INTRODUCTION

Argumentation in Psychology: Background Comments

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Argumentation constitutes 1 of the most common forms of human interaction. Yet despite its pervasiveness, relatively little psychological research has been conducted on the topic. This article serves as an introduction to this research and has 2 goals. One is to discuss a number of general issues relevant to the study of argumentation, including the definition, goals and functions, structure, evaluation of arguments and argumentation, and the relation of narrativity and argumentation. The 2nd goal is to describe some examples of the existing psychological research on argumentation, with emphasis on articles in this special issue. Topics include argumentation by children, argumentation skill, writing argumentative text, argumentation and case-based change, argumentation and critical thinking, and argumentation and narrativity in a legal context.

Argumentation constitutes one of the most common forms of human interaction. Yet despite its pervasiveness, relatively little psychological research has been conducted on the topic. This special issue of *Discourse Processes* addresses the topic of argumentation, with a number of articles illustrating how individuals employ argumentation in various contexts. This article serves as an introduction to these contributions and has two goals. One is to discuss a number of general issues relevant to the study of argumentation, and the other is to describe some examples of psychological research on argumentation, with emphasis on articles in this special issue.

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ISSUES OF ARGUMENTATION

What Is Argumentation?

Corbett (1986), in discussing the history of argumentation, noted that the nature of argumentation has been essentially constant over the centuries. Person A states an assertion and if it is not self-evident, he or she may provide support for it. Or, Person B may ask Person A to support it. After A provides the support, B may challenge A's argument by questioning the accuracy or acceptability of the support or by questioning whether the stated support really is supportive. Person B also may offer a counterargument and Person A may try to refute it. Other exchanges may occur that lead to an impasse or to a partial or full resolution, such as a compromise or a win–loss outcome. Scenarios similar to this occur in many situations, such as children arguing over a toy, family disagreements, political conflicts, classroom encounters, debates, board rooms, courtrooms, committee meetings, and controversies in professional literature. Indeed, the ubiquity of argumentation suggests that we are dealing with a type of discourse that not only permeates human thinking, but is fundamental to it.

The preceding account provides a definition of argumentation by example. More formal definitions have, of course, been stated. In one volume on argumentation theory, van Eemeren, Grootendorst, and Snoeck Henkemans (1996) presented the following: "Argumentation is a verbal and social activity of reason aimed at increasing (or decreasing) the acceptability of a controversial standpoint for the listener or reader, by putting forward a constellation of propositions intended to justify (or refute) the standpoint before a 'rational judge' " (p. 5). This definition has the problem of explicating the nature of a "rational judge."

From a somewhat different perspective, Zarefsky (1995) stated that a root concept for argumentation is "the practice of justifying decisions under conditions of uncertainty" (p. 43). He described this practice as a social activity, and used the term *justifying* as a contrast to *proving*, which cannot be done in argumentation. He also described making decisions as including consideration of choices and taking a position. Moreover, he noted that the decisions occur under conditions of uncertainty. This position may be contrasted with that of van Eemeren et al. (1996), who placed argumentation in the context of rationality and even possibly certainty.

Yet another definition, stated as a goal, is found in Perelman and Olbrechts-Tyteca (1958/1969): "The aim of argumentation is not to deduce consequences from given premises; it is rather to elicit or increase the adherence of the members of an audience to theses that are presented for their consent" (p. 9).

Thus, it appears that the question of what defines argumentation can be answered in multiple ways, depending on what the goals of the practice of argumentation are perceived to be. For some, its function is primarily one of social interaction aimed at conflict expression, possible resolution, and building consen-

sus. For others the goal has an orientation emphasizing rationality and is aimed at justification and rebuttal of controversial positions. This multiplicity of definition has generated a rich body of scholarship, bridging the disciplines of philosophy, communication, literature, and psychology.

The Goals and Functions of Argumentation

Historically, argumentation is at least as old as the *Iliad* and the Book of Job, and maybe as old as human interaction. The study of argumentation, however, became a serious matter of inquiry for early Greek and Roman scholars. Indeed, Corbett (1986) argued that many contemporary issues in the study of argumentation are largely restatements of the differences of Plato and Aristotle, adding that what has changed are the strategies employed. Of particular concern for our purposes are the goals of "seeking truth" in a sense of certainty and "seeking truth" under conditions of uncertainty and in social interaction as found in acts such as persuasion.

Plato, in his dialogues, provided accounts of Socrates seeking truth via the use of a dialectic procedure, reductio ad absurdum. Person A would state an assertion such as "Honesty is the best policy" and Person B then would ask Person A questions until Person A reached a contradiction of the assertion initially stated. A version of this procedure is found in today's courtrooms, in which it is assumed that truth may be obtained via questioning sworn witnesses.

Another attempt found in Plato to arrive at truth via inquiry is when Socrates, with appropriate questioning, was able to show that a slave could prove the Pythagorean theorem. However, as McCloskey (1985) pointed out, would this have been possible if Socrates had not already known the proof?

The truth and certainty that Plato was seeking generally was of an absolute nature, the ultimate reality. Later Descartes followed in the search for certainty, holding that if an assertion could not be demonstrated as true by logic or as a scientific fact (i.e., if there are doubts), it is worthless (Perelman & Olbrechts-Tyteca, 1958/1969). This tradition was a forerunner of positivism, which held that knowledge should consist of what can be logically demonstrated or what can be shown to be true in the context of general laws (see Govier, 1987). Probably the most ambitious attempt to develop this position in traditionally nonscientific domains was Hempel's (1942) Covering Law, which had as its objective bringing historical knowledge into the positivistic tradition.

The tradition of seeking certainty has been influential in the psychological study of reasoning. Aristotle developed the categorical syllogism, which provided certainty in the performance of logic-based tasks. Other logics have been developed, and over the last three quarters of the 20th century, the psychological study of reasoning primarily employed logic-based tasks. Such tasks are experimentally more tractable than tasks having uncertainty, and performance is relatively easy to evaluate in that it is logical or not logical; that is, the person either did or did not follow the rules of that logic. Use of such tasks has led to a number of important experimental and theoretical findings (e.g., Johnson-Laird, 1983). At the same

time, deductivism and the use of logic-based tasks have been regarded as the "true" exemplars of the study of reasoning, and "good reasoners" or "rational thinkers" are those who can perform logic tasks according to logical rules. This viewpoint has been held even though the elements of such tasks are not found extensively outside the laboratory in which everyday and domain-related tasks are predominantly those involving uncertainty.

As an example of the concern of deduction, Anderson, Chinn, Chang, Waggoner, and Yi (1997) conducted a study with fourth-grade children that was aimed at determining whether students could verbalize the logical steps in solving a mathematics problem. The results indicated that there were large gaps in their reasoning process during which the students did not verbalize the steps. The authors noted that the unstated steps were often explicit in the textbook, however, so that the students apparently knew the steps even though they were not verbalized. It appears that these students applied deductively sound methods, a result that affords a certain amount of comfort.

The concern of argumentation is not with certain truth but with the probable truth that may be determined in the presence of uncertainty and with the social interaction that argumentation engenders. One goal of argumentation, considered with the seeking of truth under uncertainty, is that of justification. This concept is basic in argumentation because it indicates as a social norm that one person may ask another to provide some evidence for a particular assertion. That person is expected to answer, although he or she may not. In addition to justifying an assertion, argumentation also involves the undermining of the opponents' arguments, which can be viewed as the "flip side" of justification.

When a person engages in argumentation, the arguer has a commitment as well as a risk (Brockriede, 1986). The commitment is that the person felt the issue was of sufficient importance to enter the interaction; the risk is that an individual, by stating the argument, is setting it forth for examination and possible attack and even possible change of position. An interesting corollary of this idea is that if you are really sure of a belief or sure of something you want to do and you do not want it questioned, do not state any reason to support your assertion.

The second function of argumentation is pragmatic. This function refers to the goal or goals the arguer wants to achieve using argumentation. Primary among these is persuasion, which was discussed by Aristotle in his *Rhetoric* (trans. 1960). He identified three means of persuasion: appeal to the speaker's or writer's character (ethos), appeal to the emotions of the audience (pathos), and appeal to reason (logos). The offering of an argument then is a matter of logos, whereas persuasion is a matter of all three. Aristotle also provided extensive instruction on persuasion, discussing it in three contexts: courts (Greeks had to defend themselves), public forums, and special celebratory events. (See Pericles's funeral oration in Thucydides's History of the Peloponnesian War, trans. 1954, for a classic example of political rhetoric.) Aristotle also considered types of arguments to use, or *topoi*, and different types of reasons.

In recent times, the field of rhetoric has enjoyed and suffered changes in emphasis and status. At the time of the founding of the United States, rhetoric was an important academic topic. Debate became a major college activity that found students cheering for their school's teams. Subsequently, rhetoric lost status as an independent endeavor and was subsumed in other departments such as English or communication studies. Moreover, in the mid-20th century, rhetoric was regarded by many to emphasize expressiveness in language but not substance. "It is just rhetoric" was the perception. However, due in part to the publication of two books, Toulmin's (1958) *The Uses of Argument* and Perelman and Olbrechts-Tyteca's (1958/1969) *The New Rhetoric*, the field of rhetoric has enjoyed a resurgence. Each of these works argued for a jurisprudence model of argumentation rather than the traditional deductive-oriented model.

One aspect of this renewal has been the analysis of argumentation as found in a wide variety of subject matter domains, as for example, the rhetoric of science (Gross, 1990). Some of the rhetorical analyses also have occurred in a postmodern context that has been related to gender, race, and culture. Emphasized by some authors, such as Foucault (1969/1972), is the idea that people in power control the rhetoric being employed and therefore subordinate the rhetoric of minorities not in political control. Indeed, since ancient times, individuals ascending into power frequently have destroyed the symbols and writings of those removed from power. An interesting comment about the popularity of rhetoric is this:

> One fact that emerges from a study of the history of rhetoric is that there usually is a resurgence of rhetoric during periods of violent social upheaval. Whenever the older order is passing away and the new order is marching—or stumbling—in, a loud clear call goes up for the services of a man skilled with words. (Corbett, 1971, p. 32)

Argumentation is basic to rhetorical discourse and analysis. Indeed, rhetorical analysis in part consists of determining the "moves" made in argument development, what such moves were designed to accomplish, and what consequences they produced. Such analysis has the problem that alternative interpretations of the same material may be of equivalent acceptability. Furthermore, with few exceptions, rhetorical analysis has not been experimental, and this lack of a more psychological-like experimental–theoretical approach probably is one reason studies in rhetorical analysis have had little impact on psychological study. Moreover, the psychological research involving argumentation in a rhetorical context has occurred primarily in social psychology's study of persuasion or attitude change (Chaiken, 1980; Petty & Cacioppo, 1986), with relatively little study of rhetorical factors per se.

The goal of persuasion is found in different contexts. Speakers or writers attempt to persuade an audience, in which case it is important for the speaker or writer and the audience to have the same premises (Perelman & Olbrechts-Tyteca, 1958/1969; Tindale, 1992). Also, conflict situations involve attempts at persua-

sion, which becomes part of negotiation and conflict resolution. Stein and Bernas (1999) considered three outcomes—win–loss, compromise, and standoff—and emphasized the social interactions and goals of the participants. In one conflict resolution study, Allen and Burrell (1990) had college students, given premises of syllogisms, resolve disagreements regarding the syllogisms' conclusions. Arguing the merits of the case was the most frequent negotiation, but it yielded a relatively low percentage of correct responses. Looking at past precedents was the second most frequent negotiation, and it had a higher percentage of correct responses than arguing the case's merits. That the debate model of negotiation (i.e., defending and rebutting) is not effective in negotiation has been reported by Axelrod (1977). Three high-level political negotiations were studied, and it was concluded that the debate model did not hold. Instead, agreement evolved through a process of expressing new ideas that emerge from previous discussions, or are made from "outside"; that is, they do not follow directly from the debate.

The goal of argument justification is related to the pragmatic goal in the following way: Justification of an argument implicitly carries with it the idea that the argument is persuasive. In Perelman and Olbrechts-Tyteca's (1958/1969) terms, there is a universal audience that, although not a particular audience, does provide a sense that the argument is being justified as a social process. The relation of the pragmatic goal to the justification goal is that the argument to persuade may be adequately justified, but the goal of persuasion also may involve poorer justification. Just as the Sophists and some of today's advertisers and politicians, the persuading party may be trying to make weak reasons appear strong.

The Structure of an Argument

The basic structure of an argument that is not an explicit deductive argument is, as termed by Aristotle, an *enthymeme*. This form of an argument consists of a claim supported by a reason (or conclusion supported by a premise). Support, of course, may consist of more than one supporting reason. Aristotle felt that the enthymeme was deductive in nature, essentially a syllogism with a premise missing. Although this has been a common interpretation of the enthymeme, Gerritsen (1999), in reviewing conceptual interpretations of the enthymeme, noted a pragmatic function, and this is of importance for present purposes. Also, rather than thinking of the enthymeme as a syllogism with a missing premise, Hitchcock (1995) argued that the enthymeme provides a self-contained argument. What is important about this interpretation is that the two-component argument is not sound deductively as it stands and the pragmatic function is regarded as primary to the logical function.

The pragmatic interpretation of the enthymeme brings up an important point, namely, the issue of the missing premise. Govier (1987) noted that an enthymeme can be made logically sound with the addition of one or more premises. Given this point, the logical validity of an enthymeme is essentially a given. It is instead its pragmatic function that is of importance to argumentation. "Abortion should be

made illegal because it is the taking of a life" is an argument as it stands, and can be used as support or can be attacked.

Toulmin's model of argument structure is widely cited (Toulmin, 1958; Toulmin, Rieke, & Janik, 1979). The model consists of six components. The datum (D) or grounds and claim (C) constitute the basic argument. The datum and claim are connected by a warrant (W), which has the general form "If D, then C," and legitimizes the relation of D and C. Moreover, as Toulmin (1958) noted, the datum and claim are explicit, whereas warrants are usually implicit. So, for the argument "Capital punishment should be abolished because it constitutes cruel and inhuman treatment," "Capital punishment should be abolished" is the claim and "It (capital punishment) is cruel and inhuman treatment" is the datum. The warrant is "Punishment using cruel and inhuman treatment must be abolished," or "If cruel and inhuman treatment is used as punishment, it should be abolished." The argument typically is understood without statement of the warrant.

The three remaining components of the Toulmin model are backing, qualifier, and rebuttal. Backing provides support for the warrant. Thus, for the current example, the statement "Cruel and inhuman punishment is prohibited by the Constitution" would serve as backing. A qualifier, according to Toulmin, supplies any qualification in the statement of the strength of the warrant, as for this argument being "quite likely." Rebuttal offers the limitations of the argument, as "These are the conditions when the argument does not hold. . . ."

Toulmin's model has been targeted for a number of criticisms. One is that it pertains to only a single argument. However, Voss, Tyler, and Yengo (1983), by making three assumptions, generalized the Toulmin model to larger bodies of argument. The three assumptions were that a claim could be used as datum for another claim, backing could be an argument, and qualifiers and rebuttals could also be arguments. Although these additions provided for a more effective use of the model for larger bodies of argumentative text, the model did not capture the higher level problem-solving nature of the discourse.

A second criticism of the Toulmin model is that when attempting to analyze bigger bodies of text, it is sometimes difficult to classify particular components in terms of the Toulmin categories, as for example, distinguishing backing from datum or qualifier and rebuttal (see Stein & Albro, this issue). A third criticism (Perelman, 1984) is that Toulmin neglected the role of the audience; his model is one of structure and not of pragmatics.

The Evaluation of Arguments

Nondeductive arguments classically have been evaluated in relation to two components, the acceptance of the support *qua* support, and the extent to which the support actually does provide support for the claim, sometimes termed *relevance*. Consider the previously stated argument, "Capital punishment should be abolished because it constitutes cruel and inhuman punishment." Evaluation on the

basis of the acceptability of the supporting reason requires the evaluator to consider if capital punishment is cruel and inhuman. If the person does not agree with that statement, it is unlikely that the person thinks the statement provides good support for the claim. If the evaluator agrees with the statement, then the evaluator needs to judge whether that statement supports the claim that "capital punishment should be abolished."

A third criterion for argument evaluation is the taking into account of counterarguments (Angell, 1964). The assumption is that the strength of an argument is not independent of counterarguments and that, for example, an argument, although regarded as strong when standing alone, may be judged as less strong when a counterargument is offered. If the evaluation includes a counterargument, it suggests there is some type of argument integration function of the initial argument and the counterargument.

These evaluative criteria refer to judgments of the quality of the argument, but there is also another type of criterion, namely, effectiveness. If, for example, you are using an argument for persuasion, the effectiveness of the argument refers to whether it succeeded at the goal of persuasion. The suggestion of considering effectiveness in evaluation raises the concern that argument evaluation may vary across context (Santos & Santos, 1999; Tindale, 1992). One particularly important context is the audience. Consider the example of the same speech favoring gun control being given to a meeting of the National Rifle Association and to a meeting of parents who have lost children in drive-by shootings. Furthermore, consider the importance of the speaker and the audience being in agreement about the premises of the argument.

Context can also refer to different subject matter domains (e.g., Toulmin, 1992). It appears that although the general form of argumentation is highly similar across domains, what constitutes acceptable support varies considerably. Toulmin argued that sound arguments do not require deductive validity, and that the criteria for soundness varies from field to field, including subject matter disciplines and everyday contexts. In the context of his model, it is the nature of the warrants and backing acceptable within any domain that are able to produce soundness (cf. van Eemeren et al., 1996).

An important point about the evaluation of arguments is that although in many cases a premise may be evaluated on the basis of its truth value (e.g., Madison is the capitol of Wisconsin), it also may have a variable level of plausibility or acceptability. For example, consider the argument "There should be a tax cut because people need money." This argument may provoke a reaction such as "What people?" or "It seems some do and some do not." So, on a 1 (*low*) to 10 (*high*) acceptability scale, how would you rate the acceptability of that supportive statement and how would you rate the strength of the argument?

The inherent uncertainty of nondeductive evaluations, the lack of normative criteria, and the importance of the evaluator to the evaluation has led to a number of attempts to provide more certainty in evaluation, perhaps to establish a crite-

rion for "good reasons." For example, the van Eemeren et al. (1996) definition mentioned earlier tried to provide some sense of certainty by hypothesizing a rational judge. Select groups of individuals also have been considered as candidates for evaluation. Perhaps experts in a given subject matter domain could provide some sense of certainty. Of course, experts in a given domain may and frequently do disagree, and when they do agree there generally is little or no argument.

There also is a cultural constraint on the consensus criterion. In Salem, Massachusetts, during the days of witch persecution, church leaders may readily have been able to provide arguments justifying the killing of witches, but that does not mean at some other time or place some other culture would have agreed with those arguments. Indeed, Van Knippenberg and Wilke (1992) experimentally demonstrated the proclivity of group members to maintain in-group norms. There even appears to be a total human in-group, cited by van Eemeren et al. (1996): "With mortals, gold outweighs a thousand arguments" (Euripides's *Medea*, trans. 1966).

Argumentation and Narrativity

In the discussion of argumentation to this point, the arguments discussed largely have been of the enthymeme form. However, argumentation can take other forms. As shown by Felton and Kuhn (this issue), people use narratives to support their claims. McGuire (1990) suggested that there are three types of narratives: history, literary, and literary that are made to appear historical. McGuire further argued that "A rhetorically successful narrative, accordingly, must either be familiar to its audience (a sociological issue) or plausible for its audience as a typical story of how things are, and clearly comparable to the problematic uncertainty that it is intended to clarify" (p. 231). He also stated, "The idea of things as they might be accounts for the persuasive value of well-constructed narrative" (p. 231). The narrative thus stands as a means of supporting a given claim, when the premises are shared by the writer and reader, as McGuire suggested. Indeed, a relatively simple example is the narrative supporting the exposure of the killer in a mystery. Justification of political positions also has been accomplished via narratives, as well as positions of defendants and plaintiffs in legal contexts (see Voss & Van Dyke, this issue).

Concluding Background Comments

A nonexhaustive number of argumentation-related topics have been surveyed in this review. As examples of issues not covered, there is the subject of fallacies and the development of the field of informal logic, which essentially is an effort to develop a logic-like analysis of the uncertain relations found in argumentation, and different types of arguments and their components, such as causal argu-

ments, comparison of arguments, of explanations and reasons, and argumentation in science.

It should be apparent from this first section that argument and argumentation constitute a major share of everyday, as well as political and professional discourse. As such, it raises many questions, including whether a general theory of argumentation is possible and argumentation's relation to other discourse issues, such as the relation of argument and inference (Pinto, 1995). Finally, there is the question of why argumentation is important as a psychological phenomenon.

At least five reasons may be given for the study of argumentation. First, it is found in virtually all contexts and to see how it operates in each of these contexts is a more or less descriptive goal. This work would include the nature and criteria of justification across these domains, as well as the study of its effectiveness. Second, the study of argumentation is important for education. Results generally are not especially positive about the argumentation skills of the average person. Schools and media both can contribute to its improvement. People complain about the level of political discourse, but paraphrasing Demosthenes, if you want your politicians' speeches to be of high quality, enhance the quality of the audience. A third reason to study argumentation is that it affords a way to study social, cultural, and subject domain norms. Much is yet to be learned about justification and norms and how the norms were established. A fourth reason to study argumentation is that although it is found in many contexts, its ubiquity suggests it is a basic form of discourse that should have some commonalities across domains. Finally, a fifth reason is that the study of argumentation should help in developing epistemological understanding.

ARGUMENTATION AND PSYCHOLOGICAL RESEARCH

Children's Argumentation

One of the questions in argumentation research receiving considerable attention is at what age children demonstrate an ability to engage in argumentation and how their argumentation skills develop. Piaget (1959) suggested that children do not engage in genuine arguments until age 7 or 8, but a number of investigators have shown argumentation to occur in children age 3 or even younger. Such studies typically have involved observing children in a preschool classroom with the argumentation consisting of a dispute between two children (e.g., Boggs, 1978; Dawe, 1934; Eisenberg & Garvey, 1981; Genishi & DiPaolo, 1982). Some investigators have attempted to classify the verbal statements made in the dispute. Considering Eisenberg and Garvey's (1981) research as an example, these investigators assumed that an argument began when one person in a dyad stated an initial opposition. Nine strategies were defined as responses to the initial opposing statement. The most frequent response was insistence, with a polite firmness second, and an alternative proposal third. However, the most successful strategy in

ending the dispute was compromise, followed by conditional ("I will do X, if you will do Y.") and an alternative proposal.

A number of other findings obtained in the studies just listed include the average duration of a dispute as 23 s (Dawe, 1934); that children use both simple and more complex argument forms (Boggs, 1978; Geneshi & DiPaolo, 1982); that the most frequent source of child disputes is possession (Geneshi & DiPaolo, 1982); and that children draw on their academic knowledge, but their social knowledge is of greater importance in dispute argumentation (Geneshi & DiPaolo, 1982). Regarding gender roles, boys argue more than girls (Dawe, 1934), and, following the ideas of Gilligan (1982), boys emphasize their own goals and control of the situation, whereas girls emphasize the relationship of the participants (Sheldon, 1990).

Stein and her colleagues conducted a series of argumentation studies with children, especially emphasizing the social goals of the participants. In one example of the role of social goals, as described by Stein and Bernas (1999), two 4-year-old boys, best friends, were asked to divide one large and two small dinosaurs. After the seventh conversational turn, one boy told the other that he (the other boy) could have them because there was no way to divide them. The boy continued by indicating that the other boy was to remember that the next time they had a fight, he (the boy who did not get the dinosaurs) would win (p. 99). A solution was reached, but at a cost, due to the need to maintain the social relationship on an equal basis.

Stein and Bernas (1999) also reported studies comparing adult arguments between spouses with arguments between children, concluding that both groups used essentially the same categories of responding when asked questions about a recent quarrel. Such questions included who initiated the argument, reasons for supporting or opposing a position, what verbal interchange occurred, the source of statements, and the outcomes and repercussions. In another comparison, 4-year-old children were able, similar to adolescents and adults, to support their own claims, state problems with their opponent's position, generate support for the opponent's position, and also find some problems with their own position. Although for older children and adolescents improvement occurred because of growth in knowledge and being better able to support their own position and see more problems in the opponent's position, the better arguers, according to Stein and Bernas, are those who are able to learn more about the strengths of the opposing position and weaknesses of their own.

Stein, Bernas, and Calicchia (1997) studied the outcomes of argumentation, based largely on the goal statements of the participants. Three dyad categories were defined: same gender for each gender and opposite gender. In this case, compromise strategies were the most frequent, followed by a win–loss strategy, followed by a standoff strategy. Also, dyads of the same gender, regardless of which gender, reached a compromise more quickly than mixed-gender dyads. Other studies often have found compromise to be a less frequent outcome (Hofer & Pikowsky, 1993; Stein & Bernas, 1999).

In their contribution to this journal issue, Stein and Albro address how argumentative skill is acquired, suggesting it develops first through family relationships and experience with conflict. Stein and Albro strongly emphasize the importance of the personal and social goals in argumentation, pointing out that during a period of argumentation, individuals make decisions about whether to continue in the argumentation based on the person's idea of what influence the argument will have on future social interactions with the other person. Related to this, Stein and Albro show that the particular emotional state evoked in the argumentation can influence the recall of the argument.

Argument Skill

The preceding studies of argumentation in children have addressed argumentation in a social context, but another experimental paradigm for studying argument skill is argument generation. This research is usually carried out with an individual being asked to examine a statement or to answer a question about a particular topic and to take a position regarding the issue. The person is then asked to justify the position by providing reasons to support it, with the person usually being asked to provide opposing reasons as well. Other argument-related questions, such as whether the person's position would be maintained under all circumstances, may also be asked.

Using this paradigm, Kuhn (1991) studied argument generation in relation to age (teens, 20s, 40s, and 60s) and educational level (college or noncollege). Participants were asked three questions: (a) What causes prisoners to return to crime after they're released?, (b) What causes children to fail in school?, and (c) What causes unemployment? Kuhn was particularly interested in the theories (or hypotheses) people provided as answers and the nature of the evidence they provided.

With respect to causal theories, participants tended to provide theories with a single cause, with multiple causes presented in parallel, or with interactive multiple causes, as, for example, failing in school because of insufficient studying and excessive television watching. More individuals stated multiple parallel causes than single causes, with multiple interactive causes stated least.

With respect to evidence, although Kuhn (1991) defined genuine evidence broadly, including covariation and correlational evidence, the preponderance of stated evidence was what Kuhn called *pseudoevidence*. Genuine evidence involved presenting information that was differentiated from the theory and supported it. The genuine evidence also was often of narrative form. Pseudoevidence, on the other hand, was characterized by the lack of separation of the causal theory and evidence. In other words, the participants did not seem to know what was theory and what was evidence. Much of the pseudoevidence also was narrative in form and, along with genuine evidence, tended to be derived from personal experience. Participants in the 20s and 40s age groups tended to provide more genuine

evidence than those in the teens or 60s age groups. A more pronounced effect was that college-educated individuals exceeded noncollege-educated individuals by a substantial margin in providing more genuine evidence than pseudoevidence. In addition, about half of the participants generated counterarguments, a relatively sophisticated move, with participants in their teens and 20s generating more than people in their 40s and 60s. The more educated also generated more counterarguments and rebuttals than the less educated participants.

Kuhn (1991) noted that many individuals felt with certainty that their theory was correct, although the evidence was minimal and of a personalized nature. For example, an individual might state that he or she knows a person who was in prison and when released, that person could not find a job. This person ultimately returned to prison after a conviction, and so the individual may conclude that people return to prison because they cannot find work. As Kuhn noted, this person's epistemology is uncritical. This case may be juxtaposed against another in which the person is aware of a certain case, but also has an awareness that he or she needs to be critical and look for more possible reasons. This difference was shown by the superior performance of the college-educated participants compared to the noncollege-educated participants. Such a difference has been underscored by Kuhn (1989) in indicating that in the sixth- to the ninth-grade period, she found a growth of argument skills in children. After that, educational level made the difference, with college-educated people performing better than ninth graders, but with people without a college education performing at a level between sixth and ninth graders (Kuhn, 1989).

Kuhn (2001) also investigated tasks in which a person is given a claim with two supporting statements, asking which is the better justification for the claim. With children 4 to 6 years old, pictures were given of a race with a cue for who won (boy holding trophy) and a cue for possible reason (shoe type). When asked who won the race, the children responded that the boy with the trophy won. When asked how they knew, however, they responded in an explanation-based manner, referring to the shoes (why he won) rather than the trophy (how you know he won). The 6-year-old children distinguished the difference more readily than 4-year-olds, who tended to merge the two justifications. Another similar study demonstrated that the development of the ability to distinguish explanation and evidence continues to improve through adolescence and college ages, with the level of beginning graduate students performing the best at these tasks. Brem and Rips (2000) pointed out how lack of available evidence may act to produce more explanation-based responses.

Kuhn (2001) argued that results such as these point to the importance of the development of epistemological distinctions, further noting that the metalevel of knowing how you know is quite important. Furthermore, the relatively low percentage of appropriate responses suggests that even at the level of beginning graduate students, performance shows that distinctions were not readily made. Kuhn suggested a three-stage development of epistemological understanding: absolut-

ist, in which knowledge consists of facts; multiplist or relativist, in which knowledge is regarded as opinion; and evaluativist, in which claims and support are acknowledged.

Also asking questions to study argumentation, Means and Voss (1996) studied argument generation by children. In one experiment they asked children in Grades 5, 7, 9, and 11 questions such as, "What would you do if you saw your house was on fire?" In the second study, conducted with children in Grades 8, 10, and 12, students were asked questions about drug effects and drug use. Drug knowledge tests were also given. The factors under study were general mental ability as defined by Weschler questions, grade (age), and additionally in the second study, knowledge of drugs. The students provided oral protocols that were scored for argument measures such as number of reasons, qualifiers, counterarguments, and type of argument structure generated.

Argument use increased over low-, middle-, and high-ability students, and students with high drug knowledge performed better than children with low knowledge at each grade level for the high-ability students. Medium-ability-level students performed at about the same level across Grades 8 and 10 and a little higher at Grade 12, but knowledge within grade level did not produce differences. The students with the lowest mental ability yielded the lowest argument use, which was consistent over grade level. Knowledge also was not effective. That such lack of improvement could continue into adulthood for such students is suggested by findings of Voss, Blais, Means, Greene, and Ahwesh (1986). In addition, in the first study, 5th-grade high-ability students performed better than Grade 12 medium- and low-ability students. (The term *mental ability* is used here in strict operational terms as performance on the test employed.)

The research of Kuhn (1991) and Means and Voss (1996) suggested that argumentative skills as assessed by argument generation about particular topics and social issues became reasonably well developed for students with high mental ability and those who have a college education, two likely overlapping factors. Furthermore, these two factors likely facilitate both general and specific knowledge development. Nevertheless, the studies also found poorer performance in argument generation for many participants—a result also obtained by other investigators (Marttunen, 1994; Perkins, 1985; Perkins, Allen, & Hafner, 1983).

At first glance, the finding of relatively poor performance in argument generation for many individuals appears to be in conflict with the research reported in Stein and Bernas (1999), in that the latter found that children at young ages performed well, and the performance was similar for adolescents and adults in the types of arguments stated. This apparent disagreement can be resolved by noting the roles of two factors, the tasks and two types of knowledge, of subject matter and of argument-related verbal structures or schema. Young children have experience in conflict situations, and they become personally engaged in them. They have encountered peer and parent–child interpersonal conflict. When they enter into argumentation, their knowledge and experience in social relationships is acti-

vated with their related argument structures, even though in many cases the children probably could not verbalize the nature of such structures. However, what would happen if such a child were asked as an individual why people return to prison? The peer social interaction would be irrelevant, and the child might say because they committed a crime, or perhaps state some factor, but there would likely be less topic knowledge and experience available to the 3- or 4-year-old than to an adolescent or adult. Whether or not a person is able to perform reasonably in an argumentative situation depends on context, which includes the argument's contents.

Another comparison, however, is that of Kuhn's (2001) previously described results showing that some children as young as 4 to 6 years of age can distinguish evidence and explanation, with performance on such tasks increasing over age. As mentioned, the improved discrimination is attributed to metaknowing in epistemological development that provides for a change from an absolutist to an evaluativist. In contrast, the position of Stein and colleagues (e.g., Stein & Albro, this issue) is that the high similarity of performance categories over age in the social dispute situations does not require the operation of metalevel developmental change, but needs only differences in knowledge and perhaps schema-related activation over age. Stein's developmental position is based on relatively straightforward dispute situations in which social interaction is emphasized; the Kuhn research is based on individuals being able to make relatively difficult distinctions about the nature of support.

In the third article in this issue, Felton and Kuhn address the topic of strategy use in argumentation in adolescents and adults attending a community college. They report that adults were more aggressive in their development of counterarguments and rebuttals; were more likely to use strategies including event sequences that were designed to "set up" the opponent for a counterargument; and were more flexible at modifying their arguments, depending on whether the opponent's statement was supportive or oppositional. The teenagers seemed more intent on being sure the statements they made were argumentative. The findings thus support the idea of greater sophistication in argumentation for the older, college-attending participants.

Writing Argumentative Discourse

Children are able to engage in argumentation at 3 years of age; but writing argumentative discourse is a more difficult task. Studies on the age at which children are able to write an acceptable argumentative text have produced conflicting results (see Piolat, Roussey, & Gombert, 1999, for a discussion of this issue). It appears that student familiarity and knowledge of the topic, as well as involvement, produce better argumentative texts (e.g., Golder, 1993). In one of a number of studies by Golder, Coirier, or both authors, two processes were delineated, one being the ability to state arguments that, the authors pointed out, may be done by

young children. The second process is termed *negotiation*, which to Golder and Coirier (1994) essentially meant taking the audience into account. This process not only requires the use of writing skills, but includes the use of appropriate argumentative and rhetorical techniques. They noted that more sophisticated writers of arguments need to find common ground with their perceived audience, or as Perelman and Olbrechts-Tyteca (1958/1969) noted, the speaker's or writer's premises need to be the audience's for the speaker or writer to persuade the audience.

Golder and Coirier (1994) studied children ages 10 to 16 years of age in an argument-writing task that began with a 10-min classroom debate on pollution. Instructions to write a 15-line argumentative essay followed, in which the writer was to take and defend a position and acknowledge other positions. Golden and Coirier employed four markers of negotiation: the use of counterarguments; the use of moral or value judgment and obligation, as "one should not" or "that's good"; an expression of degrees of certainty as "surely" or "maybe"; and the speaker endorsement and accountability, as "I believe that." From ages 10 to 16, the percentage of children using each of the four measures increased. Counterargument use showed an especially substantial gain over ages 10 and 11 to 13 and 14, staying approximately at the same use for ages 15 and 16. Also, with increasing age, understanding of the relations of the components of the argument increased. Golder and Coirier also reported substantial individual differences in performance at each age level, which they attributed to knowledge differences and student differences in instruction.

Whereas Golder and Coirier (1994) used discussion of a controversial topic to furnish information for argumentative text writing, Reznitskaya et al. (this issue) report the results of a study with fourth and fifth graders in which they attempt to improve the quality of the student writing of argumentative text via a classroom discussion procedure termed *collaborative reasoning*. Studying and analyzing classroom conversation has become more frequent, due primarily to the Vygotskian view concerning the importance of social interaction to learning. An especially analytic study of argumentation in a classroom was carried out by Pontecorvo and Girardet (1993). Fourth-grade children, meeting in groups of five, discussed whether they agreed with a statement made by a 4th-century A.D. Italian historian. The discussion protocols were analyzed at three levels: frames, which were the broader topics of the discussion; discussion sequences, which occur within the frames; and idea units, which were expressed as a unit of argumentation and as an element in the historical discussion. Idea units were largely claims and justifications. To support their claims, children appealed to a number of different types of support: analogy, example cases, conditions, rules or principles, motives or goals, consequences, authority, times, sociocultural context, and spatial or temporal context.

The collaborative reasoning format of Reznitskaya et al. was designed not only to enhance angumentation in the classroom, but to instruct the students so that they could be tested on the goal of the study, namely, to teach argumentation so

that it could be generalized to a new situation. The primary assumption of the procedure is that reasoning and argumentative skill develop via personal interaction. Reznitskaya et al. hypothesize that experience in collaborative reasoning for a 5-week period would lead to better argumentative essay writing compared with writings by students in a classroom that did not receive such experience. Golder and Coirier (1994) found discussion effective in a group situation, and other studies found that a dyad discussion of an issue involving argumentation produced improvement in writing an essay (e.g., Kuhn, Shaw, & Felton, 1997).

The collaborative reasoning condition allowed students to discuss without raising their hands, and the teacher acted to probe and to model argumentative moves for the students. Reznitskaya et al. note that this procedure is aimed specifically at using the skills of argumentation, as opposed to less focused classroom discussion or a focus emphasizing another issue.

Students experiencing the collaborative procedure produced essays that contained more arguments, counterarguments, rebuttals, and other argumentative components than did the essays of the control condition students. Collaborative reasoning, therefore, not only produced more argumentation-related comments in the classroom than found in a control classroom, it also transferred to the writing of a persuasive essay about a new topic.

Argumentation and Case-Based Change

Bernas and Stein (this issue) are concerned with how being exposed to specific cases about a controversial topic may change a person's position regarding that topic. The procedure used consisted of determining people's position and the strength of their attitude toward abortion and subsequently presenting specific cases that agreed or disagreed with the person's viewpoint. The question then is how the position changed.

There are at least two bodies of literature that are related to this issue—one being simply what type of performance is obtained when you ask individuals to generate reasons supporting and opposing your position. In one study, Zammuner (1987) measured the attitudes of different women toward abortion, asking them to write essays that were either favorable on unfavorable to the topic. The study was conducted in Italy, which has cultural norms opposing abortion. The data supported the idea that women advocating a prochoice position had to be more careful and thorough in writing their argumentative essay than anti-abortion women because prochoice women were starting from a different cultural baseline than the women with anti-abortion positions. Thus, the beliefs and values of the women in the Zammuner study may readily have been a factor.

The possible role of values in argument was addressed by Perelman and Olbrechts-Tyteca (1958/1969). As previously mentioned, there is a need for a speaker or writer to have the same premises as the audience if the speaker or writer wants the audience to agree. However, Perelman and Olbrechts-Tyteca also

delineated two classes of premises, one being the real, consisting of facts, truths, and presumptions about which there is usually assumed to be consensus. The other is the preferable, including premises consisting of values and value hierarchies. With value-related premises, it is the sharing of values and their hierarchies that provides the speaker with the opportunity to have a conclusion accepted, provided the audience has the same values. Moreover, the idea that values are likely activated in the course of considering a controversial argument that does not explicitly state a value was supported by the results of Voss, Fincher-Kiefer, Wiley, and Silfies (1993).

Within the Perelman and Olbrechts-Tyteca (1958/1969) theory, the audience may disagree with a speaker about the premises when the audience wants the speaker to provide more evidence about the truth of a premise. The audience also may disagree if the speaker assumes a value hierarchy dissimilar to that held by the audience, or when the speaker considers premises that the audience does not consider relevant. Similarly, an audience may adopt a changed position if the speaker provides new information that modifies the audience's premises, if the speaker is able to show why a change in the value hierarchy of the audience is important, and if the speaker shows something to be relevant that the audience had previously considered irrelevant. In the Bernas and Stein article, it appears that premises were changed with novel cases (new information), especially when the premises were not strongly held.

Returning to the question of what happens when a person is asked to generate arguments for and against his or her own position, typically more reasons are stated supporting your own side (Perkins et al., 1983; Stein & Bernas, 1999), individuals usually state relatively few reasons—three or four—even though they in all likelihood know of more (Hoch, 1984), and in unpublished results we have found that what reasons are regarded as strong or weak are generally agreed on by people on each side. The difference is in weighting, with "my side" strong reasons receiving a higher rating than the other side's strong reasons. Similarly, "my side" weak arguments are rated low, but the other side's are rated lower.

A second body of literature that the Bernas and Stein article in this issue is related to is attitude change. The reader is referred to Eagly and Chaiken (1993) for a discussion of this work. From the communication side, Arnold (1986) wrote a paper relating rhetoric to social-psychological theory.

Argumentation and Critical Thinking

For some time, argumentation has been linked to critical thinking (Ennis, 1962; Nickerson, Perkins, & Smith, 1985). Kuhn (1993) endeavored to show how informal reasoning is much like scientific reasoning, both making up critical thinking. However, although argumentation skills are related to and part of critical thinking, they are not the same thing. To examine this issue, we delineate between ar-

gument generation and argument evaluation. In the former, as pointed out by Govier (1989), the statement of an argument most frequently is the product of reasoning and critical thinking. Moreover, much of the reasoning that occurred in the development of the argument is likely not to be stated in the argument. There is not much information available on the thinking that goes into argument development, but one of the most intensive protocol studies on the issue was conducted by Stratman (1994).

Stratman (1994) was concerned with the mental representation an attorney had of a case when the attorney was working on that case to take to an appellate court. Stratman also was interested in comparing the attorney's representation to that of the appellate court clerk who read the brief written by the attorney. Thus, the work serves as an example of how protocol studies may be used to develop an idea of the thinking that goes into the development and criticism of arguments.

Stratman (1994) was especially interested in which of two strategies of argument presentation may be employed: an *adversarial strategy*, in which an attorney presented only his or her own side of an argument, and a *scholarly strategy*, in which the attorney presented both sides of an argument. In the latter, concessions usually were made on specific points, there were explicit statements of rebuttals, insinuations were avoided, and there were citations to adverse precedents. The adversarial strategy was the opposite in these characteristics. The adversarial strategy attempted to present one side of the argument, whereas the scholarly strategy endeavored to show a sense of fairness.

Analyses indicated that attorneys presenting their case to the appellate court usually used the adversarial strategy, perhaps because of time limitations to prepare, or to encourage the other side to use the scholarly strategy, which may be more easily attacked. The clerks who read the briefs tended to analyze them in terms of a scholarly strategy. The protocols revealed thoughts of the attorneys thinking about, for example, narrowing down what to present, as well as thoughts of the clerks when, for example, they thought of an opposing citation that an adversarial attorney should have cited.

Argument evaluation is important to critical thinking, the primary reason being that an individual, when presented with a text or speech, should be able to state the argument (i.e., the claim and the support) as well as any other argument characteristics of the discourse. To go beyond simply describing the argument, the evaluator needs to have sufficient knowledge of the argument's subject matter to make appropriate judgments.

The use of computers for initiation and evaluation of argumentation has raised questions about how they may or may not facilitate argumentation skills. Marttunen (1992), for example, found online interaction facilitated learning argumentation skills, but traditional interaction yielded better subject matter learning. Brem, Russell, and Weems (this issue) consider the view of evaluation when the student is faced with analyzing scientific information found on a Web site. As the

authors note, relatively poor evaluations may result because of a student's failure to analyze sufficiently.

Argumentation and Narrativity in the Legal Context

One way in which argumentation and narrativity are related, as previously noted, is when the narrative is used to support a claim. These two components have been brought together in a series of studies by Pennington and Hastie (e.g., Pennington & Hastie, 1993) involving jury decision making. These authors found that jurors frequently construct a narrative of the events of a crime, as they are able to determine from the witnesses, documents, and their own experiences. At the conclusion of the courtroom hearing, the judge typically charges the jury, defining the verdicts the jury may consider. Among their findings, Pennington and Hastie (1993) found that the type of narrative generated is related to the verdict that is selected.

Schum (1993) argued that although temporally related narrative arguments are found in jury decision making, juries also represent a case in a relational or hierarchical manner, much like the solving of an ill-structured problem. The narrative and the relational representations appear to be inconsistent with each other, but a study in which people were asked to indicate why the Soviet Union collapsed revealed that a number of participants wrote a narrative protocol, but within the narrative were expository-like statements that described or elaborated on people or events of the narrative (Voss, Carretero, Kennet, & Silfies, 1994).

In the final article in this issue, Voss and Van Dyke also are concerned with the use of narrative discourse in a legal setting, but the discourse involved is a hypothetical summary statement by a prosecuting attorney. Three experiments are reported in which individual "jurors" are asked to judge the accused on a guilt–innocence scale and also to rate the goodness of the prosecuting attorney's narrative. Such judgments were made in relation to the discourse coherence and evidence quality in one experiment, and in relation to information certainty or the lack thereof and the presence or absence in the prosecutor's summary of emotional statements. In addition, gender was orthogonal to the other variables in all experiments. The general finding across all three studies is that narrative characteristics of the prosecuting attorney's summary can influence the juror's decisions.

CONCLUDING COMMENTS

Should I or should I not read the articles in this issue of *Discourse Processes*? These suggestions support a positive answer: They appear to be interesting. I would like to learn about at least some of this work on argumentation. It seems to be an old yet developing field. On the other hand, here are some suggestions in support of a negative answer: I am really busy. I may have other things to read

with higher priority. The work is not directly related to my research. Although these reasons may evoke uncertainty in the reader, and although the articles will not provide any absolute truth or certainty, they do provide justified claims and persuasive arguments.

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