Correlations between Big Five Personality and Exposure to Fiction and Nonfiction

The first step in testing whether reading predicts social ability beyond Big Five personality is to examine the trait correlates of reading fiction and non-fiction. Few previous studies have examined this question. Most have focused on engagement with media such as television or film (e.g., Weaver, 1991; Hall, 2005). Finn (1997), however, found that reports of reading for pleasure were positively correlated with Openness ($r = .27$), a trait also associated in the same study with conversational tendencies, $r = .28$. The fact that Openness predicted pleasure in reading and a tendency to engage in a particular social behavior is certainly consistent with the possibility that this trait could account for any association between the reading of narrative fiction and social ability. Ruling out this possibility is thus an important undertaking if we are to fully understand how reading fiction relates to social skills. Agreeableness was also correlated with conversation ($r = .27$), but not with reading ($r = -.06$, ns), whereas Extraversion was negatively associated with reading ($r = -.23$) but (surprisingly) not statistically significantly related to conversation, $r = .07$. One shortcoming of this study with respect to our own goals is that it fails to discriminate between narrative fiction and expository non-fiction.

An investigation by McManus and Furnham (2006) is arguably more informative, as it compares reports of "reading a novel" to "reading non-fiction books (not for work or study)." Both types of reading were associated with Openness, but the association was slightly greater in the case of narrative fiction ($r = .22$) relative to expository non-fiction, $r = .16$. (Testing whether this difference between the two dependent correlations was not possible, as the correlation between fiction and non-fiction was not reported; Steiger, 1980.) Unfortunately, this study did not examine what the unique association was between fiction and Openness, controlling for non-fiction. This is a necessary comparison given the close relation between reading narrative fiction and expository non-fiction (Mar et al., 2006).

Tirre and Dixit (1995) also examined the personality correlates of reading interests, with a more diverse sampling of genres. The 16PF, a measure of 16 personality factors (Cattell, Eber & Tatsuoka, 1970), was separated into five factors based on previous factor analyses: (1) Extraversion, (2) Agreeableness, (3), Conscientiousness, (4) Emotional stability, and (5) Independence. The latter appears most similar to Openness, although it is described by the authors as "marked by dominance and assertiveness, suspiciousness and skepticism, and liberal and critical attitudes," indicating that it probably represented the more cognitive aspect of Openness, sometimes known as Intellect (DeYoung, Quilty, & Peterson, 2007). Independence was positively correlated with interest in fiction ($r = .16$), and negatively correlated with preference for some non-fiction genres, including texts related to Mechanical interests ($r = -.14$), Fitness/Health ($r = -.22$), Wildlife/Hunting and Fishing ($r = -.20$) and Religion/Scripture, $r = -.27$. Agreeableness was also negatively correlated with a number of non-fiction genres (e.g., Mechanical, $r = -.68$; Wildlife/Hunting & Fishing, $r = -.58$), and positively correlated with one genre, Psychology/Philosophy, $r = .21$. Unlike the weak or negative correlations found in the other studies, Tirre and Dixit (1995) reported positive

correlations between Extraversion and some non-fiction genres (e.g., Fitness/Health, $r = .35$; Entertainment, $r = .25$), with no statistically significant association with fiction (correlation magnitude not reported).

As it stands, the limited extant research indicates that Openness to Experience may be the most likely personality correlate of frequent reading of narrative fiction. None of these studies, however, examine how personality is uniquely associated with reading fiction after taking into account expository non-fiction reading, nor did they employ a method of measuring reading habits that controls for social-desirability. In Studies 1a, 1b and 1c we thus turn to two pre-existing datasets from our own group, and one from another group, in order to address these shortcomings, allowing us to add to this current literature on the personality of narrative fiction readers in comparison to expository nonfiction readers.

STUDY 1a

In order to examine what aspects of trait personality seem most likely to act as mediators in the relation between fiction and empathy, we examined how self-reported reading preference and reading habits relate to a brief measure of Big Five personality, using a pre-existing dataset.

Method

Participants. A total of 188 University of Toronto students (141 female) with an average age of 18.9 years ($SD = 1.8$) participated. Although a majority had learned English as their first language, a large minority (86 individuals; 45.7% of the sample) had English as their second language. However, respondents had been fluent in English for an average of 15.0 ($SD = 5.4$) years. All participants provided informed consent, and were fully debriefed and recompensed.

Materials and Procedure. Fiction and nonfiction reading was assessed using self-report. Participants were asked rate degree of agreement with the following statements using a 7-point Likert scale: "I like to read fiction," "I like to read nonfiction," "I prefer fiction over nonfiction," and "I prefer nonfiction over fiction." The latter two preference ratings may allow us to distinguish the correlates of these two genres more precisely. Participants also rated the frequency with which they read both fiction and nonfiction, using a 9-point ordered-category item with the following anchors: never (1), occasionally (3), roughly 1x a month (5), roughly 1x a week (7), roughly 1x a day (9). The order of these questions was randomized for each participant.

Personality was measured using the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow & Swann, 2003), a very brief 10-item measure of personality based on the Big Five model. Although short, this measure has demonstrated both acceptable convergent validity and test-retest reliability (Gosling et al., 2003). Degree of agreement with items was indicated using a 7-point Likert scale.

Results and Discussion

The self-report questions pertaining to reading preference and behavior were summed to create two indexes, corresponding to Fiction preference and reading habits ("I like to read fiction," and "I prefer fiction over nonfiction," Cronbach's α = .70) and Non-fiction preference and reading habits ("I like to read nonfiction," and "I prefer nonfiction over fiction," Cronbach's α = .62). Reliability for the TIPI is reported in the source article

(Gosling et al., 2003). Descriptive statistics for all measures appear in Table 1. Fiction and Non-fiction were negatively correlated (r = -.20, all p-values < .05, two tailed, unless otherwise stated), likely a function of the items measuring preference for one genre over the other. Pearson correlations were calculated between personality and Fiction and Non-fiction (Table 2). Both Fiction and Non-fiction express correlations with Openness. The magnitude of this association was stronger for Fiction, although this difference was not statistically significant, $t(185)$ = .81, p > .05. Fiction was also positively correlated with Agreeableness, whereas Non-fiction was negatively but not significantly correlated to that trait. Partial correlations (Fiction controlling for Non-Fiction and vice versa) were conducted to examine unique prediction of personality variance controlling for the other form of print-exposure. The partial correlation results were very similar to the pearson correlations, with Openness appearing as the main correlate of both types of print exposure; the positive association between Fiction and Agreeableness dropped below threshold in this analysis. These patterns of association were consistent with the possibility that Openness, and perhaps Agreeableness, are possible mediators of the relation between Fiction and social ability that should be controlled and accounted for in order to rule out the role of trait personality. Study 1b examined this possibility in more detail.

STUDY 1b

The Eugene-Springfield Community Sample (ESCS) consists of over 750 individuals who have been followed for more than a decade. These participants completed a number of different measures, including questions about their reading habits, and the data are generously made freely available to other researchers by the organizers of this study, Lew Goldberg and his research group (1999). The additional advantages of employing this dataset include a diverse sampling of the population, coupled with inclusion of the NEO-PI-R, an elaborated assessment of Big Five personality including facets for each trait (Costa & McCrae, 1992).

Method

Participants. A total of 636 persons (364 female) completed all the measures of interest, with an average age of 50.2 years, *SD* = 12.2; *Min* = 18, *Max* = 83. On the whole, the sample was well-educated, with 84.1% reporting at least some college education. Respondents were predominately Caucasian (98.4%) and married, 80.3%.

Materials and Procedure. In 1994 the members of this sample completed the NEO-PI-R (Costa & Macrae, 1992), and in 2003 they were asked to report their preference for various media on a 7-point scale, including "Fiction and literature" and "Nonfiction."

Results and Discussion

Descriptive statistics for this study are reported in Table 1. Reliability for the NEO-PI-R is reported in the scale manual (Costa & Macrae, 1992). Fiction preference was non-normal in distribution, so non-parametric correlations were employed for this variable (Spearman's rho). Fiction and Non-fiction preference were positively correlated (r = .19). Correlations between reading preferences and personality are reported in Table 2. As in Study 1a, preference for both Fiction and Non-fiction was positively associated with Openness, although the effect was stronger for Fiction. At the factor level of personality analysis, no other significant correlations were observed, save a small positive association between Extraversion and Non-fiction. At the facet level, Aesthetics was the strongest

correlate of Fiction preference, although none of the facets exhibited stronger correlations than the Openness factor. For Non-fiction preference, both Ideas and Aesthetics exhibited the strongest correlation. Partial correlations (Spearman's Rho) were calculated to examine how Fiction and Non-fiction were uniquely associated with these personality traits, controlling for the other genre (Table 2, in parentheses). These associations differed very slightly from the zero-order correlations, with the main patterns remaining.

Data from this community sample demonstrate that the association between reading and Openness is not limited to university undergraduate populations. Furthermore, a facet-level analysis revealed no greater associations than those observed at the factor level, indicating that the factor level is the most appropriate level of analysis.

STUDY 1c

Studies 1a and 1b demonstrated the existence of a positive relation between trait Openness and reading behavior. However, both were arguably limited by their reliance on simple questionnaire-based self-reported reading behavior, which is highly susceptible to biased responding due to social desirability concerns (West, Stanovich, & Mitchell, 1993). Study 1c addresses this limitation by drawing upon an aggregate of multiple previous datasets from our group (none overlapping with that from Study 1a), all of which employed the same measures. These included a signal-detection task, designed to assess exposure to narrative fiction and expository non-fiction, and to minimize biased responding.

Method

Participants. A total of 158 persons (108 female) were recruited from the University of Toronto undergraduate participant pool, with an average age of 20.9 years, $SD = 5.6$; *Min* = 15, *Max* = 57. On average, participants in this sample had completed 13.3 years of education, $SD = 2.2$. The majority had learned English as their first language (79.1%), and respondents had been fluent in English for an average of 19.7 ($SD = 6.3$) years. Participants were greeted by an experimenter, gave their consent after learning the gist of the study, and were debriefed and recompensed following completion of the study.

Materials and Procedure. Because erudition is so closely tied to intelligence and sophistication in our culture, self-report assessments of reading are vulnerable to biased responding. The original Author Recognition Test (ART), developed by Stanovich and West (1989), overcame this issue by employing a task-based approach that relies upon a signal detection logic, allowing for a more objective rather than subjective assessment. Respondents are asked to check off from a list of names those that they recognize as authors. They are explicitly told, however, that a number of the items are fake or foils (i.e., not the names of authors), so guessing (or indiscriminate checking) can easily be detected. While this does not provide a direct measure of the amount of reading a person has done, it is a measure of how much exposure to print an individual has had, which has been found to correlate strongly with book-reading and related behaviours (West et al., 1993). Even if participants have not read a specific author, they are likely to have learned about the person by reading reviews, discussing authors they like, or browsing in bookstores and libraries – all behaviors highly associated with reading itself. Checklist measures of print-exposure have been extensively validated. Scores on the ART are predicted by early reading ability (Cunningham & Stanovich, 1997), and predict actual observed reading behavior (West et al., 1993), reading skills (Stanovich & West, 1989), and acquisition of knowledge controlling for cognitive ability (Stanovich & Cunningham, 1993; West et al., 1993). Versions of the ART

checklist have demonstrated better predictive validity than more conventional self-report questionnaires (Allen, Cipielewski & Stanovich, 1992, Sénéchal, LeFevre, Hudson, & Lawson, 1996), and validity equal to daily diary approaches (Allen et al., 1992).

Mar and colleagues (2006) revised the ART, creating the two subscales used in the present study: (1) an assessment of exposure to narrative fiction (50 names, divided into 5 genres, such as thrillers, romance novels, and science fiction), and (2) a measure of exposure to non-narrative expository nonfiction (50 names across 5 genres, including philosophy, business, and self-help), along with 40 foils. This version of the ART has demonstrated better prediction of vocabulary than self-report measures of reading (Mar, Oatley & Peterson, 2008). Personality was measured using the Big Five Inventory (BFI; John & Srivastava, 1999), a well-validated 44-item measure of personality based on the Big Five model.

Results and Discussion

Participants checked few foils on the ART ($M = 1.5$, $SD = 2.8$), with 87.3% of the sample checking three or fewer foils. The number of foils checked by each participant was subtracted from the number of valid names recognized on the ART, to form corrected indices of exposure to narrative fiction and expository non-fiction. The reliability of both the Fiction (Cronbach's $\alpha = .91$) and Non-Fiction subscales were high (Cronbach's $\alpha = .88$) and these two variables were highly correlated ($r = .80$); this is not surprising given the shared method and the fact that many readers are happy to read whatever is in front of them, regardless of genre (Mar et al., 2006). Correlations between print-exposure and personality were calculated, and are presented in Table 2. As in Studies 1a and 1b, Openness was positively associated with both Narrative Fiction and Expository Non-fiction, although this association was clearly stronger in the case of Narrative Fiction, and this difference was statistically significant (Steiger, 1980), $t(155) = 2.49$. No other statistically significant correlations were found.

Partial correlations controlling for Non-fiction were calculated in order to examine how the unique variance associated with Fiction was related to personality, and vice versa. Gender and age were also controlled for in these analyses. These partial correlations revealed that Narrative Fiction was uniquely related to Openness, but that the reverse was not true. Exposure to Expository Non-fiction had no statistically significant relation to Openness or to any other personality trait, once exposure to Narrative Fiction was taken into account.

Table 1
Means and Standard Deviations for all Measures

	Study 1a		Study 1b		Study 1c	
	M	*SD*	*M*	*SD*	*M*	*SD*
Openness	5.2	1.1	114.0	21.2	3.7	.62
Extraversion	4.2	1.4	106.8	20.0	3.4	.77
Agreeableness	4.9	1.0	124.5	17.0	3.6	.56
Conscientiousness	4.9	1.3	124.2	18.6	3.4	.63
Emo. Stability	4.4	1.4	80.5^	23.4^	3.0	.79
SR Fiction	5.3	1.4	5.9	1.2	--	--
SR Non-fiction	3.6	1.4	5.4	1.2	--	--
ART Fiction					9.8	8.2
ART Non-fiction					5.7	5.7

Notes: Emo. Stability = Emotional Stability (Neuroticism reversed). SR = self-reported. ^ Neuroticism scores.

Table 2

Pearson correlations between Big Five personality and lifetime exposure to fiction or nonfiction texts.

	Study 1a		Study 1b		Study 1c	
	Fic.	NFic.	Fic.^	NFic.	Fic.	NFic.
Openness	.24*	.15*	.25*	.19*	.38*	.27*
Partial (Fic./Nfic.)	(.27*)	(.20*)	(.22*)	(.16*)	(.30*)	(-.10)
Extraversion	.09	.00	.06	.08*	.10	.05
	(.09)	(.02)	(.05)	(.07)	(.09)	(-.08)
Agreeableness	.15*	-.13	.04	-.02	.08	.00
	(.12)	(-.10)	(.05)	(-.01)	(.12)	(-.10)
Conscientiousness	.08	-.11	-.06	.00	.08	.09
	(.06)	(-.09)	(-.06)	(.04)	(-.01)	(.04)
Emotional Stability	.03	.09	.00	-.04	.04	.05
	(.05)	(.10)	(.00)	(-.04)	(.04)	(-.04)
O-Fantasy	--	--	.19*	.11*	--	--
			(.17*)	(.08)		
O-Aesthetics	--	--	.22*	.18*	--	--
			(.19*)	(.15*)		
O-Feelings	--	--	.15*	.11*	--	--
			(.13*)	(.09*)		
O-Actions	--	--	.15*	.13*	--	--
			(.13*)	(.09*)		
O-Ideas	--	--	.15*	.18*	--	--
			(.13*)	(.14*)		
O-Values	--	--	.17*	.09*	--	--
			(.15*)	(.06)		

Notes: * $p < .05$. ^ Spearman's Rho. Partial correlations for Fiction (controlling for Nonfiction), and vice versa, appear in parentheses. For Study 1b, Emotional Stability is Neuroticism.