

Psychological Research and the Epistemological Approach to Argumentation

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Abstract: Much psychological research on argumentation focuses on persuasion and pragmatics. However, one strand investigates how average people understand the nature of knowledge and knowing, and how these epistemological orientations underlie skilled argumentation. The research reviewed addresses the question whether the normative emphasis of the philosophical epistemological approach to argumentation matches psychological findings. The empirical research reviewed concerns the relationship between personal epistemological understanding and three aspects of argument: argument construction, identification of informal reasoning fallacies, and orientation toward explanation or evidence. Findings suggest that people develop an epistemological approach toward argumentation in which beliefs about knowledge justification requirements are related with skilled argumentation.

Résumé: Plusieurs recherches en psychologie sur l'argumentation concentrent sur la persuasion et la pragmatique. Toutefois celles-ci cherchent à savoir comment des personnes moyennes comprennent la nature des connaissances, et comment cette compréhension épistémologique sous-tend les habiletés argumentatives. La recherche examinée tente de déterminer si l'accent normatif de l'approche de l'épistémologique correspond aux découvertes en psychologie. La recherche examinée s'intéresse au rapport entre la compréhension personnelle épistémologique et trois aspects d'un argument : sa construction, l'identification des sophismes non-formels, et l'orientation vers l'explication ou l'appui. Les résultats suggèrent qu'on développe une approche épistémologique envers l'argumentation dans laquelle les croyances sur les exigences de la justification des connaissances se relient avec les habiletés argumentatives.

Keywords: Argument, argumentation, conditional, denying the antecedent, fallacy, rebuttal, refutation

1. Introduction

Like the philosophical study of informal logic and formal logic, the psychological study of informal logic is newer and considered a niche somewhat out of the mainstream. Most psychological research on reasoning concerns formal reasoning problems (see Cherubini, Garnham, Oakhill, & Morley, 1998; Rips, 2001; Wason & Shapiro, 1971) or what hampers rational thought (see Evans, 1993; Tversky & Kahneman, 1974). It is only in recent years that a group of psychologists have started taking argument as the subject of their study (Galotti, 1989; Rips, 2001). Similar to the claims forwarded at the establishment of informal logic as a

philosophical field (Toulmin, 1958), these psychologists suggest that informal reasoning better describes how people actually think about most everyday problems than does formal deductive or inductive reasoning (Kuhn, 1992). Despite this reasonable claim, and psychology's alleged focus on actual human behavior, the everyday, complex reasoning of informal argument, is seen by many as too messy, too slippery, to be a sound subject of psychological study.

Psychologists engaged in the study of informal reasoning face a similar challenge to that which faces philosophers of informal logic: what is gained in scope by tackling the problem of everyday human reasoning comes at the cost of the precision of the study of formal logic. The normative,¹ epistemological approach to argumentation would seem to be an attempt to bring some precision into the field. Those leaning toward a consensus perspective might argue that attempting to formalize more precise rules of informal reasoning is, in effect, gaining precision at the expense of keeping sight of how people actually think. This would be the case assuming that people do not have an epistemological approach toward argumentation. Whether we do is an empirical question. When discussing epistemology and argument, philosophers might benefit from considering how everyday people conceive of knowledge and its nature and how this relates to argument.

In opening the cognition section of his work on epistemology and cognition, Alvin Goldman (1986, p. 181) writes that "the principal way that cognitive science can contribute to epistemology...is to identify basic belief-forming, or problem-solving, processes," and then to evaluate these processes according to epistemological dimensions, such as justification, according to standards, such as reliability and power. The field of research reported in this paper makes and goes beyond the requested contribution. The basic belief-forming process investigated is argumentation. But more, it includes personal epistemologies as an object of the investigation. Thus, not only are people's arguments evaluated as to how well they adhere to philosophical epistemological norms, but they are assessed according to how well they conform to their own, personal epistemological beliefs.

A central conflict between the consensus view and epistemological approach to argumentation concerns whether the aim of argument is to reach an acceptable agreement or to establish justified knowledge claims. Empirical support for the epistemological approach would show that people's argumentation conforms to epistemological standards of justification. The research reviewed in this paper has found that indeed people do argue according to epistemological standards, even though these standards underlying argumentation may or may not coincide with normative philosophical standards. Whereas the epistemological approach to argumentation maintains that standards of justification are normative and should produce justified beliefs (Goldman, 2003), people's standards of justification differ from one another and appear to be a function of psychological development. Nevertheless, they perceive their standards to be normative, and their argumentation

follows those standards (Weinstock, 2006). This indicates that people look for epistemological and argumentative standards. It would be important if philosophy could offer them philosophically justified standards.

Evidence from psychological research suggests that people in fact do have an epistemological approach, although not necessarily a conscious nor philosophically ideal one, when engaging in argument. As will be demonstrated in the remainder of the paper, people have operational theories of knowledge that underlie the quality of their argument. It is possible to specify the level of skill that people have in components of argument (e.g., counterargument, evidence evaluation, etc.) and explore the relationship between people's epistemological beliefs and their argument skills. They approach argumentation epistemologically with the goal of satisfying standards of justification. This is not to claim, however, that people argue consistently with respect to philosophical epistemological norms. To be sure, studies have also found that pragmatics (i.e., the goals, contexts, and social rules of communication) can override or moderate epistemological considerations. These qualifications will also be mentioned in the paper.

The next section will present a psychological perspective on personal epistemology. This will be followed by a review of studies that support the notion that an epistemological approach to argument is found in people's argumentative reasoning.

2. Psychology, epistemology, and argument

Studies have found individual differences in people's ability to construct and generate arguments (Baron, 1991; Kuhn, 1991; Kuhn, Weinstock, & Flaton, 1994; Means & Voss, 1996; Weinstock & Cronin, 2003), evaluate the overall quality of arguments (Stanovich, 1999), identify informal reasoning fallacies (Neuman, 2003; Weinstock, Neuman, & Tabak, 2004; Weinstock, Neuman, & Glassner, 2006), and construct evidence-based arguments or narrative explanations (Weinstock, in press). Various factors have been explored as possible explanations of these differences. Such factors include general cognitive ability, years of schooling, age, gender, knowledge of argumentative language forms, and general knowledge as well as epistemological beliefs.² Epistemological beliefs, general cognitive ability, and years of schooling have emerged as separate factors in the ability to predict argument skills.

Personal epistemological beliefs should not be confused with well-considered, articulated theories of knowledge. Rather, personal (Hofer & Pintrich, 2002) or folk (Kitchener, 2002) epistemology might be best comprehended as a loosely related set of beliefs concerning the nature of knowledge and knowing that come to the fore when a person is put in the position of evaluating or constructing knowledge. Personal epistemological theories are "theories in action" in the sense that we enact them when making knowledge judgments in our everyday lives (Kuhn & Weinstock, 2002). These are the epistemologies of lay people and not philosophers.

The set of beliefs concerns conceptions of the nature of knowledge and knowing. As defined by Hofer and Pintrich (1997), the nature of knowledge includes the dimensions of certainty and simplicity or complexity of knowledge. The nature of knowing includes the dimensions of the source and justification of knowledge. Although there is scant support for the claim that these dimensions are in fact distinct (Hofer, 2000; Karabenick & Moosa, 2005), they nevertheless provide a conceptual framework to describe the areas of interest to psychologists of epistemology. In brief, in the certainty dimension, people hold different beliefs about whether or not we can know with certainty. Simplicity/complexity involves beliefs about whether knowledge has a single objective account or admits multiple possible legitimate accounts. The source dimension concerns whether knowledge comes from authorities or requires construction. The justification of knowledge includes beliefs about whether knowledge is self-evident or requires justification and interpretation, and what the standards of justification are. Although all of these dimensions are implicated in argument, the dimension of justification most concerns how to build arguments to support knowledge claims. This dimension, along with certainty, has been the focus of much of the work that investigates the relationship between epistemology and argument (see Kuhn & Weinstock, 2002). In addition, they have broached another aspect of epistemological belief, how people reconcile discrepant knowledge claims.

People's epistemological beliefs tend to group around the following positions (Kuhn & Weinstock, 2002): (1) "absolutist"—the conception of knowledge and knowing as objective and absolute; (2) "multiplist"—regarding all knowledge as subjective and relative and, therefore, indeterminate because of multiple points of view; and (3) "evaluativist"—the acceptance and integration of subjective and objective aspects of knowledge that would permit a degree of evaluation and judgment of knowledge claims. These positions have been suggested to be developmental levels (Hofer & Pintrich, 1997; Kuhn & Weinstock, 2002). That is, people start as absolutists, become multiplist as they lose their belief in objective knowledge and become radically relativist, and then some move on to the more conceptually relative evaluativism. This progression has a logical, hierarchical order and would be invariant. These positions are considered developmental rather than variants of cognitive style because they have been found to have a relationship with educational level and, to a lesser degree, age (Chandler, Hallett, & Sokol, 2002; Hofer & Pintrich, 1997; King & Kitchener, 1994; Kuhn et al., 2000; Perry, 1970). However, the positions are commonly considered levels rather than hard stages, because people's various epistemological beliefs are often not all consistently in a single level (Hofer & Pintrich, 1997; Kuhn & Weinstock, 2002; Perry 1970; see King & Kitchener, 1994, for an argument that they are hard stages). It should be noted that although evaluativism is seen as the endpoint of the developmental trajectory, attainment of this level, and of the ideal epistemological approach to argument is hardly universal, with some studies showing that it is typical only of those with some graduate school education (King & Kitchener, 1994; Kuhn, 1991;

Weinstock & Cronin, 2003). However, other studies, using more age appropriate assessments, have found that by the end of high school a substantial number of students can be characterized as evaluativist (Chandler, Boyes, & Ball, 1990; Kuhn *et al.*, 2000; Weinstock *et al.*, 2006).

The claim that personal epistemological positions represent levels of development is best supported by findings from longitudinal studies limited to college (King, Kitchener, Davison, Parker, & Wood, 1983; Perry, 1970) or high school (Schommer *et al.*, 1997). In these studies, relationships were found between the number of years of schooling and epistemological level. These findings, as well as cross-sectional studies of students within institutions (college, see Ryan, 1984; and school-age, see Chandler *et al.*, 1990; Leadbeater & Kuhn, 1989) give evidence that education influences epistemological development beyond what might be attributed to an effect of selection. In studies involving people of various educational backgrounds of all ages, Kuhn and others (Kuhn, 1991; Kuhn *et al.*, 1994; Kuhn *et al.*, 2000; Leadbeater & Kuhn, 1989; Weinstock & Cronin, 2003) have demonstrated that education, and not age, appears to be responsible for developmental differences in epistemological understanding.

As their epistemologies develop, people will approach argument differently, and their argument skill will develop in relation to epistemological development (Weinstock, 2005). Moreover, although the highest level and associated argument performance would coincide with the normative view of the epistemological approach to argument, the developmental psychology perspective captures shifting standards and attempts to describe and explain their development. From this perspective, the epistemological approach to argument is grounded in human psychology and not simply a description of ideal argument.

The basic characteristics of these levels by dimension are shown in Table 1 (p. 108). As the dimension of justification of knowledge has particular relevance to argument, characteristics of this dimension are displayed in greater detail in Table 2 (p. 109). The most crucial transition in both tables occurs between the absolutist and multiplist levels. The absolutists either do not recognize discrepancies, or they believe that one claim must be right and the other wrong. Thus, justification, and the weighing of one argument against another, are not seen as necessary. As knowledge is objective and certain, the goal of argument is to support the correct claim without necessarily having to address other claims, as they are considered essentially illegitimate. The task of justification, such as it is, does not involve critical thinking or interpretation. It involves the collection and reporting of facts that will show which claim is right.

With the transition to multiplism, no claim is considered to be objectively correct; thus justification becomes the weighing of alternatives to determine which claim is best. However, as multiplists believe that claims are opinions—and, of course, everyone has a right to his or her own opinion—knowledge cannot be adjudicated. Nevertheless, that alternative interpretations exist is salient at this level. Consistent

	<i>Epistemological Position</i>		
<i>Dimensions</i>	Absolutist	Multiplist	Evaluativist
Certainty ^a	There is certain, objective truth. Temporary uncertainty due to missing or distorted information.	People disagree and have no recourse to an objective perspective. Thus, certainty impossible.	Evidence must be interpreted and may be incomplete. Confidence, but not certainty, possible with evaluation of evidence, knower's perspective, and expert assertions.
Simplicity ^b	Knowledge claims are transparent and self-evident.	Claims blurred by subjectivity, unencumbered by evidence.	Knowledge claims based on information that must be criticized and constructed into evidence for a claim.
Source ^c	Objective reality and authorities who have access to facts.	Idiosyncratic opinions.	Knowledge is outcome of process of construction by the knower or by experts.
Justification ^b	Gathering and reporting of facts. Determining which account is right and which is wrong.	Assertion of opinion, evidence is secondary as basis for claim.	Analysis of evidence, generation of possible theories, and coordination of evidence and theory.

Table 1. Epistemological dimensions by epistemological position

^a Based on Kuhn (1991), Leadbeater & Kuhn (1989) and Weinstock & Cronin (2003).

^b Based on Kuhn (1991) and Weinstock & Cronin (2003).

^c Based on King & Kitchener (1994).

<i>Aspects of Accounts</i>			
<i>Level</i>	Nature of Accounts	Why Accounts Differ	How Claims Justified
Absolutist	One account objectively correct, the other is distorted due to error or bias.	Accounts contradict each other; one right, the other wrong.	One claim accurately reports what happened. Judgment of which account is correct.
Multiplicist	Subjective and idiosyncratic; inevitably biased.	Overriding subjectivity makes accounts wholly incommensurate.	Assertion of opinion.
Evaluativist	Constructions from evidence based in subjective context with advancing sound knowledge claims as the aim.	Discrepancies attributed to different emphases on events and evidence, and different interpretations.	Evaluation of claim in relation to expert knowledge and evidence and contexts of evidence, events, and knowledge claimant.

Table 2. Aspects of the Dimension of Knowledge Justification by Epistemological Level

with one of Goldman's (2003) stated philosophical epistemological norms of argument, objections to one's claim are anticipated. Justification thus is necessary to assert one's point of view and address competing claims, although it might be considered unproductive. Although the basic understanding that knowledge must be interpreted and argued for against alternatives is there, there is little faith that that justification is worthwhile and that arguments and evidence for arguments can be evaluated for the better. In contrast, evaluativists believe that evidence and claims can be examined within a framework of alternative arguments and that, through this process, it might be determined which claim is the most justified. Argument thus requires addressing alternative claims.

3. Personal Epistemology and Argument

The section above makes the claim that with development people become more attuned to the epistemological norms of argument and more aligned with philosophical epistemological standards. People at higher levels of development recognize that the standards of sound argument include addressing alternative arguments and providing reasons for claims (Kuhn, 1991; Means & Voss, 1996; Walton, 1989). Thus, their personal epistemological beliefs about justification become increasingly close to a normative understanding.

Most of the research on epistemological development and beliefs has been performed by educational psychologists interested in personal epistemology in learning environments. However, one significant branch of the field has emphasized the relationship between personal epistemological belief and everyday reasoning. In focusing on this relationship, we hope to provide support for the description of the epistemological beliefs about knowledge justification by seeing how they are enacted in argument. Moreover, we believe that this demonstrates the importance of epistemological development in understanding everyday reasoning.

Three major areas of argument have been researched thus far in relationship with personal epistemological beliefs. One concerns complex argument construction. Another concerns the identification of informal reasoning fallacies. A third, tendencies toward evidence or explanation in argument, has received a lot of attention in the general cognitive psychology literature, but has only begun to be researched with reference to personal epistemological beliefs (Kuhn, 2001).

Complex argument construction

Deanna Kuhn was among the first psychologists to approach the subject of argument, and she pioneered the application of epistemological development to informal reasoning. In her book, *The Skills of Argument* (1991), she specifies skills of argument and investigates individual differences in these skills. The 180 participants in the study, ranging from ages 14-69, were asked to express their views on what causes ex-prisoners to return to crime, what causes children to fail

in school, and what causes unemployment. She analyzed their arguments for the skills of: theory generation, evidence generation in support of theories, generation of alternative theories, counterarguments, rebuttals, and evidence evaluation. For each skill, she found several levels of success or lack thereof. For instance, in evidence generation, she found examples of “genuine evidence,” “pseudoevidence,” and “nonevidence.” Genuine evidence consisted of covariation evidence (correspondence, covariation, and correlated change), counterfactual evidence, analogy, and discounting evidence, among other types. Pseudoevidence consists of a script that provides a story that illustrates the causal theory, but does not refer to actual evidence. Nonevidence consists of no evidence, evidence not connected to a theory, and the assertion of the effect as evidence for the cause. Similarly, a counterargument was coded as successful if it provided an argument against the necessity or sufficiency of one’s own theory or providing evidence against one’s own theory. It was considered partially successful if it consisted of alternative arguments that might supplant one’s own theory, but not necessarily discounting it. She also coded for unsuccessful counterarguments and non-attempts.

Significantly, the study was not concerned with rhetorical moves or the persuasive quality of the arguments. It focuses explicitly on personal epistemological standards of justification and soundness. That such standards have a psychological significance is supported by her findings that differences in argumentation skill were related to education level and were a measure of epistemological belief. The assumption that the participants’ skill in argumentation reflected their awareness of epistemological standards of justification was supported by their responses to a direct question about their epistemological belief about the possibility of certainty. Specifically, Kuhn asked the participants whether it would be possible for experts to know for sure what causes the particular social phenomenon that was the subject of the argument. She found those making predominantly evaluativist responses (i.e., that certainty was impossible, but that experts could make considered, credible knowledge claims) were the most skilled in the generation of alternative arguments and counterarguments. This finding, along with the fact that the ability to generate genuine evidence was associated with other distinct, diverse skills such as the ability to generate multiple-cause theories, counterarguments, and alternative arguments, led Kuhn to conclude that argument is governed by a personal epistemological understanding of argument.

The same participants were also given a juror reasoning task (Kuhn *et al.*, 1994). They read a synopsis of the witnesses’ testimony in a murder trial and were asked to choose a verdict and justify their choice. The aim was to see if a similar account of the argument skills would also appear in this task. It was found that those who offered evidence discounting alternative verdicts were also more likely to generate counterarguments to their own verdict choices and evaluate the evidence for plausibility with reference to their real-world knowledge. In this task, the participants were also asked about their own certainty about the verdict choice.

Similar to the social issues study described above (Kuhn, 1991), those who expressed absolute certainty were less skilled than those who said they were confident but could not be absolutely certain in discounting alternative verdicts and counterargument. The assessment of certainty was assumed to indicate an epistemological belief in the possibility of certainty rather than a simple assessment of how certain one was, given the evidence. That it was related with skill and verdict choice—those with absolutely certainty were more likely than others to choose one of the two verdicts of maximum guilt or innocence argued for by the lawyers than two other possible verdicts—indicates that the argumentative reasoning about the juror case was indeed reflective of epistemological beliefs.

A study of juror reasoning (Weinstock, 2005; Weinstock & Cronin, 2003) using a similar coding system but based on two cases for greater generalizability, examined the relationship between personal epistemological beliefs and juror reasoning more explicitly. The epistemological level of the participants was assessed by presenting them with two discrepant accounts of the obscure (actually unreal) Fifth Livian War. They were asked the following questions:

1. Can you summarize what the Fifth Livian War was about and what happened?
2. Are the two historians' accounts of the war different in any important ways?
Probe: In what ways are they different?
3. Could both of the historians' accounts of the Fifth Livian War be right?
Probes: If no—Why not? If yes—How can that be? Is one of the historian's accounts of the Fifth Livian War more true than the other?
4. Could anyone be certain of what happened in the Fifth Livian War?
Probe: If yes—How? If no—Why not?
5. Would another historian's account of the Fifth Livian War be different from the accounts of the historians you heard?
Probe: If yes—Why?

From the responses it was possible to designate participants reliably as absolutist, multiplist, and evaluativist. A complex scheme (see Kuhn & Weinstock, 2002) was used to code the responses according to a range of epistemological issues such as the source of knowledge, the source and reconciliability of discrepancies, the need and standards for justification, the possibility of multiple accounts, and the role of bias and perspective in addition to certainty. Although, the questions did not ask the participants to address these issues directly, they emerged in the course of their responses. One of the aims of the study was to see if epistemological level, when determined by assessing a broader range of epistemological dimensions than in previous studies, would be related with the argument skills in the participants' verdict justifications. Again, significant relationships were found between each of

the argument skills, which in this study included the ability to justify alternative verdicts as well as to discount alternative verdicts, offer counterarguments, and evaluate evidence. Moreover, except for evidence evaluation, the level of skill was found to be associated across cases, indicating that generalized skill was a more important factor in the construction of argument than the specific content of the cases. In addition, those with absolutist epistemologies were the least skilled in each of the argument components. Consistent with the expected important shift between absolutism and multiplism, less than half of the absolutists were skilled in each of the argument components, whereas a good deal more than half of the multiplists were skilled and displayed only slightly less skill and consistency between skills than the evaluativists. Of particular interest, the response to the certainty questions in the epistemological assessment (#4 above) was found to be correlated with certainty expressed about verdict choice (Weinstock, 2006). This justifies the assumption of the previously described juror study that personal certainty appears to be a function of personal epistemology and not particular content. Like in the other study, those most certain chose the maximum verdicts in both cases (Weinstock & Flaton, 2004). That is, those with less skill seem to be able to consider only a more narrow range of arguments for alternatives.

In sum, this group of studies on juror reasoning, more than the others described earlier, provides direct support for the claim that personal epistemological orientation underlies performance in argument. Apparently, the best reasoners have the most sophisticated understanding of the nature and standards of knowledge justification and use specific tools of argument consistent with those standards. The findings indicate that personal epistemological beliefs permeated how participants understood the epistemic nature of the information in the juror task.

Informal Reasoning Fallacies

A topic of research drawn directly from the field of informal logic is that of informal reasoning fallacies (Copi & Burgess-Jackson 1996; van Eemeren & Grootendorst, 1992; Walton, 1987). Yair Neuman (2003; Neuman & Weitzman, 2003) has pioneered the psychological study of informal reasoning fallacies by presenting people with argument scenarios that contained a fallacy in the reason given for the claim. He investigated the ability of adolescents to identify the *ad hominem*, *ad populum*, and *ad ignorantium* fallacies in scenarios that stated the goal of the argument as one of critical discussion (i.e., to establish a knowledge claim, Walton, 1987). For instance, the following is an example of a scenario in which the final line gives an *ad ignorantiam* argument as a reason in order to support that claim that aliens exist:

Deanna and Barbara are students.

During a lesson, they debate the question: "Do aliens exist?"

Each person's goal is to convince her debate partner that her position is correct.

Deanna argues that aliens exist.

Barbara argues that aliens do not exist.

During the debate Deanna argues: “No one has proved that aliens do not exist, therefore we can conclude that aliens exist.”

In a study based on Neuman’s original work, Weinstock *et al.* (2004) assessed adolescents’ awareness of norms of argument in addition to testing their ability to identify informal reasoning fallacies. That is, the participants received a paragraph that described the purpose of and the goals of the participants in critical discussion, and were then asked if it were legitimate to argue against the person, argue from popularity, or argue from ignorance in this context. The study found that a higher percentage of adolescents could recognize that there was a problem in an argument than could specifically identify the nature of the fallacy, and that the ability to specifically identify the fallacy could be predicted by their familiarity with the norm. In other words, the ability to critically evaluate an argument was related with knowledge of argumentation norms. Although it was assumed that the participants believed that the fallacies violated philosophical epistemological standards of justification, this was not directly assessed.

In a follow up study, Weinstock *et al.* (2006) specifically tested whether personal epistemological level could predict the ability to identify informal reasoning fallacies. They assessed epistemological level using a paper and pencil task (Kuhn *et al.*, 2000) that distilled the essence of the discrepant claims task described earlier in the juror study. Possibly as a result of the use of a simpler task, a much higher percentage of evaluativists was found among the adolescents than was found among adults in the juror study (Weinstock, 2005) and argument skills studies (Kuhn, 1991). They found that evaluativists were significantly more likely than multiplists or absolutists to identify the *ad ignorantiam* fallacy. They suggest that this fallacy differs from the *ad hominem* or *ad populum* fallacies in that it specifically concerns an epistemological norm concerning a standard of proof. It concerns whether a knowledge claim can be based on the lack of knowledge supporting the alternative claim. In contrast, the other fallacies invoke social norms about the propriety of attacking someone or conformity of belief. Like with the construction of argument, epistemological orientation appears to underlie the evaluation of argument for fallacies.

Explanation and Evidence in Argument

In presenting her model of knowing, Kuhn (2001) describes how, when people justify what they know, they often do not recognize that knowledge construction requires theoretical explanation and evidence. She and others (e.g., Brem & Rips, 2000) have pointed out that people tend to prefer explanation over evidence, very often at the expense of careful consideration of evidence and the sound construction of argument. In a different analysis of the juror data, Weinstock (in press) found that people were oriented toward narrative explanation or evidence-based argument

in the way they organized the evidence in their verdict justifications. That is, in response to why they chose a verdict, some people tended to weave the evidence into a story to illustrate their verdict choice. Others brought diverse evidence together to either corroborate or provide convergent support for claims. Those tending toward narrative explanation were more likely to have absolutist epistemologies than those tending toward evidence-based arguments. Not surprisingly, they also displayed less success in the argument skills.

Counterarguments to the Epistemological Approach

Psychological studies of argumentation also point to other factors that contribute to performance in argument, and that sometimes such factors apparently outweigh epistemological beliefs. For instance, in the epistemology and fallacy identification study (Weinstock *et al.*, 2006), people tended to invoke social norms rather than epistemological norms in judging *ad hominem* and *ad populum* fallacies. They could have argued that these reasons were fallacious because in failing to address the claims or provide evidence they did not meet epistemological standards for justification. However, the participants mostly tended to say things like, “It’s not nice to say bad things about people,” in response to *ad hominem* scenarios, or “Just because other people jump off of a building doesn’t mean you should, too,” in response to *ad populum* scenarios.

Neuman, Weinstock, and Glassner (2006) also conducted a study of the role of context in the identification of informal reasoning fallacies. Shifts in goals produced significantly different evaluations of the arguments. Somewhat surprisingly, when asked to respond to the problematic reasons given for claims, people were more likely to point out the specific fallaciousness when the goals of the argument were non-reasoned (e.g., as in a quarrel) than when the goals were those of reasoned critical discussion. Moreover, if people were assigned to take the role of the proponent in an argument, they were much less likely to address the fallaciousness of their argument (even probed to do so) than when they were assigned the role of the adversary.

In another study, Neuman, Glassner, and Weinstock (2004) found that the truth-value of the reason influenced the degree to which a participant considered an argument to be fallacious. For instance, given information that the arguer’s statement that the adversary had no sense of imagination was true, people were more likely to accept this reason as legitimate support for the claim that there must be aliens. Although there is evidence that personal epistemological understanding does contribute to the ability to identify informal reasoning fallacies, these two studies serve as cautionary reminders that in the real world of argument, the epistemological approach may not be the determining factor in reasoning and performance.

On the other hand, although some studies have found that situational factors, such as the availability of evidence, influence argument, other studies have produced

contrary findings that indicate the primary role of personal epistemology. For instance, Brem and Rips (2000) present the case that people by and large are familiar with the requirements of sound argument, but the reason they fail to comply with them (particularly in studies such as Kuhn, 1991) is that they do not have enough evidence to work with. In other words, with plentiful evidence, people will make sound arguments. Without evidence, they will make explanations, which are the next best thing given the lack of evidence to work with. However, in the juror study focusing on narrative explanation and evidence-based argument, Weinstock (in press) found that even with plentiful evidence some people, absolutists, tended consistently toward narrative explanation, and others, particularly evaluativists, tended toward evidence-based arguments. This finding would also explain the performance of eighth graders in a study on their sensitivity to argument contexts (Glassner, Weinstock, & Neuman (2005). As hypothesized, they showed sensitivity to the goals of arguments, ranking explanations as more appropriate when the goal of an argument was to give reasons why and evidence as more appropriate when the goal of the argument was to say how one knows. However, when having to produce an argument, these young adolescents more likely gave explanations no matter what the goal of the argument was even though they had just been given specific evidence that they might have used when asked to say how they know. Eighth graders are not likely evaluativists, so a different epistemological orientation, or perhaps other cognitive factors, may well have overridden the context as an underlying factor in determining their performance in argument production.

4. Conclusion

Empirical research has identified a number of factors that contribute to performance in argument. Debates in the small field of the psychology of argumentation concerning the importance of pragmatic or epistemological factors are alive and well. In the philosophical field of informal logic, the epistemological approach to argumentation is concerned with the goal of establishing knowledge claims, rather than that of achieving consensus or persuading. It has the task of justifying standards for good arguments on an epistemological basis. In the world of psychology, there is no doubt that pragmatics, rhetoric, persuasion, and consensus are key factors in the practice and evaluation of argumentation. However, psychological research also suggests that the epistemological approach to argumentation is not simply an ideal, normative analysis of the components of argument divorced from messy, contextual reality. Empirical research has found a developing concern with the establishment of knowledge claims and understanding that this establishment depends on sound argument and standards of justification. As people develop greater epistemological sophistication, their argument approaches the normative perspective of argument.

The developmental psychology perspective adds a rich layer to the epistemological approach to argumentation. In addition to supporting the connection between epistemological considerations and normative, sound argument, it shows how different, perhaps less than ideal epistemological beliefs also underlie specific forms of argument that appear less than ideal. Nevertheless the standards of justification and tools of these forms of argument might be perfectly appropriate to the particular personal epistemological beliefs. Moreover, perhaps the influence of pragmatics, rhetoric, persuasion, and consensus on argumentation is greater among those who have absolutist or multiplist epistemologies rather than those evaluativists who manage to keep an eye on philosophical epistemological standards. In fact, the relationship between epistemological beliefs and sensitivity to the context of argument is one of the next questions in our ongoing research.³

Notes

¹ As 'normative' has different meanings in psychology and philosophy, it should be noted that its use in this paper refers to the philosophical connotation of how things *ought* to be.

² The term 'belief' is used in this paper because of its clarity in common language. But it should be noted that in the field of psychological research on personal epistemology, there is much debate about what should follow the term 'epistemological', and each proposal has come to be associated with particular perspectives on questions of epistemological dimensions, methods, development, and the role of context (see Hofer, 2001; Hofer & Pintrich, 1997). In personal epistemology research, the term 'epistemological belief' has come to be associated with Schommer's (1990) perspective. However, the research reviewed in this paper comes from a different perspective on methodology and characterization of personal epistemology.

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