

Do Goals Affect the Structure of Students' Argumentative Writing Strategies?

Ralph P. Ferretti, William E. Lewis, and Scott Andrews-Weckerly
University of Delaware

Fourth- and sixth-grade students with and without learning disabilities wrote essays about a controversial topic after receiving either a general persuasion goal or an elaborated goal that included subgoals based on elements of argumentative discourse. Students in the elaborated goal condition produced more persuasive essays that were responsive to alternative standpoints than students in the general goal condition. Students with learning disabilities wrote poorer quality and less elaborated arguments than students without disabilities. Measures derived from the structure of students' argumentative strategies were highly predictive of essay quality, and they accounted for the effects of goal condition, grade, and disability status. Nearly all students used the *argument from consequences* strategy to defend their standpoint. The implications for argumentative writing are discussed.

Keywords: argumentative writing, argumentation schemes, writing goals

The capacity to communicate about controversial issues is central to participation in democratic decision making (Dewey, 1916). Unfortunately, empirical evidence shows that students are neither effective in using argumentative strategies and adapting them to the communicative circumstances (Felton & Kuhn, 2001) nor in crafting convincing written arguments. For example, the 2002 National Assessment of Educational Progress Writing Report Card (Persky, Daane, & Jin, 2003) showed that only 17% of fourth graders, 18% of eighth graders, and 31% of 12th graders wrote argumentative essays that were judged to be skillful or better. Skillful essays generally offered a thesis and some supporting reasons and examples but lacked clear transitions among arguments and did not necessarily consider alternative viewpoints. Clearly, reasoned argumentation in its varied forms is a challenging domain for many students.

Argumentative writing is a problem-solving process (Bereiter & Scardamalia, 1987; Hayes, 1996; Hayes & Flower, 1980) that involves the use of goal-directed self-regulatory procedures to manage task demands (Graham, 1997; Graham & Harris, 1997). Faced with the ill-defined goal of convincing others, writers must draw on their knowledge of argumentative discourse (McCann, 1989; Sprott, 1992) to generate subgoals that enable them to write persuasively (Ferretti, MacArthur, & Dowdy, 2000). In contrast to expert writers, who usually set relevant content and rhetorical goals to guide the writing process, novices often retrieve and write down topically relevant information and then use this information

as a stimulus for retrieving and reporting related information (Page-Voth & Graham, 1999). Not surprisingly, the failure to use genre-specific goals results in the production of argumentative essays that lack critical components and contain relatively few supporting reasons (De La Paz & Graham, 1997; Graham, 1990; Graham, MacArthur, Schwartz, & Page-Voth, 1992; Sexton, Harris, & Graham, 1998). The absence of these components reduces the overall quality of their essays (Graham & Harris, 1989).

One approach to increasing the goal directedness of less skilled writers is to provide explicit subgoals that focus students on genre-relevant information that can be used to construct their essays (Flower & Hayes, 1980; Hayes & Flower, 1986). Goals may affect performance when they provide clear direction about what needs to be included in the essay (Ferretti et al., 2000; Nussbaum & Kardash, 2005) and may motivate persistence by enabling the student to monitor progress toward the overall goal. Goal-directed progress enhances self-efficacy and motivates continued effort (Zimmerman & Risemberg, 1997). However, limitations of self-regulation (De La Paz, Swanson, & Graham, 1998; Graham, 1997) may prevent learners from establishing genre-specific subgoals. Therefore, providing explicit genre-specific subgoals for an argumentative essay should help students to write more convincing arguments. Two studies provide evidence about the effects of explicit subgoals on argumentative essays of relatively unskilled writers (Ferretti et al., 2000; Nussbaum & Kardash, 2005).

Ferretti et al. (2000) compared the effects of a general goal to persuade and an elaborated goal that established genre-specific subgoals on the argumentative writing of fourth- and sixth-grade students with learning disabilities (LD) and their typically achieving peers. Students in the elaborated goal condition were directed to justify their standpoint with reasons, and critique and rebut the reasons for an alternative standpoint. The elaborated goal induced fourth and sixth graders to include more alternative propositions, alternative reasons, and rebuttals than the general goal condition. In addition, sixth-grade students in the elaborated goal condition

Ralph P. Ferretti, William E. Lewis, and Scott Andrews-Weckerly, School of Education, University of Delaware.

We thank Joseph Glutting for his statistical advice and the following people for either designing materials or collecting and coding data: Laura Agate, Chris Beyer, Andy Harnish, Eva Mizrahi, Kim Richards, Yi Song, and Julie Strassler.

Correspondence concerning this article should be addressed to Ralph P. Ferretti, School of Education, Willard Hall Education Building, University of Delaware, Newark, DE 19716. E-mail: ferretti@udel.edu

produced more persuasive essays and included a greater number of argumentative elements in their essays than either sixth graders in the general goal condition or fourth graders in both goal conditions. Furthermore, analyses indicate that about 45% of the variance in the quality of students' essays could be accounted for by the inclusion of argumentative elements. Finally, sixth-grade students wrote better essays in the elaborated goal condition than the general goal condition, but fourth graders wrote equally well in the two conditions. Sixth-grade students also included more argumentative elements under the elaborated goal condition, but fourth graders included approximately equal numbers of elements in both conditions. For some reason, the younger students, who were weaker writers, did not benefit from the provision of the elaborated goal. It should be noted, however, that Ferretti et al. (2000) did not analyze for the presence of counterarguments (i.e., potential criticisms that can be leveled against either the student's standpoint or the reasons for that standpoint; Nussbaum & Schraw, 2007).

Nussbaum and Kardash (2005) conducted two experiments that extended the findings of Ferretti et al. (2000). In the first study, college students wrote argumentative essays under three conditions. In the counterargument/rebuttal condition, students were told to provide reasons and evidence for their standpoint and reasons why other people might disagree with them, and then to rebut the latter reasons. In the reason condition, students were told to provide reasons and evidence for their standpoint. In the control condition, students were told to write an essay that expressed their opinion about the controversial issue. The authors found that college students produced more counterarguments, rebuttals, and reasons for rebuttals in the counterargument/rebuttal condition than in the reason condition, and that students in the reason condition produced more reasons and evidence to support their standpoint than students in the control condition. Moreover, Nussbaum and Kardash (2005) found that students with extreme attitudes about the controversial issue generated fewer alternative standpoints about the issue than those with less extreme attitudes.

In the second experiment, college students were told to persuade an audience or simply to express their opinion (no persuasion) about a controversial issue. The authors speculated that writing to persuade, in contrast to simply expressing an opinion, might inhibit the production of alternative standpoints and counterarguments because the failure to rebut them undermines the essay's persuasiveness (Santos & Santos, 1999). Nussbaum and Kardash (2005) also sought to determine whether the provision of a short text outlining arguments on both sides of the issue would improve essay quality because the text provided content information that might be used to bolster students' arguments. Compared to the no persuasion goal, the authors found that the persuasion goal reduced essay quality when students wrote without the support of a text. In addition, students included less support for counterarguments when writing to persuade whether or not a text was provided. However, the provision of a text in the no persuasion condition did result in greater consideration of alternative standpoints, and texts were generally more effective for students with less extreme prior attitudes about the issue.

Nussbaum and Kardash (2005) concluded that persuasion goals might discourage consideration of alternative standpoints. Furthermore, they offered a provocative explanation of the effects of elaborated goals (Ferretti et al., 2000). Rather than serving a self-regulatory function, they speculated that elaborated goals

might actually counteract the effects of persuasion goals, which may be inimical to the production of counterarguments. It should be noted, however, that Nussbaum and Kardash did not assess the possible independent and interactive effects of goal elaborateness and the writer's purpose on the production of students' counterarguments and the quality of their essays.

These findings are generally consistent with a substantial body of evidence that shows that writing is a goal-directed activity (Graham & Harris, 1988; Hayes & Flowers, 1986; Page-Voth & Graham, 1999) and that explicit genre-specific subgoals can improve the quality of students' argumentative essays and induce greater consideration of alternative standpoints (Ferretti et al., 2000; Nussbaum & Kardash, 2005). However, these conclusions rest on simple counts of the elements of argumentative discourse. In fact, arguments are not simply reducible to the elements of which they are comprised; they aim "at increasing (or decreasing) the acceptability of a controversial standpoint . . . by putting forward a constellation of propositions intended to justify (or refute) the standpoint" (van Eemeren, Grootendorst, & Henkemans, 1996, p. 5). Said differently, the propositions that constitute an argument possess a structure that in its totality increases the acceptability of the writer's standpoint. Furthermore, previous studies of writing goals failed to analyze the kinds of argumentative strategies used by students to gain approval for their standpoints (van Eemeren & Grootendorst, 1992; van Eemeren, Grootendorst, Jackson, & Jacobs, 1993; Walton, 1992, 1996). Arguments have different aims (see Walton, 1992), and interlocutors should use argumentative strategies that are best suited for their specific discursive purposes. These strategies, which have been called *argumentation schemes or strategies* (van Eemeren & Grootendorst, 1992; van Eemeren, Grootendorst, & Henkemans, 2002; van Eemeren et al., 1993; Walton, 1996), are conventionalized ways of representing the relationship between what is stated in the standpoint and its supporting justificatory structure.

There is well-established philosophical literature dating to Aristotle (1991) about the importance of argumentation strategies in analyzing and evaluating persuasive discourse (see Walton, 1992; 1996; van Eemeren & Grootendorst, 2004). For example, the *argument from consequences* strategy, which justifies a contemplated policy based on the potential positive and negative consequences that may result from its enactment, is used to justify legal decisions (Feteris, 2005) and appears in persuasive brochures (Schellens & De Jong, 2004). Nevertheless, there is a dearth of information about the use of argumentation schemes in students' written arguments, including students with LDs (see Ferretti, Andrews-Weckerly, & Lewis, 2007). Moreover, the literature is mute about the possible effects that explicit writing goals have on the structure of students' argumentative essays and the kinds of argumentation strategies used by them.

The primary purpose for this study was to determine how explicit genre-specific subgoals and a general goal to persuade affect the structure of students' arguments and types of argumentative strategies used by them. We expected that the elaborated goal would induce students to present more reasons for their standpoint and to evidence greater consideration of alternative standpoints (Ferretti et al., 2000; Nussbaum & Kardash, 2005). This led us to expect that the structure of students' written arguments would be deeper and more detailed in the elaborated goal condition. We also expected that fourth-grade students and those

with LDs would write less well-developed arguments that were of poorer quality compared to sixth-grade students and their typically achieving peers. Furthermore, we expected that measures derived from our structural analyses would predict the rated persuasiveness of students' essays.

We were less certain about the kinds of argumentative strategies that would be used by students and the possible effects of explicit writing goals on these strategies. However, the two above-mentioned goal-setting studies (Ferretti et al., 2000; Nussbaum & Kardash, 2005) asked students to write about a policy issue, such as whether they should be given more homework. Since Aristotle (1991), the argumentation from consequences strategy has been recognized as a tactic for deliberating about political and policy matters (Walton, 1996). Therefore, we expected that this strategy would be widely used by participants in this study.

Method

Participants

Ninety-six students participated in the study. Typically achieving students and those with LD were randomly assigned within grades to either the general goal condition or the elaborated goal condition. Forty-eight 4th- and 6th-grade students were equally divided between the elaborated and general goal conditions. Half of the students at each grade level were learning disabled and the other half were students without disabilities. The students came from four schools in a combined urban/suburban school district in the mid-Atlantic region. The school district implements a model of inclusion (i.e., including special education students in general education classes) called *team approach to mastery* (Bear & Proctor, 1990). Team approach to mastery classes include both general education students and special education students in a ratio of

approximately 2 to 1 and are taught by a general education and a special education teacher. The general education students are selected to represent the school population.

In the particular classes that participated in this study, the school had identified all of the special education students as having LD and none had concurrent disabilities. All of the students with LD had scores on a standardized reading or writing test at least one standard deviation below the mean. The school district's diagnostic criteria require that students with LD score within the average range on a test of standardized intelligence. However, 13 students had a full scale IQ score lower than 80. As described below, we compared the performance of students who did and did not meet the intelligence criterion and found no significant main or interaction effects on any of the dependent measures. Thus, all of the school-identified students with LD were included in the study.

The characteristics of the students in the two goal conditions are presented in Table 1. All scores were taken from school files. Of the students with LD, 52% were Caucasian, 40% were African American, and 8% were Hispanic. Of the typically achieving students, 35% were Caucasian, 44% were African American, 13% were Hispanic, and 8% were Asian. Furthermore, 50% of students with LDs and 27% of typically achieving students were eligible for free or reduced-price lunch. These proportions were representative of the schools' populations. Table 1 also presents the results of the writing assessment from Delaware Student Testing Program (DSTP; Delaware Department of Education, 2002), which was administered to these participants in the year preceding their involvement in this study. The DSTP writing assessment asked all eligible third- and fifth-grade Delaware students to write essays in response to two prompts, the first of which was based on a reading passage (text-based prompt) and the second of which prompted them to write about a topic without the reading passage (stand-

Table 1
Participant Characteristics

Variable	General goal				Elaborated goal			
	Fourth grade		Sixth grade		Fourth grade		Sixth grade	
	LD	TA	LD	TA	LD	TA	LD	TA
<i>N</i>	12	12	12	12	12	12	12	12
Age								
<i>M</i>	10.7	10.3	12.7	12.1	10.6	10.2	12.6	12.1
<i>SD</i>	0.6	0.4	0.5	0.5	0.7	0.4	0.4	0.3
IQ								
<i>M</i>	87.3		84.4		85.9		87.4	
<i>SD</i>	12.8		8.9		10.4		11.3	
Writing								
<i>M</i>	1.67	2.50	1.75	2.58	1.91	2.17	1.67	2.33
<i>SD</i>	0.49	0.53	0.62	0.52	0.70	0.72	0.65	0.89
Reading								
<i>M</i>	85.8	109.3	79.8	101.7	84.0	106.3	75.6	108.1
<i>SD</i>	13.2	12.5	7.3	14.8	9.7	14.2	10.5	14.4

Note. IQ scores are from the Wechsler Intelligence Scale for Children—III (Wechsler, 1991). IQ data were not obtained for typically achieving (TA) students. Writing scores are from the Delaware Student Testing Program (Delaware Department of Education, 2002). Reading scores are from the Stanford Achievement Test—Ninth Edition (Psychological Corporation, 1995) for typically achieving students and the Wechsler Individual Achievement Test for students with learning disabilities (Wechsler, 1992; *M* = 100; *SD* = 15). LD = students with learning disability; CA = chronological age in years.

alone prompt). These students' essays were then scored using a 5-point scale (5 = *distinguished performance*; 4 = *exceeds the standard*; 3 = *meets the standard*; 2 = *below the standard*; 1 = *well below the standard*) and were averaged to yield an overall quality score. As reported later, these scores were used to compare the writing performance of participants in this study.

Procedure

Students in the general goal condition were asked to take a position and write a letter to their teachers about whether they should be given more homework. The following prompt was administered to students in the general goal condition:

Today you're going to write a letter to a teacher about whether or not students should be given more out-of-class assignments. Should your teacher increase the number of out-of-class assignments that students have to do? This is what we want you to write about."

Students in the elaborated goal condition were given the same general goal plus explicit subgoals based on the elements of argumentative discourse. The subgoals appeared on a sheet of paper that was given to the students. The following prompt was administered to students in the elaborated goal condition:

Today, we're going to ask you to write a letter to a teacher about whether or not students should be given more out-of-class assignments. Should your teacher increase the number of out-of-class assignments, or homework, that students have to do? This is what we want you to write about.

(Point to sheet with elaborated goal and say) To convince your teacher, you need to say a few things:

- You need to say very clearly what your opinion or viewpoint is;
- You need to think of two or more reasons to back up your opinion;
- You need to explain why those reasons are good reasons for your opinion;
- You have to remember that other people have different opinions about this issue, so you need to mention that other people have a different opinion;
- You need to think of two or more reasons that other people might use to back up their opinion;
- You need to explain why these reasons aren't good reasons for the other person's opinion;
- You need to write a conclusion that summarizes your opinion about the issue.

You can use that list in any way that you want during today's work.

The prompts were given to students and read aloud by either Scott Andrews-Weckerly or two undergraduate research assistants. Students were asked to read the prompt as well. The students were given 45 min to write their letter. All students were tested individually. We taped the students' interactions with the assistants and checked them to be sure that the instructions were administered with fidelity. The prompts were always administered faithfully.

Scoring

Students' papers were typed and corrected for spelling prior to scoring and analysis.

Overall persuasiveness. One undergraduate student unfamiliar with the design and purpose of the study and Scott Andrews-Weckerly independently scored all the papers using a primary trait-scoring guide for overall persuasiveness (see Ferretti et al., 2000) for the purpose of establishing interrater reliability. Papers were rated on a scale from 0 to 7. The scoring guide directed raters to judge the overall persuasiveness of a paper (i.e., the effectiveness of the paper in influencing a particular audience to take some action or to change their thinking about a controversial issue). Raters were directed to consider whether students' arguments stated a clear opinion about the controversial issue, provided supporting reasons for their opinion, elaborated their reasons with examples and explanations, and addressed opposing positions. The scoring guide included anchor papers at each level of the scale.

Raters received extensive training and practice in using the scoring guide. They discussed the scale and anchor papers and practiced scoring papers on the same topic that were not used in the study. The rater first received four 1-hr training sessions during which she was taught to identify the persuasive qualities of 22 researcher-generated papers. The researcher-generated papers were designed to illustrate the abovementioned characteristics that contribute to a paper's overall persuasiveness. The rater and Scott Andrews-Weckerly then independently rated nine papers on the homework. These ratings were then evaluated and discussed, and then another nine essays were evaluated and discussed for reliability. The latter 18 essays were drawn from a study reported by Ferretti et al. (2000). Interrater agreement (agreement = agreements/agreements + disagreements) within 1 point was found to be 96%. As recommended by Rushton, Brainerd, and Pressley (1983), the scores for essays for which there were two raters were averaged for a final persuasiveness score.

Argumentative structures. Our procedures for analyzing the argumentative structures were derived from the *pragmadiialectical theory* of argumentation (van Eemeren & Grootendorst, 1992, 2004; van Eemeren et al., 2002). In brief, we developed a coding system that allowed us to distinguish the elements of an argumentative structure and the relationships among elements, and then to graphically depict these structural relationships. Discourse markers (van Eemeren et al., 2002) provided useful information about the argumentative elements and their relationships. However, specific rules were also developed to differentiate the superordinate and subordinate relationships among these elements in the argumentative structures (see van Eemeren & Grootendorst, 1992; van Eemeren et al., 2002).

We used the following process to graphical represent the structure of students' written arguments: (a) identify the student's standpoint(s) (i.e., the standpoint advanced by the student), (b) identify the student's reasons for the standpoint (i.e., the propositions that support the student's standpoint), (c) distinguish between reasons offered as direct support for the standpoint (i.e., Level 1 reasons) and reasons subordinate to Level 1 that are offered as support for reasons above it (i.e., distinguish between reasons that directly support the student's standpoint and reasons that are used to support those reasons), (d) identify alternative standpoint(s) (i.e., standpoints of other people that the student disagrees with), (e) identify reasons for the alternative standpoint (i.e., the propositions that support other people's standpoint), (f) distinguish between reasons offered as direct support for the alternative standpoint (Level 1 reasons for the alternative standpoint) and reasons

subordinate to Level 1 that are offered as support for reasons above it (i.e., distinguish between reasons that directly support the alternative standpoint and reasons that are used to support those reasons), (g) identify counterarguments that could be used to object to or undermine the student's standpoint (i.e., potential criticisms of either the student's standpoint or reasons for the student's standpoint that could be used to bolster the alternative standpoint), (h) identify rebuttals of the alternative standpoint (i.e., propositions that either attack an alternative standpoint or undermine counterarguments and thereby strengthen the student's standpoint), (i) identify an introduction that foreshadows what is to follow in the student's presentation of the argument, (j) identify a conclusion that brings together or summarizes what the student has written, and (k) identify nonfunctional statements that include information that is irrelevant to the topic.

Figure 1 depicts the graphical representation of the structure of a well-developed argumentative essay written by a typically achieving sixth-grade student who was assigned to the elaborated goal condition. The structure reveals that the student offered one standpoint and one alternative standpoint. The standpoint has two supporting Level 1 reasons, the first of which is supported by two subordinate reasons and the second of which is supported by four subordinate reasons. The alternative standpoint is supported by two Level 1 reasons, both of which are rebutted. Finally, the author concludes her essay with a summary of her standpoint and supporting arguments.

One undergraduate student unfamiliar with the design and purpose of the study and Ralph P. Ferretti independently graphed the structure of every essay using a scoring guide that followed the above-described process to establish interrater reliability. The scoring guide included anchor papers that illustrated the structural relationships among argumentative elements, and the raters received extensive training and practice in using it. The undergraduate rater first received six 1-hr training sessions during which he was taught to identify and graph the structure of written arguments for 22 researcher-generated essays. The researcher-generated essays were designed to illustrate the structural relationships among the elements of argumentative discourse. He then practiced graphically depicting the arguments for 20 essays. These structures were then evaluated and discussed, and another 20 essays were graphed, evaluated, and discussed. The latter 40 essays were drawn from a study previously reported by Ferretti et al., (2000). Interrater agreement (agreement = agreements/agreements + disagreements) within one instance was computed for each argumentative element: author's standpoint(s) = 90%; Level 1 reasons for author's standpoint(s) = 76%; reasons below Level 1 for author's standpoint(s) = 77%; alternative standpoint(s) = 99%; Level 1 reasons for alternative standpoint(s) = 95%; reasons below Level 1 for alternative standpoint(s) = 96%; counterarguments = 92%; rebuttals = 97%; introductions = 100%; conclusions = 100%; nonfunctional elements = 95%. The structural analyses of the two raters were reconciled, yielding a final structure from which all dependent measures were computed.

Argumentative strategies. We used the graphical representations of the essays' structures to analyze the kinds of argumentative strategies used by students (van Eemeren & Grootendorst, 1992; van Eemeren et al., 2002, 1993; Walton, 1996). As seen in Figure 1, each argumentative element is depicted as a node related to other nodes in the graph. We developed a scoring guide that

enabled raters to distinguish among seven argumentative strategies and to recognize their presence in the graphs. These strategies were selected because they are commonly found in everyday argumentation and could be used in arguments about policy issues (see Walton, 1996). The raters' task was to classify the argument strategy used in each node of every essay.

The seven strategies and their illustrations are as follows: (a) argument from sign: the reason is taken as a sign or indicator of a conclusion expressed by the author (e.g., "One reason is that if we get more homework it shows the kids that you believe in them"); (b) argument from example: the reason is taken as an example that illustrates a generalization expressed by the author (e.g., "I shouldn't get more homework because I won't have any time for me. I won't have time to play or take basketball lessons"); (c) argument from cause to effect: the reason is taken as cause of an effect that is expressed by the author (e.g., "I shouldn't get more homework because I'm tired. Doing homework causes me to get tired"); (d) argument from correlation to cause: the reason expresses a correlation between two events that is taken as evidence for a causal relationship (e.g., "We should get more homework because students who get more homework get better grades"); (e) argument from consequences: the reason expresses the negative or positive consequences of enacting a policy or practice (e.g., "We should get more homework because it will make our parents happy"); (f) argument from causal slippery slope: a reason describes an initial event that will inevitably lead to a series of undesirable outcomes that should be avoided (e.g., "I don't want more homework because it will give me a headache. Then I would probably complain to my parents. Then they would get headaches and probably get mad at me"); and (g) argument from verbal classification: the reason expresses a classification of events that is used to support a conclusion expressed by the author (e.g., "I shouldn't get more homework because if you have 5 pieces of homework, it takes a long time to finish it"). The training guide also taught raters to identify unexpressed premises that underlie the use of these argumentative strategies and possible grounds for rebutting them (see van Eemeren et al., 2002; Walton, 1996).

One undergraduate student unfamiliar with the design and purpose of the study and Ralph P. Ferretti independently classified the argument strategy used in each node of every essay using a scoring guide that followed the above-described process. The scoring guide included anchor papers at each level of the scale, and the raters received extensive training and practice in using it. The undergraduate rater first received four 1-hr training sessions during which she was taught to identify and graph the structure of written arguments for 16 researcher-generated essays. The researcher-generated essays were designed to illustrate the structural relationships among the elements of argumentative discourse. She then practiced analyzing the graphs and identifying the argumentative strategies used in 20 essays. These structures were then evaluated and discussed, and another 20 essays were analyzed, evaluated, and discussed. The latter 40 essays were drawn from a study previously reported by Ferretti et al., (2000). Interrater agreement (agreement = agreements/agreements + disagreements) within one instance for each strategy was as follows: (a) argument from sign = 100%; (b) argument from example = 100%; (c) argument from cause to effect = none present; (d) argument from correlation to cause = none present; (e) argument from consequences = 96%;

Dear Ms. _____,

I believe that out of class work already takes up enough of the student body's time. Instead of increasing it, I think you should decrease for obvious reasons.

One reason is that if student had less homework, they would have more time to study. Then maybe they wouldn't get F's all the time. And every assignment we have equals half and hour less for our studies.

Another reason for less out of class work is that some of it just wastes time. The students would do the assignment, but learn nothing. And they waste a lot of time on the assignments, causing them to sleep late at night and be tired during school hours.

I know that some people believe in more homework. They say that homework keeps children on the ball, but shouldn't school be enough for that. And they also say that homework gives kids work to do so they aren't lazy. But don't chores count as work too.

In conclusion, we shouldn't have more homework. Actually, we should have less. Out of class work can just take away study time and wastes your other time, so why should we have more?

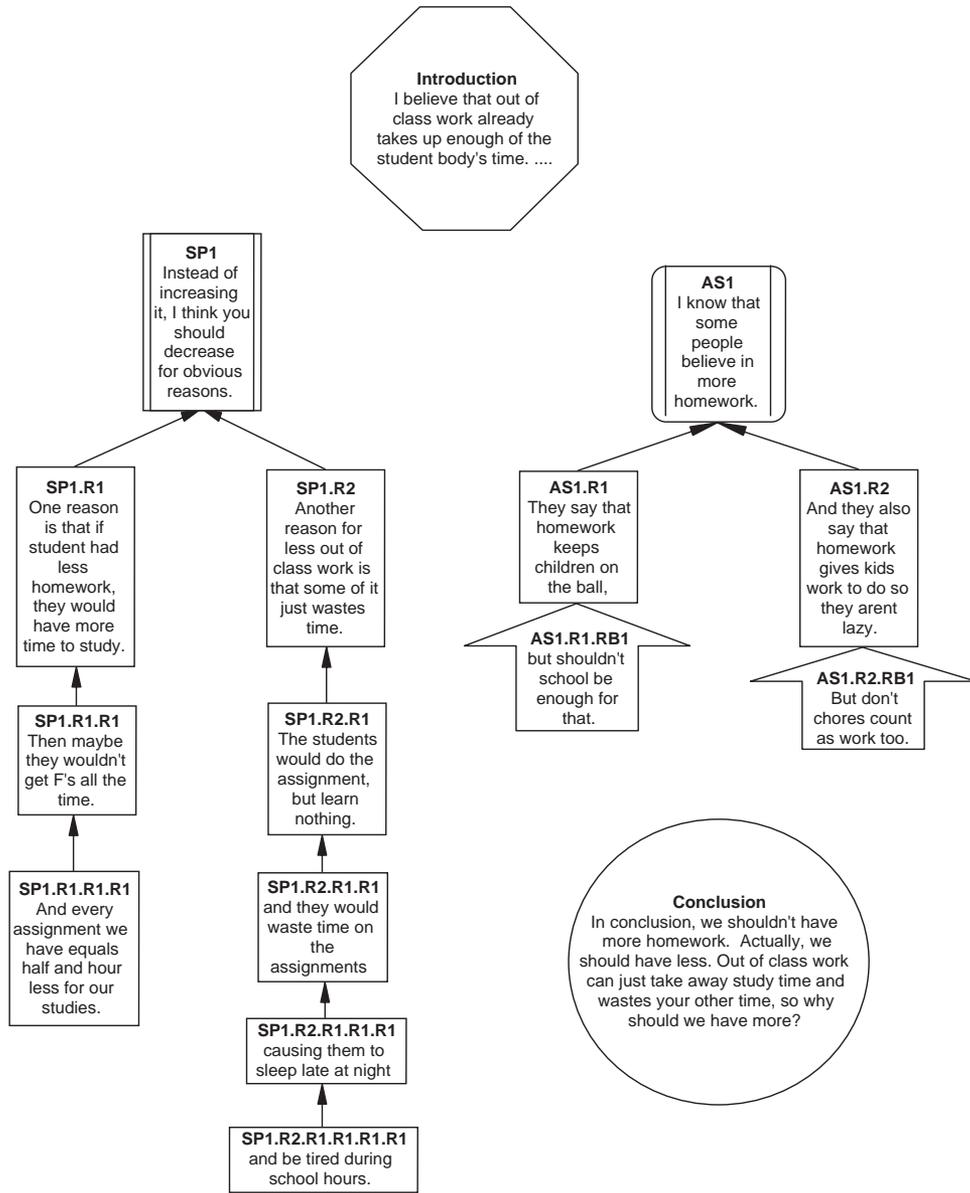


Figure 1. Graphical representation of the structure of an argumentative essay written by a sixth-grade typically achieving student in the elaborated goal condition. SP1 = Standpoint 1; R1 = Reason 1; R2 = Reason 2; AS1 = Alternative Standpoint 1; RB1 = Rebuttal 1.

This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

(f) argument from causal slippery slope = 100%; (g) argument from verbal classification = 98%.

Results

In what follows, we provide demographic information about the participants in this study. We also report analyses of how goal condition, disability status, and grade impacted the overall persuasiveness of students' argumentative essays, and the argumentative structures and strategies used in the essays. Finally, we use measures derived from the structure of students' written arguments, on the one hand, as well as information about their goal condition, disability status, and grade, on the other hand, to predict the overall persuasiveness of their essays.

Overall Persuasiveness

Table 2 presents the means and standard deviations for overall persuasiveness by goal condition, grade, and disability status. We

computed a $2 \times 2 \times 2$ analysis of variance (ANOVA) to compare the persuasiveness of students' essays by goal condition, disability status, and grade. The following main effects were statistically significant: goal, $F(1, 88) = 5.51, p = .021$, partial $\eta^2 = .06$; disability status, $F(1, 88) = 20.64, p < .001$, partial $\eta^2 = .19$; and grade, $F(1, 88) = 9.28, p = .003$, partial $\eta^2 = .10$. Students in the elaborated goal condition wrote more persuasively than those in the general goal condition, students without disabilities wrote more persuasively than those with LD, and sixth graders wrote more persuasively than fourth graders. None of the interaction effects involving these factors approached statistical significance.

As mentioned above, we obtained information about the students' performance on the DSTP (Delaware Department of Education, 2002) writing assessment. These data, which were available for 93 of the 96 students, provided additional information about students' writing proficiency independent of their performance on the argumentative writing task that was the focus of this study. A $2 \times 2 \times 2$ ANOVA compared students' DSTP writing perfor-

Table 2
Means and Standard Deviations for Overall Persuasiveness and Structural Elements by Goal Condition, Grade, and Disability Status

Variable	General goal				Elaborated goal			
	Fourth grade		Sixth grade		Fourth grade		Sixth grade	
	LD	TA	LD	TA	LD	TA	LD	TA
Persuasiveness								
<i>M</i>	2.54	2.92	2.50	3.67	2.42	3.46	3.25	4.46
<i>SD</i>	0.84	1.14	0.71	1.05	0.73	1.57	0.97	0.89
Introduction (0 or 1)								
<i>M</i>	0.33	0.25	0.00	0.33	0.00	0.33	0.42	0.58
<i>SD</i>	0.49	0.42	0.00	0.49	0.00	0.49	0.52	0.52
Author's standpoint(s)								
<i>M</i>	1.75	1.75	2.17	1.42	1.67	2.00	2.00	1.42
<i>SD</i>	1.29	1.49	1.03	0.67	1.50	1.48	1.48	0.67
Level 1 reasons for author's standpoint(s)								
<i>M</i>	4.33	5.75	4.67	6.92	3.92	5.42	2.75	4.75
<i>SD</i>	4.03	2.87	2.02	3.68	3.06	1.62	1.49	1.87
Reasons below Level 1 for author's standpoint(s)								
<i>M</i>	1.17	3.58	3.25	4.67	1.08	4.42	2.75	4.92
<i>SD</i>	2.04	4.44	3.77	5.19	1.67	4.27	2.42	2.94
Alternative standpoint(s)								
<i>M</i>	0.08	0.00	0.00	0.08	0.08	0.33	0.58	0.83
<i>SD</i>	0.29	0.00	0.00	0.29	0.29	0.49	0.52	0.58
Level 1 reasons for alternative standpoint(s)								
<i>M</i>	0.08	0.00	0.00	0.00	0.17	0.25	1.42	0.90
<i>SD</i>	0.29	0.00	0.00	0.00	0.58	0.62	1.98	1.00
Reasons below Level 1 for alternative standpoint(s)								
<i>M</i>	0.08	0.00	0.00	0.00	0.17	0.08	0.33	0.08
<i>SD</i>	0.29	0.00	0.00	0.00	0.58	0.29	0.65	0.29
Counterarguments								
<i>M</i>	0.00	0.25	0.00	0.08	0.17	1.08	0.75	0.17
<i>SD</i>	0.00	0.62	0.00	0.29	0.39	3.15	1.06	0.58
Rebuttals								
<i>M</i>	0.00	0.00	0.00	0.08	0.08	0.25	0.83	1.25
<i>SD</i>	0.00	0.00	0.00	0.29	0.29	0.62	1.19	1.14
Conclusion (0 or 1)								
<i>M</i>	0.75	0.92	0.42	0.75	0.17	0.67	0.67	1.00
<i>SD</i>	0.45	0.29	0.52	0.45	0.39	0.49	0.49	1.00
Nonfunctional statements								
<i>M</i>	0.08	0.17	0.17	0.00	1.08	0.00	0.58	0.25
<i>SD</i>	0.29	0.39	0.39	0.00	2.58	0.00	1.00	0.45

Note. LD = students with learning disability; TA = typically achieving students; CA = chronological age in years.

This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

mance by goal condition, disability status, and grade. Only the main effect of disability status was significant: disability status, $F(1, 85) = 22.79, p < .001$, partial $\eta^2 = .21$. Inspection of Table 1 shows that students without disabilities were more proficient writers than those with LD. In general, however, most participants were not good writers as evidenced by the fact that the average level of performance for students in every condition was less than 3 (i.e., below the DSTP standard for writing proficiency).

Argumentative Structures

Table 2 presents the means and standard deviations for the elements of the argumentative structures by goal condition, grade, and disability status. We computed a $2 \times 2 \times 2$ multivariate analysis of variance (MANOVA) to examine the effect of goal condition, disability status, and grade on the above-mentioned measures derived from the argumentative structures. We tested the assumptions of univariate (Levene's test) and multivariate (Box's M) homogeneity, and these assumptions were violated. Results of MANOVA are robust in the face of these violations when group sizes are equal (see Stevens, 2002), as was the case in this study. Nevertheless, to be conservative, we used Pillai's trace to test the multivariate significance of the independent variables because Monte Carlo studies demonstrate that it is robust to violations of the multivariate assumptions of homogeneous variance/covariance matrices (see Olson, 1976; Tabachnick & Fidell, 2007). Using Pillai's trace, we found that the MANOVA revealed significant multivariate main effects for goal condition, $F(11, 78) = 3.86, p = .001$, partial $\eta^2 = .35$; disability status, $F(11, 78) = 4.06, p = .001$, partial $\eta^2 = .36$; and a significant interaction between goal condition and grade, $F(11, 78) = 2.65, p = .006$, partial $\eta^2 = .27$. These results reflect a modest association between both goal condition and disability status and the dependent variables, and a smaller effect for the Goal \times Grade interaction.

We then computed univariate ANOVAs to examine the effects of goal condition, disability status, and grade after making Bonferroni corrections for the 11 dependent measures ($.05/11, \alpha = .004$). The effect of the goal condition was significant for the number of alternative standpoints, $F(1, 88) = 30.56, p = .001$, partial $\eta^2 = .26$; Level 1 reasons for alternative standpoints, $F(1, 88) = 14.98, p = .001$, partial $\eta^2 = .15$; and rebuttals $F(1, 88) = 19.96, p = .001$, partial $\eta^2 = .19$. Students given the elaborated goal produced a greater number of these elements than students given the general goal. In addition, significant univariate effects for disability status were found for the presence of a conclusion, $F(1, 88) = 15.30, p = .002$, partial $\eta^2 = .15$; Level 1 reasons for the author's standpoint, $F(1, 88) = 10.32, p = .002$, partial $\eta^2 = .11$; and reasons below Level 1 for the author's standpoint, $F(1, 88) = 10.54, p = .002$, partial $\eta^2 = .11$. Students without disabilities produced a greater number of these elements than students with LD.

Univariate analyses of the interaction between goal condition and grade revealed a significant difference in the use of conclusions, $F(1, 88) = 15.30, p = .000$, partial $\eta^2 = .15$; alternative standpoints, $F(1, 88) = 11.00, p = .001$, partial $\eta^2 = .11$; and rebuttals, $F(1, 88) = 10.19, p = .002$, partial $\eta^2 = .11$. Sixth-grade participants given the elaborated goal produced more alternative standpoints and rebuttals than their peers in the general goal condition, while the number of these elements was roughly com-

parable across goal conditions for fourth-grade participants. In addition, sixth graders in the elaborated goal condition produced more conclusions than their peers in the general goal condition. However, the pattern was reversed for fourth graders' production of conclusions; participants in the general goal condition produced marginally more conclusions than those in the elaborated goal condition.

Persuasiveness and Elements of Argumentative Discourse

We performed a block-entry hierarchical regression to examine the effect of the structural elements and students' goal condition, disability status, and grade on predictions of overall persuasiveness. Theoretical considerations and prior research (Ferretti et al., 2000) led us to expect that the structural aspects of students' arguments (i.e., the depth of students' supporting justifications, consideration of alternative perspectives, and efforts to rebut alternative perspectives) would predict the essays' persuasiveness. In contrast, we expected that students' grade, goal condition, and disability status would account for little variance in persuasiveness after the structural aspects of students' written arguments were accounted for. Therefore, the blocks were entered in the following order: "My side" (author's standpoints, Level 1 reasons, and reasons below Level 1); "your side" (alternative standpoints, Level 1 reasons for alternative standpoints, reasons below Level 1 for alternative standpoints, counterarguments, and rebuttals); "extras" (introduction, conclusion, and nonfunctional statements); and "demographics" (goal condition, disability status, and grade, coded 0 for elaborated goal, typical achievement, and fourth grade, respectively, and 1 for general goal, LD, and sixth grade).

Table 3 presents unstandardized regression coefficients (B), standard error of B , standardized regression coefficients (β), and semipartial coefficient squared (sr_i^2) for independent variables at each step of the analysis. After Step 1, with only "my side" elements included in the regression equation, $R^2 = .44, F(3, 92) = 24.39, p = .001$. After Step 2, with the addition of "your side" elements to the equation, $R^2 = .65, \Delta F(5, 87) = 10.17, p = .001$. With the addition of "extra" elements at Step 3, $R^2 = .70, \Delta F(3, 84) = 4.31, p = .007$. After Step 4, when the demographic variables were added, the value of R^2 increased to .71, however the change was not statistically significant, $\Delta F(3, 81) = 1.00$. The addition of demographic predictors did not reliably improve the value of R^2 , suggesting that structural aspects of the students' written arguments absorb the predictive power of goal condition, grade, and disability status.

Argumentative Strategies

Table 4 presents the distribution of argumentative strategies across goal condition, disability status, and grade. Table 5 shows the distribution of argumentative strategies at and below Level 1 of the argumentative structures. The descriptive information in both tables shows that argument from consequences dwarfed the use of any other strategy across goals, disability status, grade, or level of argument structure. Over 70% of the total nodes of argument reflected the argument from consequences strategy; overall, no other strategy was used for more than 14% of the nodes. Inspection of Table 5 suggests that argument from consequences was used frequently at both levels but most frequently at Level 1. Argument

Table 3
Summary of Block-Entry Hierarchical Regression Analysis for Prediction of Overall Persuasiveness

Variable	B	SE B	β	sr_i^2
Step 1				
Intercept	2.26	.23		
Author's SP	-.01	.08	-.01	.00
L1 reasons for author's SP	.05	.03	.12	.01
Reasons below Level 1 for author's SP	.21	.03	.64	.40***
Step 2				
Intercept	1.76	.21		
Author's SP	.02	.06	.02	.00
L1 reasons for author's SP	.09	.03	.23	.04**
Reasons below L1 for author's SP	.19	.02	.59	.32***
Alternative SP	.66	.29	.25	.02*
Level 1 reasons for alternative SP	.08	.10	.07	.00
Reasons below Level 1 for alternative SP	-.01	.23	.00	.00
Counterarguments	.05	.06	.05	.00
Rebuttals	.31	.15	.20	.01*
Step 3				
Intercept	1.40	.22		
Author's SP	.06	.07	.07	.00
Level 1 reasons for author's SP	.09	.03	.22	.04**
Reasons below Level 1 for author's SP	.16	.02	.51	.21***
Alternative SP	.52	.28	.20	.01
Level 1 reasons for alternative SP	.07	.10	.06	.00
Reasons below Level 1 for alternative SP	-.08	.23	-.03	.00
Counterarguments	.03	.06	.03	.00
Rebuttals	.26	.15	.17	.01
Introduction (0 or 1)	.29	.18	.11	.01
Conclusion (0 or 1)	.50	.17	.20	.03**
Nonfunctional statements	.00	.08	.00	.00
Step 4				
Intercept	1.86	.48		
Author's SP	.07	.07	.07	.00
Level 1 reasons for author's SP	.08	.03	.20	.03**
Reasons below Level 1 for author's SP	.16	.02	.48	.18***
Alternative SP	.37	.29	.14	.00
Level 1 reasons for alternative SP	.07	.10	.05	.00
Reasons below Level 1 for alternative SP	.13	.23	.04	.00
Counterarguments	.02	.06	.02	.01
Rebuttals	.22	.15	.14	.02
Introduction (0 or 1)	.29	.18	.11	.01
Conclusion (0 or 1)	.52	.18	.21	.03**
Nonfunctional statements	-.01	.08	.00	.00
Goal condition	-.23	.18	-.10	.00
Disability status	-.16	.18	-.07	.00
Grade	.14	.16	.06	.00

Note. Step 1 $R^2 = .44^{***}$, SE estimate = .90; Step 2 $\Delta R^2 = .21^{***}$, SE estimate = .73; Step 3 $\Delta R^2 = .05^{**}$, SE estimate = .70; Step 4 $\Delta R^2 = .01$, ns , SE estimate = .70. SP = standpoint(s).
* $p < .05$. ** $p < .005$. *** $p = .001$.

from example and slippery slope were used much less frequently than argument from consequences, and both strategies were used more frequently below Level 1. Argument from verbal classification was used more frequently at Level 1.

Table 4 shows the percentages of each argumentative strategy distributed across goal condition, disability status, and grade. We computed a $2 \times 2 \times 2$ MANOVA to examine the effect of goal condition, disability status, and grade on those strategies that were used at or below Level 1 of the argument structures. Strategies that were not used were excluded from this analysis. We tested the assumptions of univariate (Levene's test) and multivariate (Box's M)

homogeneity, and these assumptions were violated. However, the results of MANOVA are robust in the face of these violations when group sizes are equal (see Stevens, 2002). To be conservative, we used Pillai's trace to test the multivariate significance of the independent variables (see Olson, 1976; Tabachnick & Fidell, 2007). The MANOVA revealed a significant main effect for disability status, $F(10, 79) = 2.14, p = .03$, partial $\eta^2 = .21$, which reflects a modest association between disability status and the use of argumentative strategies. No other effects were statistically significant.

We computed a univariate ANOVA to examine the effect of disability status after making Bonferroni corrections for the seven dependent measures (.05/7, $\alpha = .007$). A significant univariate effect for disability status was found for the use of the argument by consequences strategy below Level 1, $F(1, 88) = 11.69, p = .001$, partial $\eta^2 = .18$. This modest association resulted from students with LD using fewer arguments from consequences than their typically achieving peers at and below Level 1.

Effects of Intelligence Among Students With LD

As noted in the description of participants, about one quarter of the students identified by the schools as having LDs had full-scale IQ scores below 80. To determine whether differences in intelligence affected our results, we divided the students with LD into two groups on the basis of the criterion $IQ > 80$. We reran the ANOVA for overall persuasiveness and the MANOVAs for structural elements and argumentation strategies, with these two groups in the place of the learning disabled and typically achieving groups. These analyses revealed no statistically significant interactions or main effects involving intelligence for persuasiveness, $F(1, 34) = 0.844$, structural elements, $F(10, 25) = 0.884$, or argumentation strategies, $F(8, 27) = 0.49$.

Discussion

Previous research (Ferretti et al., 2000; Nussbaum & Kardash, 2005) demonstrated that explicit genre-specific goals positively impact the quality of students' written arguments, promote greater consideration of alternative perspectives, and result in the production of more functional argumentative elements. However, as we mentioned earlier, arguments are a structured constellation of propositions that in sum increase the acceptability of the writer's standpoint (van Eemeren & Grootendorst, 1992, 2004; van Eemeren et al., 1996, 1993). Furthermore, arguments depend on the use of specific strategies that are meant to achieve particular discursive purposes (van Eemeren & Grootendorst, 1992, 2004; van Eemeren et al., 1993; Walton, 1992, 1996). The latter issues were not considered in the aforementioned goal-setting studies. Therefore, the principal purpose of the present study was to determine whether an elaborated goal affected the structure of students' argumentative essays and kinds of strategies they used to accomplish their discursive purposes.

Measures derived from the structural analyses of students' essays showed that the elaborated goal directly impacted the production of alternative standpoints, Level 1 reasons for alternative standpoints, and rebuttals. These findings are consistent with those previously reported (Ferretti et al., 2000; Nussbaum & Kardash, 2005) in that the elaborated goal led to greater consideration of the

Table 4
Argumentation Scheme Use as a Function of Goal Condition, Grade, and Disability Status

Group	Total nodes	Sign	Example	Consequences	Slippery slope	Verbal classification
Elaborated goal						
4th grade						
LD	67	0%	0%	87%	0%	12%
TA	139	0%	10%	71%	4%	14%
6th grade						
LD	102	3%	2%	67%	8%	21%
TA	144	0%	6%	83%	4%	6%
General goal						
4th grade						
LD	69	0%	16%	68%	0%	16%
TA	119	0%	12%	65%	9%	14%
6th grade						
LD	95	0%	15%	60%	7%	18%
TA	141	0%	0%	72%	16%	12%
Total	876	0%	8%	72%	7%	14%

Note. Due to rounding, percentages may not sum to 100. LD = students with learning disability; TA = typically achieving students.

alternative standpoint. However, in contrast to previous reports, the elaborated goal did not result in more detailed justifications for students' standpoints. Apparently, the elaborated goal induced students to consider some reasons for the alternative perspective in order to rebut them. However, students did not generate well-developed arguments for the alternative standpoint. In fact, the effect of the elaborated goal was restricted to Level 1 reasons for the alternative standpoint. On a related note, the production of counterarguments was not impacted by the elaborated goal, perhaps because students in this condition were not explicitly told to consider potential objections to their standpoint. In fact, in their first experiment, Nussbaum and Kardash (2005) found that college students in the counterargument/rebuttal condition included more of these elements in their essays than students in either the reason condition or control condition.

The absence of an effect of the elaborated goal on the production of counterarguments and the presence of an effect on Level 1 reasons for the alternative standpoint are consistent with Nussbaum and Kardash's (2005) speculation about the potential inhibitory effects of persuasion goals on students' writing. Faced with the goal of persuading an interlocutor, students may exclude from their essays potential criticisms of their standpoint because unrebutted counterarguments actually weaken one's standpoint. Similarly, students in the elaborated goal condition may have been reluctant to generate elaborate arguments for the alternative standpoint because unrebutted reasons actually strengthen the alterna-

tive standpoint. Like Nussbaum and Kardash, we lack direct evidence about these hypotheses. Experimental evidence is needed about the independent and interactive effects of goal elaborateness and the writer's purpose on the production of counterarguments and reasons for the alternative standpoint.

We found that measures derived from these structural analyses accounted for 70% of the variance in the persuasiveness of students' essays. This finding is consistent with and extends those reported by Ferretti et al. (2000), who reported that about 45% of the variance in the persuasiveness of students' essays was accounted for by the presence of elements of argumentative discourse. Unlike Ferretti et al. (2000), our structural analyses not only allowed us to represent the relationships among the argumentative elements but also to make more nuanced distinctions that had substantive implications for the analysis of argumentative text (e.g., Level 1 reasons and reasons below Level 1) and the prediction of essay quality. Furthermore, our multiple regression analyses showed that the effects of the demographic variables (i.e., goal condition, grade, and disability status) could be fully accounted for by the measures derived from the argumentative structures. While the demographic variables impacted the structure of students' written arguments, the measures derived from the structural analyses accounted for variance in the essays' persuasiveness that might otherwise have been attributed to the demographic variables. In the present case, information derived from the structure of students' essays was sufficient to account for the quality of their

Table 5
Argumentation Scheme Use as a Function of Structural Depth

Structural depth	Nodes	Sign	Example	Consequences	Slippery slope	Verbal classification
Level 1	511	0%	0%	80%	2%	17%
Below Level 1	365	0%	15%	53%	12%	8%
Total	876	0%	8%	72%	7%	14%

Note. Due to rounding, percentages may not sum to 100.

essays. This finding has implications for assessing the quality of students' writing because it suggests that differences among students who vary in age and ability can be understood in terms the structural relationships among argumentative elements found in their essays.

We found that the provision of an elaborated goal resulted in more persuasive written arguments than those produced in the general goal condition. Furthermore, students without LD wrote more persuasively than their peers with LD, and sixth graders wrote more persuasively than fourth graders. Interestingly, the effects of the elaborated goal on the essays' persuasiveness did not depend upon students' grade or disability status. This outcome contrasts with the findings of Ferretti et al. (2000), who reported that sixth graders, but not fourth graders, benefited from the provision of the elaborated goal. Ferretti et al. (2000) reasoned that sixth graders may have been less burdened than fourth graders by the aggregate task demands on their information-processing resources (De La Paz et al., 1998; Graham, 1997; Harris & Graham, 1985; Page-Voth & Graham, 1999) and therefore benefited more from the self-regulatory effects of goal setting. In the present study, the persuasiveness of students' essays was comparably and positively impacted by the elaborated goal, regardless of students' grade and disability status. This suggests that the elaborated goal enabled all participants in this study to better apply their knowledge of argumentative discourse and more effectively manage the myriad challenges to constructing an argumentative text (see Ferretti et al., 2000; Piolat, Roussey, & Gombert, 1999). It appears that the provision of an elaborated goal has a positive impact on the persuasiveness of students who differ by grade and disability status (De La Paz & Graham, 1997; Graham et al., 1992).

We also sought information about students' use of argumentation strategies (van Eemeren & Grootendorst, 1992; van Eemeren et al., 1993; Walton, 1996). Specific strategies are best suited to accomplish particular discursive purposes, and in this case, the controversial issue focused on the advisability of a school policy. Therefore, we expected students would use the argument from consequences strategy (see Walton, 1996), which involves the consideration of the potential costs and benefits of enacting the proposed policy. In fact, regardless of goal condition, disability status, or grade, students overwhelmingly used the argument from consequences strategy. Other argumentative strategies, including argument from slippery slope, argument from example, and argument from verbal classification, were infrequently used but most often in support of the argument from consequences strategy (i.e., below Level 1). Students with LD used the argument from consequences strategy less frequently than students without disabilities at and below Level 1, but this was largely attributable to the relative shallowness of their arguments. Nonetheless, almost all students intuitively understood that controversial policy issues are best argued by weighing the possible consequences of that policy.

Our analyses revealed that the elaborated goal positively impacted the persuasiveness of students' written arguments and induced consideration of alternative perspectives, and that students generally used the argument from consequences strategy to accomplish their discursive goal. We note, however, that the elaborated goal had a relatively modest effect on the persuasiveness of students' writing, averaging approximately 0.5 points on a 7-point rating scale. Furthermore, students in the elaborated goal condition generated arguments that were relatively shallow and poorly de-

veloped. Finally and related, students in both goal conditions did not reveal a sophisticated understanding of the argument from consequences strategy because they usually failed to weigh the potential costs and benefits of the proposed strategy even when they considered the alternative perspective. The latter finding may be due in part to the inhibitory effect of the persuasion goal (see Nussbaum & Kardash, 2005), but we doubt that this fully explains the poverty of their written arguments. If it did, students in the elaborated goal condition would have provided more support for their standpoint than those in the general goal condition.

Many scholars have discussed the self-regulatory burdens associated with argumentative writing (De La Paz et al., 1998; Ferretti et al., 2000; Graham, 1997; Page-Voth & Graham, 1999). In this context, the provision of genre-specific writing goals may enable writers to manage the self-regulatory burdens imposed by the writing process (Bereiter & Scardamalia, 1987; Flower & Hayes, 1980). However, the effectiveness of these goals in promoting self-regulation depends upon the availability of relevant background knowledge that can be used by the writer to construct compelling and well-developed arguments. For example, children's familiarity with a topic clearly impacts the complexity of their reasoning about a controversial issue (Coirer, Andriessen, & Chanquoy, 1999; Stein & Miller, 1993a, 1993b). However, it is not enough to possess potentially useful topical information; this information must be evaluated to determine its acceptability and relevance (Coirer et al., 1999; van Eemeren & Grootendorst, 1992; van Eemeren et al., 1993, 2002). The community's prevailing standards can be used to judge and increase the acceptability of the writer's standpoint (van Eemeren & Grootendorst, 1992). However, there are also normative standards of argumentation that the writer can apply by asking critical questions (van Eemeren & Grootendorst, 1992; van Eemeren et al., 1993, 2002; Walton, 1996) about the acceptability and relevance of specific argumentative strategies. Judgments about the acceptability and relevance of an argument presuppose detailed knowledge about the audience's goals and the critical standards that should be used to evaluate argumentative strategies. Clearly, this knowledge affects the writer's capacity to regulate the construction and production of compelling arguments.

In the case of the argument from consequences strategy, the following critical questions should be used to judge the argument's relevance (see Walton, 1996): How sure are you that the (good, bad) consequences (outcomes, results) will actually happen? How do you know that these consequences will actually happen? Do you have evidence (facts, data, support) that these consequences probably will happen if we implement the policy? Are there other (bad, good) consequences that might happen if we implement the policy? Are these consequences more likely to happen than the consequences that you presented? What evidence do you have that your consequences are more likely to happen than the other consequences? In this study, we saw virtually no evidence that students in either goal condition asked critical questions about their use of the argument from consequences strategy. Failing to consider these questions, it is unsurprising that students' essays were relatively shallow, poorly developed, and largely unresponsive to alternative standpoints.

This suggests that instruction in argumentative writing (see Graham & Harris, 2005; Harris & Graham, 1985, 1988, 1996) should target the acquisition of relevant background knowledge

that can be used to judge the argument's acceptability and relevance. In a recent meta-analysis of the strategy instruction literature, Graham (2006) documented the powerful effects of teaching explicit strategies on the writing of students who differ in age and ability. The instructed strategies targeted different aspects of the writing process, including planning and revision, as well as different genres, including persuasive writing. Ferretti et al. (2007) reviewed the extent literature about the effects of strategy instruction on the persuasive writing of students with LDs. Like Graham (2006), Ferretti et al. (2007) documented the beneficial effects of explicit strategy instruction. However, they noted that the strategies taught in these studies were focused on increasing the production of argumentative discourse, not on evaluating the relevance of the argumentation. Judgments about relevance can only occur if the writer reflects on (a) the purposes for writing, (b) the kinds of argumentative strategies that are appropriate for those purposes, and (c) the critical questions that can be used to test the use of these argumentative strategies. This suggests that instruction about argumentative strategies and the use of critical questions may result in the production of deeper and more critical and reflective written arguments about controversial issues.

We would be remiss if we failed to note some limitations of our study. First, in contrast to other reports (e.g., Ferretti et al., 2000), students in our study wrote about only one topic. While our results were generally consistent with previously reported findings, we cannot be certain that the analysis of students' argumentative structures and strategies will generalize across other topics. Second, we used different undergraduates unfamiliar with the study to rate the essays' overall persuasiveness, as well as the argumentative structures and strategies. While it would have been preferable to have the essays rated by a second rater who was unfamiliar with the study, the relatively high degree of interrater agreement increased our confidence in the judgments made about students' essays.

References

- Aristotle. (1991). *The art of rhetoric* (H. Lawson-Tancred, Trans.). London: Penguin Classics.
- Bear, G. G., & Proctor, W. A. (1990). Impact of a full-time integrated program on the achievement of nonhandicapped and mildly handicapped children. *Exceptionality, 1*, 227–238.
- Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. Hillsdale, NJ: Erlbaum.
- Coirer, P., Andriessen, J., & Chanquoy, L. (1999). From planning to translating: The specificity of argumentative writing. In J. Andriessen & P. Coirer (Eds.), *Foundations of argumentative text processing* (pp. 1–28). Amsterdam: Amsterdam University Press.
- De La Paz, S., & Graham, S. (1997). Strategy instruction in planning: Effects on the writing performance and behavior of students with learning disabilities. *Exceptional Children, 63*, 167–181.
- De La Paz, S., Swanson, P., & Graham, S. (1998). The contribution of executive control to the revising of students with writing and learning difficulties. *Journal of Educational Psychology, 90*, 448–460.
- Delaware Department of Education. (2002). *Delaware Student Testing Program: A score results guide for educators*. Retrieved April 21, 2008, from <http://www.doe.k12.de.us/aab/edguide2002.pdf>
- Dewey, J. (1916). *Democracy and education*. New York: Macmillan.
- Felton, M. K., & Kuhn, D. (2001). The development of argumentative discourse skill. *Discourse Processes, 32*, 135–153.
- Ferretti, R. P., Andrews-Weckerly, S., & Lewis, W. E. (2007). Improving the argumentative writing of students with learning disabilities: Descriptive and normative considerations. *Reading and Writing Quarterly, 23*, 267–285.
- Ferretti, R. P., MacArthur, C. A., & Dowdy, N. S. (2000). The effects of an elaborated goal on the persuasive writing of students with learning disabilities and their normally achieving peers. *Journal of Educational Psychology, 92*, 694–702.
- Feteris, E. T. (2005). The rational reconstruction of argumentation referring to consequences and purposes in the application of legal rules: A pragma-dialectical perspective. *Argumentation, 19*, 459–470.
- Flower, L. S., & Hayes, J. R. (1980). The dynamics of composing: Making plans and juggling constraints. In L. Gregg & E. Steinberg (Eds.), *Cognitive processes in writing: An interdisciplinary approach* (pp. 31–49). Hillsdale, NJ: Erlbaum.
- Graham, S. (1990). The role of production factors in learning disabled students' compositions. *Journal of Educational Psychology, 82*, 781–791.
- Graham, S. (1997). Executive control in the revising of students with learning and writing difficulties. *Journal of Educational Psychology, 89*, 223–234.
- Graham, S. (2006). Strategy instruction and the teaching of writing: A meta-analysis. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 187–207). New York: Guilford Press.
- Graham, S., & Harris, K. R. (1988). Instructional recommendations for teaching writing to exceptional students. *Exceptional Children, 54*, 506–512.
- Graham, S., & Harris, K. R. (1989). A components analysis of cognitive strategy training: Effects of learning disabled students' compositions and self-efficacy. *Journal of Educational Psychology, 81*, 353–361.
- Graham, S., & Harris, K. R. (1997). It can be taught, but it doesn't develop naturally: Myths and realities in writing instruction. *School Psychology Review, 26*, 414–424.
- Graham, S., & Harris, K. R. (2005). *Writing better: Effective strategies for teaching students with learning difficulties*. Baltimore: Brookes.
- Graham, S., MacArthur, C. A., Schwartz, S., & Page-Voth, V. (1992). Improving learning disabled students' compositions using a strategy involving product and process goal setting. *Exceptional Children, 58*, 322–334.
- Harris, K. R., & Graham, S. (1985). Improving learning disabled students' composition skills: Self-control strategy training. *Learning Disabilities Quarterly, 8*, 27–36.
- Harris, K. R., & Graham, S. (1988). Self-instructional strategy training: Improving writing skills among educational handicapped students. *Teaching Exceptional Children, 20*, 35–37.
- Harris, K. R., & Graham, S. (1996). *Making the writing process work: Strategies for composition and self-regulation*. Cambridge, MA: Brookline Books.
- Hayes, J. R. (1996). A new framework for understanding cognition and affect in writing. In C. M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 1–28). Mahwah, NJ: Erlbaum.
- Hayes, J. R., & Flower, L. S. (1980). Identifying the organization of writing processes. In L. Gregg & E. Steinberg (Eds.), *Cognitive processes in writing: An interdisciplinary approach* (pp. 3–30). Hillsdale, NJ: Erlbaum.
- Hayes, J. R., & Flower, L. S. (1986). Writing research and the writer. *American Psychologist, 41*, 1106–1113.
- McCann, T. M. (1989). Student argumentative writing knowledge and ability at three grade levels. *Research in the Teaching of English, 23*, 62–76.
- Nussbaum, E. M., & Kardash, C. M. (2005). The effects of goal instructions and text on the generation of counterarguments during writing. *Journal of Educational Psychology, 97*, 157–169.
- Nussbaum, E. M., & Schraw, G. (2007). Promoting argument-

- counterargument integration in students' writing. *Journal of Experimental Education*, 76, 59–93.
- Olson, C. L. (1976). On choosing a test statistic in multivariate analyses of variance. *Psychological Bulletin*, 83, 579–586.
- Page-Voth, V., & Graham, S. (1999). Effects of goal-setting and strategy use on the writing performance and self-efficacy of students with writing and learning problems. *Journal of Educational Psychology*, 91, 230–240.
- Persky, H. R., Daane, M. C., & Jin, Y. (2003). *The nation's report card: Writing 2002* (U.S. Department of Education Pub. No. NCES 2003–529). Washington, DC: U.S. Government Printing Office.
- Piolat, A., Roussey, J. V., & Gombert, A. (1999). The development of argumentative schema in writing. In J. Andriessen & P. Coirier (Eds.), *Foundations of argumentative text processing* (pp. 117–135). Amsterdam: Amsterdam University Press.
- Psychological Corporation. (1995). *The Stanford Achievement Test* (9th ed.). San Antonio, TX: Author.
- Rushton, J., Brainerd, C., & Pressley, M. (1983). Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin*, 94, 18–38.
- Santos, C. M. M., & Santos, S. L. (1999). Good argument, content and contextual dimensions. In J. Andriessen & P. Coirier (Eds.), *Foundations of argumentative text processing* (pp. 75–95). Amsterdam: Amsterdam University Press.
- Schellens, P. J., & De Jong, M. (2004). Argumentation schemes in persuasive brochures. *Argumentation*, 18, 295–323.
- Sexton, M., Harris, K. R., & Graham, S. (1998). Self-regulated strategy development and the writing process: Effects on essay writing and attributions. *Exceptional Children*, 64, 295–311.
- Sprott, R. A. (1992). On giving reasons in verbal disputes: The development of justifying. *Argumentation and Advocacy*, 29, 61–76.
- Stein, N. L., & Miller, C. A. (1993a). The development of memory and reasoning skill in argumentative contexts: Evaluating, explaining, and generating evidence. In R. Glaser (Ed.), *Advances in instructional psychology* (Vol. 4, pp. 285–335). Hillsdale, NJ: Erlbaum.
- Stein, N. L., & Miller, C. A. (1993b). A theory of argumentative understanding: Relationships among position preference, judgments of goodness, memory, and reasoning. *Argumentation*, 7, 183–204.
- Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Erlbaum.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson.
- van Eemeren, F. H., & Grootendorst, R. (1992). *Argumentation, communication, and fallacies: A pragma-dialectical perspective*. Mahwah, NJ: Erlbaum.
- van Eemeren, F. H., & Grootendorst, R. (2004). *A systematic theory of argumentation: The pragma-dialectical approach*. Cambridge, England: Cambridge University Press.
- van Eemeren, F. H., Grootendorst, R., & Henkemans, F. S. (1996). *Fundamentals of argumentation theory: A handbook of historical backgrounds and contemporary developments*. Mahwah, NJ: Erlbaum.
- van Eemeren, F. H., Grootendorst, R., & Henkemans, F. S. (2002). *Argumentation: Analysis, evaluation, and presentation*. Mahwah, NJ: Erlbaum.
- van Eemeren, F. H., Grootendorst, R., Jackson, S., & Jacobs, S. (1993). *Reconstructing argumentative discourse*. Tuscaloosa: University of Alabama Press.
- Walton, D. N. (1992). *Plausible argument in everyday conversation*. Albany: State University of New York Press.
- Walton, D. N. (1996). *Argumentation schemes for presumptive reasoning*. Mahwah, NJ: Erlbaum.
- Wechsler, D. (1991). *Wechsler Intelligence Scale for Children* (3rd ed.). San Antonio, TX: Psychological Corporation.
- Wechsler, D. (1992). *Wechsler Individual Achievement Test*. San Antonio, TX: Psychological Corporation.
- Zimmerman, B., & Risemberg, R. (1997). Becoming a self-regulated writer: A social cognitive perspective. *Contemporary Educational Psychology*, 22, 73–101.

Received July 11, 2006

Revision received October 27, 2008

Accepted November 18, 2008 ■