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College Students' Beliefs about Comprehension When Reading for Different Purposes

Readers' beliefs about their understanding and test performance as a function of the reading purpose was examined. Participants read a series of expository texts for entertainment or study purposes, answered questions about the texts, and their beliefs about future and past test performance were assessed. The results showed that students believed their understanding and test performance (both future and past) was superior when reading for study compared to entertainment purposes; however, actual test performance did not differ between reading purposes. Thus, students' beliefs about their understanding, as a function of the reading purpose, did not match actual test performance. A goal for reading instructors is to facilitate a better match between students' beliefs about reading efforts and actual test performance.

Previous research has shown that college students' cognitive processing of text changes as a function of their purpose for reading (e.g., Brannon, 1998; Linderholm, Cong, & Zhao, 2008; Linderholm & van den Broek, 2002; Lorch, Lorch, & Klusewitz, 1993; van den Broek, Lorch, Linderholm, & Gustafson, 2001). For example, when asked to imagine that they are reading for entertainment purposes, college student readers typically engage in superficial processing; whereas, when asked to imagine that they are reading for study purposes, they typically engage in deeper processing. What is unclear is whether students actually believe that the changes in their cognitive processing yield immediate differences in their level of comprehension.

Students' beliefs about their level of understanding and how accurately their beliefs match actual comprehension is an important indicator of the degree of self-regulation of study practices (Thiede & Anderson, 2003; Thiede, Anderson, & Therriault, 2003). The primary objective of the current study is to determine what students believe about their level of comprehension and how those beliefs may determine the degree to which students tailor processing to fit the purpose for reading.

The theoretical framework that has been used to investigate how readers cognitively process texts as a function of their reading purpose suggests that readers have at least some degree of awareness that their cognitive processes change to meet particular reading goals. It is proposed that readers have *standards of coherence* that they attempt to meet when reading that determine how much effort and the kind of cognitive processing that will be expended during reading (van den Broek et al., 2001; van den Broek, Risden, & Husebye-Hartmann, 1995). Readers set their reading goals and criteria for comprehension based on the reason or purpose for reading. That is, readers may have stricter criteria for how well they must comprehend a text when studying for an exam as opposed to when reading for fun; and subsequently these criteria, or standards of coherence, influence the kinds of cognitive processes readers engage in.

Related to the concept of "standards of coherence," it has been shown that college students generally tailor their cognitive processing to fit the purpose for reading, and that this tailoring of cognitive processes during reading can influence the degree of information recalled about the text (Narvaez, van den Broek, & Ruiz, 1999; van den Broek et al., 2001). Based on students' self-reports, different kinds of reading are called for in different situations (Lorch et al., 1993). According to studies of self-reports, the most dramatically different reading purposes, according to college student readers, are reading for entertainment versus study (Lorch et al., 1993). As a result of this finding, most research on this topic has compared these two reading purposes. This research has shown that inference making, paraphrasing/text repetition, reading speed, metacognition, and recall can fluctuate as a result of whether the reader is reading for entertainment or study purposes (Linderholm et al., 2008; van den Broek et al., 2001). One exception is that sometimes readers with low working-memory capacities are less strategic in their reading for different purposes (Linderholm & van den Broek, 2002). But what is left to be discovered is how precisely students' beliefs about how they are processing texts in dissimilar situations leads to actual differences in comprehension and comprehension performance. Therefore, the results of this study will expand the theory of standards of coherence (van

den Broek et al., 1995) to include how well readers' beliefs about their processing actually match changes in their degree of comprehension. The question of how beliefs match performance is important to study because it must be known whether changes in strategies executed *during* reading, as a result of beliefs, influence actual learning and memory of text information.

One research finding that has been inconsistent in the studies of cognitive processing when reading for different purposes is that while it is quite clear that readers change what they are doing during the process of reading as a function of reading purpose (e.g., processing speed and types of cognitive processes used), it is less clear how actual comprehension performance is influenced by reading purpose. Some studies show that readers' recall of text information changes as a function of reading purpose (e.g., Narvaez et al., 1999; van den Broek et al., 2001), whereas other studies show that the amount of text recalled as a function of reading purpose changes only for some readers (Linderholm & van den Broek, 2002). Specifically, some studies show that recall is superior when reading for study purposes compared to when reading for entertainment (e.g., van den Broek et al., 2001), but other studies show that this pattern holds true only for readers who have high working-memory capacity resources and are generally considered highly skilled readers (e.g., Linderholm & van den Broek, 2002). Still other research shows that comprehension test performance, administered in a multiple-choice test format, does not change at all as a function of reading purpose. For example, one study observed that multiple-choice comprehension test results were the same for readers reading for either entertainment or study purposes (Linderholm et al., 2008). The secondary objective of this study is to further investigate whether reading purpose influences comprehension test performance when assessed in a multiple-choice test format. Compared to previous investigations (e.g., Linderholm et al.) the current study has expanded the number of texts and comprehension test items used to test research participants to give a more complete picture of how reading purpose can influence comprehension test performance in a multiple-choice test format.

To reiterate, the objective of this study is to examine what college-aged students believe about their current level of understanding, prospective comprehension test performance, and retrospective test performance as a function of reading for entertainment or reading for study purposes. A secondary objective of the current study is to continue to investigate whether reading purpose has an effect on students' actual reading comprehension test performance when they are tested in multiple-choice formats.

Method

Participants

Ninety-four participants, who were native speakers of English from a large southeastern university, participated in the study for course credit in their introductory educational psychology courses. Four participants were removed from the sample for failure to follow instructions on judging their own reading comprehension test results. The remaining sample of 90 consisted of 80 female participants and 10 male participants who collectively had an average age of 20.58 years (*SD* = 4.03; *range* = 18 to 53 years).

Materials and Procedures

Participants in this study were randomly assigned to one of two reading purpose conditions: reading for entertainment purposes *or* reading for study purposes. The instructions participants were given for how to read under the entertainment purpose condition were:

> In this part of the study, I am interested in how you read in a specific situation. Namely, I want you to imagine that you are browsing through a magazine, perhaps waiting for a flight at the airport, and an article catches your attention. That is, you are reading to entertain yourself. Visualize yourself in this situation and think carefully about how you would read this article. Take a moment to tell me how you typically read in this situation, that is, when you are reading for entertainment.

The instructions for the study purpose conditions were:

> In this part of the study, I am interested in how you read in a specific situation. Namely, I want you to imagine that you are preparing for an exam in a class and you are told that there will be an essay exam on a particular article. Visualize yourself in this situation and think carefully about how you would read this article. Take a moment to tell me how you typically read in this situation, that is, when you are reading to study.

Participants, all of whom were tested individually, were asked to describe aloud how they read in that situation and were then reminded again about their purpose for reading. Next, participants were given a practice session to help remind them how they typically read in their assigned reading purpose situation. Participants practiced reading a short expository text (95 words in length) and then practiced answering all four metacomprehension and comprehension tasks that they would be asked to do in the actual experiment (see description that follows). At the end of the practice session, participants were once again reminded that they were reading under a particular reading purpose.

After the practice session, participants were given packets that con-

tained six expository texts and a series of four tasks to complete regarding their understanding of the texts. Four of the six texts were GRE preparation manual texts used by other reading researchers (Rawson, Dunlosky, & Thiede, 2000), and the other two texts were taken from additional GRE preparation manuals by the current authors. Text topics ranged from issues surrounding affirmative action to causes of obesity. Texts were carefully selected so that the readers could imagine reading them for either entertainment or study purposes. Participants read the six texts with the mindset that they were either reading for entertainment or for study purposes, as they did in the practice session. Texts were relatively short and ranged from 423 to 600 words in length (see Appendix for a sample text and test questions). According to the Flesch-Kincaid scale, the difficulty level of the six texts ranged from the 10.8 to the 17.5 grade level; thus, all texts were considered moderate to difficult in reading level. To help remind participants that they were reading under one reading purpose condition, before reading subsequent texts, they were given a written message that read: "Reminder: Before moving on to the next text, keep in mind that you are reading for *entertainment (or study) purposes."*

After reading each text under their randomly assigned reading purpose condition, participants completed four tasks that measured both estimates of their comprehension and assessments of their actual comprehension. Task one: Participants rated how well they believed they understood the text. The question was, "Indicate the percentage of text you thought you were able to comprehend." Participants were asked to circle one percentage from the choices: 0, 20%, 40%, 60%, 80% and 100%. Task two: Participants predicted how many test questions they believed they could answer if given a test over the text they had just read. Participants circled how many test questions out of six (ranging from 0 to 6) they believed they could answer correctly. The question read, "How many of six test questions could you accurately answer over the text you just read?" Task three: Participants completed a comprehension test for that text that consisted of six multiple-choice questions with five choices per question. Questions were derived from GRE preparation manuals and from other published studies of reading comprehension (Rawson et al., 2000). To equalize the task across research participants, participants were not allowed to look back at the text to find the answers to test questions (e.g., some participants may look back more often than other participants). Task four: Participants estimated, after the fact, how many test questions they believed they answered correctly. That is, participants "postdicted" how many of the six test questions they answered correctly. The question read, "How

many of the six test questions did you accurately answer?" Participants had the choice to circle one answer from 0, 1, 2, 3, 4, 5, and 6.

The entirety of the study took participants less than one hour to complete.

Results

Participants (N = 90) were randomly assigned to read in the entertainment purpose condition (n = 47) or to read in the reading purpose condition (n = 43). A Type III sum of squares was used in all analyses to correct for uneven cell sizes between the two reading purpose conditions. All analyses used an alpha level of .05 as a criterion for significance.

A multivariate analysis of variance (MANOVA) was conducted using Reading Purpose Condition (Entertainment Purpose or Study Purpose) on the following dependent variables: level of understanding, test performance prediction, actual test score, and test performance postdiction.

The results of the MANOVA showed that readers in the study purpose condition rated their level of understanding higher (M = .73, SE = .03) than readers in the entertainment purpose condition (M = .62, SE = .03), F (1, 89) = 7.84, p < .01. Likewise, readers in the study purpose condition predicted that they would answer more multiple-choice test questions correctly (M = .67, SE = .02) than participants in the entertainment purpose condition (M = .59, SE = .02), F (1, 89) = 6.76, p < .01. Interestingly, although readers clearly felt more confident in their future performance when reading for study purposes, the test scores showed no differences between the entertainment purpose condition (M = .52, SE = .02) or the study purpose condition (M = .56, SE = .02), p > .16. Finally, even though actual test performance did not differ between reading purpose conditions, participants still believed they performed better on the comprehension tests over the texts, in terms of their postdictions, when in the reading purpose condition (M = .57, SE = .02) than when in the entertainment purpose condition (M = .50, SE = .20), F (1, 89) = 5.19, p < .05.

Discussion

The objective of this study was to determine the effects of reading purpose on readers' beliefs about their performance and to determine how reading purpose influences actual comprehension and test performance in a multiple-choice format. College students were asked to read a series of expository texts under one reading purpose condition; they were asked to imagine that they were reading the texts for entertainment purposes or for study purposes as they read. After reading, participants completed a series of questions about their beliefs concerning their own

learning of the text information and future test performance, and then took an actual comprehension test and retrospectively estimated how well they did on the test. The results showed that students' prospective and retrospective beliefs about their performance changed depending on the reading purpose condition they were in. Students who were asked to imagine that they were reading for study purposes believed their performance would be greater, both before and after seeing actual test questions, than those who read for entertainment purposes. Interestingly, actual multiple-choice test performance did not differ between the two reading purpose conditions. Thus, students' beliefs about performance were affected by reading purpose, but actual performance did not align with those beliefs. Based on these and other study results regarding the effects of reading purpose on students' cognitive and metacognitive processing of expository text information (e.g., Linderholm & van den Broek, 2002; Linderholm et al., 2008; Linderholm et al., 2004; Lorch et al., 1993; van den Broek et al., 2001) there are both theoretical and practical contributions from this line of investigation.

Theoretical Contributions

There are now multiple sources of evidence from this and other studies showing that college-aged readers maintain standards of coherence when they read, and they read in strategic ways to meet those standards (van den Broek et al., 1995). For example, when reading for study purposes, readers tend to engage in cognitive processing that is more conducive to memorization of text information; whereas, when reading for entertainment, readers tend to engage in cognitive processing that is more evaluative and critical of text (van den Broek et al., 2001). It has also come to light, mainly as a result of the current study, that readers are aware or believe that they are using strategies that lead to greater understanding and comprehension performance when reading in a study purpose situation as opposed to a more leisurely, entertainment-focused reading situation. As such, we have solid evidence that readers engage in different strategies (e.g., van den Broek et al., 2001), and are aware of their goals to process in a more effective way in order to achieve their standards of coherence that meet the specific purpose for reading.

However, there is a caveat in terms of how effective students are in actually achieving their reading comprehension goals as dictated by their standards of coherence. The results of the current study suggest that, whereas students may believe that they engage in strategies that are tailored to meet their specific standards of coherence and, as shown by other studies, actually engage in different kinds of strategies

(see Linderholm et al., 2008; Linderholm & van den Broek, 2002; van den Broek et al., 2001), there seems to be some question regarding how much of an impact students' cognitive processing strategies and beliefs about those strategies have on their actual comprehension performance. In one study (van den Broek et al., 2001), it was found that recall of text information was superior for students reading for study purposes; whereas, another study found that this superior recall occurred only with students with high working-memory capacities and, thus, greater cognitive processing resources and more effective cognitive processing strategies (Linderholm & van den Broek, 2002). In contrast, in two other studies conducted, one of those being the current study, the use of multiple-choice comprehension test questions as the comprehension performance measure has not shown an effect of reading purpose (e.g., Linderholm et al., 2008). This study adds to a growing body of literature, which demonstrates that students have standards of coherence that they *attempt* to meet but, in some cases, still fail to meet in terms of desired comprehension performance. For example, a student may recognize that deeper processing must be used to read for study purposes, and they may sense greater effort, and yet their deeper processing strategies may not yield better comprehension of the text materials. This discouraging finding appears to be true of students in general and not just students with fewer cognitive processing resources, such as those readers with low working-memory capacity resources (see Linderholm et al., 2008).

An alternative to the explanation offered above regarding the issue of whether readers' purpose for reading and their subsequent standards of coherence influence actual comprehension performance is that it could very well depend on the comprehension measure under consideration. On the one hand, it is important to consider that with any multiple-choice test question there is a guessing component; that is, students may be able to perform reasonably well on the test questions by guessing the correct answer. As a result, multiple-choice measures may not tap the entire depth of a students' level of text understanding. On the other hand, it could be that the specific reading purpose, for example, reading to study, may inspire students to engage in more memorization, which would be more evident in a free recall test than a multiple-choice comprehension test. Therefore, certain test formats may be more or less sensitive to detecting changes in cognitive processes and comprehension as a function of the purpose for reading. These are issues that must be investigated further in additional studies to truly understand the impact of reading purposes on actual comprehension performance.

Another interesting future direction for research could be to learn whether the disconnection between what readers believe about the

strategies they are using to fit the purpose for reading and their actual performance can be explained to some degree by socio-emotional factors such as reading self-efficacy (Schunk, 2003). That is, could personal beliefs and feelings about how well one usually reads also explain why college-aged readers do not accurately assess how effective their strategies are for allowing them to meet goals when reading, for example, for study purposes? It would be particularly insightful to learn whether students' beliefs and feelings about their reading skills were tailored to different purposes. For example, perhaps a student might be fairly confident in his/her ability to read novels but the same student might lack confidence in his/her ability to read in order to learn or memorize. The socio-emotional component of reading self-efficacy may provide a unique angle with which to study the problem of how to facilitate effective (and strategic) reading for different purposes at the college level.

Practical Contributions

The general pattern that appears to be emerging as the result of this and other studies on the topic of cognitive processing and performance effects of reading purpose is that students understand that different strategies must be executed to achieve better performance to fit their specific purpose for reading (e.g., Linderholm & van den Broek, 2002; Lorch et al., 1993; van den Broek et al., 2001). As a result, students expect to achieve better performance, but the strategies students employ are not always effective in altering actual comprehension performance. Thus, there is a disconnection between what students believe about their cognitive processing to fit the purpose for reading and actual comprehension performance. Prior to this study, the disconnection between beliefs about performance and actual performance has been apparent in readers with fewer processing resources, such as low working-memory capacity readers (Linderholm et al., 2008). It appears, however, that this finding may apply more generally to college students—regardless of skill level or cognitive processing resources.

Based on the general pattern of findings regarding performance and beliefs about performance as a function of reading purpose, it appears that college-level students require much more extensive training on how to tailor strategies to fit the purpose for reading (Linderholm, 2006), particularly if the student struggles with college-level reading (e.g., Linderholm & van den Broek, 2002; Linderholm et al., 2008), In addition, they may require coaching on how to match their beliefs about cognitive strategies to actual performance differences. Future investigations should determine whether having college students practice estimating performance in light of their reading purpose, and then checking their

beliefs against actual performance could help students gain a more accurate understanding of what cognitive processing strategies yield changes in actual performance. If this practical suggestion proves beneficial, students will be left with more power to tailor their cognitive processing strategies to meet their particular reading goals; that is, they will be more readily able to achieve their desired standards of coherence.

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Appendix

Sample Experimental Text and Test Questions

"Literature in the Classroom"—Text

In a reaction against a too-rigid, over-refined classical curriculum, some educational philosophers have swung sharply to an espousal of "life experience" as the sole source of learning. Using their narrow interpretation of John Dewey's theories as a base for support, they conclude that only through "doing" can learning take place. Spouting such phrases as, "Teach the child, not the subject," they demand, without sensing its absurdity, an end to rigorous study as a means of opening the way to learning. While not all adherents to this approach would totally eliminate a study of great books, the influence of this philosophy has been felt in the public school curricula, as evidenced by the gradual subordination of great literature.

What is the purpose of this literature? Why read, if life alone is to be our teacher?

James Joyce states that the artist reveals the human situation by re-creating life out of life; Aristotle states that art presents universal truths because its form is taken from nature. Thus, consciously or otherwise, the great writer reveals the human situation most tellingly, extending our understanding of ourselves and our world. We can soar with the writer to the heights of man's aspirations, or plummet with him to tragic despair.

The works of Steinbeck, Anderson, and Salinger; the poetry of Whitman, Sandburg, and Frost; the plays of Ibsen, Miller, and O'Neill: all present starkly realistic portrayals of life's problems. Reality? Yes! But how much wider is the understanding we gain than that attained by viewing life through the keyhole of our single existence. Can we measure the richness gained by the young reader venturing down the Mississippi with Tom and Huck, or cheering Ivanhoe as he battles the Black Knight? Can we measure the deepening understanding of the mature reader of the tragic South of William Faulkner and Tennessee Williams, of the awesome determination—and frailty—of Patrick White's Australian pioneers? This function of literature, the enlarging of our own life sphere, is of itself of major importance.

Additionally, however, it has been suggested that solutions of social problems may be suggested in the study of literature. The overweening ambitions of political leaders—and their sneering contempt for the law—did not appear for the first time in the writings of Bernstein and Woodward. The problems and the consequent actions of the guilt-ridden did not await the appearance of the bearded psychoanalyst of the twentieth century. Federal Judge Learned Hand has written, "I venture to believe that it is important to a judge called upon to pass on a question

of constitutional law, to have at least a bowing acquaintance with classical literature, as with the books which have been specifically written on the subject. For in such matters everything turns upon the spirit in which he approaches the questions before him.

But what of our dissenters? Can we overcome the disapproval of their "life experience classroom" theory of learning? We must start with the field of agreement—that education should serve to improve the individual and society. We must educate them to understand that the voice of human experience should stretch our human faculties, and open us to learning. We must convince them—in their own personal language perhaps—of the "togetherness" of life and art. We must prove to them that far from being separate, literature is that part of life which illumines life.

"Literature in the Classroom"—Test Questions

1. According to the passage, the end goal of great literature is
   a. the recounting of dramatic and exciting stories, and the creation of characters
   b. to create anew a synthesis of life that illumines the human condition*
   c. the teaching of morality and ethical behavior
   d. to write about tragedy and despair
   e. to portray life's problems

2. As the author sees it, one of the most important gains from the study of great literature is
   a. enrichment of our understanding of the past
   b. broadening of our approaches to social problems
   c. that it gives us a bowing acquaintance with great figures of the past
   d. that it improves our understanding of the young reader
   e. that it provides us with vicarious experiences which provide a much broader experience than we can get from experiences of simply our own lives alone*

3. The author's purpose in this passage is to
   a. list those writers who make up the backbone of a great literature curriculum
   b. compare the young reader's experience with literature to that of the mature reader
   c. advocate the adoption of the "life experience" approach to teaching

d. plead for the retention of great literature as a fundamental part of the curriculum*
e. overcome the opposition of Dewey's followers to the inclusion of current literature in the curriculum

4. The example in the passage of a motto used by proponents of the "life experience" pedagogy is
   a. Teach the child, not the subject*
   b. Spare the rod, spoil the child
   c. Reading, 'Riting, 'Rithmetic
   d. The world is a classroom
   e. A child should be seen and not heard

5. Which author provides the reader with a deeper understanding of the tragic South?
   a. Faulkner*
   b. Whitman
   c. Steinbeck
   d. Miller
   e. White

6. What was the position held by Learned Hand, who was quoted in the passage?
   a. Federal Judge*
   b. U.S. Marshall
   c. Secretary of Education
   d. Supreme Court Justice
   e. Attorney General

* = Denotes correct answer

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