it. Empirical research has shown that young people are often disinclined to engage in argument with peers, wanting to avoid conflict and not jeopardize friendship (Andriessen, Baker, & Suthers, 2003; Graff, 2003; Kuhn, Wang, & Li, 2011). This attitude appears in students’ writing, as well; they commonly err on the side of safety, viewing the task as one of constructing statements devoid of ideas that anyone might challenge (Graff, 2003). In science, argumentation isn’t embraced as relevant because students tend to perceive the field as the accumulation of unchanging fact (Kuhn & Reiser, 2006).

In order for argumentation to be embraced as a worthwhile undertaking, students must be convinced of its benefits (Kuhn & Udell, 2007) and the importance of its purpose (Kuhn, Wang, & Li, 2011). Yet it is not yet clear how to accomplish this.

**Explanation, Evidence and Argumentation as Support for Theories**

Fundamental to arguing well is awareness of and readiness to reflect on our beliefs about the world, and a readiness to revise them when warranted. Many times, our beliefs should change based on new information we encounter and should be examined in the face of evidence that we must weigh. This process, it turns out, fraught with error and bias.

**Knowing and Learning** The act of learning something new does not consist simply of piling new knowledge on top of old. This is a common misunderstanding even in schools, where a common focus is to transmit facts, with the brain regarded as a sponge and no attention paid to what information on the concept is already in place. Rather, learning is better conceptualized as a change in understanding (Shoenfield, 1999); the very process of learning is an acknowledgment that our existing understanding is incomplete or incorrect (Kuhn, 1989; Kuhn, 2004; Vygotsky, 1986). We know that, in order to develop expertise, we must not only pull from a rich knowledge base, but must be able to rely on the cognitive processes that bring that knowledge to the forefront during problem solving; such expertise is only acquired through deliberate practice (Nokes, Schunn, and Chi, 2010). The mechanisms involved in the learning process are
incompletely understood (Chinn & Brewer, 1998). One step in the pursuit of better understanding the learning process is to distinguish belief and understanding.

People may understand a concept yet not actually believe it, and this lack of belief may hinder change (Chinn & Samarapungavan, 2001). Perhaps to believe something is to have a network of knowledge of a concept where none of the elements lie in conflict with each other or with other existing knowledge.

Some argue that conceptual knowledge change is not happening as it should in schools due to a number of obstacles. Not only is there too often presented a ready-made explanation of what is to be learned without the critical explicit comparison of one’s existing understanding with new, better information (Nussbaum & Sinatra, 2003), but the challenge of revising existing concepts is too great. The need to revise is rarely evident, and we rarely know where to begin (Hatano & Inagaki, 2003). The process of argumentation, then, can become a “path to knowing” to help overcome these obstacles and promote conceptual change (Nussbaum & Sinatra, 2003; Hatano & Inagaki, 2003).

It would be both remiss and ironic not to attempt to resolve the discrepancies in the literature as to whether argumentation truly does offer a fruitful path to learning should we choose to engage in it. There are, inevitably, inconsistent results as to whether argumentation can consistently offer a foolproof conduit for changes in understanding. Some research has shown that students engaging in argument with information beyond their current level of understanding were unable to actually gain a better understanding of the more advanced material as they were discussing it (Von Aufschnaiter, Osborne, & Simon, 2008). Generally, this finding appears to go against Vygotskian theory of how people can come to new levels of more advanced understanding through collaboration. However, perhaps the key is whether the new information is explicitly attended to in relation to existing understanding. It may be that peer argumentation can, in fact, lead to learning, but if and only if an effort is made to reflect explicitly on the reconciliation of old and new understandings.
The Explanatory Drive of Individuals

We, as humans, are naturally wired to explain our theories about the world in the same way we would tell a story. Stories have a structural coherence that allow potentially cognitively demanding details to be effortlessly woven in, which helps us increase remembering and creates a greater feeling of understanding (Brewer, Chinn, & Samarapungavan, 1998). For as compelling as stories seem to compactly explain the world around us, the reality is that the world works in an ever-changing flux of discrepant information. Our natural inclination to see the world as a series of stories leads, inevitably, to mistakes in how we make decisions about the world.

In many respects explanation tends to be given more weight than evidence (Kuhn, 2005; Ahn, Kalish, Medin, & Gelman, 1995), to an even greater extent in children than in adults (Kuhn, Garcia-Mila, Zohar, & Anderson, 1995). Children prefer to explain why it makes sense that something happened over the choice of explaining how they know something is the case based on evidence (Kuhn & Pearsall, 2000). Adolescents can point out the distinction between why something happened and evidence supporting something that happened when specifically prompted, but even university students may fail to clearly distinguish the two (Barchfield & Sodian, 2009). Nor are all explanations of equal value; as adults, we value explanations based on, whether they are accurate enough, wide enough scope to encompass other similar claims, and whether they are consistent, simple, and plausible (Brewer, Chinn, & Samarapungavan, 1998).

Telling theories we hold as stories not only helps us increase the amount of information we are able to process; it also increases comprehension and recall (Pennington & Hastie, 1992; Brewer & Lambert, 2001) because it helps us ‘chunk’ ideas together in a meaningful, less cognitively demanding way. However, this can lead us to negative consequences; when we are prompted to create an explanation for an event, we become more likely to increase the judged probability that the event will actually happen even if there is evidence supporting its unlikelihood (Brem & Rips, 2000). Explanations can also hurt our ability to keep a theory correct in our minds in the face of new, differing evidence, often leading us to the wrong conclusions (Kuhn & Katz, 2009).

Even one of our most important civic duties – participating in jury trials- calls for the sophisticated cognitive task of building multiple possible theories about how something could
have happened and evaluating them based on the available evidence (Warren, Kuhn, & Weinstock, 2010). Yet, we are typically compelled in these cases, just as in real life, to simply build – and cling to- one story of ‘how it happened’ instead of constructing the more complicated reality of alternative possibilities (Ahn, Kalish, Medin, & Gelman, 1995), ignoring or rejecting critical but anomalous pieces of presented evidence (Nickerson, 1998; Kuhn, 2005; Klaczynski & Gordon, 1996). In fact, our need to tell stories to make sense of the world is so powerful that the ease with which a story can be constructed from jury testimony can have an effect on the eventual verdict (Pennington & Hastie, 1992). Jurors who have a more advanced epistemological understanding of the sources of knowledge they encounter are more likely to work together more effectively and rationally toward a verdict (Hofer & Pintrich, 1997), but our bias toward building one case of ‘how it happened’ remains a powerful influence.

Some argue that relying on theories based on the explanations we have accumulated over time is inevitable and justifiable (Koslowski, 1996). This, however, can only be part of the story given the aforementioned failures it can lead us toward, both individually and as a collective society. Metacognitive reflection on a presently held theory is needed to shed light on its epistemic weaknesses and strengths. Also crucial is the skill in recognizing when evidence is scarce and proceeding accordingly.

Seeking consistency in our theories in the face of anomalies Persistence in maintaining our theories in the face of contrary evidence is widespread (Evans, Barston, & Pollard, 1983), as is the inability to remember facts that could discount those theories, even if we are not motivated to keep these theories intact (Nickerson, 1998). Despite weeks of lessons on photosynthesis-evidence that plants get energy from the sun, students cling to the theory that plants get their energy from the soil (Chinn & Brewer, 1993). Our prior ideas about how something can happen can actually determine how we physically perceive something happening in the world, called ‘theory directed attention’ (Brewer & Lambert, 2001; Chinn & Malhotra, 2002) and prevent us from seeing something if it is in violation of expectation. It appears, then, that our motivations to see things a certain way are not, in fact, an insignificant factor to be ignored, but a critical component of cognitive functioning (Klaczynski & Gordon, 1996). This challenges the ability to

Characteristics of both the person and incoming information also can increase or decrease one’s likelihood of processing the information well. A person’s prior knowledge and the strategies they employ to process new data, as well as characteristics of the data and the new theory, all contribute (Chinn & Brewer, 2000). We are more critical of evidence that goes against our theories and also more accepting of evidence that confirms what we believe, even when the confirming evidence has weak internal validity and the disconfirming evidence is sound (Klaczynski & Gordon, 1996). Without reflective acknowledgment of this bias, we continue along the path of preserving our own theories as “unfalsifiable” (Lord, Ross, & Lepper, 1979).

Most often, when anomalous data are dissonant with a prevailing mental model, we either reject the data outright or deny the idea that the data actually can be interpreted in a way that truly supports the theory (Chinn & Brewer, 1996). More specifically, Chinn and Brewer propose, we respond to anomalous data in one of eight ways; only one of them involves actually accepting the anomalous data and altering the theory. The other seven involve discounting the data in various ways in order to protect the theory you want to be true: ignore it; reject it; decide that it might apply to some other theory, but not your own; consider working with the data at a later time; reinterpret the data; reinterpret the data and make small changes to the theory; or profess uncertainty about validity of data (Chinn & Brewer, 1993; Chinn & Brewer, 1998). Even scientists are guilty of choosing strategies that will allow them to keep their faulty theories intact (Brewer & Lambert, 2001), and this finding has been further extended to experts, children, and adults in the fields of science, religion and magic (Chinn & Brewer, 2000).

Rational beings We strive to be rational and reasonable in our interactions with others, but an idea cannot be considered rational unless it has not stood up against some kind of opposing idea (Habermas, 1985). The inherently dyadic skill of argument thus plays a crucial role in rationality (Kuhn, Katz, & Dean, 2004; Voss & Means, 1991).
Arguments can be informal as well as formal (Barchfield & Sodian, 2009; Habermas, 1985; Kuhn, 1991), where rules of logical validity and certainty are replaced by estimates and probabilities, and we need to weigh evidence and make tentative conclusions (Anderson, Chinn, Chang, Waggoner, & Yi, 1997; Voss & Means, 1991).

Are we naturally skilled at informal reasoning? Mercier and Sperber (2011) claim this to be the case, but only as long as the setting facilitates such reasoning in an argumentative context. The view underlying the present work, in contrast, is that argumentation skills develop. Argumentative reasoning does not appear naturally skilled at the outset; rather, it improves as a result of the process of engagement.

Despite our desire to interact rationally, there are three cognitive road blocks to doing so. First, we are inclined to closely link the state of having knowledge with rationality (Habermas, 1985), regardless of whether the knowledge is faulty. If we do not reflect on the quality of the knowledge we hold, we remain further away from our pursuit of rationality. Second, there are characteristics of the beliefs we hold, as well as internal characteristics about our feelings on a subject, that can present roadblocks to rationality; if we are emotionally invested in an idea, or if the information is inconsistent, complex, implausible, or inaccurate, we are more likely to hold irrational beliefs (Brewer, Chinn, & Samarapungavan, 1998). Our beliefs also play a very powerful role in whether we are able to engage successfully in logical inference; when given a syllogism, we will more likely accept conclusions that we believe than ones we do not, even if both are valid (Evans, Barston, & Pollard, 1983).

*Are rationality and uncertainty related?* Often, we equate the degree to which we feel ‘rational’ with the necessity to keep our theories constant and unchanging; consistency is what enables us to feel rational (Nickerson, 1998). However, there is more to be said for knowing why you are certain about your theory, and knowing what to do about it when you are not; it is precisely this kind of acknowledgment of your own uncertainty that leads to better thinking.

Research has suggested a sequence of different levels of epistemic understanding that determine how well we are able to coordinate theory with evidence (Havdala & Ashkenazi,
2007; Kuhn, Weinstock, & Flaton, 1994). The least developed is the absolutist level, where experts are regarded as sources of certainty, and the coordination of theory and evidence is unnecessary because only a single truth exists. The multiplist level acknowledges that multiple perspectives exist but sees all views as of equal validity and concludes that no one- even experts- can ever really know what is certain. The evaluativist level regards some positions as more justifiable than others to the extent they are better supported by evidence and argument. The evaluativist can come closer to, albeit never reach, certainty (Hofer & Pintrich, 1997; Kuhn, 1991).

*Theories are nothing in isolation* A position on a theory that remains untested by another has very little inherent value. The presence of another’s viewpoint, whether it be physical or imagined as a rhetorical argument held with yourself, is needed (Habermas, 1985; Pontecorvo & Pirchio, 2000; Kuhn, 1991). The pursuit of thinking well and the social nature of argumentation have long been known to inevitably cross paths. Protagoras posited that the world was full of contradictory arguments and ever-shifting conclusions, whereas Plato emphasized the importance of seeking the ‘indisputable truth’ (Billig, 1996); though in some disagreement on the matter, both knew that the only way to coordinate efforts toward a greater understanding in the world was to do so socially, in the context of opposing ideas, through the structured process of argumentation (Habermas, 1985).

Even writing is a place where we have been taught to craft our own, and only our own, ideas into organized sequence. Teachers often define successful persuasive writing only as expressing your own ideas. The view on which the present work is based, in contrast, is that engagement in dialogic argumentation offers a promising path to the development of young adolescents’ thinking. In particular, I focus on the role that evidence plays in argumentation.
The Process of Argumentation

There is much about the process of argumentation that the typical arguer does not actually realize is happening as they engage in it. Socially, argument is more than just a disagreement— in fact, we tend to agree on more premises than we might realize— and it has more structural organization than the haphazard discussion we often perceive it to be. The ideal goal—often not realized—is not for one side to win and the other to lose, but rather to come to a new product altogether that represents the best of what both sides offered. The rules we follow as we engage in argumentation are often so implicit that we scarcely realize we are following any.

Argumentation, as a term, can be conceptualized in several ways. The process contains many implicit gaps that go unnoticed; as is the case in typical conversation, there is much that is ‘glossed over’ by both sides in a cooperative principle and nothing is made more informative than it needs to be (Anderson, Chinn, Chang, Waggoner, & Yi, 1997); indeed, far more must be implicitly agreed upon by opponents in the process of argumentation than actually is ever even disagreed upon (Billig, 1996), all of which is considered common ground (Bailenson & Rips, 1996). Once the process reaches an end, this product is not stated in an explicit conclusion as one might find in more formal logical cases (Anderson, Chinn, Chang, Waggoner, & Yi, 1997).

Argumentation can be thought of as a game, complete with opponents, goals and strategies. Nussbaum & Edwards (2011) classifies the strategies employed during argument into three categories: individuals either try to critique the opponent; describe a possible ideal scenario, where both sides are integrated; or weigh the merits and drawbacks of both sides. Most generally, one goal of argumentation depends on the degree to which the opponent’s claims are defeasible -- the degree to which the strength of their argument can be reduced or eliminated by refuting it (Nussbaum & Edwards, 2011). The other goal is to secure commitments from the opponent that support your side, in addition to challenging the weaknesses in their position (Walton, 1989). Certain factors, such as being flexible, empathic, having the ability to detect bias, and being metacognitively reflective (Voss & Means, 1991; Walton, 1989) help to achieve these goals.
Another dynamic affecting the goals of argumentation is the creation of a burden of proof for the opponent; this strategy is usually not explicitly employed, as it is created passively due to the order in which statements are given. An individual who initiates an argument with a statement, whose subsequent statements are also fairly weak, naturally carries a greater burden of proof throughout the process, but this burden can be weakened for the party who offers a final challenge that goes un-rebutted (Bailenson & Rips, 1996). Burden of proof increases with the number of premises on which an opponent disagrees, and decreases with the number of premises on which they are willing to concede (Bailenson & Rips, 1996; Walton, 1989). Another dynamic affected by the order of presentation is the introduction of evidence. If evidence is presented earlier on in the argument, it benefits from the effect of primacy, where it is more easily recalled and therefore of greater value for the individual using it to their advantage (Bailenson & Rips, 1996).

How argument skill develops. Our ability to argue does not emerge suddenly, nor does time guarantee it as a rite of passage. One must engage actively with the environment for development to occur (Vygotsky, 1978). Argument skills are limited in children, modest in adolescence, and skills in adulthood, though better, are only slightly improved, heavily dependent on education, and still far from ideal (Brem & Rips, 2000; Kuhn, 2000). Children and adults have roughly the same ability to explain phenomena, and hold roughly the same evaluation criteria for thinking about the quality of arguments (Brewer, Chinn, & Samarapungavan, 1998), and neither children nor adults tend to test their theories spontaneously beyond just seeking generalizations to confirm what they know (Chinn & Brewer, 2000).

Even though elements of skilled argumentation are not usually seen until adolescence and adulthood, some critical foundations are present very early on. In young children, the logical basics of children’s argument skills are present (Anderson, Chinn, Chang, Waggoner, & Yi, 1997). Development does not occur in isolation; as children engage socially with others, they form new concepts both through their direct experience in the world and, importantly, through their experience with older individuals. Children who actively engage with others at a slightly
more advanced level are operating in their zone of proximal development; this learning just beyond their level allows development to follow along behind it (Vygotsky, 1978).

Other fundamentals tend to emerge throughout the course of development. By the age of 3, children begin to exhibit an increased awareness that the knowledge they encounter comes from various sources during preschool years; they begin to understand that others may have beliefs different from their own, which may or may not be correct (Kuhn, 2000; Kuhn, 2004). Around the age of 4, they not only expect justifications from individuals with whom they disagree, but they also can provide justification of their own and understand its importance (Eisenberg & Garvey, 1981). Children at this age also begin to show a preference for choosing to explain how something happened over utilizing available facts to support the proof of an event. After age 6, children are able to more readily distinguish the difference between theory and evidence and begin to occasionally use evidence to account for an event (Kuhn, 2004; Kuhn, Katz, & Dean, 2004).

The development of language in early childhood not only sets the stage to allow individuals to engage in argumentation with others, but is also intricately intertwined with thinking well (Vygotsky, 1986). Language can manifest itself in the form of speech, an inherently social action, which enables children to provide tools in the solution of difficult tasks (Vygotsky, 1978). The development of writing skills, also communicative in nature, can be less immediately obvious as to their inherent usefulness since they are not usually dialogic or social (Vygotsky, 1986).

Mercier and Sperber (2011) state that children naturally have the ability to evaluate arguments well, can recognize the structure of arguments, and follow various commitments of speakers in dialog. This positive description of children’s abilities lies in direct opposition to research that paints the bleaker picture of most adults showing little ability to evaluate arguments. This discrepancy in research findings could spring from two sources. First, there is no universally defined idea of what successful argument evaluation in children looks like. Some might evaluate the quality of an argument statement according to whether it successfully addresses an opponent’s point; others might view the quality of a statement as to whether it successfully encompasses the merits and drawbacks of both sides. That there is no universally
accepted definition of good argument inevitably gives rise to different conclusions as to whether children can do it well.

Do adults develop into skilled arguers? As it turns out, the results are mixed. While adults often do show progress through adolescence and into adulthood, the end result is neither ideal nor guaranteed. Developmentally, several critical aspects of cognitive development emerge that set the stage for the potential to argue well. Whereas children tend to focus on the delivery of their own ideas, adolescents, at least under conditions of sustained engagement, begin to recognize the competitive need to anticipate and address their opponent’s ideas in argument (Felton, 2004). This capacity increases throughout adulthood, where adults will adopt such strategies as asking their opponent for clarification in order to pave the way for counters (Felton & Kuhn, 2001). The preference for explanation over evidence as seen in childhood continues to decrease and may even disappear altogether (Kuhn, 2001). Argument skills in adults with experience and education—scientists, for instance—show more advanced skill than adults without such experience (Kuhn, 1989).

The unfortunate reality remains that skilled argumentation is rarely fully developed in adulthood. Just as in adolescence (Voss & Means, 1991), adults often ignore their opponent’s position altogether (Felton & Kuhn, 2001; Kuhn & Udell, 2003) and fail to construct two-sided arguments (Kuhn, Katz, & Dean, 2004). Adults—non-university and university schooled alike—are just as likely as their younger counterparts to focus on arguments that strengthen their own side over weakening their opponent (Kuhn & Udell, 2007). Perhaps most alarmingly, though in line with our cultural need for expressing our opinions, young adults justify their perspective with unsubstantiated claims (Sampson & Clark, 2008) and adults readily define their opinions on various topics but scarcely ever are able to produce a simple justification for their certainty regarding the matter (Kuhn, 2000). Few adults offer evidence to support their claims (Kuhn, Shaw, & Felton, 1997) or achieve an understanding of the distinction between evidence and explanation in support of their claims (Ahn, Kalish, Medin, & Gelman, 1995; Kuhn, 2001; Kuhn, Katz, & Dean, 2004).
Metacognition: A Skill for Argumentation Metacognitive awareness and regulation – the control of knowing - develop gradually (Kuhn, 2005) throughout childhood and adolescence. Metacognition is a key element in mastering the coordination of theory and evidence (Chinn & Brewer, 1998). In order to successfully coordinate theory with evidence, one must be able to hold both separately as distinct objects of cognition rather than simply thinking ‘through’ one’s theories (Koslowski, 1996; Kuhn, 1989; Kuhn, 1991; Kuhn, 2000; Kuhn, 2004; Kuhn & Pease, 2006). This skill also allows adults to hold an opponent’s position in their minds as an object to which to respond, whereas children, without this metacognitive capacity, need the actual social support of another person for such representation (Felton & Kuhn, 2001). This skill develops more fully in adulthood; by which time individuals are able to maintain a dual representation of theory and evidence and reflect on their relation (Kuhn & Pease, 2006) but even then, many adults never come to master these metaknowing strategies (Kuhn, 2000). To be aware that incoming information we ingest is an object of cognition deserving of evaluation, rather than something to be automatically assimilated or ignored, is perhaps one of the greatest cognitive challenges of all.

As higher-order prefrontal cortical development occurs, an organizational, ‘executive functioning’ ability emerges that supports attending to both one’s existing understanding and incoming information as distinct entities (Kuhn & Pease, 2006). Experience also plays a critical role; engaging frequently in dyadic discussion facilitates this skill development (Kuhn, Shaw, & Felton, 1997; Vygotsky, 1986). Thus, we are equipped physically for this crucial aspect of mental life, but need practice engaging in it for it to flourish.

Informing our theories with evidence. Not all evidence in the world should be valued equally; it can be classified as varying in quality. However, we often confuse certain types of evidence with others and judge certain types as being stronger than they really are (Kuhn, 1991). Some claims we accept as evidence of what happens in the world is really not evidence at all. “Pseudoevidence” is the story-like explanation referred to earlier. It takes form of a descriptive scenario that offers a depiction of how a phenomenon might occur, but it cannot lend support as
to whether this is in fact what does happen. In a study that examined argumentive reasoning across the lifespan, a mere 16% of participants offered genuine evidence to support their claims.

Theory and Evidence

The ability to successfully coordinate theories and evidence forms the basis for scientific thinking (Kuhn, 1989). It is a higher order cognitive skill that takes practice (Kuhn, 2005) and relies on the metacognitive and epistemological foundations previously discussed.

*How coordination works* Even when the distinction between theory and evidence is clear, they sometimes conflict with one another; this state of discrepancy will lead individuals to adjust, ignore, or selectively attend to various aspects of them. Scientists are more likely to successfully modify the existing theory to incorporate the new, discrepant evidence (Kuhn, 1989; Kuhn, 2004). In order to successfully coordinate theory and new data, the individual must not only actually change their prior theory, but must both accept that the data is valid and explain why it was accepted, or explain why it was not accepted (Chinn & Brewer, 1993). There is more than one aspect of evidence to attend to when identifying its value in supporting a theory.

We also, sometimes, simply do not value the need for substantiating our theories with empirical support; often, we fail to use evidence to justify our theories because we either feel it is unnecessary, or we do not fully grasp what counts as evidence (Kuhn, 1991).

Brem & Rips (2000) claimed people do readily distinguish between explanation and evidence, preferring evidence over the two, and only default to unsubstantiated explanations when they believe evidence is scarce or absent. When evidence becomes available, the explanation gets replaced in favor of supportive empirical evidence. It appears, based on this research, that individuals are limited not only by their own cognitive biases and limitations in using evidence
well to support a theory, but by the various pragmatic factors present in argumentation such as availability of evidence.

Another account of limitations ability to coordinate theory and evidence well is that it is simply too cognitively demanding, on top of the resources needed to keep a theory consistent, to recognize that current and incoming sources of information might be discrepant from one another (Koslowski, 1996). Related to this information processing limit is the idea that comprehending and utilizing new material when engaging in dialog is too effortful for children to master (Von Aufschnaiter, Osborne, & Simon, 2008).

These alternative accounts for the limits we face in our ability to coordinate theory and evidence seem, at first, to contrast with the idea that we naturally are not skilled at coordinating new evidence with our theories and only become able to do so with experience. Importantly, however, none of these alternative explanations explicitly deny the promise that a rich environment where argumentation is practiced often can improve skill.

A more unified account of why we are limited, then, takes into account our inherent need to keep stories consistent, which is further complicated when incoming anomalous information cannot be effortlessly assimilated into the story. Children, with less developed information processing capacity, will have problems with this, as will adults who face highly discrepant information to process. As we engage with others, we also often find that we do not have empirically sound facts within easy grasp. Although we might prefer pseudoevidence over empirical support because it has a descriptive, theory-like quality to it, we often do, in fact, recognize the inherent need to strengthen our stories with support in some way. Dense engagement in discourse opportunities, it is claimed here, offers the best promise for developing the requisite skills.

**Challenges**

The call for strengthened argumentation skills in our educational system is often loud, though woefully indirect with respect to plans for how to foster them. Programs designed to provide instruction in critical thinking generally are lacking in a meaningful theoretical framework (Voss & Means, 1991). Educators want their students to demonstrate an ability to substantiate their
claims with sound, relevant evidence, particularly in science (Kuhn & Reiser, 2006), to recognize when opponents lack sound reasoning and faulty evidence (Common Core State Standards Initiative, 2010; Michaels, O’Connor, & Resnick, 2008), and to recognize and avoid biases throughout the process (Council for Aid to Education, 2009). Even colleges, at a time when they are under increasing scrutiny to prove their worth to their applicants, recognize the mastery of skills in argumentation as a defining mark of success on the part of their students, including the ability to support and examine claims with relevant reasons and empirical evidence, sustain coherent discussion, and distinguish fact from opinion (Hersh, 2005).

Fewer than half of children tested at 4th, 8th, and 12th grade levels are ‘proficient’ in such basic skills as critically evaluating two opposing methods to help control an invasive species (National Assessment for Educational Progress, 2009). There seems to be more of a focus than ever to simply transmit those facts about science to our students for absorption, with the hope that the skills of how to process them critically will come naturally. At this time in history, we find ourselves in a limitless expanse of new information, hardly any of which is ever fully verified before it reaches us; our ability to instantly communicate with others allows us, in turn, to synthesize this new information and broadcast it to the world at an unprecedented rate and reach of distribution.

There is thus an urgent need to ensure that students develop the skills of critically evaluating the evidence they encounter. We must rise above the compelling tendency to simply tell children to use evidence; we must position them in a context that values it (Kuhn & Reiser, 2006). It should be an educational goal to enhance students’ metacognitive awareness of what they believe, how they know it, and how they go about identifying and evaluating evidence to support those beliefs.

Before we can even begin to discuss how, specifically, to overcome these challenges, a dramatic change must take place in how students and teachers actually value argument. To value the activity of something is at least as critically important as engaging in and changing the activity itself for the better; we must instill in teachers and students alike that there is a need and a value of engaging with others in reasoned debate (Kuhn, Goh, Iordanou, & Shaenfield, 2008; Hatano & Inagaki, 2003). This will prove to be a challenge in itself; students and teachers both
already hold the implicit assumption that, since the teacher (or most knowledgeable group peer) is the keeper of the “correct answer” in a classroom, there is little need to inefficiently engage with peers in pursuing an answer. There must be intrinsic value held by teachers and students alike in engaging with peers in discussion (Kuhn & Reiser, 2006). Whether children fully grasp the functions of collaborative discourse will determine how likely they are to not only engage in it, but how skilled they become in doing so (Kuhn, Wang, & Li, 2011).

In some cases, the skill can be emerging but never actually surface to its fullest because these values are never actualized. Adolescents can attend to weakening their opponent’s position when asked to do so, but when they have the choice choose instead to simply support their own side. It is not only a question, then, of whether the skill of engaging critically with others in dialog is developed; also critical is understanding the value of such engagement (Kuhn & Udell, 2007). More broadly, beyond learning to value the process of argument, it is critical to recognize the value in what the reflective aspect of thinking can bring in all realms of life, both professional and personal; to be able to metacognitively reflect on your own thinking and how it is influenced by the world around you is of value in and out of the classroom.

*Why teach differently?* The gulf between cognitive research and the field of curriculum development is wide, though they both have much to learn from one another (Shoenfield, 1999). For instance, Chinn & Brewer (1998)’s taxonomy of how we respond to anomalous data can guide new ways of teaching; by anticipating how students might react to information that violates their previous understandings, teachers can address their understandings more readily, paving the way for meaningful knowledge change.

We know that the best way to improve reasoning skills is to engage them frequently (Kuhn, Katz, & Dean, 2004; Kuhn, Shaw, & Felton, 1997); Argumentation is at the core of reasoning, and instruction in argument, given that young individuals are not naturally skilled at it, is therefore critical to its development (Voss & Means, 1991). Argument in the classroom fosters skills that apply anywhere: identifying reasons for both sides of an issue, being able to justify those reasons, and understanding the importance of justification (Felton, 2004). Sound
argument skills are vital for changing needs we face in the 21st century. Better understanding their development motivates the present work.

For too long, our concept of knowledge change has been to simply add to existing knowledge with new information; educational theories have tended not to recognize that students have a set of existing understandings to be revised, Without necessary attention to existing understanding and belief (Chinn & Samarapungavan, 2001), students are left with an accumulation of facts and without skills to encounter new problems. What we get from this is regurgitative effort instead of inquiry. All too often, students’ scientific inquiry degenerates into a pursuit of securing observations for the purpose of reconfirming what they already take to be true (Kuhn, 2005), an activity counterproductive to conceptual change.

Social aspects of changing the way we teach. From early in life, dialogic experiences with family and peers is supportive for cognitive development (Pontecorvo & Pirchio, 2000). Once children enter school, though the focus in education is all too often on a teacher-to-student transmission of facts, promoting discourse in the classroom is a potentially powerful agent of intellectual growth (Michaels, O’Connor, & Resnick, 2008; Sampson & Clark, 2008) and therefore should be one of an educator’s most important goals. Discourse allows modeling and imitation to occur (Anderson, Nguyen-Jahiel, McNurlen, Archodidou et.al, 2001). The mere action of engaging socially can set the stage for imitation, a strategy that allows children to engage with teachers and peers who are more skilled. Students then become able to operate at a more advanced level than they would otherwise be able to achieve on their own (Vygotsky, 1978). One example is strategies in argumentation such as use of the phrase “What do you think?” will ‘snowball’, or spread (Anderson, Nguyen-Jahiel, McNurlen, Archodidou et.al, 2001). Some strategies tried out in the classroom will prove to work better than others; the most effective will remain a part of the classroom’s collaborative dialog and help constitute more advanced discourse norms (Sampson & Clark, 2008).

Argumentation is central to scientific practice and hence must play a critical role in the classroom if science education is to be authentic. If you simply ‘learn science’ as a collection of
facts, you are not learning much about real science. Dialog, in science classes, naturally compels students to engage with others in constructing and revising ideas (Osborne, Erduran, & Simon, 2004). The dialogic collaboration, importantly, cannot simply be between teacher and student; it must be among students (Kuhn & Reiser, 2006). Too many classrooms lack this kind of social structure, defaulting to the usual teacher-as-authoritative setting (Kuhn & Dean, 2005; Kuhn & Reiser, 2006).

In sum, argumentation with peers is a process in which “thoughts are tested and wits are sharpened through controversy” (Billig, 1996). Even making writing a social activity, by placing a ‘hypothetical naysayer’ in your text, fosters a written product that is more effective (Graff, 2003). Yet, despite all the potential benefits, peer argumentation remains undervalued and understudied.

**Present Study**

The argumentation curriculum employed in the present work addresses the aforementioned challenges and has demonstrated its effectiveness in developing argument skill in both individual and dialogic contexts (Kuhn & Crowell, 2011). This curriculum addresses the stated goals (Voss & Means, 1991) of showing students the purpose of argumentation and developing the associated skills.

Extended practice of argument in a rich environment has been shown to be sufficient for it to develop (Kuhn, 1995; Kuhn, Goh, Iordanou, & Shaenfield, 2008; Kuhn & Udell, 2003; Siegler, 2006). With the microgenetic method, a higher density of the activity is used, thus accelerating the natural development of skills, and across a wide range of settings (Kuhn, 1995). Middle school is an ideal time in which to engage students in such practice (Kuhn, Shaenfield, & Crowell, 2011).

*Our commitment to dialogs* We recognize that the experience of engaging peers in a dialog about ideas leads to more effective change than thinking about them in isolation (Kuhn & Udell, 2003).
Through principles of activity theory, our curriculum is structured such that students orient themselves toward a goal both with peers and against them on both sides of a topic in both group and pair dialog, which naturally leads to more sophisticated skills of argument (Leont’ev, 1981).

*Our commitment to metacognitive development* In addition to dense practice, our curriculum supports metacognitive reflections, for example through a pre-write activity that prepares them to write their final topic essays, thus making inner dialog more explicit. Reflection sheets are also an activity where students have the opportunity to reflect on the dialog that took place during class that day. Students complete a reflection sheet activity after participating in dialogs which allows them to reflect on the structure and quality of argumentation in which they engaged. One type of homework assignment encourages students to evaluate written transcripts of their dialogs with peers, another way in which students have the opportunity to reflect on the quality of arguments produced by themselves and their peers.

The key activity – electronic discourse – promotes reflection by making an external representation of the discourse available. As for the general social dynamic, our curriculum allows for all students to learn from one another through employing principles of individuals’ ‘zone of proximal development’, or the distance between one’s actual developmental level in a cognitive activity through collaboration with more capable peers (Vygotsky, 1978). Our curriculum thus combines practice with reflection, a more effective approach to change than mere practice (Felton, 2004) since practice alone would not be enough to spread a model schema throughout the learning environment (Chinn, 2006).

A critical component of the second-year of the curriculum is engaging students with evidence to support their argumentation Students are provided a set of evidence relevant to their topic that they then begin to contribute to themselves and that comes to play an increasing role in their argumentation. This process is the specific topic of the present study.
Previous research on the development of argumentation skill

Several others have developed argumentation curricula for K-12 students. Jadallah et.al. (2011) held small group peer discussions among fourth-grade students, where teachers implemented scaffolding strategies in three ways: they prompted and praised students’ use of evidence; asked students for clarification of their ideas; and challenged them to propose alternatives. Much in the fashion of the snowball effect, these three strategies initiated long chains of influence in their students, who in turn began modeling these strategies in their subsequent engagement with their fellow students. The most marked difference between this approach and our current proposed curriculum is the ‘teacher-as-model’ line of reasoning. Our curriculum posits that the evolution of more sophisticated argument strategies are naturally occurring and will emerge as a result of peer engagement; no specialty teacher interjection is necessary for this environment to be fully useful. It is worth noting, however, that we do employ several small scaffolding strategies as minimal guidance, though much more indirect than Jadallah et.al’s work. Although we do not interject scaffolding verbally during group work, the comments we provide on daily reflection sheets, reason cards, and homework, all are forms of expertise feedback giving students the opportunity to experience the thinking of a more advanced individual.

Another study (Nussbaum & Edwards, 2011) implemented a curriculum similar to ours: they maintained a focus on encouraging discourse on current events in 7th graders, two times a week for twenty weeks. Their experimental group produced more critical questions and produced more arguments that integrated both sides of an issue. While we focus instead on counter statements than critical questions in dialog, we do also look for whether our curriculum enables our students to produce statements that integrate both sides of the issue.

Their work differs from ours in several ways: 1- their environment is designed for whole group discussion instead of pairs and small groups. 2- They used AVDs (an argument diagram) as a pretest to set the baseline of functioning; this reduces cognitive load to help visually maintain arguments and counterarguments and organize them. The experimental group had critical questions added to their AVDs at the beginning of the intervention. 3- The teachers selected students to conditions based on their opinion of competence, though it is not clear
whether or how they objectively quantified this functioning, whereas our selection was random.

4- They focus on, and teach, the concept of asking critical questions in argumentation; we do not teach anything directly. Asking good critical questions creates a burden of proof for the opponent, whereas we focus on the students’ ability to counter opponents’ statements, as well as on their ability to use evidence. It remains unclear how much “more” the teacher in their experimental group focused on teaching the concept of critical questions, which was their primary research variable. 5- They devoted far fewer days devoted to each topic, whereas our curriculum provides the opportunity for in-depth, extended engagement. 6- Teachers also taught, and subsequently prompted for, “design claims” during the discourse, which is an ‘in between’ solution that helps reconcile elements of both sides of a topic, Our curriculum maintains a sense that there is a winning and a losing side.

In another argumentation curriculum, Osborne, Erduran, & Simon (2004) capitalized on the importance of teachers needing to recognize the opportunity for students to reflect about how evidence does and does not support their explanation. The design centered on generating, and making explicit the differences between available theories; students then explained the differences and weighed the evidence and justifications for both. This design allowed for a flexible independence of content, where any subject matter can be inserted, as long as the differences between theories are made explicit.

In an effort to determine whether evidence use emerges differentially in explanation versus argumentation, Berland and Reiser (2008) reported that (1) students readily use evidence to make sense of theories. However, they are not more likely to include persuasive statements in these explanations unless they can also (2) differentiate between evidence and inferences; (3) nor do they tend to persuade others of their explanations by explicitly connecting evidence to claims. They also claim that (4) the inability to distinguish theory from evidence lies not in one’s metacognitive limitations, but rather in the pragmatic realities of argumentation. Once evidence does become available, there is intent to replace the unwarranted explanation. This approach is compatible with, our curriculum and their findings are not inconsistent with ours. However, finding 3) above appears problematic, as students routinely made meta-statements regarding the quality of available evidence to support their own, or others’, ideas. The conditions laid out in 4)
above were avoided altogether in the present study by providing students a reliable base of evidence on which to draw, as the focus was not on how students reacted to impoverished versus rich sources of information, but rather what they did with the solid evidence they were given freedom to use.

It is worthwhile to closely examine the conceptualizations advanced by Nussbaum and Edwards (2011) as they are pertinent to justifications for the coding scheme used in the present research. Their conceptualization of what individuals hope to accomplish during argumentation is compatible with the framework adopted here, though a few elements stand in contrast. Their first conceptualized strategy of argumentation, refutation, can be compared to our focus of counter-critiques, justifications, and dismissals of claims. This category houses all of the strategies under which an individual directly engages the previous utterance of their opponent. Their concept of a design claim is a response to how a solution should be designed; this is also loosely what we consider to be a counter-critique, but it gives an in-between solution, thus allowing one to maximize the positives of one side while minimizing negatives of another. Their third strategy, weighing, is used to show that the benefits outweigh the consequences of a particular argument. We do not conceptualize responses in this global way, but adopt a functional, dialogic coding scheme that focuses on the relation between utterances and immediately preceding responses in a dialog.

**Research Questions**

Based on data from three instruments, I plan to address the following questions.

*Posttest Dialogs*

1) When engaging in argument with an opponent, are students who participate in our argument curriculum more likely to make use of evidence, compared to students who do not participate in the curriculum?

2) When engaging in argument with an opponent, what kinds of evidence use do students who participate in the argument curriculum show? How do they differ in type and frequency from
those of students who do not participate? In particular, what functions does evidence serve in their arguments?

*Posttest Evidence Essays*

1) When writing an essay, are students who participate in the curriculum more likely to make evidence claims compared to students who do not participate?

2) When writing an essay, what kinds of evidence use do students who participate in the curriculum show? How do they differ from those shown by comparison students?

3) Are students who participate in the curriculum more likely to ask more questions, the answers to which would help them to write a stronger essay?

*Analysis of Intervention Dialogs*

1) In what ways do students’ strategies for using evidence change over the course of the curriculum, as they engage in the peer discourse that constitutes the curriculum?

2) As students become more adept at using evidence to support their arguments, does evidence use become more frequent over time?

3) Do types and functions of evidence use change over time?
Chapter 2. Method

The present work reports on the curriculum with a new sample and with a particular focus on students’ use of evidence. It incorporates two different designs: a one-group repeated measures design, where the experimental group was assessed both at the beginning and end of their second year (analysis of intervention dialogs, Topics 1&4, below), and a three-group posttest-only comparison, where the experimental and two comparison groups were assessed on two different instruments (Instruments 1& 2).

Figure 1. Study Design.
Participants

A total of 93 students participated in the study, roughly equally divided by gender; 31 (the control group) during post-testing only; 31 (the comparison group) over the course of a one-year period, and then again one year later during post-testing; and 31 (the experimental group) over the course of a two-year period. All students attended a university-affiliated magnet urban public middle school in the Northeast United States with a focus on math, science, and engineering. Students were admitted to the school from a competitive applicant pool and drawn from an ethnically diverse low- to middle-income surrounding neighborhood; they were assigned to one of three “houses” (classrooms) each with thirty-one students, which were randomly created from incoming applicants and were statistically equivalent in terms of gender, ethnicity and incoming standardized test scores. Ninety percent of students at the school are either Hispanic or African American. Their academic backgrounds range from low average to high average. Their SES levels are largely lower and lower-middle class, with a majority qualifying for free or reduced-price lunch.

The experimental group (N=31) participated in both the 6th (Y1) and 7th grade (Y2) years of the argumentation curriculum, with the 7th grade being particularly focused on incorporating evidence into argument. The comparison group (N=31) only participated in the first year, 6th grade argumentation curriculum (Y1); during the second year, they met as a group that participated in an alternative, non-evidence-focused and non-discourse-focused curriculum: a twice-weekly, teacher-led, philosophy class, taught by a teacher from the school, focusing on whole-class discussion of philosophical or social issues and essay writing on these issues. They were assigned essays at least once every 2 weeks, therefore receiving more practice in writing
expository essays than did the experimental group. The control group (N=31) had no exposure to the argumentation curriculum; like the comparison group, during both Y1 and Y2, they met as a group for a twice-weekly, teacher-led, philosophy class, taught by a teacher from the school, focusing on whole-class discussion of philosophical or social issues and essay writing on these issues.

**Intervention Procedure**

*Year One: Argument Intervention* Students in the comparison and experimental groups all participated in the first year of the argument curriculum during their 6th grade year (Appendix A, pp. 76-91). Each school year is divided into four quarters of about 13 class sessions each, and a new topic is introduced each quarter. (For a list of the topics that were discussed, see Appendix C.) Students met for two class periods of 45 min each per week throughout the year.

*Pregame: Sessions 1-3* Participants first choose their sides on a topic, each of which is first pilot tested to achieve approximately equal numbers of students who favor each side. The topic cycle begins with 3 days of small-group team work among students on the same side, where students generate their own reasons for holding their position on a topic. At the end of the first day, students are asked to bring in three outside opinions and reasons on the topic to incorporate into the next day’s work (solicit opinion homework; Appendix B, p. 128). The following two days consist of organizing, adding, and ranking their reasons with their group members; on the last day, they continue to evaluate, and finalize, their group’s reasons (Appendix A, pp 76-81).

*Game: Sessions 4-9* The curriculum then proceeds to electronic dialogs between pairs of students on opposing sides. Each pair of same-side students encounters a new opposing-side pair
at each session. This electronic dialog approach, where students first engage verbally with partners and then type to their opponents via chat software, has demonstrable effectiveness, resulting in a higher frequency of dual perspectives in their writing (Kuhn, Shaenfield, & Crowell, 2011). Not only are the resulting transcripts available for reflection as students debate their next argumentative move (Kuhn, Goh, Iordanou, & Shaenfield, 2008), but it allows for relatively seamless data collection as a record of the exchange between the opponents (Appendix A, pp 82-83). At the end of each day, students work with their partner on completing a dialog reflection sheet that summarizes and analyzes their and their opponent’s best reasons and responses (Appendix B).

Endgame: Sessions 10-13 Two small-group preparation sessions follow the dialog sessions, where students rejoin their same-side groups in order to bring their experiences from their dialogs together to prepare for a final debate, called the “showdown,” that serves as a culmination of work on that topic. A debriefing session concludes with a final individual position essay assignment (Appendix A, p.110; for an example of the resulting showdown transcript and scoring, see Appendix B) as homework. A new topic is introduced at the next session, and the sequence is repeated.

Year Two: Argument with Evidence The experimental group participated in a second year of the argument curriculum during their 7th grade year (Appendix A, p. 92; for a list of second year topics, see Appendix C). While the general pregame, game, and endgame structure of the curriculum remains the same in this second year, there are several distinguishing factors, discussed here, that separate it from the first year curriculum.
Evidence At the end of the first year, participants are introduced to the concept of using evidence to support the reasons they have for a given topic; several activities are built into the curriculum to serve as scaffolds that reinforce this concept (Appendix A). For each topic, a set of 8-10 evidence questions and answers are made accessible to participants. They are told that this is information relevant to the topic that might help them in their argumentation. A question is typed on the outside of an envelope, and a brief answer appears inside. After participants have had the chance to review the initial set of evidence, they are invited to submit their own questions, the answers to which might help strengthen their arguments on the topic; coaches supply brief answers to participant-generated questions by the following session. All question-and-answer materials remain accessible throughout the duration of each topic. (See Appendix D for a full list of initial, and student-generated, evidence.)

Throughout the year, students are invited to use this evidence in many ways -- in their dialogs, as additions (on post-its) (Appendix A, p.95), attached to their reflection sheets (Appendix A, p.82), and in the endgame preparation for their final debate (Appendix A, p.105) and in the showdown debate itself. They are also encouraged to use evidence accurately in the showdown in order to both gain points and to avoid penalty (Appendix B), and in their final topic essays (Appendix B).

Post-test Assessment

At the end of all 3 groups’ 7th grade year, two measures were administered (Figure 1, I1 and I2) in order to assess differences in evidence use across groups. The posttest dialogs were
administered first, followed by the posttest essays. In the control/comparison group, these instruments were administered 2 days apart; in the experimental group, they were given 5 days apart. In addition, the transcripts from first and fourth topics of the ‘game’ portion of the experimental group’s second year curriculum served as the basis for assessing evidence use over time (Figure 1, I3).

Evidence in dialogs: Posttest Dialogs (Experimental, Comparison, and Control Groups)

Students in all three groups were asked to argue electronically with a partner who held an opposing position on the subject of capital punishment. Twenty minutes into the 50-minute class session, each student was given their own copy of “shared evidence” (Table 1), which was described to them as background information they might wish to refer to. They were not explicitly encouraged to use it.

<table>
<thead>
<tr>
<th>Table 1. Posttest Dialogs Shared Evidence</th>
</tr>
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<tbody>
<tr>
<td>1. Worldwide, 58 nations practice capital punishment, and 95 nations do not allow it.</td>
</tr>
<tr>
<td>2. A comparison was made of murder rates in 10 pairs of neighboring states with different capital punishment laws. In 8 of the 10 pairs, murder rates were higher in the state with capital punishment.</td>
</tr>
<tr>
<td>3. In a study of 11 states, an estimated 22.7% of prisoners were rearrested for a violent offense within 3 years of their release.</td>
</tr>
<tr>
<td>4. A comparison was made of murder rates for the year before and the year after adoption of capital punishment in 14 states. In 11 of the 14 states, murder rates were lower after adoption of capital punishment.</td>
</tr>
<tr>
<td>5. It has been claimed that as many as 39 executions have been carried out in the USA when there was strong evidence of innocence or serious doubt about guilt.</td>
</tr>
</tbody>
</table>
Evidence in individual writing: Posttest Essays (Experimental, Half of Comparison, and Half of Control Groups)

Given various logistical circumstances regarding limited access to all students during the school’s end of year activities, this instrument was only administered to half of both the comparison and control groups. Students who were selected were randomly chosen to participate. At the beginning of the class period, students were handed the following written assignment and asked to write an essay on the topic of whether cigarette sales should be banned in the United States. Attached to the assignment was a list of “shared evidence” pertaining to the topic (Table 2); students were told that this list was there for their reference to help them write their essay if they wished, but they were not explicitly instructed to use it. Students from all 3 groups were given 50 minutes to complete the following written assignment:

Should cigarette sales be banned in the United States?
Yes  No  (Circle one)

How sure are you of your opinion? (Circle one)
Certain  Very Sure  Sure  So-so  Not very sure  Not sure at all

Justify your opinion below. You may continue on the back of this page if needed.
(Note: 2 blank pages were given for writing.)
Table 2. Posttest Essays Shared Evidence

1. The nicotine in cigarettes causes fast-acting chemical reactions in your brain that has been shown to relieve anxiety and nervousness.

2. Each year, an estimated 443,000 people die prematurely from smoking or exposure to secondhand smoke, and another 8.6 million live with a serious illness caused by smoking.

3. George Harrison, a musician for the Beatles, was a smoker and died of lung cancer at the age of 58.

4. Approximately 46.6 million U.S. adults smoke cigarettes.

5. Thousands of farmers in the U.S. make their living from farming tobacco leaves, and the tobacco industry contributes an average of $16.5 billion to the economy in tax revenue each year.

6. Phillip Morris is one of several tobacco companies currently fighting for their rights in lawsuits to sell their product freely, as well as for the rights of their customers. They are defending "smokers' rights laws" in court, claiming that smokers are currently discriminated against in being hired for jobs and are unable to smoke when and where they choose.

7. A woman named Helen Faith Reichert currently lives in NYC; she is 108 years old and has been smoking half a pack of cigarettes every day for over 80 years. Scientists believe there may be a genetic link to helping people live long, healthy lives.

8. As much as $96 billion a year is estimated lost in medical costs and lost worker productivity due to tobacco use.

9. An estimated 17 million Americans try to quit smoking each year, and about 8% of them succeed.

Examining evidence use over time: Analysis of intervention dialogs (Experimental Group Only)

Transcripts from topics 1 and 4, which are a result of students’ work completed during class sessions 4-9 of the cycle, were collected with the goal of comparing the two in order to assess
any change over the course of the year. The topic scenarios, presented to students at the beginning of each topic, are as follows:

**Topic 1: Kidney Sales** Many people need a new kidney. There aren’t enough kidneys to give everyone who needs them. Other people are willing to sell one of their kidneys. Should people be allowed to sell one of their body parts for money?

**Topic 4: M-Rated Video Games** M rated video games (M stands for “mature content”) are a popular form of entertainment around the world. The Entertainment Software Rating Board (ESRB) describes M-rated video games as being unsuitable for individuals ages 17 and under because they may contain any of the following: graphic depictions of violence and weapons, human injury, mutilation of body parts, and death; non-explicit depictions of sexual behavior, possibly including partial nudity; and use of profanity. Some people think it is acceptable for individuals under 17 to play M-rated video games; others do not think they should be allowed to do so. Should individuals under 17 be allowed to play M-rated video games?
Chapter 3. Results

In the analyses presented for both Instruments 1 and 2, the control and comparison groups are combined. As we anticipated, these groups did not differ from one another with respect to the use of evidence in their argumentation in any of the comparisons made – an unsurprising finding given they had been given no encouragement to do so. Hence, especially because of the smaller numbers involved for the posttest essays, combining these two groups makes their contrast to the experimental group clearer and simplifies the presentation of results.

Posttest Dialogs

Dialogs were engaged in by students in all three groups on the topic of capital punishment at the end of year two (Figure 1). All statements made in the dialog were segmented into idea units. As a result, some sentences (containing multiple ideas) were separated; in other cases, adjacent sentences that served as a repeat or redundant idea were combined. Inter-rater reliability on segmenting was achieved at 89.8% on 247 segments (20%), for a set of data spanning 3 different cohorts.

The dialogic evidence coding scheme (Appendix E) was then applied to these segments. Inter-rater reliability was achieved on dialogic data at 95% agreement on 20% of 1254 segments collected from a previous cohort’s capital punishment data (posttest dialogs), and 80% agreement on 54% of 2118 segments collected from a previous cohort’s topic dialog data (analysis of intervention dialogs).

Participants in the experimental condition produced a mean of 7.50 idea units (SD=3.84) in their dialogs, while the control/comparison group produced a mean of 10.04 idea units (SD=5.58) in their dialogs. The first analysis presented here addresses Research Question 1:
When engaging in argument with an opponent, are students who participate in our argument curriculum more likely to make use of evidence, compared to students who do not participate in the curriculum?

Evidence use can occur as one of two types: “shared evidence,” which is evidence that comes directly from the distributed evidence list, or “personal evidence,” which is evidence that comes from the students’ own individual prior knowledge (and may or may not be accurate). Table 3 presents examples of statements that are considered shared and personal evidence for the capital punishment topic:

Table 3. Examples of claims considered evidence use, and claims not considered evidence use

<table>
<thead>
<tr>
<th>Utterance</th>
<th>Evidence, Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criminals still do not always pay attention to death because 8 out of ten pairs murder was higher in states with capital punishment</td>
<td>(Shared) Evidence</td>
</tr>
<tr>
<td>Well that's why in prison they have some programs that help people with these mental issues</td>
<td>(Personal) Evidence</td>
</tr>
<tr>
<td>They should not do it because you have no right to kill people</td>
<td>Not Evidence</td>
</tr>
<tr>
<td>Well what if they killed one of your family members?</td>
<td>Not Evidence</td>
</tr>
</tbody>
</table>

Students in the experimental group were more likely than the control/comparison group to use evidence – either shared or personal- at least once when engaging in argument with their opponent. A total of 93.3% of all experimental students made reference to evidence at least once, whereas a total of 73.2% of control/comparison students did so (Figure 2), a significant difference ($\chi^2 = 6.10; p<.05$).
Of students who used evidence, the mean percentage of segments in which evidence appeared across students in the control/comparison group was 30.7%, compared to 42.3% (Figure 3, below) in the experimental group, a significant difference, $t(61)=2.55$, $p=.013$. 
Three kinds of evidence-use strategies were identified: the “evidence to weaken” category includes those cases in which evidence is being used to directly critique an opponent’s argument (E1 code; Appendix E); in the “evidence to support” category, evidence is used to support one’s own claim (E2 code; Appendix E); in the “reference to evidence” category are statements that talk about the evidence (rather than employing it in an argument), such as soliciting it or criticizing its use (E5-8 codes; Appendix E). Tables 4, 5, and 6 illustrate these uses.

Table 4. Examples of shared evidence use

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Utterance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence to Support with Shared Evidence</td>
<td><em>(In response to the claim “So if we kill them for a bad crime that they have done, our world will be a better place”): “Yes but there are other thing you can do besides death; and putting people in jail works well too, because 8 out of ten pairs murder was higher in states with capital punishment”</em></td>
<td>The evidence statement supports own claim (leaving opponent’s claim unaddressed), with accurate and relevant evidence from the shared evidence list</td>
</tr>
<tr>
<td>Evidence to Support Other Side with Shared Evidence</td>
<td><em>(In response to the claim “Capital punishment shouldn’t be practiced since most of the world has decided it’s inhumane”): You’re right; 58 practice capital punishment, and 95 don’t; most countries have decided it’s not a good idea. But that doesn’t mean we shouldn’t decide for ourselves what’s right.</em></td>
<td>The evidence statement supports other side with accurate and relevant evidence from the shared evidence list</td>
</tr>
<tr>
<td>Evidence to Weaken with Shared Evidence</td>
<td><em>(In response to opponent’s claim “Murder rates have decreased in 11 out of 14 states after the adoption of capital punishment”): Many of these executions had no evidence of guilt.</em></td>
<td>The evidence statement weakens opponent’s statement with accurate and relevant evidence from the shared evidence list</td>
</tr>
</tbody>
</table>
Table 5. Examples of personal evidence use

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Utterance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence to Support with Personal Evidence</td>
<td><em>(In response to the claim &quot;What if the criminals kill the security?&quot;): They won't. They have no contact with humans for a long time.</em></td>
<td>The evidence statement supports own claim with general knowledge not found in the shared evidence set</td>
</tr>
<tr>
<td>Evidence to Weaken with Personal Evidence</td>
<td><em>(In response to the claim “Sometimes innocent people will die because there is strong evidence against them&quot;): I know sometimes innocent people were killed because of a crime, but it was because they were a different race and the judges were racist.</em></td>
<td>The evidence statement weakens the opponent’s claim, although in this case the evidence is unsubstantiated and debatable</td>
</tr>
<tr>
<td>Evidence to Weaken with Personal Qualified Evidence</td>
<td><em>(In response to the claim “Maybe they were falsely judged&quot;): Maybe they say they were falsely judged when they actually did it. That happens sometimes.</em></td>
<td>The evidence statement weakens the previous claim with a debatable claim that is qualified with uncertainty</td>
</tr>
</tbody>
</table>

Table 6. Examples of reference to evidence (rather than use in argument)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Utterance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence is solicited</td>
<td><em>(In response to the claim “They will go kill someone if they are released&quot;): What is your proof? But it is saying more murders are committed in states with capital punishment</em></td>
<td>The evidence statement asks for justification by requesting evidence from opponent</td>
</tr>
<tr>
<td>Evidence is reasoned about</td>
<td><em>(In response to the claim “Jail is miserable for most people, and without parole, it would be even worse&quot;): There is no evidence you can't post bail if it is a high enough crime.</em></td>
<td>The evidence statement clarifies an inference that can be made from the shared evidence set</td>
</tr>
<tr>
<td>Evidence use is criticized</td>
<td></td>
<td>The evidence statement is used to dismiss the opponent’s claim as an empirical fact</td>
</tr>
</tbody>
</table>

Table 7 presents average percentage use of evidence types by group. (For further description of the codes that are assigned to describe each strategy, see Appendix E.) This table includes only
students who used evidence in their dialogs; students who did not use evidence are excluded here. As seen from the table, both groups used evidence primarily as a means to support their claims. Although differences are not significant, the experimental group was slightly more likely to use shared than personal evidence, compared to the control/comparison group who were slightly more likely to use personal evidence. Within the personal and shared categories, proportions used to support continue to dominate.

Table 7. Mean percentage use of different types of evidence use, by group.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Control/Comparison (N=35)</th>
<th>Experimental (N=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence used to Weaken</td>
<td>32.4 (36.8)</td>
<td>26.3 (32.2)</td>
</tr>
<tr>
<td>Evidence used to Support</td>
<td>60.7 (35.7)</td>
<td>65.4 (34.3)</td>
</tr>
<tr>
<td>Evidence Reference</td>
<td>6.9 (13.4)</td>
<td>8.4 (16.1)</td>
</tr>
<tr>
<td>(total = 100%)</td>
<td>(total = 100%)</td>
<td></td>
</tr>
<tr>
<td>Personal Evidence</td>
<td>80.3 (47.5)</td>
<td>71.9 (47.9)</td>
</tr>
<tr>
<td>Shared Evidence</td>
<td>12.8 (24.5)</td>
<td>19.6 (32.5)</td>
</tr>
<tr>
<td>(total = 100%)</td>
<td>(total = 100%)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard deviations appear in parentheses.

Whereas Table 7, above, identifies the prevalence of each type of use, Table 8, below, presents the same information within the categories of personal and shared evidence use, for the total sample combined; evidence reference is excluded as it functions neither to weaken nor support.
Table 8. Weaken vs. support types within personal and shared evidence use categories (total sample combined)

<table>
<thead>
<tr>
<th>Evidence Strategies</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Personal Evidence:</strong></td>
<td></td>
</tr>
<tr>
<td>Evidence to Weaken</td>
<td>34.0%</td>
</tr>
<tr>
<td>Evidence to Support</td>
<td>66.0%</td>
</tr>
<tr>
<td><strong>Within Shared Evidence:</strong></td>
<td></td>
</tr>
<tr>
<td>Evidence to Weaken</td>
<td>16.1%</td>
</tr>
<tr>
<td>Evidence to Support</td>
<td>83.9%</td>
</tr>
</tbody>
</table>
Posttest Essays

Segmenting into idea units was completed in the same manner as for the dialogic instrument. An essay coding scheme was developed to categorize use of evidence in the essays (Appendix E). Many of the codes are similar to the dialogic evidence coding scheme, with a few key differences to account for the individual (non-dialogic) nature of the data.

For the essay coding scheme, inter-rater reliability was achieved on 20% of a data set spanning 2 different cohorts, which consisted of a total of 18 essays, or 315 segments. All remaining coding was completed by one coder, the author. Agreement on whether segments contained evidence or not was 90.2% (Cohen’s $\kappa=.80$); agreement on function (support, weaken, or reference) was 98.7% (Cohen’s $\kappa=.99$); agreement on type (personal vs. shared) was 93.3% (Cohen’s $\kappa=.92$); agreement on whether evidence claims were on the distributed evidence sheet was 88.9% (Cohen’s $\kappa=.88$).

The first analysis addresses research question 1:

1) When writing an essay, are students who participate in the curriculum more likely to make evidence claims compared to students who do not participate?

Table 9 presents examples of evidence-based claims from the essays. As was the case in the posttest dialogic data, evidence-based claims can be either personal (when the evidence comes from the students’ own personal knowledge base) or shared (when the evidence comes from the distributed list of facts) in nature.
Table 9. Examples of claims categorized as personal, shared, or non-evidence use

<table>
<thead>
<tr>
<th>Utterance</th>
<th>Evidence, Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once you start smoking, you usually can't stop (8% in 17 million succeed)</td>
<td>(Shared) evidence</td>
</tr>
<tr>
<td>The consequences aren't limited to those who smoke</td>
<td>(Shared) evidence</td>
</tr>
<tr>
<td>My great uncle died from smoking</td>
<td>(Personal) evidence</td>
</tr>
<tr>
<td>But they cause lung cancer and tooth decay</td>
<td>(Personal) evidence</td>
</tr>
<tr>
<td>It’s the smoker’s choice if they want to smoke and harm themselves later</td>
<td>Not Evidence</td>
</tr>
<tr>
<td>I think that cigarette sales should be banned from the US because they</td>
<td>Not Evidence</td>
</tr>
<tr>
<td>hurt the US in so many ways</td>
<td></td>
</tr>
</tbody>
</table>

The experimental group (N=28) averaged 7.8 idea units per essay (SD=4.3); the control/comparison group (N=29), an average of 5.62 (SD=4.1).

A total of 24 of the 29 (82.8%) control/comparison students used evidence at some point in their essays, whereas 27 of 28 (96.4%) of the experimental group did so.

Among students who used evidence, for each student the percentage of units that contained evidence was tabulated. These averaged 56.5% for the control/comparison group and 79.4% for the experimental group (Figure 4). This difference was significant, t(55)=2.78; p=.007.

Figure 4. Percent Use of Overall Evidence in Essays
Just as in the posttest dialogs, this evidence use can be either personal or shared. The control/comparison group utilized shared evidence in an average of 29.8% of their claims, while the experimental group utilized shared evidence in 57.7% of their claims (Figure 5, below); this difference was significant, $t(55)=3.552, p=.001$.

![Figure 5. Percent Use of Shared Evidence of All Segments](image)

While the above reflects the percentage of total segments that contained shared evidence, Figure 6, below, reflects the percentage of evidence segments that contained shared evidence. 59.4% of the control/comparison group’s evidence statements contained shared evidence, compared to 81.9% of the experimental group’s statements. This, too, was significant;
t(55)=4.22, p<=.001, which demonstrates that the experimental group's evidence use was more likely than the control/comparison group's to be shared evidence.

As in the dialogs, in their essays all students most often used evidence to support their own position; Each evidence statement (1-9; Table 18) was assigned a stance as to whether it most readily served to support a ‘pro’ or ‘con’ position on cigarette sales. (Statement 4, a neutral statement, was omitted from this analysis; facts #1,5,6,7 were considered ‘con’ cigarette sales ban; facts #2,3,8, and 9 were considered ‘pro’ cigarette sales ban.) Of all shared evidence claims, against-preferred-side evidence that weakened the student’s own position was used an average of 11.2% of the time, vs. 88.8% of evidence uses being of one of the evidence claims that supported the student’s position. These proportions did not differ significantly by group. (For the distribution of evidence sheet fact use by group, see Table 18, Appendix.) Tables 10 and 11,
below, present examples from the essays of shared and personal evidence claims used to weaken and support:

Table 10. Examples of statements using shared evidence

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Utterance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support with Shared Evidence</td>
<td>Smoking is addictive and very hard to quit.</td>
<td>The statement supports, using shared evidence</td>
</tr>
<tr>
<td>Weaken (own side) with Shared Evidence</td>
<td>While cigarette sales make money for the country, cigarettes cause risks to those smoking them.</td>
<td>The statement uses evidence to weaken (own side), envisioning how an opponent would use such evidence, drawing on accurate shared knowledge.</td>
</tr>
<tr>
<td>Weaken (opposing side) with Shared Evidence</td>
<td>Saying that banning cigarettes will hurt the economy is an invalid point because though the tobacco industry gives $16.5 billion to the economy in tax revenue, $96 billion is also lost because of workers having to pay employers for their bad state of health.</td>
<td>The statement uses evidence to weaken opponent’s claim, but misusing shared evidence</td>
</tr>
</tbody>
</table>
Table 11. Examples of statements using personal evidence

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Utterance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support with Personal Evidence</td>
<td>Cigarettes are bad because they damage your lungs and teeth.</td>
<td>The evidence statement is used to support own claim, using accurate personal knowledge.</td>
</tr>
<tr>
<td>Weaken with Personal Evidence</td>
<td>Although it gives you calm chemical reactions, it will still definitely kill you in a matter of years.</td>
<td>The statement uses evidence to weaken opposing claim, using unsupported personal knowledge.</td>
</tr>
</tbody>
</table>

Figure 7, below, displays the average of the comparison/control group’s and the average of the experimental group’s percent use of evidence to support one’s own claim. As seen here, both groups use evidence almost entirely to support their own claims. While the comparison/control group used this support strategy 79.1% of the time, the experimental group used this strategy 96.4% of the time of the total number of evidence statements, a significant difference, \( t(49)=2.563; p<.05 \).
Accuracy of Personal and shared evidence use

Percentages in Table 12 below represent the average of individual students’ averages in the control/comparison groups, as well as the average of individual students’ averages in the experimental group, of the two types of personal and shared evidence use in essays (see Appendix E for details of the coding scheme).

Table 12. Percent use of the two types of personal and shared knowledge by group

<table>
<thead>
<tr>
<th>Type of Evidence</th>
<th>Control &amp; Comparison (N=29)</th>
<th>Experimental (N=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurate Personal Knowledge</td>
<td>23%</td>
<td>12%</td>
</tr>
<tr>
<td>Unsupported Personal Knowledge</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>Distorted Shared Knowledge</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Accurate Shared Knowledge</td>
<td>54%</td>
<td>77%</td>
</tr>
</tbody>
</table>

In Table 12 above, the experimental group’s use of accurate shared knowledge was significantly higher than that of the control/comparison group; t(49)=3.063, p<.01.
Figure 8, below, identifies a difference found within the personal evidence category. Although there was no overall difference in personal evidence use between groups, the two subtypes that constitute personal evidence use (reasonable, claims and unwarranted claims; see Appendix E) can be distinguished, and there is a difference there, specifically in the unsupported personal evidence claims, \( t(49) = 2.977, p < .01 \).

The next analysis addresses research question 3: *Are students who participate in the curriculum more likely to ask more questions, the answers to which would help them to write a stronger essay?*

This question is answered by whether students provided any questions to the prompt found at the end of their essay assignment: “Are there any questions that would help you write a better
essay?” and, if so, how many questions they provided. Table 13 identifies a few examples of the students’ questions.

Table 13. Examples of questions provided by students, the answers to which would help them write a better essay

<table>
<thead>
<tr>
<th>Questions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do cigarettes kill brain cells?</td>
<td></td>
</tr>
<tr>
<td>How many programs are there to help end smoking?</td>
<td></td>
</tr>
<tr>
<td>What is secondhand smoke?</td>
<td></td>
</tr>
<tr>
<td>How many people smoke without knowing the risks?</td>
<td></td>
</tr>
</tbody>
</table>

The number of questions asked per subject was averaged; the average for the control/comparison groups was 1.03 questions with a range from 0-5 questions asked, while the experimental group asked, on average, 1.5 questions, with a range from 0-4 questions asked. This mean difference was not significant; \( t(55)=1.46, \) ns. A Chi-Square test on the percentage of control/comparison students who asked no questions at all (44.8%), compared to experimental students who asked no questions (17.9%), was significant; \( \chi^2=4.8; \) \( p=.05 \) (Figure 9).

![Figure 9. Percentage of Students Who Asked One or More Questions](chart.png)
Analysis of Intervention Dialogs

The experimental group’s dialogs from the first and fourth topics during their second year of the curriculum were kidney sales and whether minors should be allowed to play M-rated video games (see Appendix C); these dialogs were segmented in their entirety and all segments coded using the same procedure described earlier.

Students were assigned to work with another student whose opinion on each topic they shared. These pairs were then scheduled to argue with a different pair of opposing-side students each day. Due to an initial uneven number of students in the classroom at the beginning of the year, some unpaired students were assigned to pairs in a round-robin fashion during topic 1 and therefore occasionally worked with an existing pair each day to form a group of 3. For the fourth topic, students remained with the same partner for the duration of the topic.

For the first topic, the average number of coded units, or utterances, occurring within a pair’s dialog was 18.2 (SD=8.89); in topic 4, it was 24.7 (SD=9.94) utterances. The average number of turns taken per pair in each dialog was 10.15 turns (SD=4.8) in topic 1 and 15.37 turns (SD=7.1) in topic 4, which was significantly different (F(1,87)=124.4; p=.00). The average number of coded units for every turn during topic 1 was 1.81 utterances (SD=.41) and during topic 4 1.66 utterances (SD=.43), which was significantly fewer utterances over time (F=8.53, p=.01).

Table 14 (Topic 1) and Table 15 (Topic 4), below, present verbatim examples of various evidence strategies used by experimental group students during these two topics. (Evidence used to support opponent’s side, or to weaken own side, did not occur except rarely and therefore do not appear in this table.) The same categories and subcategories described earlier apply: Uses of
evidence can be classified along the dimension of shared versus personal knowledge as well as with respect to the functions of evidence. (For a list of all evidence codes, see Appendix E.)
Table 14. Examples of evidence use during Topic 1

<table>
<thead>
<tr>
<th>Examples of Evidence Use – Topic 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Using Evidence to Support Own Side</strong></td>
</tr>
<tr>
<td><em>Shared Evidence</em></td>
</tr>
<tr>
<td><em>(In response to “People do not have health care these days to pay for a kidney”)</em></td>
</tr>
<tr>
<td><strong>Health insurance pays for the operation</strong></td>
</tr>
<tr>
<td><em>Personal Evidence</em></td>
</tr>
<tr>
<td><em>(In response to “How is a person going to afford that in a hospital?”)</em></td>
</tr>
<tr>
<td><strong>People have bank accounts- they have friends and family to help support them</strong></td>
</tr>
<tr>
<td><strong>Using Evidence to Weaken Other Side</strong></td>
</tr>
<tr>
<td><em>Shared Evidence</em></td>
</tr>
<tr>
<td><em>(In response to “According to the L.A. Times, out of 3,698 people who donated their kidney, only 255 people had kidney failure”) But there is still risk of disease even if the kidney was healthy</em></td>
</tr>
<tr>
<td><em>Personal Evidence</em></td>
</tr>
<tr>
<td><em>(In response to “Besides, if you have insurance, the insurance will cover almost all the costs”) But a lot of Americans have health insurance to start with</em></td>
</tr>
<tr>
<td><strong>Reference to Evidence</strong></td>
</tr>
<tr>
<td><strong>Fine, you want proof? Here’s proof</strong></td>
</tr>
<tr>
<td><strong>But how do you know the person receiving the kidney can afford the kidney?</strong></td>
</tr>
<tr>
<td><strong>You do not know how much kidneys cost in other countries</strong></td>
</tr>
</tbody>
</table>
Table 15. Examples of evidence use during Topic 4

<table>
<thead>
<tr>
<th>Examples of Evidence Use – Topic 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Using Evidence to Support Own Side</strong></td>
</tr>
<tr>
<td>Shared Evidence</td>
</tr>
<tr>
<td><em>(In response to: “You’re saying that kids under 17 shouldn’t be able to buy M-rated video games but yet it’s OK for them to watch TV that has more profanity and violence in it”) You don’t have any evidence saying that TV has more violence than M-rated video games because M-rated video games are mature and similar to R-rated movies</em></td>
</tr>
<tr>
<td>Personal Evidence</td>
</tr>
<tr>
<td><em>(In response to: “Every character imaginable is in video games. There are bound to be some police officers”) You are assuming they will use those in bad ways - they also motivate children to try harder things</em></td>
</tr>
</tbody>
</table>

| **Using Evidence to Weaken Other Side** |
| Shared Evidence |
| *(In response to: “People are still caring even if they play violent games”) The evidence says that they can become less caring towards others* |
| Personal Evidence |
| *(In response to “You don’t have any evidence saying that TV has more violence than M-rated video games because M-rated video games are mature and similar to R-rated movies”) What are you talking about... It’s common sense that TV has more violence and profanity* |

| Reference to Evidence |
| But who told you that all M-rated video games are violent? |
| There is no evidence for that anyway |
| They never said it was long term |
The following analyses address research question 1. In order to conduct a within-subjects, repeated measures analysis, and because of the occasional rotating groups of 3 students, all students were divided into 3 groups in order to preserve the most data possible so that no dialog appeared more than once in each analysis (for groups 1-3, N=12, 9, & 10, respectively). (A grouping of all students into only 2 groups instead of 3 yielded similar analysis results but resulted in more data loss.) Table 16, below, outlines the average percent occurrence of strategies during topics 1 and 4.

All experimental students used evidence on at least one occasion. Overall, during topic 1, percent of dialog units in which evidence was included was 73.0% (SD=10.6); during topic 4, it was 71.0% (SD=9.6). Table 16 breaks down this evidence use by type.

Table 16. Percentages of Evidence Strategies in Topics 1 & 4 (SD). Note: the strategy types in Topic 4 do not add to 100% because of the presence of 2 other types of strategies found in the dialogs, not included in this table; see Appendix E for E3 and E4 code description.

<table>
<thead>
<tr>
<th>Strategy Types: Weaken, Support, or Reference</th>
<th>Topic 1 (N=31)</th>
<th>Topic 4 (N=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used to Weaken</td>
<td>29.8% (8.9)</td>
<td>22.0% (6.3)</td>
</tr>
<tr>
<td>Used to Support</td>
<td>55.4% (12.7)</td>
<td>51.1% (8.7)</td>
</tr>
<tr>
<td>Referenced</td>
<td>14.7%* (8.6)</td>
<td>25.4%* (11.6)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence Types: Personal or Shared Evidence</th>
<th>Topic 1 (N=31)</th>
<th>Topic 4 (N=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Personal Evidence</td>
<td>66.8% (8.9)</td>
<td>59.2% (16.8)</td>
</tr>
<tr>
<td>Use Shared Evidence</td>
<td>33.2% (8.9)</td>
<td>40.8% (16.8)</td>
</tr>
</tbody>
</table>

For the three strategy types in Table 16 (evidence to support, evidence to weaken, and evidence reference), an analysis was undertaken to address whether there was significant change over time in their proportion usage. Because the individual data points represent pairs, and
moreover pairs that were not constant from topic 1 to topic 4, a conventional data analysis could not be applied to the data set as a whole. The individual was thus treated as the unit of analysis but the data set segmented into three smaller sets, each analyzed separately, such that an individual’s partner always appeared in a different analysis than the individual, one in which the partner was regarded as the primary individual. Thus any pair’s data contributed only once to an analysis. Meeting this criterion made it necessary to delete some pairs, leaving final sample sizes for groups 1-3, N=12, 9, & 10, respectively.

In these repeated-measures analyses, the only variable to show significant change over time was the proportion of evidence references, which increased overall from 14 to 25% as shown above. Specifically, in group 1, this strategy rose from 16.0% in topic 1 to 27.4%; F(1,11)=5.50; p=.04. In group 2, it rose from 14.0% to 23.4%; F(1,8)=10.72; p=.01. In group 3, which did not reach significance, the strategy rose from 14.3 to 24.5%; F(1,9)= 3.15, ns.

Research questions 2 and 3 are addressed as follows. There was no significant difference in percent use of evidence in any of the three groups; the evidence use was initially high during topic 1, and all groups went down slightly, though not significantly, in their percent use of evidence, which further supports the conclusion that the current intervention does not affect evidence function use. There was no significant difference from topic 1 to topic 4 in any of the three groups in their use of either personal or shared evidence (Table 16, above).
Chapter 4. Discussion

Overview of Study and Findings

An analysis of the dialogic posttest activity on the topic of capital punishment yielded answers as to whether students who participated in the evidence curriculum made more use of evidence, and how such evidence strategies differed. The individual writing posttest activity on the topic of whether cigarette sales should be legal, helped describe how written evidence claims differ in type and frequency in the essays of students who participated in the evidence argument curriculum versus those who did not participate. Through analysis of the intervention dialogs, it became possible to answer how evidence use changed over time, and whether it became more common.

Both final assessments showed that experimental group students more frequently incorporated evidence - in particular, shared evidence- in their arguments, relative to the comparison groups (see Table 17 below for a summary of results). Thus, research question 1 receives a positive answer. Also, students in the experimental group generated more factual questions the answers to which would help inform their arguments on the topic. Thus, research question 3 receives a positive answer.

With respect to research question 3, it was found that students throughout used evidence mostly to support their own position, rather than weaken the position of the opponents. As reflected in Table 17, across the intervention dialogs and both final assessments, however, the proportional usage of these two functions that evidence served in students’ argumentation remained consistent: frequency of using evidence to weaken wasn't increased by the intervention (experimental-control differences are not significant) and remains less frequent than using
evidence to support. Differences do appear, however, between dialogs and essays, which we return to. Because the essay and dialog tasks are not strictly comparable, statistical comparisons are not made and we will compare them only informally.

Table 17. Overview of Findings

<table>
<thead>
<tr>
<th>Percent Occurrence</th>
<th>Essays</th>
<th>Dialogs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
<td>Control/Comparison</td>
</tr>
<tr>
<td>Containing Evidence</td>
<td>79.4*</td>
<td>56.5</td>
</tr>
<tr>
<td>Used to Weaken</td>
<td>3.6</td>
<td>20.9</td>
</tr>
<tr>
<td>Shared Evidence</td>
<td>81.9*</td>
<td>59.4</td>
</tr>
</tbody>
</table>

*= Experimental group significantly exceeded Control/Comparison group

Not included in Table 17 is the finding that analysis of experimental students’ evidence use during dialogs throughout their second, evidence-focused year of the curriculum showed an increase in meta-level dialog about the use of evidence, supporting the conclusion that the intervention increased students’ awareness of evidence.

Again, a comparison across essays and dialogs can only be done informally, as the two are not strictly comparable. However, as seen in Table 17, essay writers are very likely to include the shared evidence in their essays. In contrast, in the dialogs, students make frequent use of evidence, but the evidence is much more likely to come from students’ own experience or knowledge. This is a key difference between essays and dialogs that warrants interpretation and has both theoretical and practical implications that we return to.
Theoretical Implications of the Findings

The results of the present study support a dialogic approach to developing evidence use skills in argumentation. Nielsen (2012) discusses the process through which shared evidence that a speaker wishes to use often finds its way organically into their delivered strategy during discussion, and is not just simply conveyed as isolated fact to be absorbed. The evidence curriculum fosters the kind of environment needed for this to emerge. It appears that learning how to use evidence benefits from a dialogic setting.

Additionally, dialogic skills that developed during the intervention transferred to writing, as greater attention to evidence use was seen in the individual writing instrument. In particular, students were given the chance to have questions answered throughout each topic that would help them substantiate their claims. Through this experience, they gained not only an understanding that answers to informational questions can help build a stronger case, but gained the experience of knowing what types of questions might yield the most effective information to use. This was evident in the finding in the posttest essays that the experimental group asked more questions, the answers to which would help them write a stronger essay.

Finally, the increasing reference to evidence observed in the intervention dialogs marks an important feature of what is learned during the course of this second year argument curriculum. A reference to evidence in these dialogs is a direct reflection of the metacognitive learning process at work, whereby students demonstrate they are changing in their understanding of not only how evidence varies in availability, quality, and relevance, but the importance and
usefulness of actually discussing those issues with their opponent related to availability, quality, and relevance of the evidence. This finding of increased references to evidence is consistent with other recent work. In an instructional focus on argument with children (Ryu & Sandoval, 2012), students improved their ability to apply epistemic criteria for arguments by evaluating them as to whether they contain appropriate evidence. Giving students the opportunity to argue, then, not only enables them to use evidence more frequently in argument, but it gives them the chance to begin to recognize evidence as something that varies in quality and relevance. This relates to the idea of fostering “accountable talk”, wherein an ideal discussion-based class community provides warranted evidence for their claims. In such a setting, speakers are encouraged to make an effort to get their facts straight and make explicit the evidence behind their claims or explanations; they challenge each other when evidence is lacking or unavailable (Michaels, O’Connor, & Resnick, 2008).

**Practical and Educational implications**

The effectiveness of the curriculum in developing argument skills has already been demonstrated (Kuhn & Crowell, 2011; Crowell & Kuhn, in press; Kuhn, Goh, Iordanou, & Shaenfield, 2008). Over the course of our curriculum, the use of direct counters to the opponent’s claims - as opposed to other, less powerful strategies, such as introducing alternative claims (leaving the opponent’s claim unaddressed) - increase in frequency with experience; the frequency of addressing only one’s own position, in turn, decreases (Kuhn et al., 2008; Kuhn & Udell, 2003). The percentage of moves devoted to rebuttal also increase as a result of participation in our curriculum. These gains of increased direct critiques, in turn, successfully
transfer to other modes of communication such as individual written argument (Kuhn & Crowell, 2011). Over time, students who participate in our curriculum also recognize, with increasing frequency, the value and goals of argument, over and above simply executing argument strategies, as indicated by their increasing referencing of evidence in the present study. They also demonstrate a capacity for selecting empirical evidence over weaker anecdotal evidence to strengthen arguments (Kuhn & Crowell, 2011).

In a replication of the curriculum with another cohort (Khait, unpublished empirical paper) in which the posttest essays from the present study was administered one year after completion of the curriculum, it was found that the intervention group continued to make more use of evidence in their essay writing, relative to a non-intervention control group. The gains seen in the present study, then, appear to be maintained over at least a year.

In sum, the findings from the present study add to what we already know in these specific ways: This curriculum can help students make more use of evidence (where the experimental group uses evidence more often; in particular, more shared evidence in essay writing), use it more carefully (as they make fewer unsupported claims in writing than students who do not engage in our curriculum), ask more questions (the posttest essays), and come to recognize evidence as a tool, i.e., that not all evidence is used properly or created equally (as observed in the increasing reference to evidence and critical examination of it during the course of the intervention).

Despite the high use of shared evidence use seen in essay writing, the use in dialogs remains lower. Students still utilize evidence in their arguments almost half of the time in the posttest dialogs, but it is more likely to be personal, not shared, evidence. It appears that dialogs
elicit ‘deeper’ evidence use, where the facts are drawn from their own knowledge base. This may be because essays carry heavy demand characteristics, where students have been trained to write in a specific way and do what is perceived to be desired from the instructor (i.e., making use of the evidence list that has been provided). The posttest dialogs, on the other hand, are rooted in everyday talk and is a more natural, meaningful way to develop argumentive thinking.

**Limitations**

A major issue in evaluating the practical implications of the present work is the high cost of implementing such a curriculum. Despite the acknowledged importance of developing argument skills – they now appear prominently in the new Common Core standards – in many ways, the time is not ideal for wide-scale implementation of a curriculum like the present one. Now, more than ever, schools are faced with offering curricula that not only fit within their budgets but are tailored toward students passing standardized tests. However critical and necessary the skills are that the curriculum studied here fosters, it does not further the objectives that center around standardized test scores. Furthermore, the duration of the curriculum over a period of years makes for an even more difficult decision to implement it in classrooms, at the expense of other uses of students’ time. One possible solution would be to work toward streamlining the content of the curriculum so that it does not stand alone as an argument curriculum class, but rather carries the content of an existing class that is already being taught. An existing civics/social study class could potentially serve as the most ideal conduit for this argument curriculum, where topics are discussed in depth and evidence is introduced in the very same way, but essential elements of the course content are preserved.
A limitation in generalizing the results of this study to the population of all adolescents who could potentially benefit from this curriculum is the selective sample that participated. Students participating in this study were enrolled in a moderately competitive public school with an emphasis on math, science, and engineering and underwent an extensive application process. These students are largely Hispanic and African-American minority students, but they are above average with respect to the larger population of public school students in the Harlem neighborhood of New York City where the school is located. Generalization must therefore be undertaken with caution. The curriculum, however, has been implemented successfully with less able students from another nearby public school (Shaenfield, unpublished doctoral dissertation).

Another caveat in interpreting the results pertains to comparing two different topics in the analysis of intervention dialogs. An argument can be made that, since they are not the exact same topic, one topic could have been more difficult to comprehend than the other, or was more personally relevant and therefore made more personal arguments readily available, or even simply more enjoyable a topic to discuss and therefore offered the chance for more engagement. Ideally, then, this analysis should be replicated with another cohort in which different topics are used, to insure generalizability of the findings.

Another problem in concluding anything about the skills of the experimental group—both posttesting and curriculum—relates to the necessity of giving students grades for their performance throughout the year. There was an implicit understanding by students that their posttesting work would be graded as well, since it was an end of year activity. Just by making it available, with no prompting at all, students could likely sense that it was important to use evidence; there was unfortunately no way to fully disentangle their need to comply with
perceived demands and their spontaneous use of evidence. To try to counteract this, all coaches were instructed not to encourage use of evidence in any way— they were told only to make it available for all students.

Finally, a potential coding problem that could have affected results lies in the inability to fully blind the topic data for the analysis of intervention dialogs. Anyone trained to code the dialogic data was also an argument coach and heavily involved in the course of the curriculum, and therefore naturally knew at what point in the year each topic occurs and therefore which topic was the earlier and which the later one. It was therefore impossible for anyone to be fully blinded while coding. Instruments 1 and 2, on the other hand, were blinded as to the group that an essay or dialog came from.

**Next Steps**

There are several steps that might be taken based on these findings in an effort to build on the current curriculum. The first relates to Graff’s (2003) goal of employing a ‘missing interlocutor’ in essays. In order to better foster a wider variety of evidence strategies (specifically, evidence to weaken an opponent’s claim) in essay writing, and to better facilitate transfer of skills from the dialogic experience gained from this curriculum, the essay prewrite activity (Appendix B) could be further developed into a larger-scale activity, or even an assignment all its own, rather than used as simply a preparation for the final task of writing the final topic essay. This prewrite activity offers enormous potential for fostering students’ recognition that essays can be written as a conversation, not just as bullet points of self-supporting facts.
The current curriculum could benefit from utilizing the findings of Schwartz & Bransford’s work (1998) on the importance of working on a solid foundation of prior knowledge in order to learn well. By creating two contrasting argumentive frameworks of how to argue expertly, and having students note the differences between the two, it might be possible to bring forth to light important elements of how to argue well with evidence for deeper understanding of the argument process.

In an effort to develop the ‘reference to evidence’ in essay writing, an argument evaluation activity of essays (in addition to the activity of evaluating dialogs- Appendix B), where students have the opportunity to reflect on the quality of evidence used in peer essay writing, has the potential to highlight for students the benefit of not only using evidence directly in essays, but reflecting on its quality – either own or opposing side- in order to further strengthen a point.

A look into the issue of whether either direct instruction, or on the other hand, even more opportunity for skills-based exercise, on how to argue well with evidence could provide a deeper learning experience is warranted. In favor of skills-based exercise, Kapur (2008) advocates for the intentional ill-structuring of learning environments in order to create an environment of productive failure. By allowing students to explore the parameters of a learning environment designed for them to make mistakes, the experience of learning from them, in turn, creates opportunity for an even deeper learning experience, above and beyond the present curriculum’s learning environment designed to foster development of argument skills.

Would it have been possible to develop these skills and understanding more efficiently and rapidly with direct instruction? Larson, Britt, and Kurby (2009) developed a tutorial
designed to build argument skills by direct teaching of the skills entailed in argument evaluation. They assessed students’ ability to distinguish acceptable versus unacceptable arguments on the basis of structure. While the tutorial helped raise performance, they conceded that students may need multiple exposures of the tutorial to help them reach proficiency. This conclusion is consistent with the claim that argument skills take time to develop, recognition that direct instruction can indeed play a significant part in the learning process is warranted.

Finally, in an effort to give students the chance to develop their discussion experience so that shared evidence can be used more readily and effortlessly, it might prove fruitful to give students the opportunity to argue on a greater breadth of topics, where they must practice using and evaluating new sets of evidence they have little prior experience with. The task of having to absorb and utilize new information in real time in writing an essay is a challenging but critical one; the strategy of weakening an opponent’s claim with evidence from the shared pool, is even more critical. With four topics spread out over the course of the year, the curriculum is currently configured so that students have a period of several weeks to learn and incorporate the topic information slowly over the course of a 13-class topic cycle. While the benefits of exploring evidence in-depth during each topic in this way are obvious and should be kept as is, there is the possibility of incorporating more “mini-showdown” days, where an unfamiliar topic and new information is distributed that same day for them to learn and try to use.

**Conclusions: Argument as a 21st century skill**

As a nation, we are all too sensitive to our right to freedom of speech. The call to substantiate such opinionated speech from others who should be demanding it, all too often falls silent. To muddle matters, in a time where we are hardly expected to back up the things we say.
with empirically sound truth, the availability of information—only a small slice of which stands on good, solid ground—is more vast than ever before. There is so much information that often reaches us in multiple forms of media within a single news cycle—evidence we take for granted to be truth, observed fact we leap with to explain the root of something that troubles or perplexes us. Those publishing the news who don’t have a clear grounding in the relationship between theory and evidence, but who have been trained in writing effectively and convincingly, have the power to publish some incredibly misleading things, if some outright false. The information we consume is all too often incomplete and deserving of a further look—yet this is the information we skim over before we’re even asked to head into work where we’re asked to do our ‘real’ thinking for the day. Yet it’s what shapes our very understanding of the world, and determines the political figures we support and elect into office; it forms the basis for whether we do things like recycle, sprinkle flax seeds on our cereal, exercise more or less, or worry at night about rising sea levels or crime. It quietly invades and tweaks every fiber of who we are as citizens. To think critically isn’t just something we need to be able to say we can do if we’re trying—it needs to come to us before we’ve finished our morning coffee. We must commit to consuming information more responsibly; using it wisely in our decisions we make for others, and ourselves; and resolving to share it often in our discussions with others. The present study makes a contribution in demonstrating that the competence and disposition to engage in evidence-based argument can be strengthened with dense practice over a prolonged period. We must encourage citizens to engage with evidence, know it varies in quality and tread carefully and accordingly, and use it wisely and often—an undertaking that warrants the investment.
References


Council for Aid to Education. 2009-2010 CWRA Institutional Report.


Appendix A

**Education for Thinking Argumentation Curriculum: Implementation Guide**

The Argument Curriculum for 6th and 7th graders is implemented during year-long twice-weekly dedicated class sessions. The goals are two-fold. One is to have students actively engage in addressing the significant issues of their time, both contemporary social issues and enduring philosophical ones. Through engagement, their thinking about these issues becomes richer and more nuanced, and they come to appreciate the complexity surrounding them. The second goal is to develop the intellectual skills that equip students to engage in skilled debate on such issues. The premise underlying this curriculum is that dialogic argumentation with peers constitutes a promising pathway to developing the persuasive writing and speaking skills that are crucial in both academic and career contexts. Empirical evidence has shown that the curriculum yields measurable gains in all of these respects.

### Overview of the Curriculum Sequence

**Skill assessment**

Assessment of each student’s skill in dialogic argumentation occurs at the outset and at the end of each academic year thereafter. At each assessment, the student engages in an electronic debate with another classmate who holds an opposing view on an issue. (The assessment topic typically has been capital punishment.) Reassessment is based on the same pair arguing the same topic at the later time. Skill assessment focuses on the extent to which the student directly addresses each of the opponent’s claims, attempting to weaken it with a relevant counterargument. In addition, assessments include an argument evaluation task, an argument choice task (“Which is the better counterargument?”), a dialogic argument construction activity, and an argumentative essay, all on topics not part of the curriculum itself.

**Topic-focused dialogic debate**

The curriculum itself focuses on four topics that students engage over the course of the year, each over a sustained period of twice-weekly class sessions for 7-8 weeks. Sixth graders begin with topics close to their own experience and gradually move to social topics of broader scope that become the focus of the curriculum for seventh graders. Topics that have been used for each grade appear in the Supplementary Materials section.
Engagement with each topic occurs in a sequence of 3 kinds of activities:

I. THE PREGAME: Preparing to encounter our opponents

In these initial sessions, students meet in small groups who (based on an initial poll) share the same position on the topic. Their task is to explore, evaluate, and organize arguments to support their position, as well as to anticipate their opponents’ responses.

II. THE GAME: Electronic dialogs

In these sessions, students work with a same-side partner to engage in an electronically conducted dialog with a pair of students from the opposing side. They debate a new opposing pair at each session. The social collaboration with a partner in constructing responses to the opposition, as well as several other reflective exercises to be described, support metacognitive reflection on the dialogic interchange.

III. THE ENDGAME: Showdown prep, Showdown, and reflection

Students now begin two sessions of preparation for a final “Showdown” live debate between the opposing sides, with students taking turns in “Hotseat” interchange with a member of the opposing side, punctuated by team-called “Huddles” to debate strategy. The sequence ends with reflective activities that include evaluation of an Argument Map based on the showdown debate, with scoring of strong and weak moves, and a culminating individual position essay on the topic.

These activities are comparable for the different grade levels except for being conducted at a higher level with advancing grade. In particular, the idea that evidence is relevant to argument and essential in supporting and refuting claims is gradually introduced at the end of sixth grade and plays an increasingly important role thereafter. Seventh graders increasingly take charge of identifying and seeking evidence that will strengthen their arguments and counterarguments.
A schematic summary of basic skill objectives and associated activities appears next. It is followed by a detailed session-by-session implementation guide, differentiated by grade level, and finally by a Supplementary Materials section that includes the various curriculum aides used.

**Overview of Activities and Associated Cognitive Goals**

**GENERATING REASONS**
Goals: Reasons underlie opinions.
Different reasons -> same opinion

**ELABORATING REASONS**
Goal: Good reasons support opinions.

**SUPPORTING REASONS WITH EVIDENCE**
Goal: Evidence can strengthen reasons.

**EVALUATING REASONS**
Goal: Some reasons are better than others.

**DEVELOPING REASONS INTO AN ARGUMENT**
Goal: Reasons connect to one another and are building blocks of argument.

**EXAMINING AND EVALUATING OPPOSING-SIDE’S REASONS**
Goal: Opponents have reasons too.

**GENERATING COUNTERARGUMENTS TO OTHERS’ REASONS**
Goal: Opponents’ reasons can be countered.

**GENERATING REBUTTALS TO OTHERS COUNTERARGUMENTS**
Goal: Counters to reasons can be rebutted.

**CONTEMPLATING MIXED EVIDENCE**
Goal: Evidence can be used in the service of different claims.

**CONDUCTING AND REFLECTING ON TWO-SIDED ARGUMENTS**
Goal: Some arguments are stronger than others.
At this first session, the lead coach introduces the class and its purpose and undertakes to generate enthusiasm for its goals and process. Key points:

a. Is arguing good or bad? Arguing, done properly, is GOOD, not something undesirable to be avoided. It accomplishes something important.

b. Socrates claimed: Until you argue about it with OTHERS, you don’t really know what you think about something. Others introduce what you haven’t thought of. We thus need to think and talk about the topic both with those who AGREE with us and those who DISAGREE with us.

c. Argument is about REASONS. Opinions without reasons are worth nothing. We need to be sure WHY we claim what we do. We can only CONVINCE others with reasons. We also need reasons for DISAGREEING with what another person says.

d. Arguing well is a SKILL. You learn it best by thoughtful PRACTICE with others. That is what we are going to do in this class.

I. THE PREGAME: Preparing to encounter our opponents

Based on the opinions expressed in an initial poll on the topic, students are assigned to either a pro or con group for the topic. Until the final Showdown, these groups meet separately.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1: Generating, Sharing, &amp; Thinking About Reasons</td>
<td><strong>Materials needed:</strong> Large (5”x7”) white index cards; paper clips or staplers; copy of topic scenario for each table; homework sheets if used&lt;br&gt;&lt;br&gt;Pro and Con Coach assemble their pro and con groups in separate spaces. Each group divides into teams (A and B, or other names students choose), of 6-8 each, seated around a table, with the 3-4 at each end of table forming a smaller group for some work.</td>
</tr>
</tbody>
</table>
**Coach:** Introduce by reiterating (and continuing to emphasize frequently throughout) what we’re doing and why: “We want to convince the other side that our position on this issue is the better one and win our final Showdown. This will take some hard work and time to prepare and lots of practice of argument skills.”

“Our first task is to be sure we have the best reasons for our position. People can have different reasons for being for or against something. We need to get these reasons out on the table and decide what we think of them.”

A. (5 min) Silent activity. “Recall why you chose the position you did. What’s your most important reason for being in favor of this position? Write it clearly in large print on a card: ‘______ is the better position because _______.’ If you have time and a second reason, use a second card.”

**Coach:** Remind and monitor – only one reason per card.

B. (5 min) Small-group activity (3-4 students at either end of table).

“Pass your card to the person on your left. Read & think about the card you receive. If you can’t understand it, ask the writer to explain it. Now underneath the reason, REWRITE it using FEWER words.” Keep the main point but make it quicker and easier to read later.

C. (15 min) Small-group discussion. “Take turns presenting your ‘FEWER-WORDS’ VERSION OF YOUR NEIGHBOR’S REASON. One person begins, putting their card in the middle of the table and reading the circled portion to the group. Does the person who first wrote the reason agree this says it best? Does everyone else understand the reason and agree this is the best way to say it? If not, REWRITE until everyone agrees. CIRCLE the final version. Leave the card in the middle of the table.”

“A second person now puts on the table their ‘fewer-words’ version of their neighbor’s reason. Is this the SAME reason already in the middle or a different reason?

If it’s the same, fasten it to the first reason card, putting the card with the best way to say it on top. If it’s different, REWRITE until everyone agrees this is the best way to say it. Continue until all reason cards are on the table.”
During all group discussions, the Coach circulates to facilitate and keep groups on-task, offering mildly supportive comments, e.g., “That reason sounds good.” The Coach can suggest candidates for combination, and, if needed for clarity, can propose rewording: “Is there a better way to say this one?” or (if group can’t generate) “Would this be better?”

D. (10-15 min) Team discussion. The team COMBINES into one group.

Coach: “Our goal now is to put together the team’s reasons into one final set we’ll use against our opponents. We need to organize them, getting rid of any duplicates and grouping similar ones together, so we’ll have them ready to work for us.”

The team can proceed with this task unassisted if able; otherwise Coach provides this structure:

Coach: “1st group, put one of your reasons in the center of table. 2nd group, look carefully at it. Does your group have a similar reason? If it’s the same, put your card on top of theirs. If it’s similar but saying different things, put it next to the one it’s similar to. 1st group, make sure you agree.”

“2nd group, now put another of your cards out, that has a different reason. 1st group, does your group have a similar reason? If it’s the same, put your card on top of theirs. If it’s similar but saying different things, put it next to the one it’s similar to. 2nd group, make sure you agree.”

Coach waits to give the next instruction until preceding is finished.

“Now that all cards are in the middle, go over the whole set. Is each one a different reason? Put the best way to say it on top. Make changes if needed & fasten “same reason” cards together. These are your team’s FINAL REASONS.”

E. (5 min) Team discussion. Each team takes a straw VOTE on which is its strongest reason. Full-group (2 teams combined) discussion: Each team shares strongest reason with full group.
Coach asks “Are our reasons good enough to win the Showdown?” & concludes: “How good our reasons are we’ll work more on next time.”

F. (Optional) Homework. Each student takes 3 opinion poll sheets home. The assignment: Ask 3 people their position and reason for their position and record it to bring to the next class. *(The sheet is identical to the initial opinion poll students did for their own assignment to pro/con group; it states the issue and asks for a position and justification.)*

Coach: Collect & review, keeping separate, each team’s set of final reason cards. Staple duplicates so they don’t become detached and work only with top card. Note any that are so unclear or otherwise problematic that they need to be gone over quickly and revised with the team at beginning of next class. For all others, if possible further abbreviate circled reason to fewer words; use a highlighter to highlight the essential words. Highlight briefest possible expression of the reason.

<table>
<thead>
<tr>
<th>Session 2: Finalizing &amp; Evaluating Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials needed: More large white index cards and last session’s set of final Reason cards for each team</td>
</tr>
</tbody>
</table>

Students assemble in their 6-8 person teams.

A. (5 min) Silent activity. Coach distributes Team A’s reason cards to Team B and Team B’s reason cards to Team A, mentioning that s/he has reviewed them and highlighted the key words.

Coach: “Now you can see the reasons for our position that the other team came up with. See what you think of them.”

Teams silently circulate the cards among themselves until everyone has seen them all.

B. (10 min) Team discussion. Each team receives their OWN CARDS BACK and displays them in center of table.

Coach: “Think about the reasons the other team had – the ones you just looked over. Were there any your team missed?”

(If homework was done) Take out & share the sheets you collected for homework. Look at those from people who had the same-side opinion as ours. (Save any other-side opinions for later.) Are
there any new ones?”

*Coach:* “Now it’s time to **FINALIZE** your team’s set of reasons. Are there any you want to add? Remember you want to have the best possible set of reasons to use against your opponents. We want our reasons to hold up against their attacks.

If you want to **ADD** a reason, put it on a card. Be sure it’s not a reason you already have & write it in the clearest, shortest possible way. If everyone agrees, add the card to those on the table. This will be our **FINAL SET.** Go over it a final time & make any changes.”

A desirable goal is at least 6 reasons in final set.

<table>
<thead>
<tr>
<th>INCLUDE C ONLY FOR INITIAL 1-2 TOPIC CYCLES; THEN OMIT</th>
<th>Evaluating Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. (5 min) <em>Optional full-group discussion.</em> Students are asked how they know their reasons are good ones. (How did they choose their “best” reason last session?) This leads to a discussion of what makes a reason a good one and to the idea that reasons may be of different quality.</td>
<td></td>
</tr>
</tbody>
</table>

*Coach:* “**Are some reasons really better than other reasons? Or is any reason just as good as any other reason?**”

Coaches don’t try to dissuade those who subscribe to the all-equal view, but ask for ideas about what might make one reason better than another. Coach can conclude the discussion by summarizing a few possible criteria for a reason being a good one, e.g., maybe a good reason would be better convincing people who disagree than would a not-so-good reason. Or: A good reason might have good evidence to support it.

D. (10-15 min) *Small-group discussion.*

*Coach:* “Let’s agree which are our stronger reasons, the ones that will do the most work for us. Talk it over & agree WHY a reason belongs in a category before you put it there.”

Each small group takes a **DUPLICATE SET** of their team’s reason CARDS. Students are asked to SORT reason cards into 3 piles – BEST, OKAY, SO-SO (or students choose their own category names).

Three folded (“tent”) cards should be prepared with one of the labels displayed on it, to serve as markers for the three piles.

Coaches can be flexible as to when to transition from D to E, allowing students to move to E as soon as they seem ready.

Value of this activity depends on keeping the focus on “reasons for reasons,” i.e., on WHY a particular reason belongs in that category. For the first few times doing this activity, Coaches can suggest they focus on the top and bottom ends and use the middle category for ones they’re not sure of or maybe want to come back to, or can’t agree on.
E. (10-15 min) Team discussion. Small groups reassemble into their team. Each small group displays on the table center the reason cards in their BEST pile.

Coach: “Now you need to persuade the other half of your team that the reasons in your BEST pile really belong there. If they disagree, try to persuade your teammates with a REASON why the reason is a good one (“Reasons for Reasons”). Take turns doing this for each of your BEST reasons, until the whole team agrees which reasons are going to be in the team’s final set of BEST reasons. These are the ones that are going to do the work for us against our opponents.”

At Coach’s discretion, Middle- as well as Best-category Reason cards can be included in final set. Optimum total number is 4-6 cards in Best or Best/middle category.

F. (3 min) Full-group discussion. Coach solicits from each team what they have decided is their best reason. May repeat for 2nd-best reason.

G. (5 min) (If no time, postpone to beginning of next session.) Full-group discussion.

Coach: “So, how good are our reasons are at this point? Good enough to win?? (Elicit response.) But remember that while we’ve been doing this, the other side has been coming up with their reasons for having the opposite position on this issue. Soon you're going to hear their reasons! To win the Showdown, we’re going to have to pay attention to their reasons too. What do you think some of their reasons might be?” (If any other-side reasons were obtained as homework, these can now be used as a source.)

Coaches don’t formally encourage (but don’t discourage if it happens spontaneously) generating counterarguments to the other-side reasons that are volunteered. Students are encouraged to remember them for later: “They'll be very important.”

Coach may make concluding comment: "I wonder if we're right - that these ARE their reasons. We’ll find out soon."

Coach: Collect each team’s final set of Reason cards, separated into the 3 category piles, fastened and labeled, and keep them accessible on student tables for reference throughout Phases II & III.
II. THE GAME: Electronic dialogs

The next sessions are devoted to a series of electronic dialogs that a student and same-side partner conduct with a series of pairs from the opposing side.

Equipment: One computer per student pair, w/ appropriate software & connectivity. (Fallback in case of equipment lack or breakdown: Opposing pairs can pass a laptop or writing pad back and forth to conduct the dialog.) Coach prepares a roster pairing each pair to a different opposing pair for each session. Reason cards from Pregame sessions should be available for reference; blank Reflection sheets (see Supplementary Materials for samples).

A. Introduction to dialogs (1st session only)

Coach: “Now it's time to hear what your opponents have to say and start working to defeat them. Are you ready to confront them??” (Elicit some student reactions.)

Two points bear emphasis at this session (and thereafter as needed):

a) “Work TOGETHER to decide what to say (Two heads are better than one!)”
Give positive & negative examples of what working together means. It does not mean dividing up the work (e.g., you think what to say and I’ll type). It does mean talking to one another and working out any disagreement you have before you type.

b) “Think carefully about what your opponents have said & RESPOND to it directly; try to weaken their claim; don't just ignore it because you think your point is better.”

B. Dialogs (1st session & continuing).

Students sit with assigned same-side partner, connect to software and wait for the opposing pair assigned for that day to do same. One pair is assigned to initiate the dialog.

While a pair is waiting for the opposing pair to respond, Coach instructs that students should “Discuss with one another how you think the opponents are going to respond and what would be best to say in return.”
(Optional, if needed to help pair focus: Pair can complete a **Prediction Sheet**, recording what they predict opponent will say.)

C. Reflection Sheets (2nd session & thereafter)

These are introduced beginning with the 2nd dialog session, one each session per same-side pair. Distribute after dialogs are underway & reserve last 10 min of session to complete them.

*Coach:* **These sheets will help you think about & have a record of today’s work, to use in the Showdown.** (at initial distribution & repeated as necessary thereafter).

Reflection sheets are of two types alternated across sessions (see Supplementary Materials for samples). Focus of the “**Other**” sheet is: What is one of their main arguments and what was our response (counterargument)? Was there a better counterargument to use? Focus of the “**Own**” sheet is: What is one of our main arguments and what was their counterargument and our Comeback (rebuttal)? Was there a better Comeback we could have used?

At 2nd session distribute Other sheet, at 3rd session Own sheet, & alternate thereafter. If students are capable & finish before others, they can be given alternate sheet to also do.

At each session, pairs are told who new opponent pair will be & agenda is repeated.

*Coach:* **Collect & save reflection sheets for later use.**
### Showdown Preparation: 2 sessions

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1: Preparing to Counter Others’ Reasons</td>
<td>Materials needed: All completed “Other” Reflection sheets. Blank PINK (or other pastel color) “Other” Reflection sheets; paper-clips</td>
</tr>
<tr>
<td>Students reassemble in their original teams.</td>
<td></td>
</tr>
<tr>
<td>The goal of this session is for teams to produce a final set of “Other” Reflection sheets, for reference during the Showdown. By session end, teams should have one final (pink) “Other” sheet for each of the other side’s reasons. It should contain the team’s best Counter to that reason.</td>
<td></td>
</tr>
<tr>
<td>Coach: “We’ll want to know all the others’ arguments and have our best counterarguments to them at our fingertips during the Showdown. Getting them ready is our task for today.”</td>
<td></td>
</tr>
<tr>
<td>A. (10 min) Team activity. All of the “Other” Reflection sheets that have been produced are divided &amp; distributed, half to each team.</td>
<td></td>
</tr>
<tr>
<td>Coach: “Your task is to sort these into piles, with one pile for each different OTHER-SIDE reason. So read their reasons &amp; put all those that are the same reason in one pile.”</td>
<td></td>
</tr>
<tr>
<td>The team may further divide the sheets and break into small groups for this task, but then reassemble to integrate their piles, so the team produces only one pile for each Other-side reason.</td>
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</tr>
<tr>
<td>B. (5 min) Team activity. Once team is finished, Coach prompts them to review:</td>
<td></td>
</tr>
<tr>
<td>“Are you sure you have just one pile for each different reason? Double-check.”</td>
<td></td>
</tr>
</tbody>
</table>
## Finalizing Counters to Other-side Reasons

And then to consider possible additions:

*Coach:* “Are there any Other-side reasons you’ve heard in your dialogs (or from reasons you’ve heard from others outside class) that are missing?” An additional Reflection sheet can be created for any such reason.

---

C. (15 min) *Pair discussion* The Coach provides blank PINK REFLECTION SHEETS & instructs students to place one on top of each pile & paper-clip pile.

Teams assemble into PAIRS & each pair takes a share of the piles.

*Coach:* “Your task now is to examine each pile, one at a time, review our Counters to this reason that are written on the sheets, & decide on the single BEST COUNTER. Write a fewest-words version of the Other-side reason & its Best Counter on the FINAL (pink) Reflection sheet, so you’ll have it ready for the Showdown.”

---

D. (10 min) *Pair discussion.* *Coach:* “Exchange your piles, with pink sheets on top, with another pair. Review the other pair’s work. Have your teammates written on the pink sheet the best, strongest Counter, the one that will do the most damage to this reason? Is there a better Counter or a better way to say this one? If so, make suggestions to the other pair.”

Exchanges across pairs can be continued if time permits.

---

E. (5 min) *Team discussion.* The team reviews the full set of pink sheets & agrees on the final set, containing **Best possible counters** to other-side reasons, to be used in the Showdown.

---

F. (5 min) *Optional full-group discussion.* *Coach* solicits responses from entire group: “What’s their toughest reason for us to counter? How will we counter it?”

*Coach:* Separate each top pink sheet from pile and save each team’s set for Showdown.
### Session 2: Preparing to Rebut Others’ Counters to our Reasons (Comebacks)

#### Organizing Own-side Reasons

**Materials needed:** All completed “Own” Reflection sheets. Blank green (or other pastel color) “Own” Reflection sheets; paper-clips

The goal of this session is for teams to produce a final set of “Own” Reflection sheets. By session end, teams should have one final (green) “Own” sheet for each of the team’s own-side reasons. It should contain the Other side’s most likely counters & the team’s best Rebuttal to each.

*Coach:* “We’ll need to have one of these sheets for each of our reasons at our fingertips during the Showdown, so we know what to come back with when they try to attack our reasons. Getting them ready is our task for today.”

A. (7-10 min) **Team activity.** All of the “Own” Reflection sheets that have been produced are divided & distributed, half to each team.

*Coach:* “Sort these into piles, with one pile for each of our reasons (like the cards we made earlier).”

The team may further divide the sheets and break into small groups for this task, but then reassemble to integrate their piles, so the team produces only one pile for each Own-side reason.

B. (3 min) **Team activity.** Once team is finished, Coach prompts them to review.

*Coach:* “Are you sure you have just one pile for each different reason? Double-check.”

C. (10 min) **Pair discussion** The Coach provides blank GREEN REFLECTION SHEETS & instructs students to place one on top of each pile & paper-clip pile.

Teams assemble into PAIRS & each pair takes a share of the piles.

*Coach:* “Examine each pile, one at a time, review the Counters to our reason that are written on the sheets, & bring to the top of the pile the 1-3 sheets showing the toughest, most damaging Counters to our reason. There may be only one good
<table>
<thead>
<tr>
<th>Reasons</th>
<th>Counter; there could be 2 or 3. Write a FEWEST-WORDs version of each of these Counters on the green sheet.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finalizing Rebuttals</td>
<td><strong>D. (10 min) Pair discussion. Coach:</strong> “Now your final step. For each green sheet, look through the old sheets &amp; find our best COMEBACK (Rebuttal) to that Counter to our reason. Write it on the green sheet below the Counter, to have ready for the Showdown.”</td>
</tr>
<tr>
<td></td>
<td><strong>E. (10 min) Pair discussion. Coach:</strong> “Exchange your piles, with green sheets on top, with another pair. Review the other pair’s work. Have your teammates written on the green sheet the best, strongest Comeback to each Counter, the one that will best save our reason? Is there a better Comeback or a better way to say this one? If so, make suggestions to the other pair.”</td>
</tr>
<tr>
<td></td>
<td>Exchanges across pairs can be continued if time permits.</td>
</tr>
<tr>
<td></td>
<td><strong>F. (3-5 min) Team discussion. The team reviews the full set of green sheets &amp; agrees on the final set.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>G. (5 min) Optional full-group discussion. Coach solicits responses from entire group:</strong> “What’s their toughest counter for us to rebut? How will we do it?”</td>
</tr>
<tr>
<td></td>
<td><em>Coach: Separate green sheets from piles and save for team’s use in Showdown. Keep separate the sets of green sheets from different teams.</em></td>
</tr>
</tbody>
</table>
Showdown: 1 session

Pro & Con teams assemble together. The A & B teams within each toss a coin (or Coach assigns) which one will be in charge first. A coin toss determines whether Pro or Con team speaks first. The team not in charge observes and may pass notes to the team in charge but are otherwise silent. Coach reviews Showdown rules. (See Supplementary Materials.) Colored reflection sheets from previous sessions are distributed and the teams are offered an initial 5-10-min “huddle” to get organized and decide their strategy and a tentative order of speakers.

Debrief: 1 session

Students are presented an Argument Map of the showdown with points assigned for strong and weak moves. A central focus of the scoring criteria is use of counterargument (and rebuttal), with use of evidence (and avoidance of unwarranted assumptions) added in the 2nd year. A winning team is announced.

Final essay: 1 session or as a homework assignment

In a final individual essay, students may take either the pro or con position, regardless of the side they took during the activity.

In a Pre-write activity, students are instructed to “have an argument with yourself.” The student divides a sheet of paper in half lengthwise and begins by writing their own position and justification for it in the left column. In the right column they write “what another person who disagreed might say” and then in the left column what they might say in return. From 6-10 entries in each column should be completed.

Students are instructed to use the Pre-write activity as a resource in writing their final essay in conventional format.

The first time this assignment is given, the Coach may present a sample (see Supplementary Materials) as an illustration, playing both roles by moving from one chair to another. The sample sheet can be distributed as a guide. For subsequent topics, students can proceed directly to the Pre-write activity.
TEAM ASSIGNMENT

1. Each team (A & B) will get a turn for their members to gather at the “hot table” and serve in the “hot seat.” The moderator will indicate the half-way point when teams change.

“HOT-SEAT” ROLE

1. A team may choose among themselves who goes to the “hot seat,” except…

2. No team member may take a second turn in the hot seat until every member who wishes to has had a turn.

USE OF REFLECTION SHEETS

2. Students in the “hot seat” are not allowed to use to index cards or reflection sheets while debating their opponent.

3. The team members at the “hot table” are allowed to use and refer to their reflection sheets. These may also be used/referenced during a huddle.

RULES FOR THE HOT SEAT

4. Students will be allowed two (2) minutes in the “hot seat” to debate an opposing team member.

5. If a huddle is called, the clock stops on these two minutes until the debate resumes.

6. The student in the “hot seat” is not allowed to read from index cards or reflection sheets.

RULES FOR THE HUDDLE

7. A huddle may be called by anyone on either side of the debating team, including the student in the “hot seat.” Wait until a speaker has finished speaking before calling a huddle.

8. REMEMBER THAT YOU DO NOT LOSE POINTS FOR CALLING A HUDDLE AND TAKING TIME TO THINK ABOUT AN APPROPRIATE COUNTER.

9. When a huddle is called, the student in the “hot seat” will join their team at the table and are allowed to conference for one (1) minute.
Students review these guidelines before the Showdown:

<table>
<thead>
<tr>
<th>(DOs) YOUR TEAM WILL EARN POINTS IF YOU…</th>
<th>(DON’Ts) YOUR TEAM WILL LOSE POINTS IF YOU…</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Listen well to what your opponent says</td>
<td>× Ignore what your opponent says</td>
</tr>
<tr>
<td>✓ Address and counter what your opponent said</td>
<td>× Fail to respond to your opponent while there is still time on the clock; you will not be penalized if time runs out</td>
</tr>
<tr>
<td>✓ Take time to think about a suitable response before speaking. You do not gain points simply because you responded quickly.</td>
<td>× Raise your voice at your opponent or fail to give them a reasonable chance to respond</td>
</tr>
</tbody>
</table>
### SEVENTH GRADE Detailed Curriculum Sequence

#### I. THE PREGAME: Preparing to encounter our opponents

Based on the opinions expressed in an initial poll on the topic, students are assigned to either a pro or con group for the topic. Until the final Showdown, these groups meet separately.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session 1: Generating, Sharing, &amp; Thinking About Reasons</strong></td>
<td><strong>Materials needed:</strong> Large (5”x7”) white index cards; paper clips or staplers; copy of topic scenario for each table; homework sheets if used</td>
</tr>
</tbody>
</table>

Pro and Con Coaches assemble their pro and con groups in separate spaces. Each group divides into teams (A and B, or other names students choose), of 6-8 each, seated around a table, with the 3-4 at each end of table forming a smaller group for some work. For some work, pairs may be formed within the smaller groups. (All time indications are approximate and may need adjustment.)

*Coach:* Introduce by reiterating (and continuing to emphasize frequently throughout) what we're doing and why: “We want to convince the other side that our position on this issue is the better one and win our final Showdown. This will take some hard work and time to prepare and lots of practice of argument skills.”

“Our first task is to be sure we have the best reasons for our position. We need to get these reasons out on the table and decide what we think of them.”

A. (5 min) Silent activity. “Recall why you chose the position you did. What’s your most important reason for being in favor of this position? Write it clearly in large print on a card: ‘______ is the better position because ______.’ If you have time and a second reason, use
Interpreting a second card.”

Coach: Remind and monitor – only one reason per card.

B. (5 min) Small-group activity (3-4 students at either end of table).

Coach: “Pass your card to the person on your left. Read & think about the card you receive. If you can’t understand it, ask the writer to explain it. Now underneath the reason, REWRITE it using FEWER words.” Keep the main point but make it quicker and easier to read later.

C. (15 min) Small-group discussion. Coach: “Take turns presenting your ‘FEWER-WORDS’ VERSION OF YOUR NEIGHBOR’S REASON. One person begins, reading this SHORT VERSION to the group. Does the person who first wrote the reason agree this says it best? Does everyone else understand the reason and agree this is the best way to say it? If not, REWRITE until everyone agrees. CIRCLE the final version or write it on a new card. Put the card in the middle of the table.”

“The next person now reads their ‘fewer-words’ version of their neighbor’s reason. REWRITE until everyone understands it & agrees this is the best way to say it.

Now ASK: Is this the SAME reason already in the middle or a different reason?

If it’s the same, fasten it to the first reason card, putting the card with the best way to say it on top. If it’s different, REWRITE until everyone agrees this is the best way to say it.”

“Continue until all reason cards are on the table.”

During all group discussions, the Coach circulates to facilitate and keep groups on-task,
Organizing

offering mildly supportive comments, e.g., “That reason sounds good.” The Coach can suggest candidates for combination, and, if needed for clarity, can propose rewording: “Is there a better way to say this one?” or (if group can’t generate) “Would this be better?”

D. (10-15 min) Team discussion. The team COMBINES into one group.

*Coach:* “Our goal now is to put together the team’s reasons into one final set we’ll use against our opponents. We need to organize them, getting rid of any duplicates and grouping similar ones together, so we’ll have them ready to work for us.”

The team can proceed with this task unassisted if able; otherwise Coach provides this structure:

*Coach:* “1st group, put one of your reasons in the center of table. 2nd group, look carefully at it. Does your group have a similar reason? If it’s the same, put your card on top of theirs. If it’s similar but saying different things, put it next to the one it’s similar to. 1st group, make sure you agree.”

“2nd group, now put another of your cards out, that has a different reason. 1st group, does your group have a similar reason? If it’s the same, put your card on top of theirs. If it’s similar but saying different things, put it next to the one it’s similar to. 2nd group, make sure you agree.” Continue until all cards have been shared.

“Now that all cards are in the middle, DOUBLE CHECK. Is each one a different reason? Put the best way to say it on top. Make changes if needed & fasten “same reason” cards together with the best way to say it on top. These are your team’s FINAL REASONS.”

E. (5 min) Team discussion. Each team takes a straw VOTE on which is its strongest reason.
**Full-group (2 teams combined) discussion:** Each team shares strongest reason with full group.

*Coach asks “Are our reasons good enough to win the Showdown?” & concludes: “How good our reasons are we’ll work more on next time.”*

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**F. (Optional) Homework.** Each student takes 3 opinion poll sheets home. The assignment: Ask 3 people their position and reason for their position and record it to bring to the next class. *(The sheet is identical to the initial opinion poll students did for their own assignment to pro/con group; it states the issue and asks for a position and justification.)*

*Coach: Collect & review, keeping separate, each team’s set of final reason cards. Staple duplicates so they don’t become detached and work only with top card. Note any that are so unclear or otherwise problematic that they need to be gone over quickly and revised with team at beginning of next class. For all others, if possible further abbreviate circled reason to fewer words; use a highlighter to highlight the essential words. Highlight briefest possible expression of the reason.*

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<table>
<thead>
<tr>
<th>Session 2: Finalizing Reasons; Attaching Evidence</th>
<th><strong>Materials:</strong> More large white index cards; last session’s set of final Reason cards for each team; small (3”x3”) yellow post-its; small (3”x5”) yellow index cards; duplicate Evidence sets for each team (4 sets total)</th>
</tr>
</thead>
</table>

Students assemble in their 6-8 person teams.

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**A. (5 min) Silent activity.** Coach distributes Team A’s reason cards to Team B and Team B’s reason cards to Team A, mentioning s/he has reviewed them & highlighted the key words.

*Coach: “Now you can see the reasons for our position that the other team came up with. See what you think of them.”*

Teams silently circulate the cards among themselves until everyone has seen them all.

---

**B. (5 min) Team discussion.** Each team receives their OWN CARDS BACK and displays them in
Coach: “Think about the reasons the other team had – the ones you just looked over. Were there any your team missed? (If homework was done) Take out & share the sheets you collected for homework. Look at those from people who had the same-side opinion as ours. (Save any other-side opinions for later.) Are there any new ones?”

Coach: “Now it’s time to FINALIZE your team’s set of reasons. Are there any you want to add? Remember you want to have the best possible set of reasons to use against your opponents. We want our reasons to hold up against their attacks.

If you want to ADD a reason, put it on a card. Be sure it’s not a reason you already have & write it in the clearest, shortest possible way. If everyone agrees, add the card to the set on the table.” This will be our FINAL SET. Go over it a final time & make any changes.”

A desirable goal is at least 6 reasons in final set.

C. (2 min) Full-group discussion. Coach: “How do our reasons look for this topic? Are they strong? Are the opponents going to be able to counter them? Are we going to be able to rebut their counters? Today we’ll find out how strong they are by seeing what evidence there is to attach to them.”
**D. (3 min). Full-group discussion.** Coach: “This year we’re going to work on using EVIDENCE (of the sort we introduced last year) to strengthen our arguments.

(How) Will evidence make any of our reasons stronger? Will it make it harder for opponents to counter them?

To save the time of your having to search yourselves, we have answers to some of the factual questions you might have. A set of sheets with a QUESTION on each (and ANSWER inside) about our topic is here for your use.”

Coach reviews procedures for access to these.

*Evidence set consists of 8x11” sheets, each with a relevant question printed on one side and the sheet folded to conceal the answer printed inside.*

**E. (15 min) Pair activity.** Each team DIVIDES into PAIRS & divides the team’s set of REASON cards among pairs. The coach distributes an identical set of EVIDENCE (about 6 pieces) to each small group (2 sets for each team).

*Coach: “With your partner, look at the Reason card(s) your pair is responsible for and ask yourselves, ‘Could the answers to any of these Evidence questions help support this reason?’ If so, get the answer & use a YELLOW POST-IT to write a one-sentence summary of it. ATTACH the post-it to the Reason card. Do the same for each Reason card.”*

Coach: Have multiple evidence sets prepared, two sets per team (i.e., one per 2 pairs).

Depending on students’ capability, the following addition may be postponed until Topic 2.

Coach also notes: “While you’re doing this, new questions you’d like answers to may occur to you. If so, write the question on a YELLOW EVIDENCE CARD and turn it in today; we’ll try to get answers for you.”

For the next session, coaches find answers to these & a Q&A sheet for each is added to the Evidence set.
A reminder of this opportunity should be given at the beginning of each session from this point on (through each Dialog and Showdown Prep session).

F. (10 min) Small-group discussion. Coach: “Exchange the Reason card(s) you worked on with another pair. Taking turns, explain to the other pair which piece(s) of evidence, if any, helps support this Reason and HOW it does. If the other pair agrees, leave the post-it fastened to the Reason card it supports. If not, make corrections. If the reviewing pair sees opportunities to use evidence that the first pair missed, suggest and add them.”

If time, F. can be repeated with a different pair.

Coach emphasizes: “A Reason card may have MORE THAN ONE PIECE OF EVIDENCE attached to it. Also, one piece of Evidence may support MORE THAN ONE REASON; in this case you’ll need to attach another post-it of it to the other Reason card it supports.”

Coach: Collect, & keep separate by team, Reason cards with Evidence to return at beginning of next session.

Materials: Small (3”x3”) yellow post-its; small (3”x5”) yellow index cards; each small group’s share of Reason cards & Evidence from last session
Session 3: Attaching Evidence & Finalizing Reasons w/Evidence

A. (15 min) Pair activity. This activity repeats E & F from Session 2, with new pieces of evidence (about 6) added to the original set. Each team DIVIDES into PAIRS & divides REASON cards among pairs. (Pairs should take different Reason cards than those they had in Session 2.) The coach distributes an identical set of EVIDENCE (about 12 pieces total, 6 old & 6 new) to each small group (2 sets for each team).

*Coach:* “Look at the Reason card(s) your pair is responsible for and ask yourself, ‘Could the answers to any of the Evidence questions help support this reason?’ If so, get the answer & use a YELLOW POST-IT to write a one-sentence summary of it and ATTACH the post-it to the Reason card, along with any other Evidence post-its that are already there from last session. Do the same for each Reason card.”

Coach: Have multiple evidence sets prepared, two sets per team.

Depending on students’ capability, the following addition may be postponed until Topic 2.

Coach also notes: “While you’re doing this, new questions you’d like answers to may occur to you. If so, write the question on a YELLOW EVIDENCE CARD and turn it in today; we'll try to get answers for you.”

For the next session, coaches seek answers to these & the questions & answers are added to the Evidence set.

A reminder of this opportunity should be given at the beginning of each session from this point on (through each Dialog and Showdown Prep session).

B. (10 min) Small-group discussion. Coach: “Exchange the Reason card(s) you worked on with another pair. Explain which piece(s) of evidence, if any, helps support this Reason and HOW it does. If the other pair agrees, leave the post-it fastened to the Reason card it supports. If not, make corrections. If time, exchange with another pair.

Coach reminds: “A Reason card may have MORE THAN ONE PIECE OF EVIDENCE attached to
it. Also, one piece of Evidence may support MORE THAN ONE REASON.”

C. (10 min) Team discussion. Team displays for review its total set of Reason cards with Evidence post-its.

*Coach:* “Circulate your completed Reason cards around the table to make sure everyone has seen them all. This is the final set of Reasons with Evidence that you’re going to take into battle with your opponents. (Could an opponent challenge you, saying, “That’s not evidence for your reason.”) Look over everything carefully & make sure you’re satisfied.”

“When you’re finished, also look over the Evidence set. Is there any evidence you haven’t made use of? Is there any way that evidence can help you?”

D. (Optional, if time) (10 min). Team discussion. Teams exchange Reason cards & review one another’s work.

Teams also assemble any yellow index cards containing **NEW Evidence questions** & submit these to Coach.

Coach may if warranted impose a maximum on these and ask team to submit their most important 4. If team is generating many questions without difficulty, coach may also request that the team indicate on the back of the card why and how an answer will be useful to them: “What will the answer to this question show?”

Coach examines submitted questions and at this or the next session returns to the writers for clarification any questions that are not clear or precise enough to allow informative answers. For the next session, coaches secure answers & add the Q&A pair to the evidence set.

E. (5 min) Full-group discussion. *Coach:* “So, how good are you thinking our reasons are at this point? Good enough to win?? (Elicit response.) But remember that while we’ve been doing this, the other side has been coming up with their reasons for having the opposite
position on this issue. Soon you're going to hear their reasons! You know by now to win the Showdown, we’re going to have to pay attention to their reasons too. What do you think some of their reasons might be?” (If any other-side reasons were obtained as homework, these can now be used as a source.)

Coaches don't formally encourage (but don't discourage if it happens spontaneously) generating counterarguments to the other-side reasons that are volunteered. Students are encouraged to remember them for later: “They’ll be very important.”

Coach may make concluding comment: "I wonder if we're right - that these ARE their reasons. We’ll find out soon."

Coach: Collect each team’s final set of Reason cards, with Evidence post-its attached, & keep them accessible for reference throughout Phases II & III.
II. THE GAME: Electronic dialogs

The next sessions are devoted to a series of electronic dialogs that a student and same-side partner conduct with a series of pairs from the opposing side.

Materials: One computer per student pair, w/ appropriate software & connectivity. (Fallback in case of equipment lack or breakdown: Opposing pairs can pass a laptop or writing pad back and forth to conduct the dialog.) Coach prepares a roster pairing each pair to a different opposing pair for each session. Reason cards from Pregame sessions; duplicate Evidence sets (one per team) should be available for reference; blank Reflection sheets (see Supplementary Materials for samples).

A. Introduction to dialogs (1st session only)

Coach: “Now it’s time to hear what your opponents have to say and start working to defeat them. Are you ready to confront them??” (Elicit some student reactions.)

Two points bear emphasis at this session (and thereafter as needed):

   c) “Work TOGETHER to decide what to say (Two heads are better than one!)” Give positive & negative examples of what working together means. It does not mean dividing up the work (e.g., you think what to say and I’ll type). It does mean talking to one another and working out any disagreement you have before you type.

   d) “Think carefully about what your opponents have said & RESPOND to it directly; try to weaken their claim; don’t just ignore it because you think your point is better.”

B. Dialogs (1st session & continuing).

Students sit with assigned same-side partner, connect to software and wait for the opposing pair assigned for that day to do same. One pair is assigned to initiate the dialog.

Coach: “While you’re waiting for a response, you can discuss with one another how you think the opponents are going to respond and what
would be best to say in return. In other words, PLAN your strategy. You’ll also have a REFLECTION SHEET to work on while you’re waiting.

(Optional, if needed to help pair focus: Pair can also complete a Prediction Sheet, recording what they predict opponent will say.)

C. Reflection sheets

These are presented at each dialog session, one each session per same-side pair. Distribute once dialogs are well underway – about 10 min into session – & reserve last 10 min of session to complete them.

*Coach:* These sheets will help you think about & have a record of today’s work, to use in the Showdown. (at initial distribution & repeated as necessary thereafter).

Reflection sheets are of two types alternated across sessions (see Supplementary Materials for samples). Focus of the “Other” sheet is: What is one of their main arguments and what was our response (counterargument)? Was there a better counterargument to use? Focus of the “Own” sheet is: What is one of our main arguments and what was their counterargument and our Comeback (rebuttal)? Was there a better Comeback we could have used?

At 1st session distribute Other sheet, at 2nd session Own sheet, & alternate thereafter. If students are capable & finish before others, they can be given alternate sheet to also do.

Year 2 Reflection sheets contain space for Evidence Post-its (see Supplementary Materials).

*Coach:* “On your Reflection sheets, you’ll want to include your most important EVIDENCE, so it’s handy. Either rewrite a post-it to attach or move it from a Reason card. A Reflection sheet isn’t really finished until it has some evidence on it.”

“Also remember, if new questions you’d like answers to may occur to you. If so, write the question on a YELLOW EVIDENCE CARD and turn it in; we’ll try to get answers for you.”
For the next session, coaches seek answers to these & the questions & answers are added to the Evidence set.

At the next dialog session, pairs are told who new opponent pair will be & agenda is repeated. Coach: Collect & save reflection sheets for later use.
III. THE ENDOGAM: Showdown prep, Showdown, and Debrief

Showdown Preparation: 2 sessions

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1: Preparing to Counter Others’ Reasons</td>
<td>Materials needed: All completed “Other” Reflection sheets. Blank PINK (or other pastel color) “Other” Reflection sheets; paper-clips</td>
</tr>
</tbody>
</table>

Students reassemble in their original teams.

The goal of this session is for teams to produce a final set of “Other” Reflection sheets, for reference during the Showdown. By session end, teams should have one final (pink) “Other” sheet for each of the other side’s reasons. It should contain the team’s best Counter to that reason.

Coach: “We’ll want to know all the others’ arguments and have our best counterarguments to them at our fingertips during the Showdown. Getting them ready is our task for today.”

A. (10 min) Team activity. All of the “Other” Reflection sheets that have been produced are divided & distributed, half to each team.

Coach: “Your task is to sort these into piles, with one pile for each different OTHER-SIDE reason. So read their reasons & put all those that are the same reason in one pile.”

The team may further divide the sheets and break into small groups for this task, but then reassemble to integrate their piles, so the team produces only one pile for each Other-side reason.

B. (5 min) Team activity. Once team is finished, Coach prompts them to review: “Are you sure you have just one pile for each different reason? Double-check.”
<table>
<thead>
<tr>
<th>Finalizing Counters to Other-side Reasons</th>
<th>And then to consider possible additions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coach: “Are there any Other-side reasons you’ve heard in your dialogs (or from reasons you’ve heard from others outside class) that are missing?” An additional Reflection sheet can be created for any such reason.</td>
</tr>
</tbody>
</table>

C. (15 min) Pair discussion The Coach provides blank PINK SUMMARY REFLECTION SHEETS & instructs students to place one on top of each pile & paper-clip pile.

Teams assemble into PAIRS & each pair takes a share of the piles.

Coach: “Your task now is to examine each pile, one at a time, review our Counters to this reason that are written on the sheets, & decide on the single BEST COUNTER. Write a FEWEST-WORDS version of the Other-side reason & its Best Counter on the FINAL (pink) Reflection sheet, so you’ll have it ready for the Showdown.

Move any helpful yellow EVIDENCE post-its to the Final pink sheet.”

D. (10 min) Pair discussion. Coach: “Exchange your piles, with pink sheets on top, with another pair. Review the other pair’s work. Have your teammates written on the pink sheet the best, strongest COUNTER, the one that will do the most damage to this reason? Is there a better Counter or a better way to say this one? If so, make suggestions to the other pair.”

Exchanges across pairs can be continued as time permits.

E. (5 min) Team discussion. The team reviews the full set of pink sheets & agrees on the final set, containing an Other-side reason & its Best possible counter to other-side reasons, to be used in the Showdown.

F. (5 min) Optional full-group discussion. Coach solicits responses from entire group: “What’s their toughest reason for us to counter? How will we counter
Coach: “Separate each top pink sheet from pile and save for Showdown.

**Session 2: Preparing to Rebut Others’ Counters to our Reasons (Comeback S)**

**Organizing Own-side Reasons**

**Materials needed:** All completed “Own” Reflection sheets. Blank green (or other pastel color) “Own” Reflection sheets; paper-clips

The goal of this session is for teams to produce a final set of “Own” Reflection sheets, for reference during the Showdown. By session end, teams should have one final (green) “Own” sheet for each of the team’s own-side reasons. It should include the Other side’s most likely counters & the team’s best Rebuttal to each.

*Coach: “We’ll need to have one of these sheets for each of our reasons at our fingertips during the Showdown, so we know what to come back with when they try to attack our reasons. Getting them ready is our task for today.”*

A. (5-7 min) *Team activity.* All of the “Own” Reflection sheets that have been produced are divided & distributed, half to each team.

*Coach: “Your task is to sort these into piles, with one pile for each of our reasons (like the cards we made earlier).”*

The team may further divide the sheets and break into small groups for this task, but then reassemble to integrate their piles, so the team produces only one pile for each Own-side reason.

B. (2 min) *Team activity.* Once team is finished, Coach prompts them to review.

*Coach: “Are you sure you have just one pile for each different reason? Double-check.”*
### Organizing Counters to Own-side Reasons

C. (5-10 min) *Pair discussion* The Coach provides blank GREEN REFLECTION SHEETS & instructs students to place one on top of each pile & paper-clip pile. Teams assemble into PAIRS & each pair takes a share of the piles.

*Coach:* “Examine each pile, one at a time, review the Counters to our reason that are written on the sheets, & bring to the top of the pile the 1-3 sheets showing the toughest, most damaging Counters to our reason. There may be only one good Counter; there could be 2 or 3. Write a FEWEST-WORDS version of each of these Counters on the green sheet, to have ready for the Showdown.

Move any helpful yellow EVIDENCE post-its to the Final green sheet.”

### Finalizing Rebuttals

D. (10 min) *Pair discussion.* *Coach:* “Now your final step. For each green sheet, look through the old sheets & find our best COMEBACK (Rebuttal) to that Counter to our reason. Write it on the green sheet below the Counter, to have ready for the Showdown.”

E. (10 min) *Pair discussion.* *Coach:* “Exchange your piles, with green sheets on top, with another pair. Review the other pair’s work. Have your teammates written on the green sheet the best, strongest Comeback to each Counter, the one that will best save our reason? Is there a better Comeback or a better way to say this one? If so, make suggestions to the other pair.”

Exchanges across pairs can be continued as time permits.

F. (3-5 min) *Team discussion.* The team reviews the full set of green sheets & agrees on the final set.

G. (5 min) *Optional full-group discussion.* *Coach* solicits responses from entire
| **group:** “What’s their toughest counter for us to rebut? How will we do it?” |
| Coach: *Separate each top green sheet from pile and save for Showdown.* |
Showdown: 1 session

Pro & Con teams assemble together. The A & B teams within each toss a coin (or Coach assigns) which one will be in charge first. A coin toss determines whether Pro or Con team speaks first. The team not in charge observes and may pass notes to the team in charge but are otherwise silent. Coach reviews Showdown rules. (See Supplementary Materials.) Colored reflection sheets from previous sessions (copied for each team) are distributed and the teams are offered an initial 5-10-min “huddle” to get organized and decide their strategy and a tentative order of speakers.

Debrief: 1 session

Students are presented an Argument Map of the showdown with points assigned for strong and weak moves. A central focus of the scoring criteria is use of counterargument (and rebuttal), with use of evidence (and avoidance of unwarranted assumptions) added in the 2nd year. Year 1 students may be shown a video of part of the Showdown. A winning team is announced.

Final essay: 1 session or as a homework assignment

In a final individual essay, students may take either the pro or con position, regardless of the side they took during the activity.

In a Pre-write activity, students are instructed to “have an argument with yourself.” The student divides a sheet of paper in half lengthwise and begins by writing their own position and justification for it in the left column. In the right column they write “what another person who disagreed might say” and then in the left column what they might say in return. From 6-10 entries in each column should be completed.

Students are instructed to use the Pre-write activity as a resource in writing their final essay in conventional format.

The first time this assignment is given, the Coach may present a sample (see Supplementary Materials) as an illustration, playing both roles by moving from one chair to another. The sample
sheet can be distributed as a guide. For subsequent topics, students can proceed directly to the Pre-write activity.

**Supplementary Materials: Showdown rules**

**TEAM ASSIGNMENT**

10. Each team (A & B) will get a turn for their members to gather at the “hot table” and serve in the “hot seat.” The moderator will indicate the half-way point when teams change.

**“HOT-SEAT” ROLE**

2. A team may choose among themselves who goes to the “hot seat,” except...

2. No team member may take a second turn in the hot seat until every member who wishes to has had a turn.

**USE OF REFLECTION SHEETS**

11. Students in the “hot seat” are not allowed to use to index cards or reflection sheets while debating their opponent.

12. The team members at the “hot table” are allowed to use and refer to their reflection sheets. These may also be used/referenced during a huddle.

**RULES FOR THE HOT SEAT**

13. Students will be allowed two (2) minutes in the “hot seat” to debate an opposing team member.

14. If a huddle is called, the clock stops on these two minutes until the debate resumes.

15. The student in the “hot seat” is not allowed to read from index cards or reflection sheets.

**RULES FOR THE HUDDLE**

16. A huddle may be called by anyone on either side of the debating team, including the student in the “hot seat.” Wait until a speaker has finished speaking before calling a huddle.
17. REMEMBER THAT YOU DO NOT LOSE POINTS FOR CALLING A HUDDLE AND TAKING TIME TO THINK ABOUT AN APPROPRIATE COUNTER.

18. When a huddle is called, the student in the “hot seat” will join their team at the table and are allowed to conference for one (1) minute.

Students review these guidelines before the Showdown:

<table>
<thead>
<tr>
<th>(DOs) YOUR TEAM WILL EARN POINTS IF YOU...</th>
<th>(DON'Ts) YOUR TEAM WILL LOSE POINTS IF YOU...</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Listen well to what your opponent says</td>
<td>× Ignore what your opponent says</td>
</tr>
<tr>
<td>✓ Address and counter what your opponent said</td>
<td>× Fail to respond to your opponent while there is still time on the clock; you will not be penalized if time runs out</td>
</tr>
<tr>
<td>✓ Take time to think about a suitable response before speaking. You do not gain points simply because you responded quickly.</td>
<td>× Raise your voice at your opponent or fail to give them a reasonable chance to respond</td>
</tr>
</tbody>
</table>
Appendix B

In-Class Dialog Prediction Sheet – used in 6th grade only

Names: ___________________________     Date: ________________________

WHAT WILL THE OTHER SIDE SAY?

Prediction:
________________________________________________________________________
________________________________________________________________________
Correct (circle): Yes  No

Prediction:
________________________________________________________________________
________________________________________________________________________
Correct (circle): Yes  No

Prediction:
________________________________________________________________________
________________________________________________________________________
Correct (circle): Yes  No

Prediction:
________________________________________________________________________
________________________________________________________________________
<table>
<thead>
<tr>
<th>Correct (circle):</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prediction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct (circle):</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Prediction:</td>
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<tr>
<td>Correct (circle):</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Prediction:</td>
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<td></td>
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<tr>
<td>Correct (circle):</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Prediction:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Correct (circle):  Yes

In-Class Dialog Reflection Sheet- Own Side

Team Members ___________________________ Date __________________

Let’s think... Starting with our OWN argument

Summary of one of our MAIN arguments:

________________________________________

Attach supporting EVIDENCE here

Summary of their COUNTERARGUMENT against our argument:

________________________________________

Attach supporting EVIDENCE here

Summary of our COMEBACK:

________________________________________

Attach supporting EVIDENCE here
In-Class Dialog Reflection Sheet - Other Side

Team Members __________________________ Date ______________

Let's think... Starting with the OTHER SIDE’S argument

Summary of one of the OTHER side’s MAIN arguments:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Attach supporting EVIDENCE here

Summary of our COUNTERARGUMENT against their argument:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Attach supporting EVIDENCE here

Give a specific example of an improved, more effective counterargument:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Attach supporting EVIDENCE here
In-Class Dialog Reflection Sheet - Other Side

Their Argument

Our Counter 1

Our Counter 2
Sample Showdown Argument Map From Topic 3

Hypatia – Topic 3 Showdown Transcript – Should abortion be legal?

+1 point for direct counters, +.5 points for correct use of supporting evidence

0 points for clarifications, questions, or new ideas

-1 point for unsupported claims and unsubmitted evidence; -.5 points for misuse of evidence

Pair 1

c: we think we should stop abortion because abortion creates a lot of pain touch to the person who is getting it and to the child inside

p: but how would stopping abortion help it would just create more pain because more people would do it illegally and doctors wouldn’t be able to do it so it wouldn’t help the problem (+1, direct counter)

c: but also the teenagers use it as birth control so instead of using abortion as birth control there are other birth control they can use (-1, unsupported claim)

p: what do you mean I don’t get it

c: like some people use abortion as a birth control and they shouldn’t use abortion as a birth control because there are

p: but what if someone gets raped or something they should be allowed to abort its not their fault they got raped they can’t financially provide for the baby so they shouldn’t be financially responsible for it

HUDDLE

p: well you are not going to know when to use birth control because the rape can come at any time and you’re not just going to ask them can you please wear a condom or something like that if something like that happens
c: well there are other things that you can do instead of abortion like adoption or orphanages

p: but the baby can feel abandoned and you want it to feel loved and it sometimes won’t get adopted and there its life is at risk

c: well the baby wouldn’t know anything because it’s younger [+1, direct counter]

p: but when it gets older it’s going to find out you can’t hide it always [+1, direct counter]

c: orphanages take care of the kids who are adopted in the orphanages

p: not everybody gets adopted

pair 2

c: according to the evidence 667,000 to 677,000 kids get adopted every year which is actually pretty big numbers and so it’s sort of saying that a lot of kids do get adopted so it’s not that bad (+.5, evidence)

p: but if abortion is not there then the numbers are going to rise and it’s really not going to be good because there are going to be more and more people that are not going to be adopted and that doesn’t change how much people are going to adopt kids (+1, direct counter)

c: but abortions are killing people because technically they are murder and they are getting rid of something that would otherwise have been born and had a life and according to evidence they are killing more black Americans than some leading causes of death combined (+.5, evidence)

p: well people they want to provide people with a good life and when people usually have an abortion it’s because they have a reason to it’s not because they...well sometimes people don’t want to have the child because they can’t support them and everybody should have a good life

c: in cases when rape is not involved what is the reason of getting pregnant when you don’t want the kid because there are people out there who get pregnant and then they think “oh I can have an abortion” and it doesn’t matter
HUDDLE

p: first of all they are pregnant and stopping abortions are not going to stop people from getting abortions. They are going to get them illegally, and it’s terrible how they do it, they use 
sharp objects that are not safe at all. (+.5, evidence)

pair 3

c: more people would go to abstinence and it’s not necessarily true that as many people would 
still have abortions (-1, unsubmitted evidence; +1, direct counter)

p: that is true but just as they banned marijuana people still do marijuana and also when you 
get an illegal abortion it gives you diseases such as bleeding, anesthesia and a whole bunch of 
other symptoms (-.5, misuse of evidence)

c: that can happen with regular abortion as well (+1, direct counter, +.5, evidence)

p: but there is less of a chance because instruments are more likely to be clean when done by a 
professional rather than some random person (-1, unsubmitted evidence)

c: less people would have abortions if they were illegal

p: no they would do it more because there’s still a lot of people that still want abortion and if 
they cannot get it from being clean they would get it from a different source (+1, direct 
counter)

c: would people really try that hard just to get rid of a life

p: yes! Like the teens, 27% of all abortions are by teens who cannot support a baby, and if you 
really have a baby at a young age, would you really want to go home to your mom and say that 
instead of a life you just want to have an abortion (+.5, evidence, -1 unsupported claim)

c: you could just send-

HUDDLE
c: well they could put them in orphanages and like **85% of orphaned kids live a successful and happy life** (+.5, evidence)

p: no that’s not true, because she said there were 667,000 kids that get adopted, but there’s still **2.8 million kids that don’t get adopted** and stay in orphanages without homes and suffer a not so good life, it could be good but still they don’t have parents to go home to. [+.5, correct use of evidence]

pair 4

c: that’s an opinion that they don’t have a good life but they still have a life and it’s better than just dying and not having seen the life of Earth

p: when they get aborted they are not truly children yet they cannot feel pain and they can’t think yet by that argument i mean that **every baby that you could have but that you don’t is not seeing the light of the earth** (+1, direct counter)

c: but it’s still a body of a human even though it’s not developed **it still a human being**, it is going to be a human being so it’s better for that human being to have a life than just letting it die, that’s just mean (+1, direct counter)

p: **by that argument i mean that every baby you don’t have is like not letting it see the earth.**
So basically if you don’t have lots of kids then you’re not letting any of those babies have a chance to live (+1, direct counter)

c: but what do you mean by not having a lot of kids?

p: a baby that you abort, you don’t let see the light of the earth, then every baby that you do not even conceive is not seeing the life of the earth

**c: but every baby you give birth to see the life of the earth**, as they get older and older, and have a life (+1, direct counter)

p: i know, so whats the point?
c: that the kid have a life then just killing it

p: well, yeah but then every child that you don’t have is not growing up either.

pair 5

p: most of the abortions that happen, the babies are aborted earlier so they’re basically just a bunch of cells they are not really human yet and they cannot feel pain (+.5, evidence)

c: at the time of most abortions babies are three months and they do feel pain. They feel the pain and already have the form of a baby (+.5, evidence, -.5 misuse of evidence)

p: but that’s not what our evidence says, it says they don’t feel pain until the third- [+1, direct counter]

c: month

p: trimester

c: ours said the third month, one of the evidence questions asked when does a baby feel pain, and it said third month, it said the third month.

p: can someone get the evidence?

HUDDLE

c: ok, even if baby doesn’t feel pain, it’s still murder

p: well as they said before, it’s just basically a bunch of cells, technically not human yet

c: it’s still murdering it doesn’t get a chance to live and it also-

p: ok, according to our evidence the baby doesn’t feel pain until 7th month, and 61.3% of abortions take place before the first three weeks when it’s just a bunch of cells and not yet a baby (+.5, evidence)

c: i understand but either way it’s preventing the child from a chance to live
p: you are murdering a bunch of cells, it’s not

c: those cells are going to become a human [+1, direct counter]

p: ok

HUDDLE

p: if you did let a child live it would probably go to an orphanage first because the parent would have ditched it and the living conditions in orphanages aren’t that good. 2.8 million kids that are in orphanages don’t get adopted

pair 6

c: there are a lot of people who do get adopted since 1 out of 7 couples can’t conceive a child and then they adopt cuz they would want a child (+.5, evidence)

p: but the evidence says that only 600,000 children get adopted and there are 2.8 million children in orphanages which isn’t even a quarter of the children in orphanages

HUDDLE

c: there’s also foster care and there are a lot of other resources besides orphanages and there’s close adoption which can result in them having a family [+1, direct counter]

p: but in foster care the child gets moved around from family to family and that isn’t good for the child because they need something consistent in their life and also having a baby costs a whole lot more than getting an abortion (+1, direct counter)

c: but there can be financial resources which can help the people having the baby and

p: what do you mean by financial resources?

c: like people give money, like the health organization that will help with the pregnancy and the baby
p: what organizations?

c: i don’t know the names

p: except it’s still very expensive and it costs thousands of dollars where abortion only costs a couple of hundred (.5, evidence).

c: but with abortion the child could have had a successful life and you are killing a person because 85% of adopted kids are in very good condition (.5, correct use of evidence)

pair 7

p: well what about the other 15%?

c: well we can’t be perfect, people can’t rely on abortion, because you can’t rely on abortion and abortions don’t always work and you are stuck with this kid, the kid can go into an orphanages, like you said, and increase the population and not have a good life, but if the men use condoms then women can’t just oh, i can get an abortion because of my health care insurance

p: condoms don’t always work (.5, evidence, +1, direct counter)

c: that’s true but neither do abortions, and so these people would be stuck with babies

p: so they can, if occasionally abortion doesn’t work the child can go to an orphanages or their parents can take care of them, just because people can get an abortion it doesn’t mean that they should (+1, direct counter)

C: that’s true but people might be like, “oh i don’t need to use a condom, i can get reckless i can just use the abortion” but what if the abortion doesn’t work then the kid is screwed and they can be stuck with a bad life

HUDDLE
p: so abortion almost always works, they aren’t going to decide in the middle of the abortion “oh never mind i won’t do this”, and there isn’t any evidence that abortion doesn’t always work

c: there is! there is! i know there is evidence that there’s one in something, i can’t use the statistic because i don’t know it, but there is evidence that abortion doesn’t always work, and another thing is there are companies that will help pay with financial aid for your delivery of your baby so you don’t have to get an abortion (+.5, evidence)

pair 8

p: but it’s still going to be a lot of emotional pain for that woman to have a baby that’s not hers like if she was raped, it would be really emotionally going to hurt her if she has to have that baby

c: but she can give that baby up for adoption

p: but she still has to have it, going through 9 months of pregnancy knowing that that baby inside her, and she really probably doesn’t even want to have that memory, or go through the 9 months of remembering that every single day

HUDDLE

p: but 2% of the time abortion don’t work and it could be fatal, that’s 2% and there’s still 98% where it does work and it’s not fatal (-.5 misuse of evidence)

C: it’s not fatal, but why not just give the baby up for adoption,

p: even if you get some financial aid from planned parenthood, it costs so much more to deliver the baby than get an abortion, and there’s still a possibility that you have to go through it for 9 months

C: some people have health first and other help and it could almost be free to deliver the baby(-1, unsupported claim)
p: there really isn’t, in the evidence it says they can help you, it’s too much money to have all the money, and especially if it’s rape you won’t have the strength going around, tell your mom can i have some money, and you can’t go to every single organization they won’t help you that much

c: there’s this organization called “week[?audio unclear]” and they give you food so you can take care of the baby and yourself (-1, unsubmitted evidence)

p: ok, the person who is pregnant with the baby, if they don’t want to have the baby and even if they have the baby, they will have to pay for keeping themselves happy, even if you have that.
Solicit Opinion Homework Example From Topic 4

SOLICIT OPINIONS HOMEWORK

Name: __________________ House: __________________ Date: __________

Ask three people (not CSS students) to state their position on the topic of whether individuals ages 17 and under should be allowed to play M-rated video games that we are discussing in class, and have them state the reason(s) why they hold this position. Talk to the person yourself (phone conversations are okay) and YOU complete this form based on what the person tells you. Including people outside of the USA is very good if you can do it. To get things started, you can ask: “Should individuals under the age of 17 be allowed to play M-rated video games (where M stands for mature content, and may include graphic depictions of violence, human injury, non-explicit depictions of sexual behavior, and use of profanity)?”

Person’s Name:______________ Person’s relation to you:______________

Their Position: ______________________________

Their Reason:

Person’s Name:______________ Person’s relation to you:______________

Their Position: ______________________________

Their Reason:

Person’s Name:______________ Person’s relation to you:______________

Their Position: ______________________________

Their Reason:
Final Topic Essay Homework Prompt Example From Topic 2

Name: ___________________________________   House: ___________________

Final Topic Essay Assignment

PART ONE:

Respond to the following questions and attach this page to your essay that you complete for part two.

1) China is so overpopulated that they can longer take care of everyone. To try to solve this problem and improve everyone’s access to goods and services, China has begun a one-child policy. This means that each couple is allowed to have only one child. **Should China have a one-child policy?**

☐ Yes, it should ☐ No, it shouldn’t ☐ I’m not sure

**How sure are you about your opinion? (Circle one)**

Certain       Very Sure     Sure       So-so       Not very sure       Not sure at all

PART TWO:

Please write an essay where you make the fullest, best argument you can on the issue of whether China should have the one-child policy. You do not have to take the same position you did earlier. Attached to this assignment is the full set of evidence you had during this topic that you may use for this essay if you wish. **Please type this essay in a separate document and staple it to the back of this page.**
Argument With Self Essay Prewrite Activity

Turning Your Essay Pre-write Into An Excellent Persuasive Essay

During class you “argued with yourself” about our topic, _________________. You chose one position that you support and an opposing position you disagree with and then had an argument between the two sides. Below is an example of such an argument, on the topic of animal testing.

I: Animal testing is cruel and wrong—if we want to know whether medication works on humans we should test on humans. It’s not fair to subject animals to dangerous and painful testing that only benefits humans.

Me: The testing done on animals often benefits animals as well, especially for medication. When my cat got sick, he was given penicillin, a medication originally intended for humans but used on animals as well.

I: But most medications that are being tested are for diseases that are too extreme and the resulting medication too expensive to use on animals. Very few animals are treated for cancer, for example, but animals are still given cancer and then the medications are tested on them.

The purpose of the pre-write activity is to think through the reasons on both sides of the issue with the intention of incorporating those reasons, counterarguments and rebuttals into a final position essay. In the case of the above argument (assuming that I favor the “against” position in my essay), I have considered the argument that animal testing is not fair, considered how it might be fair in some cases, and refuted that idea. Thus, the following paragraph could appear in my essay:

It is not fair to subject animals to dangerous and painful testing procedures for medications that are designed to cure human diseases. The animals will not benefit from the testing being done on them, and so the testing should be done on humans who will. Proponents of animal testing argue that some medications could be used on animals, too. While this is true for very basic medications like penicillin, it is rare for animals to be treated for those diseases that are the most difficult to treat and require the most testing, like cancer.

Remember, the most persuasive essays are the ones that do not pretend that its own position is the only one that has any validity and ignore the opponent’s position. An essay that has the power to persuade respects and carefully considers the opposing position but refutes its major points.
Enjoy writing your essay. It’s a statement of your own most complete and best thinking.
1) Just as you did during your evaluation homework, **evaluate** each statement from the showdown, #1-10, that can be found on the back of this page. You do not have to assign a letter grade as you did in the homework. **Do not** simply say “this statement is good because it has evidence” or “this statement is bad because it does not counter well.” You will not receive full credit on this assignment for statements like these. Instead, tell us how you know the statement is a good counter, or **how/why** the evidence they use is weak or strong.

2) Reminder: This assignment counts for 25% of your total grade for Quarter 3 in argument class. No late assignments will be accepted.

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Please evaluate the following statements from the showdown:

1. CON: Well we can’t be perfect, people can’t rely on abortion, because you can’t rely on abortion and abortions don’t always work and you are stuck with this kid, the kid can go into an orphanages, like you said, and increase the population and not have a good life, but if the men use condoms then women can’t just oh, i can get an abortion because of my health care insurance

2. PRO: Condoms don’t always work

3. CON: That’s true, but neither do abortions, and so these people would be stuck with babies

4. PRO: So they can, if occasionally abortion doesn’t work the child can go to an orphanages or their parents can take care of them, just because people can get an abortion it doesn’t mean that they should

5. CON: That’s true but people might be like, “oh i don’t need to use a condom, i can get reckless i can just use the abortion” but what if the abortion doesn’t work then the kid is screwed and they can be stuck with a bad life

HUDDLE

6. PRO: So abortion almost always works, they aren’t going to decide in the middle of the abortion “oh never mind i won’t do this”, and there isn’t any evidence that abortion doesn’t always work

7. CON: There is! there is! i know there is evidence that there’s one in something, i can’t use the statistic because i don’t know it, but there is evidence that abortion doesn’t always work, and another thing is there are companies that will help pay with financial aid for your delivery of your baby so you don’t have to get an abortion

PAIR SWITCH

8. PRO: But it’s still going to be a lot of emotional pain for that woman to have a baby that’s not hers like if she was raped, it would be really emotionally going to hurt her if she has to have that baby

9. CON: but she can give that baby up for adoption

10. PRO: but she still has to have it, going through 9 months of pregnancy knowing that that baby inside her, and she really probably doesn’t even want to have that memory, or go through the 9 months of remember that every single day
# Appendix C: Topics

## YEAR 1

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## YEAR 2

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Appendix D: Evidence

Animal testing

Q. How humanely are animals treated in laboratories? A: There are laws in place to help ensure that distress and pain in animals is kept to a minimum, but the daily treatment of animals is not known because the testing places cannot be monitored at all times and records are not shared to protect the researchers.

Q: Has animal testing led to cures for any human diseases? A: Animal testing has led to treatments and cures for many human diseases. For example, research with dogs led to treatments for diabetes, research with armadillos led to leprosy vaccines, and research with monkeys have led to treatments for hepatitis, polio, and AIDS.

Q: What are other ways to find treatments for diseases that do not involve animals? A: Some advancement can be made with computer simulation, and when this is not possible human beings could be used instead of animals to test and find treatments for diseases.

Q: Why are animals useful in medical research? A. Animal organs often resemble human organs, so medicines can be expected to work in similar ways.

Q. Can medical testing of animals be of any benefit to animals? A. Many of the medications that are given to sick animals (such as pets and zoo animals) were discovered as a result of medical research for humans that involved those animals.

Q. Does testing of animals for medical research do the animals any harm? A: In some cases the procedures have been reported to be painless to the animals; in other cases the effects have been reported to be very serious, even leading to death.

Q: How many animals are involved in medical research each year in the USA? A. Regulations require that scientists use as few animals as possible. According to the U.S. Department of Agriculture (USDA), 1.2 million animals were used in 2005. This does not include rats and mice, which make up about 90% of research animals.

Q: What kinds of animals are involved in medical research? A. All kinds of animals, from flies to monkeys, are used in medical research. Cats are most often used in brain research, while dogs are most often used in heart and bone research. The choice of animal for a specific study depends on how close the animal’s organs and behaviors are to humans.

Q: Are treatments discovered through animal testing always effective when they are used with humans? A. Sometimes treatments that work for the animals involved in testing are not effective for humans. This may be because differences between the animal and humans are not
well understood, or because different amounts of a medicine cause different effects when they are used with humans.
Kidney Sales

Q. What is a kidney, and what does it do? A. Your kidneys are bean-shaped organs, each about the size of your fist. They are located near the middle of your back, just below the rib cage. The kidneys are sophisticated reprocessing machines. Every day, your kidneys process about 200 quarts of blood to sift out about 2 quarts of waste products and extra water. The waste and extra water become urine, which flows to your bladder through tubes called ureters. If your kidneys did not remove this waste, the waste would build up in the blood and damage your body. They retain and release water and salt; blood pressure is regulated by the kidneys. The kidneys also communicate with the bone marrow in a person’s body and by doing so red blood cells are produced, and kidneys control calcium and phosphorus intake and output.

Q. How much would a kidney cost? A. Kidneys can cost anywhere from $40,000-60,000. This is more money than the average American earns in one year.

Q. How many people need kidneys in the USA? A. In 2005, approximately 78,000 people in the USA were on the waiting list for a new kidney. It is likely that there are even more on the waiting list today.

Q. Do people die because they can't get a kidney in time? A. Yes, in 2005, 3000 people in the USA died while waiting for a kidney.

Q. What are the health risks to those who receive, and those who give a kidney? A. Those who give away a kidney may experience fatigue (tiredness) but 3 in every 10,000 of these people will die from kidney failure. Those who have received a new kidney must take medication for the rest of their lives to avoid complications.

Q. How do people in the USA currently get a kidney? A. Names of people who need a kidney are placed on a list and they wait for a kidney from someone who has agreed to donate theirs. Most donations come from people who agreed to be organ donors and have recently died. Or Americans can travel to a country where kidney sales are allowed, buy a kidney there, and have surgery there to put it in.

Q. Can research lessen the need for kidney transplants? A. Yes, researchers can develop better ways to prevent and treat kidney disease.

Q. Why would someone want to sell one of their kidneys? A. There are many reasons; one reason is a desperate need for money. In 2009, cases were reported of British victims of the credit crisis offering to sell their kidneys for £25,000 or more to help pay their debts. One person willing to sell a kidney was a 26-year-old who said he needed the money to pay debts.
after a business he started went bankrupt. Another was a 43-year-old taxi driver from Lancashire who needed money to pay off some of his mortgage and buy a new kitchen. Both men said they wanted to help those in need of kidney transplants at the same time as relieving their financial difficulties. A leading doctor said the phenomenon highlighted the need for a public discussion of the issue of selling organs.

Q. What percentages of people in the USA have agreed to donate their body organs? A. Currently, 28% of Americans choose to be organ donors. Attempts to increase the number of people who say they want to donate organs have largely failed. Recently, however, France has increased their donor level to 99% by assuming that everyone wants to donate their organs, except those who notify in writing that they don’t want to.

Q. Before you donate a kidney, do you get checked to make sure you are healthy and your kidney works well? A: Yes, a thorough medical evaluation is done before the surgery to ensure not only the kidney is healthy, but also that the patient is healthy enough to endure the surgery and live with only one kidney.

Q. Is it illegal to sell kidneys? A: Yes, it is illegal to sell kidneys in the United States.

Q. How many people who gave their kidneys away have problems now? A: It is very difficult to track down everyone who has donated a kidney. However, according to the LA Times, the University of Minnesota did a study on the survival of the 3,698 people who had donated a kidney at the University since 1963. They randomly selected 255 donors and performed a series of tests on them to determine if their kidneys were functioning properly. 11 experienced kidney failure and the rest were generally healthy.

Q. Will giving a kidney away affect you? A: Risks of kidney donation are the same as any other surgeries. These include the risk of anesthesia, bleeding, infection, and wound healing problems. The usual recovery time after the surgery is short, and donors can generally resume their normal home and working lives within 2 to 6 weeks. Kidney donation, most often, does not change your present lifestyle. It does not change the length of your life or increase your risk of getting kidney disease. It does not interfere with a woman's ability to have children. You will not need to change your diet or take additional medicines. The other kidney will grow and take over the work of both kidneys. Some long-term studies of kidney donors have shown that protein in the urine or high blood pressure may occur after giving a kidney. Other large studies of kidney donors have shown that there is no increased risk of kidney failure after donating a kidney. However, were you to have kidney failure, you wouldn’t have another healthy kidney to rely on.
Q. If you have insurance, does it pay for a kidney transplant and the kidney if you need it? A: Yes, insurance most always covers the cost of this operation.

Q. Has anyone been forced to give a kidney to another person? A: Despite rumors, there is no firm evidence force has occurred, which would be a violation of human rights; but someone might feel pressured to give one.

Q. How long do you have to replace a damaged kidney before you die? A: Kidneys can be damaged due to a number of different reasons and to varying degrees. Such differences affect the body differently, so the length of time that one can live with a damaged kidney is different in every case.

Q. Is there any research showing that more people will give their kidney if they get paid? A: No such research is available.

Q. If someone in your family is sick and needs a kidney, is it still considered illegal if you give it free of charge? A: No it is not illegal, and such donations occur.

Q. Is it legal to currently donate kidneys in the U.S.? A: Yes, it is legal to donate kidneys. It is not legal to receive money in exchange for your kidneys. In the US, each state regulates the process of organ donation, and the system is purely on a “consent” basis, where you must actively state that you wish to donate your kidney. Many states also encourage donations by allowing the consent to be noted on a person’s driver’s license.

Q. Do people who sell their kidneys currently benefit from the money they receive? A: Since the donor receiving the money has the freedom to spend or save the money however they choose, and there is no record of how this money gets spent, there is no way to measure whether the donor actually benefits from the money they receive, but the money they do receive is often substantial and has the potential to benefit them in various ways.

Q. Is it legal to sell kidneys in other countries? A: Currently, the only country to legalize selling kidneys is Iran. Some other countries are considering legalizing such sales.

Q. Do people who have good jobs and go to college sell their kidneys in other countries? A: No evidence is available that this has happened.

Q. Do people who give away kidneys have to go through a test that shows if their kidney is healthy before they sell them? A: Because kidney sales are illegal, we don’t know whether tests are done every time, however, generally tests are supposed to be done.
Q. What kinds of diseases can affect a kidney? Is there a cure for these diseases? A. There are over a hundred different diseases that can affect a kidney. Some have cures, and others don’t. The most common problems are kidney stones, kidney infections and kidney failure as a result of diabetes. Kidney stones and kidney infections can be treated, kidney failure is chronic and has no cure.
**China’s One Child Policy**

Q: Have any countries tried other methods to control their population?  A: Yes. Some methods have had some success, but all methods have problems. For example, educating people about the problems of overpopulation has not had much success.

Q: What has happened to the size of China’s population since it instituted its one child policy in 1979?  A: China estimates that it has three to four hundred million fewer people today than it would have if it never began the one child policy. Even though there are fewer people in China than there would be without the policy, China’s population is still growing and is expected to reach 1.5 billion people.

Q: How much did China’s population grow in the years before the one child policy?  A: From 1949 to 1979, China’s population increased from about 540 million to more than 800 million.

Q: How have living conditions changed since the one child policy began?  A: Since the one child policy began, many problems that come with overpopulation have become less severe. There have been fewer epidemics, and improvements in health services, education, housing, law enforcement, and the environment.

Q: What happens if a Chinese family has twins?  A: The one child policy is actually a “one birth” policy; parents are permitted to give birth one time even it results in multiple children. Parents who have twins are given the same benefits as parents of one child.

Q: How many children did most Chinese families have before the one child policy?  A: In the early 1970s, the average woman in China had five children. Today, the average woman has 1.6 children.

Q: What if a Chinese family does not agree with the one child policy?  A: A Chinese family would have to accept the penalties that come with having a second child. These include large fines, ranging from half to ten times a person’s annual salary.

Q: Do people in China agree with the one child policy and accept it?  A: One study found that 75% of the Chinese population supports the one child policy, but we cannot know for sure because people in China do not, in general, criticize government policies.

Q: What are the effects of growing up as an only child?  A: There are different opinions. Some only children like having all of their parent’s attention, but others say that they sometimes feel lonely.
Q: How do parents choose which child to give away if they can only have one? A: Because of the way the culture is structured, boys bring money into their family while girls join the family of their husband. As a result, some families choose to keep the boys in the family. This causes an imbalance in the demographics of China, where there are more males than females.

Q: Can parents adopt more children from an orphanage? A. Some provinces allow families where each parent is an only child to have two children. The families decide whether to have a child naturally, by adoption or other methods. However, that child doesn't get education and healthcare covered by the government.

Q: Has anyone been killed due to the one child policy after they have been born? There's no way to know for sure, but it is possible; it is not the official policy to kill a baby if it's born, but rather just a case of paying fines or giving up for adoption if they can't afford it.

Q: How frequently do people have twins/triplets/etc? A: The chance of having twins is 3%. The odds of conceiving "spontaneous" triplets (i.e., without the aid of fertility enhancements) is about 1 in 8,100. The odds of having spontaneous quadruplets are predicted to be 1 in 729,000.

Q: What are the dangers of abortion? A. Serious complications occur in less than 1 out of 100 early abortions, and 1 out of every 50 later abortions. Complications may include infection; sepsis (total body infection); anesthesia complications; damage to the internal organs or uterus; psychological/emotional trauma; and, in extreme cases, death.

Q. How much money does the average Chinese family or adult make? Is it enough to pay for an extra child with health care and education? A. In Shanghai, a large city in China, the annual disposable income for residents in 2009 reached 21,871 yuan (US$3,200) per person. There is not enough information available to decide on the amount needed to sustain an extra child.

Q. Did China ever try to take over another country's space for living purposes due to increase in population? A: China has had repeated wars with Japan, the last major one being in 1930, however it is unclear whether the motivation for that war was about land. However, in recent news, plans were announced to build a large dam in Burma (a country bordering China) by the Chinese government, which will flood an area the size of New York City and displace thousands of local Burmese people over the next two to three years. The electricity from the dam will help support the ever-growing infrastructure of China.

Q. How much of the world’s population lives in China? A: There are 6.8 billion people in the world, of which 1.3 billion live in China.

Q. What are the conditions of China’s orphanages? A: Historically, the conditions of China’s orphanages did not provide quality care. However, in recent years, orphanages have improved
considerably. Although conditions in all orphanages are unknown, China is putting a lot of money into the care of orphaned children.

Q. Which part of the world adopts children from China the most? A: Since 1995, China has been ranked first or second (to Russia) as the largest source of adopted children in the USA. Canada and England are among the other prominent countries adopting Chinese children.

Q. Is it possible to have another octo-mom? It’s possible, but rare.

Q. How much does healthcare cost in China? The annual cost of medical coverage is 50 yuan (US$7) per person. Of that, 20 yuan is paid in by the central government, 20 yuan by the provincial government and a contribution of 10 yuan is made by the patient. As of September 2007, around 80% of the rural population of China had signed up (about 685 million people) for the program.

Q. How much of the world's population lives in the US? A. US census bureau reports that 311 million people live in the US. That is, 5% of the world's population lives in the United States.

Q. What percent of the people in China don’t have jobs? Homes? A. The unemployment rate in China was last reported at 4.20 percent in March of 2010. By 2015, 23.4 percent will be homeless.

Q. After the one child policy was passed what percent of the population was unemployed? What percent wasn't? A. That information is unavailable as unemployment is not just a result of the one child policy and instead depends on a number of different factors, such as the economy and the number of jobs created.

Q. How long does it take for a government to create more jobs? A. That depends on how many jobs the government wants to create and the state of the country’s economy.

Q. Are citizens of China allowed to move to other countries if they have a passport? A. Yes, Chinese citizens are allowed to move to other countries.

Q. What is the carrying capacity of China? Has China exceeded it? A. Although individual numbers for China are not available, Earth is overpopulated by 2 billion over its carrying capacity given the lifestyles and available technology. According to the overpopulation index, as of 2009, China ranks as the 29th most overpopulated country in the world and has 717 million more people than it can sustain.
Q. Is birth control effective at reducing the population while keeping Chinese citizens happy? A. We don’t know whether Chinese citizens are happy about this; however, birth control is effective at reducing the population.

Q. How has this policy affected the ability of women to be an important part of China's demographics? A. Gender selection is still "extremely common" in China, where families will often abort or give up their child for adoption if it is a girl. This has had serious consequences on the demographics of China; in a recent analysis, it was found that more than 24 million Chinese men of marrying age could find themselves without spouses by 2020.

Q. Can China’s government force citizens to move out? A. No, it can’t.

Q. What happens when the second child is a boy and the first is a girl- who gets the education? A. The first born child gets government support, so if the girl is the eldest, then it is likely she will be the one who gets the education.

Q. What are the most overpopulated countries in the world? A. One source lists the following countries as the 10 most populated in the world: Singapore; Israel; Kuwait; Korea Republic; Jordan; United Arab Emirates; Japan; Lebanon; Iraq; Belgium.

Q. How many people die in a year? A. There are approximately 8.78 deaths per 1,000 people per year.
Abortion

Q. How many abortions are performed annually in USA? "from the years 2006-2007, 1,206,200 women reported having an abortion in the USA. According to the Alan Guttmacher Institute (AGI), there has been a downward trend in abortions performed annually since 1990. For example, in 1990, there were 1,608, 600 abortions, but in 2000, there were 1,312,990 abortions."

Q. How much does an abortion cost? 2001 study conducted by the Guttmacher Institute found that the average overall cost of an abortion in the United States was $468, a figure that has probably risen since then due to inflation, but that the average amount paid for an abortion (due to subsidies) is $372. The Guttmacher Institute has also found that 87% of private health care plans cover abortion services--but because a disproportionately high number of people have substandard plans, only 46% of American workers are covered by policies that include abortion. Second-trimester abortions tend to be more expensive; in one clinic, the surgical abortion cost was reported to be $405 if the pregnancy is in the first trimester, $495 at weeks 13-14, and $640 at weeks 15-16.

Q. What is the difference between adoption and an orphanage? A: Orphanage is the name to describe a residential institution devoted to the care of orphans, and orphans are minors (under the age of 18) who have experienced death or disappearance of, abandonment or desertion by, or separation or loss from, both of their parents. Orphanages provide an alternative to foster care or adoption by giving orphans a community-based setting in which they live and learn. Other alternative names are group home, children's home, rehabilitation center and youth treatment center. Adoption is a process whereby a person assumes the parenting for another who is not related and permanently transfers all rights and responsibilities from the original parent or parents.

Q. Are illegal abortions dangerous? In places and situations where abortions are illegal, women seeking to terminate their pregnancies sometimes resort to unsafe methods, particularly where and when access to legal abortion is being barred. The World Health Organization (WHO) defines an unsafe abortion as being "a procedure ... carried out by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both." This can include a person without medical training, a professional health provider operating in substandard conditions, or the woman herself. Unsafe abortion remains a public health concern today due to the higher incidence and severity of its associated complications, such as incomplete abortion, sepsis, hemorrhage, and damage to internal organs. WHO estimates that 19 million unsafe abortions occur around the world annually and that 68,000 of these result in the woman's death.

Q. Will the baby feel any pain? The attempt to answer this question is known as “The Fetal Pain
Debate.” Many researchers in the area of fetal development believe that a fetus is unlikely to feel pain until after the seventh month of pregnancy. Others disagree. A review by researchers from the University of California, San Francisco concluded that data from dozens of medical reports and studies indicate that fetuses are unlikely to feel pain until the third trimester of pregnancy. However, a number of medical critics have since disputed these conclusions. Because pain can involve sensory, emotional and cognitive factors, it may be "impossible to know" when painful experiences are perceived, even if it is known when certain neurological connections are established in the brain and body of the fetus that allow one to sense pain. One of the first steps in second-trimester and third-trimester abortions is to stop its heart to prevent fetal pain.

Q. If you have twins, can you only abort one? Yes, you can; selective reduction is a form of abortion, specifically, the practice of reducing the number of fetuses in a pregnancy where there is more than one fetus. With selective reduction, one or more fetuses are "selected" for termination. This procedure is often performed after a congenital defect has been identified. Prenatal testing may be used to determine which of the fetuses has a greater chance of chromosomal defect or genetic disease. The fetus(es) with the highest likelihood of abnormalities are then targeted in selective reduction.

Q. What are the risks to a woman’s health due to abortion? Serious complications occur in less than 1 out of 100 early abortions and 1 out of every 50 later abortions. Complications may include: bleeding; infection; sepsis (total body infection); anesthesia complications; damage to the cervix; scarring of the uterine lining; damage to internal organs or uterus, psychological/emotional trauma (similar to post-abortion syndrome) and, in extreme cases, death (due to similar cases of excessive bleeding and infection.)

Q. Can the government stop you from having an abortion? The government cannot forcibly stop anyone from an abortion, although laws have been passed to make abortion in certain states illegal, under certain circumstances. In 1973, the Supreme Court ruled in a landmark case (“Roe vs. Wade,”) the following set of laws, which still stands today: In the first trimester, the state cannot restrict a woman’s right to an abortion in any way. In the second trimester, the state may only regulate the abortion procedure "in ways that are reasonably related to maternal health". In the third trimester, the state can choose to restrict or proscribe abortion as it sees fit when the fetus is viable “except where it is necessary, in appropriate medical judgment, for the preservation of the life or health of the mother.”

Q. How many pregnant teens get an abortion annually? It may vary by year, but for example in 2005 according to Guttmacher Institute, 27% of all abortions in the U.S. were obtained by teens.

Q. Is there more than one way to get an abortion? There are two types of abortion, medical or surgical abortion procedures. However, medication based abortion procedures are not an
option during the second and third trimester. Taking medications that will end a pregnancy performs a medical abortion procedure. A surgical abortion procedure ends a pregnancy by emptying the uterus with special instruments.

Q. How much does it cost to deliver a baby? The typical cost of delivering a baby in a hospital in the US ranges from $500-$3,000 with insurance (depending on the insurance plan). The cost ranges from about **$9,000 to $25,000** without insurance, depending on the kind of delivery and whether there are complications.

Q. How many rape and or molestation cases are there every year? In 2009, 300 women ages 12 and older per 1000 women reported rape, the number for the past few years have been relatively stable. Numbers are even less available for molestation as children seldom report such abuse, however it is estimated that over three million children are victims of molestation, according to the US census.

Q. At what time during pregnancy is it dangerous to abort the baby? According to Guttmacher Institute, the risk of death associated with abortion increases with the length of pregnancy, from one death for every one million abortions at or before eight weeks to one per 29,000 at 16-20 weeks and one per 11,000 at 21 or more weeks.

Q. Out of all the abortions (evidence #1) how many problems occurred? A. Those number are unavailable as women aren't tracked when they have abortions to see how many have complications, however, generally speaking fewer than 0.3% of abortion patients experience a complication that requires hospitalization.

Q. Out of all women, how many people get pregnant and get an abortion? In 2009, 300 women ages 12 and older per 1000 women reported rape, data on how many of those got pregnant are unavailable. However, about 13,000 women each year have abortions because they have become pregnant as a result of rape or incest according to national abortion federation.

Q. Where do all the babies go? A. It is typical for the babies to be discarded.

Q. Does abortion kill more black Americans than other causes of death? A. Abortion kills more black Americans than the seven leading causes of death combined, according to data collected by the Centers for Disease Control and Prevention for 2005, the latest year for which the abortion numbers are available. Abortion killed at least 203,991 blacks in the 36 states and two cities (New York City and the District of Columbia) that reported abortions by race in 2005. During that same year, according to the CDC, a total of 198,385 blacks nationwide died from heart disease, cancer, strokes, accidents, diabetes, homicide, and chronic lower
respiratory diseases combined. These were the seven leading causes of death for black Americans that year.

Q. Do more people abort late or early? A. 61.3% of people abort at less than 9 weeks; 17.8% abort at 9-10 weeks; 9.6% at 11-12 weeks; 6.7% at 13-15 weeks; 3.5% at 16-20 weeks; 1.1% at more than 21 weeks.

Q. How many kids get adopted from orphanages and adoption centers each year? A. In 2007, there were 677,000 children adopted domestically (within the United States, not from outside the country) while 661,000 are in foster care (which is not permanent adoption).

Q. How many unwanted and abandoned children end up in orphanages and in foster care? A. The estimate for the number of orphans in the United States in 2007 is 2.8 million, some of which might be in foster care. For the same year, there were 661,000 children in foster care.

Q. What percent of the world thinks that abortions are inhumane? A: There is no way to know that, however, according to the World Health Organization currently, 62% of the world lives in the 55 countries where abortion is legal either without restriction for socioeconomic reason, or for reason of the abortion, while 25% live in the 54 countries where abortion is illegal or only permit abortion to save the mother.

Q. Do people have the choice of aborting their baby or does the hospital sometimes have the right to decide for them? In the US, pregnant women can make the choice of aborting their baby themselves (with or without the help of family members or father of the baby, etc). There are certain situations where the guardian or caretaker of the female in question will make the decision for her (such as if she is mentally incapable of making the decision on her own and has a legal guardian make decisions for her). If there are no emergency contacts for the mother and the decision of whether to abort must be made, it is reasonable to assume that a doctor may make a decision based on the health of the baby and/or mother as to what is best. Hospitals cannot forcefully abort a baby against the mother's will.

Q. How many people who are adopted go on to live happy lives? A. A study from 2009 concluded that the "vast majority" of adopted children are in good health and do well on measures of emotional and social well-being. 85% of children are reported to be either in "excellent" or "very good" physical and emotional health.

Q. Can a mother give birth without feeling pain? A pain-free birth is very rare unless a woman takes drugs or uses other pain reducing methods. However many women take drugs to reduce the pain. Although the women experience less pain, it is not always healthy for the child.
Regardless of methods used to reduce pain during labor, most women still feel the pain post labor.

Q. How many methods of birth control are out there/how much do they cost? A. The major birth control methods fall into a few broad categories. Barrier methods include the cervical cap, diaphragm and male and female condoms. Hormonal methods include the pill, the patch and the birth control shot. Implants like Implanon and the intra-uterine device (IUD) are long-term methods that can last for years. Tubal ligation for women and vasectomies for men are permanent forms of birth control. According to ARHP, the cost of birth control in 2009 ranges from 50 cents for a condom to $100 for implants like Implanon that last up to five years. The average birth control pill prescription costs between $20 to $35 per month. An IUD, which can be left in for up to five years, costs around $400.

Q. Can you get financial aid on getting an abortion and delivering a baby? A: Planned Parenthood centers can provide financial assistance to women wanting to get an abortion. Also health insurance may pay for an abortion and for delivering a baby. If a woman is pregnant and doesn’t have health insurance, depending on her income, she can have government help, who will provide her with Medicaid.

Q. What is the average number of teens that use birth control? A. Although exact numbers are unavailable, a study shows a decline since 2003 in the use of condoms. The use of birth control pills by teens also dropped off in the past few years, according to a Centers for Disease Control report.

Q. Does having an abortion go on your medical record? A. A medical record is not a permanent set of information that is carried with you from birth until death. If an individual has an abortion with a doctor, their records are kept private with this facility, and they are not transferred to a new place unless the patient makes the personal decision to transfer them.

Q. Does a fetus technically count as a part of you or a different person? A. It depends. Many consider the distinction of whether a fetus is a different person based on whether the fetus, if it was outside of the mother, would be able to live on its own.

Q. When a child gives birth, is it likely that the child would die? A. Pregnant teenagers face many of the same birth-related medical issues as women in their 20s and 30s. However, there are additional medical concerns for younger mothers, especially those under fifteen and those living in developing countries. For mothers between 15 and 19, age in itself is not a risk factor of death or health issues, but additional risks may be associated with socioeconomic factors.

Q. How many people in the world want children but can’t have one or become pregnant? A: It is estimated that one in seven couples have problems conceiving worldwide, but the ability to have a child despite these problems varies widely based on the availability and affordability of various medical techniques and procedures to allow a couple to conceive a child.
Q. What is the difference between murder and manslaughter? A: To murder is to kill intentionally and with premeditation. Manslaughter is the unjustifiable, inexcusable, and intentional killing of a human being without deliberation, premeditation, and malice.

Q. What are all the methods of illegal abortion? A. Some of the illegal abortion methods are attempting to break the amniotic sac inside the womb with a sharp object or wire (which may result in infection or injury to organs), pumping toxic mixtures into the body of the woman, which can cause the woman toxic shock and may lead to death, and inducing abortion without medical supervision using illegal drugs, that can result in a miscarriage or uterine contraction.

Q. What percent of the time does birth control work? A. The failure rate for birth control methods is as follows: condoms: 15-20 pregnancies per 100 women shots, pills patches: 2-8 pregnancies per 100 women; implant, IUD, vasectomy, sterilization: less than 1 per 100 women.

Q. Is there a limit to the amount of abortions someone can have? A. While there are physical and psychological risks that the mother is subject to each time she has an abortion, there is no limit on how many times a woman can have an abortion.
M-Rated Video Games

Q. Does playing action video games affect decision making speed? A. Playing action video games in adult players has been shown to increase decision making speed without decreasing the accuracy of decisions, suggesting that playing action video games increases reflexes. It is not known whether this increase is experienced by children as well.

Q. Are video games always properly rated by ESRB (a self-regulatory body created by computer and video game industry)? A. A 2006 study by Harvard School of Public Health found that many games are not labeled properly. 81% of randomly selected M-rated games included content not listed on the box.

Q. What is the average actual age of people who currently play popular M-rated video games? A. One estimate based on a self-report survey on a USA based online website reported that about 60% of those who played Call of Duty- Modern Warfare were between the ages of 15-17. Another 11% were below the age of 14; the rest were over the age of 17.

Q. What are the current court rulings on violent video games? A. So far, 11 states have supported a ban on “ultra-violent” video games, but all of the proposed bans have been struck down by the federal courts. After being challenged at the federal court level, the California law is now being reviewed by the Supreme Court justices. The games that would be subject to the California ban would include any game that depicts “killing, maiming, dismembering, or sexually assaulting of an image of a human being.”

Q. Have violent video games been shown to increase aggression in individuals who play them? A. Video games have been studied for links to addiction and aggression. One meta-study of adolescents showed that exposure to violent video games causes at least a temporary increase in aggression and that this exposure correlates with aggression in the real world.

Q. Are individual’s brains fully developed by the age of 17? A. Research on psychosocial and biological development suggests that humans’ brains continue development into their mid 20s, and that human beings continue developing socially and emotionally in various ways throughout their lifespan.

Q. Are violent video games protected by the constitution? A. Many have argued that video games are a form of art and expression, which is protected by the First Amendment of the Constitution.

Q. Can action video games help increase visual capabilities in real life? A. In a study of 18-25 year olds who played first-person shooter action video games, it was shown that experience
with these games can increase visuospatial attention in players. Visuospatial attention refers to the ability to focus attention on relevant visual stimuli.

Q. How many M-rated video games were sold in 2010 in the United States? A. 26% of all video games sold in 2010 were M-rated games.

Q. Does excessive playing of M-rated video games have a proven effect on children’s later lives? A. Research by psychologists indicates that aggressive video games lead children to become more aggressive in their thoughts, feelings and behaviors, and leads them to be less caring towards their peers. It is not known how long those effects last.

Q. Do M-rated games affect grades at school, for those under 17? A. There has been some inconclusive research about the effects of playing video games on grades; however research hasn’t been done on the effects of M-rated games on grades.

Q. Are M-rated video games addicting? A. Video games have been found to be addicting in general, although no specific research into the addiction rate of M-rated video games has been found, it can be assumed that M-rated video games may be addicting as well as non M-rated video games.

Q. Could kids under 17 buy M-rated games from stores? A. Officially, stores that are part of the ESRB retail council, do not allow selling M-rated games to minors. Among efforts to enforce policies and support the ESRB ratings, members are subject to mystery shop audits in which a consumer under the age of 17 will attempt to buy mature rated titles. Results recorded as late as November of 2006 showed that 65% of the time, M-rated sales policies were enforced.

Q. Have there been accidents due to playing video games? A. There have been reports of deaths from playing video games such as a man who died after playing Dance Dance Revolution. Investigators concluded that the man had a seizure from the flashing lights. A man playing a starcraft marathon died from heart failure and poor nutrition. Most recently, in October of 2010 a 22 year old mother killed her baby because it wouldn’t stop crying while she was playing FarmVille.

Q. What are some examples of M-rated video games? A. Devil May Cry, Brute Force, Castlevania, Manhunt, Halo, Resident Evil, Dead or Alive

Q. Is r-rated movie violence similar to the amount in m rated video games? A. Both the ratings recommend that the media deemed Mature or Restricted is for people ages 17 and older. These two ratings are given by two different organizations; the MPAA, or Motion Picture Association of America, rates movies, while the ESRB, or Entertainment Software Rating Board, rates video games; as a result, both use a different set of guidelines to determine their ratings. However, Mature-rated videogames are often subjected to harsher restrictions than R-rated
films, even though a close look at the ratings’ boundaries shows that movies could contain far more graphic content. Given the nudity aspect, mature-rated games may actually be less explicit than R-rated movies since the M rating doesn’t include nudity — that’s reserved for Adults Only titles, according to the ESRB.

Q. Do m-rated video games teach anyone anything? A. Video games have the potential to teach many skills to the developing child. Examples of these skills include problem-solving abilities, perseverance, pattern recognition, hypothesis testing, estimating skills, inductive reasoning, resource management, logistics, mapping, memory, quick thinking, and reasoned judgments (Sheff, 1994). Many of these skills are abstract and require higher-level thinking, which schools do not often teach children. By including a way to choose one's own level of difficulty in most, if not all, video games, one can tailor the degree of intricacy of the tasks in the game to meet one's own skills. After the tasks are completed at an easy level, a child will feel motivated to attempt a higher degree of difficulty. By slowly ramping up the difficulty, the child is able to accomplish goals and learn while increasing his or her self-efficacy.

Q. Do video games release built-up aggression? A. One might argue that video game usage has reduced real violence due to the ability to release aggression through games instead of in real life. "Violent crime, particularly among the young, has decreased dramatically since the early 1990s, while video games have steadily increased in popularity and use. For example, in 2005, there were 1,360,088 violent crimes reported in the USA compared with 1,423,677 the year before. "With millions of sales of violent games, the world should be seeing an epidemic of violence," he says, "Instead, violence has declined."

Q. Have there been any cases of killing or aggressiveness caused by M-rated video games? (Related to question# 14) What about M-Rated video games? A. In 2009, a 17 year old teen shoot both his parents after they took away his Halo 3 game. In 1999 a 14 year old boy in Kentucky went on a killing rampage at his high school. He learned how to shoot by playing video games.

Q. What percentage of M-rated games aren’t violent (and contain only profanity/nudity)? A. Such data is unavailable.

Q. Does having responsible parents affect the influence that video games can have over kids? A. Responsible parenting” is too subjective and broad a term to accurately define, since experts would disagree on what this means. In general there is evidence that children benefit from parents who set firm limits on their children's behavior. But we don't have specific evidence regarding the effects of parents' limits on video games.

Q. Are there any non-violent outlets for anger/aggression? If so, what are they? A. There are
several common methods of stress, anger, and aggression reduction. Exercise, meditation, and yoga have all been shown to not only lower the release of stress hormones in the body, but also trigger the release of natural endorphins, which can help the body feel more calm, relaxed, and energized.

Q. How much does an average American under 17 spend on M-rated video games each year? A. In 2009, Americans spent $25.3 billion on video games, and 26% of the total game sales were M-rated. It is not known how old those who bought these games were.

Q. Do the freedoms that are in the constitution and bill of rights protect kids as well as adults? A. The constitution and bill of rights applies to all citizens and non-citizens who live in the US, however certain laws specifically apply only to citizens, regardless of their age.

Q. How long does the average adult- and child- watch tv and play video games? A. In 2004 it was reported that among eighth graders boys average 23 hours a week and girls 12 hours of gameplay. College-age males are at the low end of the time-spent-playing scale averaging 16 hours a week while 11th grade girls spend the least amount of time playing video games at six hours a week. In 2009, a poll showed that the average American watches approximately 153 hours of TV every month at home and about 6 ½ hours of video online and on their mobile homes.

Q. Is aggression caused by m-rated video games long-term or short-term? A. Violent video games have both short term and long term effects. In the short term, the games cause an increase in aggressive thinking, affects and arousal. The long term effects are just hypothesis, as insufficient research has been done to test its effect’s. This is due to the fact that research on this topic is fairly new, so no longitudinal data is yet available.

Q. Do any careers require aggression? A. Although no careers require aggression to do the job well, aggressive people may enjoy careers such as lawyers, army personnel, and law enforcement officers.

Q. Are there any cases of addiction to video games that has led to health problems or obesity? A. A study published in 2011 says that kids who play video games frequently, have an increased risk for developing depression. Children also tend to have lower grades, less social skills, and may feel isolated from society. However, the children already suffering from mental health issues, noticed decreases in depression and anxiety symptoms, and with excessive video game playing, also lowered social skills. A study which observed about 872 children in Switzerland has reported that playing video games or watching television may double the risk of obesity.

Q. What kind of people show up in video games, police officers etc.? A. Any character imaginable has made their way into video games.
Q. What are the withdrawal effects of playing M rated games if there are any? A. Although withdrawal effects specifically for M-rated games are unknown, in general, game addiction withdrawal, display many symptoms characteristic of other addictions. These behaviors include failure to stop playing games, difficulties in work or school, telling lies to loved ones, decreased attention to personal hygiene, decreased attention to family and friends, and disturbances in the sleep cycle. Withdrawal symptoms can even include behaviors as severe as shaking.

Q. What percentage of murders are related to playing M rated video games? A. Those statistics are unavailable; however there have been some murders in which M-rated video games have been implicated as contributing causes such as in China, when a man killed another man for selling a virtual sword, a case where a boy killed his mother after playing Halo, and a boy who killed police officers after playing Grand Theft Auto. There have been other instances of murders as well.

Q. Do mentally ill kids kill their parents for reasons that are not important (i.e. games, toys, privileges)? A. There is no data available of the frequency of mentally ill children killing their parents, thus this question cannot be answered.

Q. Does the average kid (17 and under) play sports or stay active? A. According to a study done by Women’s Sport Foundation in 2008, across the entire United States, 69% of girls and 75% of boys between third and twelfth grades, played organized and team sports. However, the report states that the numbers are much lower for kids living in urban (city) environments. Also, the report states that kids often drop out of sports, and include a large gender gap with boys participating in more sports than girls. According to The Center For Kids FIRST in Sports, less than 20% of high school kids play sports, and by the age of 15 there’s a 70% attrition rate (meaning 70% of kids who played sports at a young age stop playing)
Appendix E: Coding Schemes

Dialogic Evidence Coding Scheme

Revised February 2012

For every utterance where evidence/claims are present, give 1 E code and 1 C code to help identify both the type and quality of the claim being made.

A. Identifying discrete statements

Separate each statement, which can often contain more than one type of instance of a claim, so that each codable line contains no more than one individual idea presented. As a result, some sentences (containing multiple ideas) will be separated; in other cases, adjacent sentences that serve as a repeat or redundant idea will be combined.

B. Identifying evidence statements

The rule for identifying statements to which the evidence codes below are to be applied is as follows: if the statement in question has an implicit answer to the question “how do you know,” and if it can be assumed the answer comes from an available source (rather than someone’s mind as in an opinion or an assumed fact), then the statement can be considered a reference to evidence. If the statement in question is simply a global claim about an idea, it is not considered evidence. Also, if the stance is taken that something is known, (“we know…”), this is considered evidence/claims; if the stance is taken where something should be the case, or something is simply thought/opinion, (“we think” / “this should happen”), no evidence code is given.

C. Applying evidence codes

1. Each statement identified as an evidence statement was assigned one of the following function evidence codes (E Code). These fall into 2 categories, Direct (E1-4) and Meta-Level (E5,6,&7).

1a. Direct Engagement in Argumentation with Evidence (the evidence itself serves in a direct, functional way):

E1 - To weaken opponent’s claims

E2 - To support or defend one’s own claims

E3 - To intentionally reason against own side with evidence/concede the opponent’s challenge

E4 - To intentionally support others’ side with evidence

1b. Using Evidence as a Way to Manage Argumentation at the Meta Level (metacognitive knowledge about evidence - lacking it, requesting more, or critiquing others for lacking it - serves as the function for supporting, or critiquing, claims)

E5 - To request evidence from opponent, either by criticizing on the grounds of ignoring relevant, available information/evidence, or by asking for justification. For all “how do you know?” type statements: code any statements that can be met by factual evidence as containing evidence; do not assign an evidence code if the “how do you know” involves a hypothetical & is more epistemological in nature about the opponent's knowledge state.

E6 - To criticize opponent for not giving evidence, or for having weak or incorrect evidence. “It's not a matter of opinion” “you don't know that for a fact” “that’s an unwarranted assumption”

E7 – Discussing or interpreting evidence in general (wording); not using as part of an argument

E8 – Distorting, or using correctly, evidence to come to a new conclusion or inference at the meta level
2. Evidence codes to help identify the accuracy/quality of evidence cited (as distinguished from its function)

**C1** - Accurate general knowledge, where evidence is widely available to support, and/or a dispute could be resolved by an appeal to empirical information (“Animals have different bodies than we do; Animals have DNA; disease is injected into animals; 10% die”)

**C2** – Unsupported argument claim that could be disputed by a reasonable person, often where qualitative descriptions of a quantity are given (“overpopulated” and “accurate” are examples). The dispute is hard to resolve because the claims depend on interpretation or opinion.

**C2Q** - Qualified unsupported argument claim- an unsupported claim that is qualified with an acknowledgment that this is not always the case (by using language such as “probably, maybe, could, may…”) NOTE: if the claim is factually resolvable but also contains this language, code as a C2.

**C3** – Distorted use of evidence from evidence list, where words or ideas were taken from the available evidence but were either intentionally or unintentionally distorted or misused

**C4** – Correct and accurate use of evidence from evidence list

**X** – Utterances that receive an E5, E6, or an E7 code are not given a corresponding C code. Also, in cases where an E2 is given where a meta-statement of defending a previous claim is made, code ‘x’ in place of a c code here since there is nothing of substance/correctness to code.
Evidence Essay Coding Scheme

Revised January 2012

For every essay, give 1S code to help identify the stance and type of essay. For every utterance where evidence/claims are present, give 1T code, and 1 A code to help identify the type and quality of claims being made. For every question asked, give 3 Q codes- 1 of each dimension- to identify the type of question asked, in addition to the total number of questions asked. For each utterance containing evidence from the list (see part V), record the number corresponding to each occurrence.

I. Codes to define the stance and type of the essay

S1- Essay is written in an explicitly pro or con stance (“I’m against cigarette sales.”)

S2- Essay is written in an explicitly pro or con stance, as in a Z1, with the additional presence of one or more of the following: proposed claims made by an opponent, counters to an opponent, or rebuttals to an imagined opponent’s reply to a claim. (“I'm against cig sales. Others might say it limits personal freedom, but health is more important than freedom.”)

S3– Essay is written in a neutral, non-committal, or undecided stance, where the pros and cons of each side of the topic are addressed, but no explicit statements about how those disagreements should be reconciled are made (“There are pros and cons to each side of this debate.”)

II. Evidence codes to help define the type of claim being made

The rule of thumb in applying the codes below is as follows: if the statement in question has an implicit answer to the question “how do you know,” and if it can be assumed the answer comes from an available source (rather than someone's mind as in an opinion or an assumed fact), then the statement can be considered a use of evidence. If the statement in question is simply a global claim about an idea,
it is not considered evidence. Also, if the stance is taken that something is known, (“we know...”) this is considered evidence/claims; if the stance is taken where something should be the case, or something is simply thought/opinion, (“we think” / “this should happen”), no evidence code is given.

Codes below have one of the following distinctions:

ALT= alternative claim
ALTEV= alternative claim with evidence to support it
CTREV= counterevidence against a claim
OWNEV= own evidence supporting own side
Resolved= contradiction between conflicting ev claims resolved.

Codes below are parallel to the following codes in the dialogic scheme:

E1 - To weaken opponent’s claims
E2 - To support or defend one’s own claims
E3 - To intentionally reason against own side with evidence
E4 - To intentionally support others' side with evidence

1. Using Evidence In the Process of Argumentation as Reasons

Each statement identified as an evidence statement was assigned one of the following function .

T1 To support one’s own claim with evidence “I think cigarette sales should be banned because they kill people” (parallels E2) [OWNEV]
T1a. To attempt to support one’s own claim with evidence that doesn’t address it. “I think cigarette sales should be banned because the number of smokers is going down.” [OWNEV-Attempted]

T2. To propose an evidence claim against one’s own position, or a claim that an opponent might offer to support their claim. “I think cigarette sales should be banned because they kill people, although usually they just get sick; they don’t die” “Someone might say cigarette sales shouldn’t be banned because many people aren’t harmed by them.” (parallels E3/E4) [OWNEV,CTREV, ALTEV]

T2a. To attempt to propose an evidence claim against one’s own position, or to attempt to propose an evidence claim that an opponent might offer to support their claim but that doesn’t in fact support the claim. “I think cigarette sales should be banned because they kill people, although people pay more now for cigarettes.” “Someone might say cigarette sales shouldn’t be banned because the number of smokers is increasing.” OWNEV, CTREV, ALTEV -Attempted

T3. To weaken an opponent’s potential claim and evidence with evidence against it. “Someone might say cigarette sales shouldn’t be banned because many people aren’t harmed by them, but [this is wrong because] many people are harmed by them.” ALTEV&CTREV

T3a. To attempt to weaken an opponent’s potential claim and evidence with evidence that doesn’t directly address it. “Someone might say cigarette sales shouldn’t be banned because many people aren’t harmed by them, but [this is wrong because] buying cigarettes wastes a lot of money” ALTEV&CTREV-Attempted

T4 To weaken an opponent’s potential claim and evidence with evidence against it, in a way that resolves the contradiction between conflicting evidence claims. “Someone might say cigarette sales shouldn’t be banned because many people aren’t harmed by them, but [this is wrong because] many more people are harmed than aren’t” ALTEV&CTREV-Resolved

T5 To suggest that a hypothetical opponent would need further evidence in order to fully support an imagined point, does not have enough evidence to support a claim, or to discuss or interpret evidence at the meta level
T6. Discussing or interpreting evidence in general; not using as part of an argument simply reflecting on the evidence

T7. Distorting, or using correctly, evidence to come to a new conclusion at the meta level (i.e. integrating 2 pieces of evidence to come to a new conclusion)

III. Evidence codes to help identify the accuracy/quality of claim being made

A1 - Accurate general knowledge, where evidence is widely available to support, and/or a dispute could be resolved by an appeal to empirical information, (i.e. would you find this information in Wikipedia? It’s about whether or not it could be disputed, regardless of whether it’s wrong or right.) A1 can be true or false, but the answer is proven as true or false by going to a source, and can be deemed as clearly true or false.

A2 – Unsupported argument claim that could be disputed by a reasonable person, often where qualitative descriptions of a quantity are given (i.e. if you can’t find it in Wikipedia. It can sound true or false, but two people can go back and forth about it all day long, without a clear resolution based on a source. There would be nowhere to really turn to settle it, can try to have an answer, but wouldn’t be able to get a source. If can answer a statement with “it’s not necessarily true”, that’s an A2)

A2Q - Qualified unsupported argument claim- an unsupported claim that is qualified with an acknowledgment that this is not always the case by using language such as “probably, maybe, could, may”, etc. NOTE: if the claim is factually resolvable but also contains this language, code as a C2.

A3 – Distorted use of evidence from evidence list, where words or ideas were taken from the available evidence but were either intentionally or unintentionally distorted or misused
A4 – Correct and accurate use of evidence from evidence list

X – Utterances that receive a T5, T6, T7 and T8 may not given a corresponding A code, if no evidence is used.

IV. Codes to determine what evidence was used from the list

In order to determine the type of evidence that was used for assessment both within-subjects (own-side, other-side) and between-subjects (anecdotal, empirical, conflicting), evidence from the administered list must be identified in each essay. Instructions: for each occurrence within each transcript of the below list of evidence where it is clear that the evidence was used (and giving benefit of the doubt if unclear), assign the transcript any of the following numbers, 1-9, that correspond to the evidence used. Do not include any cases where students make a general claim that loosely/vaguely resembles the presented evidence.

1) The nicotine in cigarettes causes fast-acting chemical reactions in your brain that has been shown to relieve anxiety and nervousness.
2) Each year, an estimated 443,000 people die prematurely from smoking or exposure to secondhand smoke, and another 8.6 million live with a serious illness caused by smoking.
3) George Harrison, a musician for the Beatles, was a smoker and died of lung cancer at the age of 58.
4) Approximately 46.6 million U.S. adults smoke cigarettes.
5) Thousands of farmers in the U.S. make their living from farming tobacco leaves, and the tobacco industry contributes an average of $16.5 billion to the economy in tax revenue each year.
6) Phillip Morris is one of several tobacco companies currently fighting for their rights in lawsuits to sell their product freely, as well as for the rights of their customers. They are defending "smokers' rights laws“ in court, claiming that smokers are currently discriminated against in being hired for jobs and are unable to smoke when and where they choose.
7) A woman named Helen Faith Reichert currently lives in NYC; she is 108 years old and has been smoking half a pack of cigarettes every day for over 80 years. Scientists believe there may be a genetic link to helping people live long, healthy lives.

8) As much as $96 billion a year is estimated lost in medical costs and lost worker productivity due to tobacco use.

9) An estimated 17 million Americans try to quit smoking each year, and about 8% of them succeed.
TABLES
Table 18. Distribution of evidence use from the sheet (#1-9) by group

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Control</th>
<th>Comparison</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>2</td>
<td>42%</td>
<td>45%</td>
<td>52%</td>
</tr>
<tr>
<td>3</td>
<td>0%</td>
<td>5%</td>
<td>6%</td>
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<tr>
<td>4</td>
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<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>5</td>
<td>11%</td>
<td>14%</td>
<td>8%</td>
</tr>
<tr>
<td>6</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>7</td>
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<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>8</td>
<td>8%</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td>9</td>
<td>34%</td>
<td>9%</td>
<td>13%</td>
</tr>
</tbody>
</table>
Table 19: Sample Essay- Experimental Group

<table>
<thead>
<tr>
<th>Sample Essay- Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarette sales shouldn't be sold in the US because of health reasons.</td>
</tr>
<tr>
<td>For example, 8.6 million americans live with a serious illness caused by smoking <em>(shared evidence used to support)</em></td>
</tr>
<tr>
<td>and 443,000 people die from smoking each year. <em>(shared evidence used to support)</em></td>
</tr>
<tr>
<td>This shows that smoking isn't good for anyone's health. <em>(shared evidence used to support)</em></td>
</tr>
<tr>
<td>Also, George Harrison died at age 58 died from lung cancer, which was caused by smoking. <em>(shared evidence used to support)</em></td>
</tr>
<tr>
<td>This shows that lung cancer, which is caused by smoking, can kill you at a young age. <em>(shared evidence used to support)</em></td>
</tr>
<tr>
<td>Overall, cigarettes shouldn't be sold because it isn't good for one's health. <em>(shared evidence used to support)</em></td>
</tr>
</tbody>
</table>
Table 20: Sample Essay- Control/Comparison Group

<table>
<thead>
<tr>
<th>Sample Essay- Control/Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't think that it should be banned because if it's banned then all the companies would go down <em>(shared evidence to support)</em></td>
</tr>
<tr>
<td>and they will waste materials. <em>(personal evidence to support)</em></td>
</tr>
<tr>
<td>the people would protest too and make a riot. <em>(personal evidence to support)</em></td>
</tr>
<tr>
<td>instead of advertising to buy cigarettes they could say smoke at your own risk or just don't encourage it but don't not encourage it.</td>
</tr>
<tr>
<td>they could make a law saying you can't smoke in certain places.</td>
</tr>
</tbody>
</table>