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Coordinating own and other perspectives in argument

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What does it take to argue well? The goal of this series of studies was to better understand the cognitive skills entailed in argument, and their course of development, isolated from the verbal and social demands that argumentive discourse also entails. Findings indicated that young adolescents are less able than adults to coordinate attention to both positions in an argument, an age-related pattern that parallels one found in discourse. Contributing to this weakness was inattention to the opposing position (in both constrained and unconstrained formats), but not ability to address the opposing position when explicitly asked to do so. In addition to implementing the necessary dual focus, results point to the importance of developing epistemological understanding of the relevance of the opposing position to argument, as well as of the goals of argument more generally. The results also reflect the close parallels between dialogic and non-dialogic argument.

The ability to appreciate and engage in sound argument is central to what educators refer to as critical thinking and is essential to skilled decision making (Byrnes, 1998; Klaczynski, 2004). It is among the most widely valued educational objectives for students of middle-school age and beyond. Educators frequently lament students' weaknesses in producing both oral and written arguments, and considerable research exists documenting such weaknesses (Brem & Rips, 2000; Keating, 2004; Keefer, Zeitz, & Resnick, 2000; Klaczynski, 2000; Knudson, 1992; Kuhn, 1991; Kuhn, Shaw, & Felton, 1997; Moshman, 1998; Orsolini, 1993; Perkins, 1985; Pontecorvo & Girardet, 1993; Voss, 2001; Voss & Means, 1991; Weinstock, Newman, & Tabak, 2004). Argument, however, can be both product and process. An individual constructs an argument to support a claim. The dialogic process in which two or more people engage in debate of opposing claims can be referred to as *argumentation* or *argumentive discourse* to distinguish it from argument as product. Most of the empirical

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research on argument has been devoted to argument as product. Yet it is argumentive discourse that figures more importantly in the everyday contexts of most people's lives. People's skill in this respect very often has important practical implications. Yet we know relatively little about the nature of these discourse skills and what is entailed in their development.

The skills involved in argumentive discourse appear to be complex. At the same time that one is processing and evaluating input from the conversational partner, one must be formulating an effective response that meets discourse goals. According to Walton (1989), skilled argumentation has two goals. One is to secure commitments from the opponent that can be used to support one's own argument. The other is to undermine the opponent's position by identifying and challenging weaknesses in his or her argument. Both of these goals, note, require attention to the opponent's position and claims.

Drawing on Walton's analysis, Felton and Kuhn (2001) identify two potential forms of development in argumentive discourse skills. One is enhanced understanding of discourse goals, and the other is application of effective strategies to meet these goals. Strategies, in turn, can be divided into two major categories—those addressed to construction and exposition of one's own argument and those addressed to the opponent's position and claims (including securing commitments from the opponent).

The two forms of development can be predicted to reinforce one another. Progress in use of discourse strategies is propelled by a better understanding of discourse goals. At the same time, exercise of these strategies in discourse promotes more refined understanding of the goals of argumentive discourse. Several recent studies (Felton, 2004; Felton & Kuhn, 2001; Kuhn & Udell, 2003) provide evidence indicating that younger and less skilled arguers concentrate argumentive discourse on arguments that support their own position, paying relatively little attention to the claims and arguments of their opponent. It is as if they understand the objective of argumentive discourse to be no more than presenting the most compelling case possible as to the merits of one's position: If I do this better than my opponent, the arguer believes, my position will prevail and my opponent's position will simply fade away, without my ever having had to address it. The novice arguer thus fails to embrace the dual objectives of argumentive discourse—to identify weaknesses in the opponent's arguments and to secure commitments from the opponent that can be used to support one's own claims (Walton, 1989). Both of these, as we have noted, require attention to the opponent's assertions and the use of strategies to influence them.

Are less skilled arguers really unaware of the relevance of the other's claims to the discourse task? An alternative hypothesis is that they do

possess some such awareness. However, the discourse context in which they must construct and express relevant justifications for the position to which they have committed themselves, while at the same time negotiating the social conventions of discourse, is sufficiently demanding to create cognitive overload if they were at the same time to attempt to attend to the other's ideas.

If this explanation is correct, reduction of the cognitive demands created by the discourse context should produce a setting in which individuals are more inclined to appreciate the relevance of noting and arguing against the other's claims, rather than focusing solely on one's own claims and the arguments in support of them, as we have observed them to do in argumentive discourse (Felton & Kuhn, 2001; Kuhn & Udell, 2003). In the studies presented here, we in fact eliminate the actual discourse context entirely, reducing the situation to the statement of two opposing claims, with all other cognitive complexity and response demands minimised. In other words, employing a subtractive logic, by removing discourse from the situation, we seek to isolate and better identify the specifically cognitive demands that contribute to the challenge that argumentive discourse poses, and thereby better understand that challenge. We compare performance across the age range from middle childhood through early adulthood, the period during which the earlier argument research has suggested the relevant skills are developing (Felton & Kuhn, 2001). The specific question we begin with in Study 1 is whether there exist developmental differences in preference for arguments that undertake to strengthen one's own position versus ones that undertake to weaken the opponent's position.

STUDY 1

Method

Participants. Three groups participated: a middle-school group, a high-school group, and a university group. The high-school group consisted of 24 tenth through twelfth graders (12 female and 12 male, aged 16–18) attending a non-selective public school serving a racially and ethnically diverse middle-class suburban community that included a substantial immigrant population of diverse origins. The middle-school group consisted of 33 fifth through eighth graders (19 female and 13 male, aged 10–13) drawn from two middle-school samples, 20 of the 33 from the same public school just noted and 13 from a nearby urban, ethnically and socially diverse middle school. Comparison of performance of students from the two middle-school populations showed equivalent performance and the groups were therefore combined. The university group consisted of 23 masters-level

students (19 female) in education at a large urban university with a culturally, racially, and ethnically diverse enrolment. Their ages ranged from early 20s to mid 40s, with the majority in their 20s.

Procedure. Each participant was administered a 10-item instrument in multiple-choice format. Each of the 10 items asked the participant to choose the better of two arguments, an argument supporting the favoured position or an argument against the alternative position. Order of appearance of the two choices (first or second) was counterbalanced across items. The favoured position, note, is not necessarily one that the respondent would genuinely favour him- or herself; hence, the respondent is required to role play the arguer in seeking to best advance the arguer's interests.

The instrument was individually administered to the two younger age groups and group administered to the adult group. The following three items are illustrative. The remaining seven items were identical in form and similar in content.

1. You are told to drink fruit juice instead of soda. You like soda better. Which is the best argument for you to make?
   Fruit juice is too sweet.
   Soda keeps you alert.

2. You are told that you should work at the grocery store this summer instead of being a lifeguard like you want. Which is the best argument for you to make?
   Being a lifeguard builds skills you can have forever.
   The grocery store does not pay very well.

3. You are told that you would be better at basketball instead of soccer. You like soccer. Which is the best argument for you to make?
   You need to be tall to be good at basketball.
   With practice you can become really good at soccer.

Results and discussion

The majority of participants in all age groups most often chose the argument strengthening the favoured position, rather than the one weakening the opposing position. The distribution of preferences by age group appears in Table 1. In the first row appear the percentages of participants who chose as stronger the argument weakening the opposing position, either never or for only one or two of the ten items. In the second row appear percentages who chose the argument weakening the opposing

position for three to four of the ten items; in the third row, percentages choosing this argument for five of ten items (hence showing no preference for one argument type over the other); in the fourth row, percentages choosing the argument weakening the opposing position for six to seven items; and in the final row percentages choosing this argument for eight to ten items.

Appearing in Table 2 are the means, ranges, and standard deviations for the three groups, for the number of choices of the argument weakening the opposing position (of the 10 items). Within and across groups, two results are notable. One is high variation within groups, and the other is a modest trend with increasing age towards more frequent choice of the argument weakening the opposing position. The very high within-group variation works against detection of between-group differences, and the only between-group difference to reach statistical significance is the difference between the middle-school and university groups, $t(54) = 2.09$, $p = .04$. The difference between the middle-school and high-school groups reached only marginal significance, $t(55) = 1.39$, $p = .16$, and the difference between the high-school and university groups was not significant.

TABLE 1
Distribution of choices of stronger argument

	Middle school	*High school*	*University*
Strong preference for arguments strengthening own positions (scores of 0–2)	33%	42%	39%
Weak preference for arguments strengthening own positions (scores of 3–4)	55%	42%	30%
No preference (score of 5)	12%	08%	09%
Weak preference for arguments weakening opposing position (scores of 6–7)	00%	08%	13%
Strong preference for arguments weakening opposing position (scores of 8–10)	00%	00%	09%

TABLE 2
Mean number of choices of argument weakening opponent's position

	Middle school	*High school*	*University*
Mean	2.48	3.04	3.52
Range	1–5	0–7	1–9
Standard deviation	1.75	1.91	2.42

Maximum score = 10.

The age trend in Table 2 is consistent with the hypothesis that attention to other's position does increase modestly in the years from middle childhood to adulthood, despite substantial individual variation. However, one alternative explanation that needs to be eliminated before drawing this conclusion is that arguments opposing the favoured position were in fact overall stronger than those supporting it. In this case, the age trend could alternatively be explained as an increase with age in selection of stronger arguments. To address this alternative explanation, we conducted Study 2.

STUDY 2

Method

Participants. Participants were 52 mixed-gender masters- and doctoral-level graduate students in psychology and education. They were divided randomly into two groups of 26 each. They were from the same population reported in Study 1 and showed the same age distribution.

Procedure. Both groups were presented the same 10 items used in Study 1, except that only one of the two arguments associated with each item was presented. Participants in group 1 were always presented with the argument supporting the favoured position. Participants in group 2 were always presented with the argument opposing the non-favoured position. Both groups were asked to rate the strength of each of the 10 arguments on a 5-point scale, ranging from very weak (1) to very strong (5).

Results and discussion

Contrary to the hypothesis that actual strength of argument may explain the age increase found in Study 1 in choice of opposing arguments, the group rating the strength of the arguments supporting the favoured position overall gave higher ratings than those rating the strength of the arguments opposing the non-favoured position, although the difference did not reach statistical significance. Mean rating of the 10 arguments supporting the favoured position, over the 26 participants in this group, was 2.86 (of a maximum rating of 5). Mean rating of the 10 arguments opposing the non-favoured position, over the 26 participants in this group, was 2.49.

STUDY 3

Another question is the extent to which advanced education is a contributing factor in the performance of the adult group in Study 1.

Arguably, university students in the course of their studies become aware of the importance of attending to both sides of an argument and have ample opportunity to practise doing so. Hence, the purpose of Study 3 was to examine a sample of adults not in an academic environment. The objective was to identify the extent to which the performance of the university students in Study 1 was attributable specifically to their advanced training and the values and experience associated with an academic environment.

Method

Participants. Participants were 23 members of a community chorale group and adult members of their families, intended to be representative of an unselected adult population. The group included 13 females and 10 males. They represented a broad cross-section of the suburban community from which they came. They ranged in age from the 20s through the 70s and came from a wide range of occupational and socioeconomic backgrounds. The group included several doctors and lawyers, as well as librarians, sales clerks, office workers, homemakers, and retirees.

Procedure. The instrument and procedure were identical to that described in Study 1.

Results and discussion

Mean score for this group was 2.83, with a range from 0 to 8. The community adults, then, perform at a level comparable to that of the high-school group (Table 2), with 74% favouring arguments strengthening one's own positions and only 4% (one participant) showing a preference for arguments weakening an opponent's position.

Taken together, the results of Studies 1–3 suggest that preference for arguments that address and weaken an opposing position, over those that support a favoured position, does not increase developmentally between adolescence and adulthood unless individuals are in a setting in which argument is a common and valued form of communication and opportunities are prevalent to engage in it. Even then, however, such a setting does not guarantee the development of this preference. Many university adults, we saw in Table 1, maintain a preference for arguments that support a favoured position.

However, these findings, with respect to which of the two kinds of arguments an individual regards as stronger, still do not fully resolve the question of whether sensitivity to the relevance of arguments against the opposing position increases developmentally. We pursue this question in Study 4.

STUDY 4

There is no clear norm as to what is correct or optimal performance in the instrument employed in Studies 1 and 3. If one is confined to a forced choice of one over the other, is it more effective to advance arguments to support one's own position or to advance counterarguments that diminish the strength of the opposing position? There is, of course, no one right answer to this question, since much depends on context, as well as particular content and relative strengths of the two positions. Moreover, it may not be the most important question to ask, since individuals are rarely confined to expressing a single argument of one type or the other. It is entirely possible, for example, that an individual has a strong preference for arguments that support a preferred position, but at the same time is perfectly capable of and even disposed to also making arguments against the opposing position when there is no requirement to choose between one and the other. We therefore go on to examine how individuals balance the two kinds of arguments when they are given the open-ended opportunity to provide multiple arguments of either type. This investigation is the focus of Study 4. Content of the items remains the same as in the preceding studies, but no argument options are provided, and participants are asked simply "What is the best argument to make?". Thus, as in the preceding studies, the demands of discourse are removed, and the content remains straightforward and familiar enough that participants should have no difficulty generating the content of arguments of either type.

Method

Participants. The youngest group of participants in Study 3 consisted of a group of 32 seventh- and eighth-grade middle-school students (15 female and 17 male) from the same middle school described in Study 1. Their performance was compared to that of two groups of adults. One was a predominantly female university group ($n = 23$) from the same institution described in Study 1. The other was a group of 29 community adults (13 female and 16 male) from the same population described in Study 3. Their age ranges were as reported in Study 1 and Study 3.

Procedure. Participants were presented a five-item instrument containing the first five of the ten items in the instrument used in Studies 1 and 3. However, the items were modified by removing the two response options. The question posed following the item was simply "What is the best argument to make?". In the middle-school group, an adult went over the first item with students to make sure they understood. Otherwise, participants provided their answers in writing independently.

Results

Responses to the five items were classified into the types shown in Table 3. Dual-function arguments, as illustrated in Table 3, can address the two positions with respect to a single dimension or with respect to two or more dimensions. Dual-function arguments by definition include both an argument in support of the favoured option and an argument countering the opposing option. Single-function arguments contain only one or the other. Avoidant arguments are those that avoid argument altogether. In this case, as illustrated, the respondent bypasses the argument by proposing some compromise between the two positions or alternative solution.

A participant was assigned two points for including a given type of argument in his or her response, so that the total possible points for that argument type summing over the five items would be 10 points, facilitating comparison between Tables 2 and 4. In Table 4 appear the mean scores for each argument type for each group. (The two dual-function types in Table 3 are combined in Table 4 due to their less frequent occurrence and the fact that the two dual types showed no age-related pattern.)

One-way analyses of variance for each of the four types of arguments portrayed in Table 4 showed significant effects of group. For dual-function arguments, $F(2, 83) = 12.07$, $p < .001$, with post-hoc Scheffe comparisons significant at $p < .001$ for the younger group compared to each adult group but not for the two adult groups compared to one another. For support

TABLE 3
Examples of argument types by function

Dual function/ single dimension	I think it's best for me to play soccer because I have played it before and I know I like it. I have never played basketball and I don't know if I would like it.
Dual function/ dual dimensions	I want to feel more useful than passing cans of tuna. I need more sun and more challenge this summer. I want to save lives or have more possibility of doing so.
Single function: Support favoured option	Soccer is more enjoyable because of the different positions you can take. I also enjoy playing with a wider variety of people and trying diverse tricks on the field.
Single function: Counter opposing option	Packing grocery bags doesn't pay.
Avoidant	I would compromise and say that I could play both.

TABLE 4
Mean scores on open-ended instrument by age group

	Seventh & eighth graders	*Community adults*	*University adults*
Dual function	1.82	4.76	4.86
Support favoured option	4.82	8.56	8.60
Counter opposing option	2.94	5.52	5.40
Avoidant	4.12	.68	.86

Maximum score = 10.

arguments, $F(2, 83) = 22.14$, $p < .001$, with post-hoc Scheffe comparisons significant at $p < .001$ for the younger group compared to each adult group but not for the two adult groups compared to one another. For counter arguments, $F(2, 83) = 7.56$, $p < .001$, with post-hoc Scheffe comparisons significant at $p = .013$ for the younger group compared to the university group, and $p = .003$ for the younger group compared to the community adult group, but not significant for the two adult groups compared to one another. For avoidant arguments, $F(2, 83) = 23.55$, $p < .001$, with post-hoc Scheffe comparisons significant at $p < .001$ for the younger group compared to each adult group but not for the two adult groups compared to one another.

Discussion

The conditions change in Study 4, in that participants are no longer constrained in the number of arguments they can make and hence the number of functions their arguments can fulfil. We see that, under these conditions, performance changes from Studies 1 and 3 to Study 4 in different ways across the different groups. The younger group increases on average only slightly the extent to which they address the opposing position, even though doing so does not constrain the opportunity they have to support their own position. On average, this young adolescent group in roughly two out of three cases (means of 1.82 and 2.94 in Table 4) incorporates this recognition of the opposing position into a dual-function argument.

The two adult groups, in contrast, substantially increase the extent to which they address the opposing position under the unconstrained conditions of Study 4. Like the younger participants, they incorporate recognition of the opposing position into a dual-function argument most of the time. The outcome is thus that the adults are successful in advancing dual-function arguments almost half of the time.

Under these unconstrained conditions, moreover, no difference between the community and university adults appears. The community adults' scores are only marginally lower than those of the university adults. The university adults may thus be slightly more aware of the relevance of the opposing

position in argument and hence see as stronger those arguments that address it. However, when asked to produce arguments, community adults do just as well in producing comprehensive arguments, i.e., ones that address both positions.

A final notable difference between the young adolescent and the adult groups is the frequency of responses in the "Avoidant" category on the part of the younger group. Of the 32 participants in this group, 26 made a response falling into this category to at least one item, 3 made a response in this category to all items, and another 3 to all but one item. These frequencies suggest a tendency on the part of those in this age group to understand the objective of argumentation as one of resolving or avoiding an argument, rather than addressing or conducting it.

STUDY 5

A final, albeit unlikely, possibility that we have not addressed is that the younger participants' weakness in producing arguments against an opposing alternative is attributable to lack of knowledge which leaves them unable to generate appropriate content for such arguments. To evaluate this possibility, we conducted a final study in which middle-school students were presented the same items as in Study 4. This time, however, they were asked simply and explicitly to generate an argument against the opposing option.

Method

Participants. Participants were 25 eighth-grade students (18 female and 7 male, age 13 – 14) from the same urban middle school described in Study 1.

Procedure. The instrument was similar in form to that used in Study 4 and, like that instrument, contained five items. The following is an example for the case of the beverage item presented earlier ("You are told to drink fruit juice instead of soda. You like soda better."). Instead of the instruction used in Study 4, the participant was instructed, "Give a reason against drinking fruit juice.". The instruction for each of the other items was comparable.

Results and discussion

The majority of students, 60%, produced arguments against the opposing position for all five items, and 88% did so for three or more of the five items. The mean number of successful arguments was 4.24 (of a possible 5). Hence, inability to generate arguments against an opposing position cannot be regarded as a major contributor to the performance depicted in Table 4.

Despite the explicit instructions, many students also included arguments supporting the favoured position, suggesting that students of this age do not distinguish sharply between the two kinds of arguments.

GENERAL DISCUSSION

The major goal of the research presented here has been to better identify the cognitive demands of argument and hence the challenges that developing argument skills poses. Developmental psychologists have increasingly begun to address themselves seriously to the task of better articulation of the cognitive goals of primary and secondary education (Bereiter, 2002; Gardner, 1999; Kuhn, 2005: Olson, 2003). Despite their wide endorsement as educational goals, argument skills pose a challenge to analyse from a cognitive perspective, because argument is most often embedded in a rich verbal context, making it necessary to distinguish students' verbal facility from the cognitive skills that are required. In the present work, we therefore sought to study the most rudimentary kinds of arguments, stripped of verbal complexity, with the goal of shedding light on the demands of argument itself. Moreover, we have focused our attention on argument in the form in which it most often occurs in natural settings; that is, in argumentive discourse in which two opposing positions are identified and debated.

The demands of argumentive discourse, we suggest, have two aspects—a skill aspect and an epistemological aspect. The development of epistemological understanding—of what it means to know something—is an essential foundation for argument (Chandler, Boyes, & Ball, 1990; Kuhn, Cheney, & Weinstock, 2000; Mason & Boscolo, 2004). Long neglected as an area of study, epistemological understanding has received much more attention in recent years (Hofer & Pintrich, 2002) as an important influence on thinking and learning. It is only at the more developed levels of epistemological understanding that argument makes sense as an enterprise in which one should invest effort. At an early (absolutist) level of epistemological understanding, knowledge is regarded as entirely objective and certain and accessible, in which case argument is unnecessary. At a later (multiplist or relativist) level of epistemological understanding, knowledge is regarded as entirely subjective and relative, in which case argument can only be understood as irrelevant (Kuhn et al., 2000). One must see the point of argument if one is to invest significant effort in it and in developing the skills it entails.

In the present context, we see in addition the more specific importance of epistemological understanding in the need to recognise the relevance of the other's position. Young adolescents, we saw, are able to attend to the other's position, and even to generate an argument against it, when explicitly asked

to do so. Yet they infrequently choose the option of attending to that position when this option is offered, and they infrequently include attention to it in their own freely constructed arguments. The challenge in this case, then, is less one of executing the skill (of addressing the opposing position) than it is one of recognising the need to do so. This recognition goes to the very heart of argument. If the opponent's position is not relevant, the process through which one achieves victory over the opponent cannot be regarded as one of argument.

For some of the young adolescents in our sample, the epistemological foundation for appreciating argument may be even more fragile. Many in this age group, we saw, respond in a way that seeks to bypass argument altogether (Table 4). For them, the goal appears to be one of resolving a conflict that exists, a resolution that seeks only to avoid argument rather than exercise it. In this case, epistemological understanding, at an even more basic level, is at stake and must develop as a prerequisite to the development of argument skill. Young people will not be disposed to develop argument skills unless they understand the positive objectives and potential fruits of argument, rather than seeing argument only in negative terms as something to be avoided.

Recognising the relevance of the opposing position and addressing it are clearly prerequisites to what we and others have taken as defining skilled argumentation—seeking to identify weaknesses in the opponent's arguments and to secure commitments from the opponent that can be used to support one's own claims (van Eemeren, Grootendorst, & Henkemans, 1996; Walton, 1989). When the additional demands of ongoing discourse are removed and the content is not demanding, average adults, we found, are able to accomplish this about half of the time (Table 4). Young adolescents, in contrast, do so less than a third of the time. They are constrained, however, by lack of attention to the opposing position (although not by inability to address it when explicitly asked to do so). If they were to receive some form of cognitive support that proved sufficient to direct their attention to the opposing position, it would remain to be seen whether the coordination required in dual-function arguments (that both support one position and counter another) poses a further barrier to effective argument. In the case of adults, we found, a dual-function argument was accomplished on most of the occasions that the opposing position was addressed (Table 4).

It does not follow, of course, that either adolescents or adults achieve the dual functions of skilled argument as readily in the context of live discourse. The indications are that they do not (Felton & Kuhn, 2001). Live, real-time discourse has its own demands, which are considerable for a young adolescent. At each moment one is either speaking or processing what the other person is saying. The format allows no time to formulate a critique of what the opponent has said after he or she has finished saying it. The less

demanding alternative is to continue expressing one's own ideas, which are more readily available.

When discourse demands are removed, as they were in the present research, attention to the opposing position on the part of young adolescents increases to a level greater than the roughly 10% level observed in discourse (Felton & Kuhn, 2001; Kuhn & Udell, 2003). However, the developmental differences between young adolescents and adults remain evident in both realms. These results indicate that the demands of discourse constitute part, but not all, of the challenge that adolescents encounter in attending to both positions. The additional challenge, we have suggested, is cognitive and entails both implementing this dual focus and appreciating the need to do so.

The developmental parallels observed across the dialogic and non-dialogic contexts strengthen the present findings, but they also strengthen the claim of a close connection between the two forms of argument; dialogic and non-dialogic (Billig, 1987; Kuhn, 1991; Reznitskaya, Anderson, McNurlen, Nguyen-Jahiel, Archodidou, & Kim, 2001; Vygotsky, 1981). Moreover, the claim has been made that dialogic argument, because of its roots in everyday conversation, offers the most promising path to promoting skilled individual argument in both writing and speaking (Graff, 2003; Kuhn, 2005). If so, it is important to gain further understanding of the cognitive skills required in each of these contexts.

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