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HONS 497
Honors Thesis

Exposure to Narratives and Social Reasoning

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Abstract

This study drew predominantly from previous work on the relationships of narrative and non-narrative texts with empathy and social reasoning. It has been posited that fiction—due to the parallels between narrative texts and the social world—may help readers maintain if not cultivate their social skills, whereas readers of non-narrative material may not have this benefit. This project attempted to both replicate and extend this pattern in a Seventh-day Adventist Christian sample by using instruments employed in previous research as well as a set of Bible-based instruments. Correlational analysis and nested linear regression were used to examine the relationship between how subjects performed on measures of narrative and non-narrative exposure (the Author Recognition Test and Bible Verse Recognition Test) and their social acumen (the Interpersonal Reactivity Index and the “Reading the Mind in the Eyes” Test-revised). Despite mixed results, there was strong evidence for a relationship between recognition of Biblical characters and identification of emotional states in other people. An implication of this study is that, for an Adventist population, exposure to religious narratives may play a role in how social reasoning develops.

Key Words: narratives, mentalizing, religion, empathy

Exposure to Narratives and Social Reasoning

In spite of their presence in every culture that we know of, narratives (stories) have a history of being undervalued by many folk—researchers, intellectuals, and Christians alike—who deemed them to be of no constructive use beyond mere entertainment, albeit widely-enjoyed entertainment (Mar and Oatley, 2008; Moncrieff, 1996; Vitz, 1990). An ever-growing pool of current research, however, suggests that narrative literary works (including ones that are fictitious or religious in nature) play a more integral role in both cognitive and moral development than previously believed.

For this paper, narratives are being defined according to their prototypical content. Narratives portray a social world full of goal-pursuing characters, placing focus upon said characters' motivations, actions, intentions, and subjective experiences (Mar and Oatley, 2008; Vitz, 1990). In contrast, non-narrative texts (including some non-fiction) are much more expository; they are designed strictly to convey information and/or teach concepts (Mar and Oatley, 2008). This study, a replication and extension of Mar, Oatley, Hirsh, de la Paz, and Peterson's (2006) work, explores the relationships of narrative and non-narrative texts with empathy and social reasoning in a religious sample.

Literature Review

Narratives and the social world have more elements in common (e.g. goal pursuit, social interactions, inter and intra-personal conflict) than non-narratives and the real world do. Therefore, there are more similarities between how the mind processes the social elements of narratives and those of the real-world, and fewer similarities between the processing of expository texts and the social demands of the real-world (Mar, Oatley, Hirsh, de la Paz, & Peterson, 2006). Empirical evidence in support of this was found by Speer, Reynolds, Swallow,

and Zacks (2009), who used functional neuroimaging to identify similarities between brain regions that are active when a person performs, imagines, and observes specific activities in the real world and when the person is reading about similar activities in a narrative. This lends support to the assertion that narratives, even if they are fictitious, provide simulations of the social world that allow readers to engage in “a form of learning through experience” (Mar & Oatley, 2008, p. 173).

These simulations—which rely heavily upon abstraction—enable the reader to form mental models as they read and process the narrative. If the narrative is depicting two characters engaged in a conflict, for example, the reader’s brain creates a model encompassing many relevant factors—what led to the conflict, what happens, how the characters feel, how the conflict is resolved, and so forth. The power of these simulations can be witnessed in how narratives may influence a reader’s beliefs, attitudes, and expectations about reality. An experimental study by Diekman, McDonald, and Gardner’s (2000) explores the influence of romance novels on women’s attitudes towards precautionary sexual behaviors, concluding that the attitudes and social information conveyed through a narrative (be it an accurate or fictitious representation of reality) can help shape the reader’s attitudes and motivations.

These models and simulations provide an avenue for developing recognition of emotional states in others; supplementing social knowledge; and enhancing understanding of complex social situations, human intentionality, and action-consequence relationships (Mar & Oatley, 2008; Vitz, 1990). While some people may not deem a simulation as equivalent to a real-life encounter, Mar and Oatley (2008) posit that narratives (even fiction) at least provide a buffer for maintaining a reader’s social skills. This buffer, however, may not be present when reading non-

narratives, since expository texts do not facilitate such mental simulations (Speer, Reynolds, Swallow, & Zacks 2009).

Narratives also encourage readers to view a situation from someone else's perspective and infer their mental state, a process/ability known as mentalizing (Djikic, Oatley, & Moldoveanu, 2013). The reader's ability to empathize aids in this process, because it helps them use their own cognitive mechanisms (for goal-making and goal-pursuit) to make mental models of a fictional character's goals and generate emotions similar to what the character is feeling as they pursue their goals (Mar, Oatley, Djikic, & Mullin, 2011). Empathy, as defined by Hoffman, is "a vicarious affective response that is more appropriate to someone else's situation than to one's own" (1987, p. 48). And it is through interpersonal experience that people learn to recognize (via facial expressions, tone of voice, body language, etc) how other people feel when certain things happen (Vitz, 1990). This plays into moral development once people start evaluating the morality of their own actions based on what the consequences for other people will be. Narratives, in their endless variety and richness, can provide vicarious experiences for such development.

In their original study Mar, Oatley, Hirsh, de la Paz, and Peterson (2006) evaluated their subjects' exposure to both narrative and non-narrative texts, then tested their performance on empathy and social-acumen measures. They found that the readers' propensity to becoming absorbed by the narratives predicted their empathy scores, and social ability was positively related to reading fiction, yet negatively related to reading non-fiction. Although causal directions could not be established from their work, they concluded that there is still the compelling possibility that exposure to social narratives could improve social skills.

This replication of their study sought the same effect in a religious, collegiate population. The additional extension of the study examines how different types of Biblical texts correlate with empathy and performance on the same social acumen. Since both narrative and non-narrative religious texts are traditionally meant to facilitate the development of morality (via the internalization of religious beliefs and practices), similar results to those of the original study are expected for this extension.

Methodology

Sample

The subjects ($N = 86$) were convenience sampled from the population of undergraduate students at Andrews University. Of the sample, approximately 30% were males and 70% were females; the average age was 20 years (ranging between 18 and 30 years); about 55% were White, 22% were Black, 23% were Asian, and 13% fell under “Other” (these percentages include those who fell into more than one racial category); and 17% were of Hispanic, Latino, or Spanish descent, while 83% were not of such origin. Lastly, 90% of the total sample specified themselves to be Seventh-day Adventists, while 10% were not.

Instruments

The Interpersonal Reactivity Index (IRI) is the self-report survey that Mar and his colleagues (2006) used to measure several dimensions of empathy. Using a 5-point Likert scale, subjects rate 28 items on how well they feel the statements describe them. These items fall into four subscales: Perspective-taking, Empathic Concern, Personal Distress, and Fantasy (the latter of which measures how immersed within the text the reader often becomes, a concept called transportation). This instrument has been validated and adequately correlates with other measures of empathy (Davis, 1983).

Mar and his colleagues (2006) created an updated version of a pre-existing instrument for their study, calling it the Author Recognition Test (ART). It assesses the reading habits of subjects by asking them to identify the names of authors that they recognize from a given list (50 fiction writers, 50 non-fiction writers). In order to discourage guessing, subjects are informed of 39 foils existing within the list—names that have been fabricated for this test. Mar and colleagues (2006) claim that this version of ART has convergent validity with other measures of reading exposure that are more conventional.

The Bible Verse Recognition Test (BVR), patterned after the Author Recognition Test, was created specifically for the extension portion of this study. It exists in two parts and assesses how familiar the subjects are with narrative and non-narrative portions of the Bible. Narrative familiarity is measured (in part 1) by asking subjects to identify the Bible characters that they recognize from a given list, containing 60 target names ranging from well-known to obscure (e.g. Joab, Elizabeth) and 10 additional foils (e.g. Wendy). Non-narrative familiarity is measured (in part 2) through the recognition of items on a given list, which contains 57 target phrases, again ranging from well-known to obscure (e.g. “Nor the arrow that flies by day”), and 18 phrase foils that are commonly yet incorrectly attributed to the Bible (e.g. “Cleanliness is next to godliness”). The subjects were informed about the presence of the foils in both lists.

Mar and his colleagues (2006) originally used two separate tests to measure how well subjects could infer the mental states of others, but in this replication study only one was used: the “Reading the Mind in the Eyes” Test-revised (MIE). It measures how well subjects can “understand and pair mental-state terms with static non-verbal cues” (Mar, et al., 2006, p. 700). Subjects are presented with 36 black-and-white pictures of actors’ eye-regions; each picture is accompanied by 4 possible mental/emotional states, only one of which is the actual emotion that

the actor was experiencing. (A list of the terms used in this task was provided in case the subjects wanted an explanation and example of each.) People with high functioning autism or Asperger's syndrome often perform worse on this test when compared to controls of the same IQ and age, which demonstrates that the test is sensitive to subtle differences in social perception (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001).

A measure of fluid intelligence, namely a working memory test, was administered in keeping with the original study's intention to account for factors that might be mediating any relationships (Friedman, Miyake, Young, DeFries, Corley, & Hewitt, 2008). The subjects are presented with sequences of 5, 7, or 9 letters that end with a question mark—in a given sequence, the letters flash on screen one at a time at a steady pace. The subjects must keep track of the last 3 letters that they have seen, because once the sequence has ended they must type in the last 3 letters of the sequence in the correct order.

Procedure

Testing was conducted in the Cognitive Research Lab of Andrews University and all tests were administered over the computer. After receiving subjects' informed consent, each subject completed the instruments in the following order: the Interpersonal Reactivity Index, the Author Recognition Test, the Bible Verse Recognition Test, a demographics survey, the "Reading the Mind in the Eyes" Test-Revised, and the working memory test. On average the process took 35 minutes to complete.

Findings

In the original study, the relationships between textual exposure and social acumen were found only after running partial correlations while controlling for age, fluency in English, and intelligence (Mar, Oatley, Hirsh, de la Paz, & Peterson, 2006). The same partial correlations

were run on this sample, which failed to produce a positive correlation between exposure to Fiction and performance on the “Reading the Mind in the Eyes” Test-Revised (MIE; $r = .039$ at $p = .73$). However, a negative correlation was found between exposure to non-Fiction and the MIE test ($r = -0.22$ at $p = .04$), which was in agreement with the findings of the original study.

The Interpersonal Reactivity Index—one of our empathy measures—failed to produce any substantial correlations in this study’s sample, aside from a marginally significant, positive correlation between the Fantasy and Perspective-Taking subscales ($r = .24$ at $p = .026$). The lack of compelling results is not entirely surprising, since there is always the potential with self-report instruments that subjects may misrepresent themselves due to either a lack of self-awareness or by misjudging how they think or feel in a given situation, thus generating unstable data.

Therefore, Table 1 presents a correlation matrix between the two aforementioned IRI subscales, the ART variables (Fiction and Non-Fiction), the BVR variables (Bible Name and Bible Phrase), and the MIE Test-Revised; no other variables were controlled for in these correlations.

Table 1.
Correlation Matrix (N=86)

	1	2	3	4	5	6	7
Fiction (1)	--						
Non-Fiction (2)	.66***	--					
Bible Name (3)	-.23*	.37***	--				
Bible Phrase (4)	-.26*	.38***	.76***	--			
MIE (5)	-.11	-.21	.40***	.34**	--		
Fantasy (IRI) (6)	-.12	.07	.02	.06	.14	--	
Perspective-Taking (IRI) (7)	-.01	-.01	-.16	-.08	-.06	.24*	--

* $p < .05$

** $p < .01$

*** $p < .001$

The highly significant, positive correlation between fiction and non-fiction was expected, because people who read a lot of one style of literature tend to read a lot in general, thus providing them with exposure to the other style as well. The highly significant, positive

correlation between the recognition of Bible names and Bible phrases bears the same underlying pattern—the more a person reads the Bible, the more familiar they become with both its narrative and non-narrative parts.

The negative correlations (of varying significance levels) between the Bible measures and fiction can probably be explained because conservative, evangelical Christian populations (such as Seventh-day Adventists) tend to read less fiction. The negative correlations (of varying significance levels) between the Bible measures and non-fiction, however, may not be explained as well by this line of reasoning, though this may be just a function of the sample's young adult status—the less time a person's lived on this earth, the less exposure they've had to many things.

The lack of significant correlations between the MIE scores and the measures of fiction and non-fiction did not agree with the original study's findings. But it is pertinent to mention that the original study was dealing with a secular collegiate sample, whereas this study involves an overwhelmingly religious sample. It could be that the Author Recognition Test is simply not a reliably sufficient instrument to draw out any relationships between fiction, non-fiction, and the MIE scale in such a sample.

The significant, positive correlations (of varying significance levels) between the Bible variables and the MIE scores warrant particular interest. It appears that the more Bible names and phrases a subject can recognize, the better they are at correctly identifying emotional states in other people. To further explore these relationships, nested linear regressions were run that partial out the shared variance of both variables, as well as factoring in some other variables—the working memory measure and the foils for both parts of the BVR instrument—that could control for the legitimacy of the subjects' Bible familiarity. The results are shown in Table 2.

Table 2.
Regressions Predicting MIE (N=86)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Working Memory	.04	.04	.04	.04	.03
Bible Name Foil		-.04	-.18	-.17	-.16
Bible Name			.18**	.19**	.15*
Bible Phrase Foil				-.08	-.10
Bible Phrase					.07
R ²	.01	-.00	.17	.17	.17
F-score and p-value for ΔR^2	1.86 p = .18	0.15 p = .70	18.37** p < .001	1.00 p = .32	.77 p = .38

*p < .05

**p < 0.001

^aThe F-score denotes the difference between the given model and the previous model

Working memory (our measure of intelligence)—which did not correlate with any of the other variables in this study—was not a significant predictor of MIE scores. This is not an unfortunate finding, since it would be disheartening if only people of certain intelligences were good at recognizing emotions in other people. The foil variables (for both Bible names and Bible phrases) were also not significant predictors, which indicates that the mere frequency at which subjects were claiming to recognize either the Bible names or phrases did not have an effect on how well they recognized emotions. Recognition of Bible phrases also failed to be a significant predictor, which suggests that its initial significant, positive correlation with MIE scores may be due to the variance it shares with the other BVR variable. The recognition of Bible names clearly goes hand in hand with the subject's ability to recognize emotions in other people; it is a significant predictor in Models 3 through 5 (despite the variance of the Bible phrase variable being factored into the latter two), with the sole significant F score of the difference between Model 2 and Model 3 indicating that this is the best model for predicting the MIE scores. Put another way, there is an impressive relationship between one's familiarity with narrative portions of the Bible (as evidenced by their ability to recognize characters addressed in these parts) and

their ability to recognize how other people are feeling; knowledge of non-narrative portions does not extend this ability.

Discussion

The primary finding of this study is that exposure to narrative portions of the Bible is strongly associated with a person's ability to infer the emotional states of other people, an important aspect of mentalization—the more Bible names you know, the more emotions you recognize, and more you understand the other person's mental state (and vice versa). While causal claims cannot be established from such a correlation, this finding has strong implications regarding the benefits of exposure to religious narratives.

Ever since the first *New England Primer* was printed in the American Colonies, religious narratives have consistently been used to educate people of all ages—especially young people—on the moral culture of society, particularly regarding how to relate to and treat other people (Russell, 2012). The use of stories in general is one of the few universal elements of moral education, hence why it has been referred to as “The Great Tradition” (Vitz, 1990). Coles (1986) asserts that morally-structured narratives—often of a religious kind—provide strong support and inspiration for children, whose own moral responses are often deeply rooted in their previous experience with narratives.

But in recent decades, the use of religious narratives has been withdrawn from the curriculum of most Western schools, mostly due to disapproval over the unavoidable indoctrination that accompanies the usage of certain religious texts in what has been labeled “virtue teaching” (Vitz, 1990). While the findings of this study could be used to support a call for the reintroduction of religious narratives into educational systems, that is not the main intent here. We simply echo the wish that educational systems work with human nature rather than

against it; to make thoughtful and continual use of narratives in teaching people how to relate to one another in this grand social world (Vitz, 1990).

The Bible appears to be a useful tool for helping religious people better understand one another, which is arguably one of its leading purposes. A future direction that we would like to see both correlational and experimental research take is the comparison of the social abilities of both religious and secular people in light of their differing Biblical and Fiction savviness. The pooling evidence on narratives' cognitive effects should be expanded to address the effects of different types of narratives, and how they can be most effectively used.

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