Literature Genre Effects on Memory and Influence

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Author's Notes

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Superstructures are text structure relations commonly found in specific types of text such as narrative texts. Superstructures are important from a pedagogical standpoint because learners' comprehension can be improved when they are taught about superstructures (Baumann & Bergeron, 1993; Calfee & Patrick, 1995; Dymock, 2005). The current study examined three types of texts with distinct superstructures—narrative, expository, and procedural. Undergraduate student participants (n=200) were randomly assigned to read a text that was written in the form of a narrative, expository, or procedural superstructure text. After reading, participants were asked to recall information from the text and rated their compliance level to the instructions provided in the text. Our results indicated a significant recall difference between narrative and expository superstructure texts. Future directions and implications are described in the discussion section.

The concept of the genre can be thought of in a variety of ways. The standard classification is the one we are all taught in grade school, where a text is categorized into broad areas such as fiction or non-fiction. Under the broad genre, categories are sub-categories such as young adult fiction and adult contemporary. Although these genre categories provide useful information for readers with specific reading goals in mind, they do not allow for systematic analyses in the realm of cognitive learning science. A more useful genre categorization is to classify texts by their structural relations such as analyzing a causal chain structure or a chronological sequence structure. These structural relations are called superstructures. Superstructures are defined as a set of conventionalized sections of a text that are most useful in terms of top-down processing while reading (van Dijk & Kintsch, 1983; van Dijk, 1980). An example of superstructure would be a narrative text that has a general chronological format of Goal-Attempt-Outcome (Mandler, 1978; Mandler & Johnson, 1977). Many narrative texts would include this type of goal-attempt-outcome structural relation. Because superstructures are prevalent and can be found in many texts, they allow readers to developmental schemata for more efficient reading (Bartlett, 1932; van Dijk, 1980; Thorndyke, 1977). In other words, readers develop expectations and reading strategies as they become more familiar with superstructures. An avid reader of crime novels would

expect to encounter the goal-attempt-outcome structure in the novel. A furniture installer would expect to encounter instructional procedures that describe sequential steps in clear chronological order. The current study compared readers' recall performance across three different types of superstructures—narrative, procedural, and expository. The study also compared participants' level of compliance to the instructions provided across the three types of superstructures and discussed how these results and concepts apply to agile teaching.

Three Types of Superstructures

Van Dijk (1980) proposed four different types of superstructures: narrative, arguments, experimental research reports, and newspaper articles. The current study included the narrative superstructure as described by van Dijk (1980) and added two additional superstructure types—expository and procedural.

Narrative texts are meant for reading entertainment or moral teaching, and they typically follow the Story Grammar Theory (Mandler & Johnson, 1977; Rumelhart, 1975; Stein & Glenn, 1979; Thorndyke, 1977). The Story Grammar Theory follows a structure that most individuals are familiar with. It begins with the setting of the story that describes the time, place, and characters and is where the protagonist sets their overarching goal. This is also known as the beginning (Mandler & Johnson, 1977), event (Rumelhart, 1975), initiating event (Stein & Glenn, 1979), and theme (Thorndyke, 1977). The next section of a narrative structure is the goal reaction (Mandler & Johnson, 1977), sub-goal (Thorndyke, 1977), or plan (Rumlhart, 1975; Stein & Glenn, 1979) wherein the protagonist decides to act for their overarching goal. This leads to the *attempt* of the protagonist to achieve their overarching *goal*. The narrative structure culminates with the protagonist's overarching goal at the end and is achieved by either reaching or not reaching that goal at the ending. Readers who have been exposed to this narrative superstructure over time develop a set expectation, or schema. The set expectation allows readers to have better recall and comprehension. Multiple studies have shown an improvement in students' narrative comprehension after being taught this superstructure as a reading strategy (Baumann & Bergeron, 1993; Calfee & Patrick, 1995; Dymock, 2005).

Expository texts are used to elaborate the specifics of a topic to provide information about the topic, to describe the topic, or to report the topic to uninformed readers (Karamanis, 2004; Mann & Thompson, 1988; Meyer & Ray, 2011; Richgels et al., 1987). Expository texts contain one or multiple topics and elaborations which tell us the subject and provide details on the subject (Mann

& Thompson, 1988). The expository superstructure includes textual relations of comparison, problem/solution, cause/effect, sequence, collection, and description (Meyer & Ray, 2011; Meyer et al., 1980). Mature readers can effectively identify top-level expository structure, recall more information, and organize their recalled information when provided an expository superstructure with highlighted cue words (Lorch et al., 1995; Meyer et al., 1980; Richgels et al., 1987).

Procedural texts are used to teach and assist readers in performing a task by providing a series of instructions (Aouladomar & Saint-Dizier, 2005; Diehl & Mills, 2002; Mills et al., 1993; 1995). Procedural superstructures include structural relations such as objective, summary, pre-requisites, pictures, and instructions. The procedural superstructure allows readers to use the relations of collection, description, and sequence to first establish their goal and then follow the text to the end to hopefully achieve their desired outcome. Instruction manuals are the most common type of procedural text. When presented with a procedural text that used multiple format options and highly descriptive texts, participants are more likely to achieve their end goal more accurately (Irrazabal et al., 2016).

Agile Teaching

The concept of agile teaching (outside of software development) has been present around for some time but has not received much research attention until recent years. Cathcart et al. (2014) describe agile teaching as a teaching method where educators modify their materials and course delivery, often in real-time, to best suit the needs of their students at the time. Agile teaching could also take the form where a combination of various types of technologies are presented to students to allow students to accomplish a design project with a specific end-goal (Hunter, 2021).

The current study fits well with the concept of agile teaching. For instance, most college textbooks have an expository structure that is in the form of topic, sub-topics, and the elaborations of individual sub-topics. Sometimes, perhaps, information could be better retained if it is presented in an alternative text structure such as a story. An instructor who is sensitive to student needs and agile in his or her teaching style could quickly adapt different genres of teaching materials to suit student needs.

Effects of Genre on Learning Performance

An important question that educators seek to answer is how genre might affect students' learning outcomes. Most college-level textbooks are formatted as expositions, but more learning materials could be formatted in narrative or procedural structures to promote learning. Several past studies have demonstrated that genre could influence learning outcomes. Zwaan (1994) found that learners had better memory for surface information written with a narrative superstructure than information written as a news report. A study by Jacobs (2017) supported a similar finding that genre affects learners' recall performance. Readers tend to recall superficial verbatim information from texts formatted with expository superstructures; readers tend to recall more abstract propositions from texts formatted with narrative superstructures (Jacobs, 2017).

Another important question for educators to explore is whether different genres could promote attitude changes for certain subjects or ideas. When thinking about attitude changes, we typically think about the influence persuasive texts can exert rather than considering the effects of other text genres such as narrative or expository text. For example, Elashri (2013) found that students' attitudes toward writing were significantly better when using a genre-based approach to teaching rather than the traditional way wherein the teacher broke down writing into categories of subject and predicate and describes their functions and uses. Using the genre-based approach increased students' learning engagement (Elashri, 2013). Students may be more willing to engage and follow the instructions of a text if the text is written as a narrative instead of the traditional exposition commonly found in textbooks.

The goal of the study is to compare the learning outcome across texts written in narrative, expository, and procedural superstructure formats. Participants' recall performance and compliance level were compared across the three superstructure types.

Method

Participants

The current study was conducted as a groups design. Students from a large regional state university participated in the study. A total of 200 students participated in the study with the majority being female students (83%). Participants' age ranged between 18 and 63 (M=24.63, SD=7.912). Most participants had a GPA between 3.5 and 4.0 (60%).

Materials and Procedure

The study was conducted in a fully online format. The experiment materials were hosted on Qualtrics, an online survey platform. Participants took part in the study individually and on their own time. The Qualtrics system randomly assigned a participant into one of the three text genre conditions—narrative, expository, or procedural.

The study began with a brief description and an informed consent process. After participants had agreed to participate in the study, they were first given a modified version of Whitaker's Reading Engagement Scale (2003) combined with a health authorities trust scale created by the authors. This was used to establish a baseline for participants' text engagement and authority trust level. Each question was rated on a Likert scale that ranged from Strongly Agree to Strongly Disagree. One question of the Reading Engagement Scale served as a manipulation check as it was a reverse-coded identical question.

After participants had completed the reading engagement questionnaire and trust-level questionnaire, they were given one of three texts to read: procedural, expository, or narrative. All three texts contained the same information that dispelled certain myths of the COVID-19 virus. An example of a myth was that drinking the Corona beer would render one immune to being infected by the COVID-19 virus. The text also included guidance on proper facemask usage. All information included across the three genre texts was identical, but the information was presented according to a text's respective superstructure. The expository text presented the information by citing the Centers for Disease Control (CDC) and the World Health Organization (WHO) as to where the information came from. The procedural text used a stepwise description and instructed the reader to follow the safety guidelines. The narrative text was written as an autobiographical essay. It described a mother with two children and the mother's thoughts as she went grocery shopping during a COVID-19 lockdown period. The narrative text was two pages with a Flesch-Kincaid Grade Reading Level of 9.1, the procedural text was two pages with a Flesch-Kincaid Grade Reading Level of 9.2, and the expository text was two pages with a Flesch-Kincaid Grade Reading Level of 10.4. All texts took no more than five minutes to read.

To avoid a memory dump where participants could immediately recall recently read information, participants were asked to provide demographic information after reading the assigned text. After participants had completed the demographics information, they were prompted to answer nine multiple-choice

questions about the myths and facemask-wearing procedure presented in the text. Each multiple-choice question included two incorrect responses, one correct response, and a fourth option that allowed participants to provide their answer if they felt that the other choices were not correct. The researchers would score the fourth option if one was entered. A final behavioral question asked the participants if they were any more likely to wear facemasks in public based on the information they had read in the text. The final behavioral question was a Likert scale rated from Extremely Likely to Extremely Unlikely.

Results

We conducted a one-way ANOVA to compare memory recall of the information provided in the texts. We found a significant difference between the narrative text (*M*=7.21, *SD*=1.63) and the expository text (*M*=6.21, *SD*=1.57). Participants who read the narrative text having better memory recall, *F*(2, 197)=7.096, *p*<.05. There were no significant differences between the procedural text (*M*=6.70, *SD*=1.42) and the narrative text or the expository text. Figure 1 shows participants' average recall scores and the differences between each text.
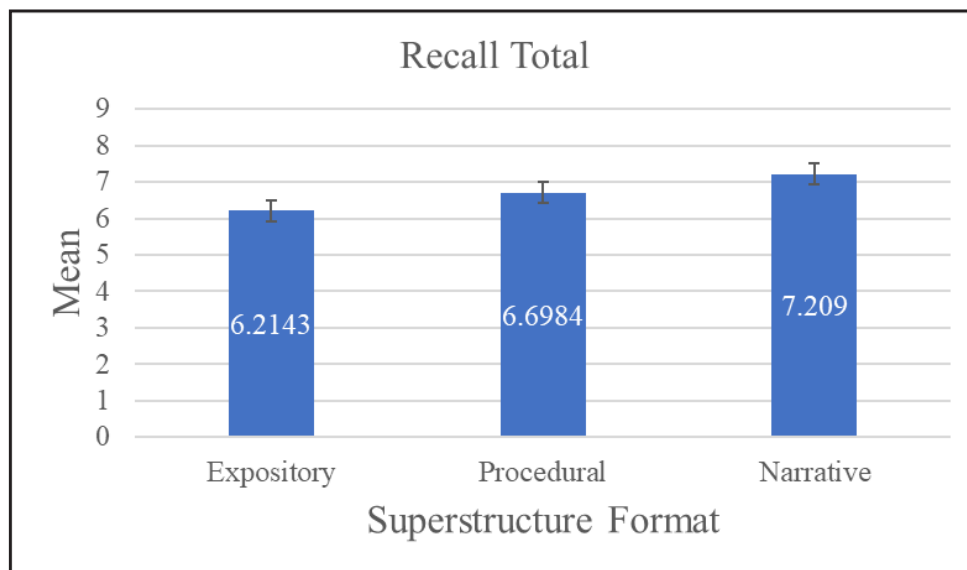
Figure 1: Participants' Average Recall Total

We conducted a one-way ANOVA to measure the influence of the suggestion of using facemasks in public settings provided in the texts on participants' behavior. There was no significant effect of this suggestion on participants no matter which text they read, *F*(2, 209)=.757, *p*>0.05.

Discussion

The current study looked at literature genres in terms of superstructures and compared different genres' effects on memory recall and behavior influence and how this applies to agile teaching. We hypothesized that those who read a narrative, the story-like text would have better memory recall and experience more of a behavioral influence because readers would be able to easily relate to the story presented. In addition, we hypothesized that the expository text would be the least influential and that the effect of the procedural text would be in-between the two in terms of influence and memory recall.

Our findings on recall performance aligned with our original hypothesis. Participants that read the narrative text were better on average at recalling correct information surrounding common myths concerning the COVID-19 virus and proper facemask usage. This was likely due to readers' awareness of narrative superstructures and their usage of superstructure mental schemata to guide their recall (Mandler & Goodman, 1982). A narrative superstructure provides readers with a set of text structures to follow, and these structures inform the readers on how the story will flow so that they can look for important key items. By having these narrative superstructure markers, such as beginning and ending, it is easy for the reader to know and memorize events and actions that they know could be needed later if they were asked to recall the information. It is also known that readers are familiar with the Goal-Attempt-Outcome (GAO) structure that dominates most narrative essays (Lorch, 2017). Humans become familiar with this structure through the sharing of stories that starts when we are young and continues throughout our life, so this goal-attempt-outcome structure becomes almost a second nature for us during reading. This same life experience allows most individuals to be intimately familiar with how a narrative text is going to proceed and, again, know where to identify the important information that may need to be recalled later. Another reason for the better recall performance for participants who read the narrative text was because readers were able to relate their lives more closely to the narrative text. When readers can relate to the events described in a text, they can better remember more information due to being able to identify with the protagonist's motives.

Our hypothesis that participants who read the expository text would have the lowest memory recall performance was supported. Typically, a person only reads an expository text when it has been assigned to them, such as for a class, therefore possibly leading participants to associate reading the text with an assignment or required reading that they have done before. Whereas narrative

texts are read for entertainment, expository texts are read to provide instruction or information that the reader may or may not find interesting. If the reader does not find the topic interesting, it would be understandable that they would not retain much of the information presented in the text. Another reason for this result can be that expository texts do not follow the goal-attempt-outcome structure that was previously mentioned. Without the goal-attempt-outcome structure, participants were less familiar with the expository texts than they did with the narrative text structure (Lorch, 2017).

We hypothesized that participants who read the procedural text would fall between the narrative text and expository text in terms of memory recall and this was supported by our results. This was likely because people are generally not systematically trained on how to read procedural texts. It has been found that teenagers only read procedural-like texts once a week. Procedural texts require some pre-requisite information about technical language, diagrams, and illustrations. Readers need to be able to follow and understand the listed procedures to achieve the desired outcome (Chang, 1983; Cranney et al., 1984). When individuals do not possess this prior knowledge, it makes it difficult for them to attempt what is being described. Another reason for this finding was that we did not provide illustrations or pictures along with the procedural text condition. Procedural texts that included pictorial and multimedia instructions were more likely to help readers achieve their end goal accurately (Irrazabal et al., 2016). If we had provided pictures or multimedia instructions along with the descriptive texts, participants might have retained more information.

Our findings did not support our hypothesis that the narrative text would have the most behavioral influence. None of the texts had a significant influence over participants' likeliness to begin wearing facemasks in public. One possible explanation was that participants were likely already wearing facemasks in public settings and thus there was a ceiling effect in terms of compliance. Another possibility was that the experiment text only explained how to properly wear the facemask and did not encourage participants to wear them more.

As previously discussed, agile teaching is defined as a teaching method that educators would modify their materials and course delivery, often in real-time, to best suit the needs of their students at the time (Cathcart et al., 2014). Our results indicated that genre is an important idea that educators should consider when implementing an agile teaching strategy. Educators could use different superstructures to support students' learning. Although the present study has shown that narrative superstructures are typically better at promoting memory

recall, it is possible that expository or procedural superstructures would be better suited for other types of instruction and learning. An educator can determine this through a comparison of expected outcomes for their students and determine which best fits their students' needs at the time and be able to adapt their course materials and presentations to best fit these needs.

The current study had several limitations. First, participants were recruited from two different semesters. The two timepoints could have implications of differing attitudes towards the COVID-19 virus and facemask wearing. Second, the study was conducted in a fully online format and could have been affected by external factors such as environmental distractions. Third, with all participants being psychology students these findings cannot be seen as an accurate representation of the general population. Fourth, with limited research, it is uncertain whether these findings could be transferred to reading on paper rather than a screen and if subject material could also play a role. This could be looked at in future research. Despite these limitations, the current study provided insight into how literature genres, as represented by superstructures, affected multiple facets of human cognition and behavioral functioning. Findings from the current study could have implications in areas of teaching by informing educators of what types of text structures are more likely to keep students' interest and retain more information. The current findings could also have implications in child-rearing, such that educators could strategically use the most suited text genre to help children to learn basic social interactions. Future studies could focus on using this idea in certain settings, such as the classroom, to investigate which genre would be best suited for a specific learning situation. A different text topic or a different reading format (paper-based instead of screen reading) could also be investigated. Future studies could also investigate the idea of genre effects on learning within different age groups. College students who have more experience with reading expository text superstructures may learn more from expository texts than they would from narrative superstructures, whereas younger, pre-college students might learn better from texts with narrative superstructures. The potential age and education-level effect would be an interesting point of investigation for future studies.

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Appendix

Sarah Whitaker Condensed Reading Engagement Scale (2003) combined with Health Authority Trust Scale:

1. It is hard to pay attention to what I'm reading.

2. I only read stories that look easy.

3. I believe that government health authorities have everyone's best interest in mind.

4. When a book looks hard, I do not try to read it.

5. I only read if I have to.

6. Understanding what I read is important to me.

7. I look at scientific research to determine if what government health authorities recommend is truly best.

8. I think it is important to understand what I read.

9. I work hard to understand what I read.

10. I sometimes pause when I am reading to make sure I understand what I have just read.

11. I trust what the government health authorities say.

12. I think reading is important.

13. I plan on how to read something before I read it.

14. I enjoy reading.

15. I do research about things I hear that do not come directly from government health authorities.

Participants rated their agreements to the statements above on a scale of Strongly Agree to Strongly Disagree.