

Reading Ability and Multiliteracy among Rural Saskatchewan High School Students

Jennifer L. Briere, M.Ed, Ph.D.
University of Saskatchewan
jbriere@stmcollege.ca

Jay R. Wilson, Ph.D.
University of Saskatchewan
jwilson@stmcollege.ca

Abstract

What it means to be literate has been changing with time, technology, and culture with a shift towards including multiliteracy in research and teaching. *Multiliteracy* refers to one's skills and abilities beyond reading, writing, and numeracy (e.g., visual, technical, auditory). The current study aimed to create a foundation of understanding of the multiliteracy practices of rural Canadian youth and to identify individual differences that may impact multiliteracy activities. Rural high-school students are traditionally on the periphery of research regarding literacy activities; this study will inform professionals about how to support these students' unique literacy activities. 424 (214 females) rural Canadian Grade 10 and 12 students ($M_{age}=16$ years, $SD=1.09$) completed a survey regarding their reading abilities, enjoyment, preferences, and practices both in and outside of school when engaging with print and digital mediums. Participants also provided rankings regarding their most preferred multiliteracy activities. Individual differences (age, grade, gender, self-assessed reading ability) were examined from a social cognitive theoretical approach.

Keywords: multiliteracy, literacy, individual differences, gender differences, rural literacy

Reading literacy research has historically focused on one's ability to read and write in a particular language, as well as on one's knowledge and use of grammar, and associated linguistic structures (OECD, 2010; The New London Group, 1996). However, contemporary research efforts have been moving towards examining *multiliteracies* which includes culturally and linguistically diverse discourse delivered through a variety of modalities (e.g., computers, tablets, video, audio, etc.; Anstey & Bull, 2006; MediaSmarts, 2010; The New London Group, 1996). Becoming a global citizen, or one who places his/her identity within a wider global community rather than only with a specific nation (Anstey & Bull, 2006; Government of Saskatchewan, n.d.), is made increasingly easy through technological advancements. Technology is first designed to meet people's needs and the resulting technology subsequently shapes people's habits (MediaSmarts, 2011). As societies' habits and cultural literacy practices change, educational practices should change in tandem in order to allow students to harness and develop their multiliteracies and successfully achieve better levels of global citizenship. High school students are amidst those who are working towards developing their multiliteracy abilities to help them achieve success and these abilities will continue to change and evolve well into adulthood. Refining global understanding of what it means to be literate for particular groups of individuals may lead to literacy improvements for those targeted groups. For example, males have been reported to lag behind females in reading ability (e.g., Baker & Wingfield, 1999; Brozo, 2013; Freedman-Doan et al., 2000) as well as reading enjoyment (e.g., Baker & Wingfield, 1999; Brozo, 2013; Evans, Schweingruber, & Stevenson, 2002; Mallette, Henk, & Melnick, 2004), however, the potential differences in literacy preferences between genders has limited research. It may be possible to improve reading interest and subsequently reading enjoyment in males if the types of reading material used in classrooms more closely suited their literacy preferences

(Brozo, 2013). The primary purpose of the current research was to examine the self-reported reading ability, multiliteracy preferences, and multiliteracy practices of rural Saskatchewan high school students both inside and outside of the classroom. Although classic literacy research has a long history with many of those findings applicable to present day society, only contemporary research can document the changing and emerging multiliteracy practices of Canadians today. The following sections will provide a brief context to the current study while highlighting the rationale regarding the importance of examining individual differences in multiliteracy preferences and practices through the review of research focused on individual differences in literacy. A summary of the current survey and methodology will be provided followed by the results of the study across all individuals as well as within specific participant groups (e.g., younger vs. older, males vs. females, strong vs. weak readers). The paper closes with a discussion of the results, along with the implications and potential applications of the findings. Recommendations for improving youth multiliteracies, limitations of the study, and future directions are also discussed.

Research Context

This research was part of a larger survey examining the multiliteracy practices of rural Saskatchewan high school students (Wilson, Briere, & Nahachewsky, 2015). The project was driven by the understanding that students' options for learning are changing and developing faster than they ever have. Not only are rural students studying in more flexible environments, but they are also engaging with a number of different literary texts and communication tools. For example, use of, and access to smart phones and the Internet continues to increase year to year (Canadian Radio-television and Telecommunications Commission, 2015; MediaSmarts, 2010) with Saskatchewan ranking within the top three provinces in terms of the highest usage (Statistics

Canada, 2009). Saskatchewan students are moving towards learning in a mobile way and as a result are taking their education and work outside of the traditional school-based educational context into dynamic real-world environments. Such developments are consistent with the global trend of moving to a mobile world and thereby indicates the need to promote more than just reading and writing skills in order to achieve success (Glaus, 2014).

This increased use of digital materials and modalities also brings with it new reading technologies and activities that go beyond the printed book. For example, smart phones, iPads, and tablets have made radical changes to how young Canadians interact with information both in and out of the classroom while the vast and affordable access to the Internet makes digital connection a near constant. As new literacy opportunities emerge and proliferate, societies' literacy preferences and practices are also likely to change. Young Canadians now have many more choices about how, on what, and where they spend their learning and literacy time. Taking stock of these changes to get an understanding of the multiliteracy preferences and practices of Canadian youth will help inform educators and policy-makers regarding the multiliteracy needs of students to foster their development in as many areas as possible. Previous research has begun to document these shifts in youth's reading practices (e.g., Chander-Olcott & Mahar, 2003; Maje, Overby, Tysvaer, & Morris, 2008) and the current research adds to these findings by uncovering individual differences in literacy practices of rural Canadian youth.

The types of materials used for literacy practices are not the only things changing and developing as technology advances. The advent of the Internet brought a major shift in how learners everywhere access information; as the reaches of the Internet widen and the speed and cost of access improve, more and more individuals are engaging with digital media. According to *MediaSmarts* (2014; www.mediasmarts.ca), a Canadian organization aimed at providing

digital literacy resources and research to help Canadian youth become global digital citizens, 99% of students surveyed in 2013 had access to the Internet outside of school. Over 5,000 students collectively sampled from every province in Canada provided survey responses regarding their media use and access. From the sample, several individual differences and patterns of responses emerged. For example, access to the Internet using a laptop or smart phone increased with age between grades 9 and 11. Further, males were more likely to access the Internet using gaming consoles than females making both age and gender potential variables of interest. Finding differences in digital media practices suggests that there are also likely differences in multiliteracy practices that accompany media exposure. A brief review of potential individual differences in multiliteracy are discussed next.

Examining Multiliteracy

In the current study, more than traditional literacy practices were examined which allowed for the exploration of possible individual differences in multiliteracy practices (e.g., types of Internet content; types of digital media used and preferred use). The Government of Canada (2015) recognizes the imperative nature of essential skills in order to succeed in society today which is more closely aligned with the multiliteracy concept than traditional literacy. Essential skills include those typically associated with literacy such as reading, writing, and numeracy, but also include less traditional literacy abilities such as document use (interpreting and using print and non-print materials), computer use, and other digital, communication, and learning skills (Government of Canada, 2015). The multiliteracy content that Canadian youth are engaging with today for both pleasure and information seeking, and the content that they will be required to use in the future for these purposes, involve far more than simple reading, writing, and numeracy. For example, youth are creating and combining video and still images with

written words, music, or other artistic impressions on a daily basis. Everyday communication has moved from the written letter, or *snail mail* of the past, to instantly received emails, text messages, and video chats. Multiliteracy activities such as these abound in contemporary daily society. Understanding what these skills are and the preferences and practices of those who need to develop these skills will help inform the methods and means of promoting those abilities. A brief summary of the research documenting various individual differences in youth's literacy is provided next as a foundation for research predictions in multiliteracy.

Individual Differences in Literacy

The direct and indirect influences of one's traditional literacy (e.g., reading and writing) on various health and socioeconomic outcomes has been studied for decades (e.g., Sentell & Halpin, 2006; Statistics Canada, 2005) and a number of individual differences in literacy have emerged. For example, accounting for literacy ability in adult samples has been found to significantly reduce or eliminate the apparent negative influence of race and education on health outcomes (Sentell & Haplin, 2006). In Canada, far more individuals with higher literacy abilities are employed compared to their less literate counterparts (ABC Life Literacy Canada, 2016). Unfortunately, Canadian youth (aged 16-24 years) seem to be underperforming in literacy when compared to other OECD youth (OECD, 2013; ABC Life Literacy Canada, 2016) which suggests possible age and cultural differences in literacy. Research on potential gender differences in literacy reveals somewhat mixed results. In many instances, females appear to have significantly higher beliefs in their own reading ability than their male counterparts (e.g., Baker & Wingfield, 1999; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Freedman-Doan et al., 2000; Gambell & Hunter, 2000; Marsh, 1989), but not always (e.g., Stipek & Granlinski, 1991). Finding consistent gender differences is easier when considering the perceived value of literacy activities, and

personal interest in those activities. Here, females tend to show much higher interest in, and place greater value on, literacy activities than boys (e.g., Baker & Wingfield, 1999; Eccles et al., 1983; Wingfield & Guthrie, 1997), and females are also more likely to read for personal pleasure (Baker & Wingfield, 1999; Coles & Hall, 2002; Greaney & Hegarty, 1987). It was therefore expected that females would assess their own reading ability and enjoyment significantly higher than males and would demonstrate greater interest in literacy activities overall (in and out of school). Gender differences may not emerge when considering multiliteracy activities, however, because students may have the opportunity to engage with their preferred medium, raising the enjoyment of the activity for the individual.

Finding individual differences in literacy is consistent with *social cognitive theory* which would suggest that the individual differences in literacy described above may be influenced by one's self-efficacy in various literacy activities, which in turn influences literacy engagement and achievement. According to social cognitive theory, perceived self-efficacy plays an important role in shaping outcomes associated with the interactions that occur between individuals' behaviours, personal factors, and environmental ones (Bandura, 1997; Schunk, 2003). In other words, our perception of our own abilities in a particular domain is influenced by complex interactions among our personal, and environmental factors, which in turn return to influencing perceived self-efficacy. Literacy self-efficacy may follow a similar process; positive literacy practices may be influenced by motivation and perceived literacy abilities (e.g., Scott, 1996). Literacy motivation and perceived literacy ability may themselves be influenced by other personal and environmental factors such as literacy preference, age, and one's own control of literacy practices both in and outside of the school environment. For these reasons, the current research included an examination of students' multiliteracy preferences and practices both in and

outside of school. Given the lack of research in this area, no specific predictions were made regarding differences in multiliteracies, reading ability, or preferences in and outside of school.

The literacy opportunities available to students (i.e., environmental factors) may vary across individuals (e.g., male versus female) as well as locations (e.g., rural versus urban). For example, access to the Internet has historically varied depending on whether one was in an urban versus rural setting. This gap is reducing in Canada as we move through the 21st century (Canadian Radio-telecommunications and Television Commission, 2015; MediaSmarts, 2010), however, there are a number of potential differences among rural Canadian youth that are not captured in American or urban-dwelling literacy research studies; the current study aims to capture some of these differences from a multiliteracy perspective. Given the unique circumstances and characteristics of rural Canadian youth, individual differences in multiliteracy preferences, practices, and reading ability were expected to be found in the current research but a lack of research in the area made predictions speculative.

Taking all of these factors into account reinforces the need to study specific populations to determine how to best support their needs. In rural settings, learning experiences are different even though students have access to many of the same materials as those in urban contexts. It is important to recognize that although the access may be similar, literacy habits are unique to a rural context. It is important for researchers to examine what rural students are doing to ensure they support unique learning needs and design environments that help rural students achieve the greatest possible learning success. This research grants insight into the literacy activities that are most valued by rural students and can direct educational decision makers in their efforts to do what is best for the rural learner.

Method

Participants

All grade 10 and 12 students ($n = 850$) from the 16 high- and composite schools within Sun West School Division (Saskatchewan, Canada) were invited to participate in the survey. A total of 424 participants ($M_{age} = 16.13$, $SD = 1.09$) provided responses on the survey: 173 males, 219 females, and 32 participants who did not provide gender data. One hundred and eighty-five students were in grade 12 with another 230 students in grade 10 ($M_{age} = 16.13$, $SD = 1.09$). The majority (90.6%, $n = 384$) reported *English* as their first language with 6% ($n = 28$) of participants indicating that they speak a second language at home ($n = 9$ speak French). Participants' age, grade, gender, and self-assessed reading ability were used as individual difference variables discussed in the results.

Materials and Procedure

Interested participants completed a 119-item questionnaire examining various forms of multiliteracy practices (Wilson et al., 2015), however, the current research focuses on responses in the following areas. In the *literacy self-perceptions* section, students' perceptions of their own reading ability and enjoyment were assessed. Participants' *multiliteracy activity inside and outside of school* was then assessed by examining what mediums they used to complete their reading (e.g., digital and print reading choices in and outside of school). Finally, demographics were collected to describe the sample and help conduct the individual difference examinations (e.g., age, grade, gender).

Literacy self-perceptions. Students began the survey by completing a self-assessment of their *reading ability* on a 7-point scale ranging from 1 = "I do not read" to 7 = "I am an exceptional reader," as well as ratings of their *reading enjoyment* both *in* and *outside* of school on 5-point scales ranging from 1 = "I never enjoy reading for school/outside of school," to 5 = "I

always enjoy reading for school/outside of school.” Participants also indicated if they completed most of their reading using a computer, mobile device (e.g., smart phone, iPod, tablets), or with printed materials (e.g., books, magazines) and were then asked to rank order up to 10 of 20 different sources of material that they read the most (e.g., emails, text messages, magazines, poetry, etc.).

Multiliteracy activity inside and outside of school. To examine multiliteracy activities and the perceived importance of those activities both inside and outside of school, a series of questions were asked. Participants selected and rank ordered their most important sources of information and reading material both in and outside of school from a comprehensive list of literacy materials. Participants provided a self-report rating from “1 = Not important at all” to “7 = Extremely important” regarding the importance of traditional books and digital resources in supporting their learning both in and outside of school.

Demographics. The survey concluded with a number of demographic questions to help describe the participants in the study.

Results

Data screening and analysis revealed that the patterns of results obtained with both parametric and non-parametric tests remained consistent and significant in the few instances where parametric statistical assumptions were violated. Where assumptions were violated, non-parametric tests are reported; parametric tests are reported with the Bonferonni correction applied when applicable.

In addition to using participants’ gender and grade as individual difference variables, an *age* grouping variable was created by splitting participants above the median age (Median = 16

years) as *older* participants and those including or below the median as *younger* participants. A *reading ability* grouping variable was also created and is discussed next.

Literacy Self-Perception

Students' *reading ability* was self-assessed as quite average across the sample ($M = 5.14$, $SD = 1.31$) but scores ranged across the entire scale. Males ($M = 4.94$, $SD = 1.33$) reported significantly poorer reading ability than females ($M = 5.38$, $SD = 1.16$), $t(387) = 3.47$, $p = .001$. There were no *age* ($p = .612$) or *grade* ($p = .339$) differences in reading ability. A median split was ($Median = 5$) performed on reading ability grouping individuals below the median and *low reading ability* students and those above the median as *high reading ability* students and was treated as an individual difference variable in subsequent analyses.

Students reported somewhat low levels of *reading enjoyment* both *inside* ($M = 3.03$, $SD = 1.00$) and *outside* ($M = 3.09$, $SD = 1.29$) of school. *Reading enjoyment* in the two settings were moderately correlated, $r(423) = .62$, $p < .001$. The range of responses again varied quite widely; see Table 1 for frequencies of endorsements for reading enjoyment both inside and outside of school. No differences in reading enjoyment inside school ($p = .428$) or outside of school ($p = .195$) were found between *grades*. There were also no *age* differences in reading enjoyment either at home ($p = .210$) or inside school ($p = .540$). Reading enjoyment was positively correlated with both reading ability *inside*, $r(419) = .44$, $p < .001$, and *outside* of school, $r(420) = .54$, $p < .001$.

Gender differences were found in reading enjoyment both *inside*, $t(390) = 4.50$, $p < .001$, and *outside of school*, $t(390) = 6.51$, $p < .001$. *Females* reported significantly more reading enjoyment ($M = 3.25$, $SD = .91$) than *males* ($M = 2.81$, $SD = 1.03$) *inside* school, and *outside* of school ($M_{Females} = 3.47$, $SD = 1.21$, and $M_{Males} = 2.67$, $SD = 1.21$, respectively). In light of these

gender differences, the correlational analysis on reading enjoyment was re-run and the relationship for males was slightly stronger, $r(173) = .63, p < .001$, than that for females, $r(219) = .54, p < .001$. Females reading enjoyment outside of school ($M = 3.47, SD = 1.21$) was significantly higher than their enjoyment in school ($M = 3.25, SD = .91$), $t(218) = 3.08, p = .002$. The trend was in the opposite direction for males, $t(173) = 1.87, p = .064$; reading enjoyment was rated lower inside of school ($M = 2.81, SD = 1.03$) than outside of school ($M = 2.67, SD = 1.21$), although it is important to note that only marginal significance was obtained.

Students with *high reading ability* reported significantly more reading enjoyment inside school ($M = 3.47, SD = .98$) than those with *low reading ability* ($M = 2.70, SD = .89$), $t(417) = 8.39, p < .001$. This pattern persisted outside of school ($M_{High} = 3.75, SD = 1.16$, and $M_{Low} = 2.57, SD = 1.15$), $t(418) = 10.37, p < .001$.

Table 1. Frequency of responses (n [% of sample]) for reading enjoyment both in and out of school.

Item	In School	Outside of School
I never enjoy reading	36 (8.5%)	53 (12.5%)
I rarely enjoy reading	77 (18.2%)	100 (23.6%)
I sometimes enjoy reading	170 (40.1%)	108 (25.5%)
Most of the time I enjoy reading	118 (27.8%)	83 (19.6%)
I always enjoy reading	22 (5.2%)	79 (18.6%)

Multiliteracy Activities Both Inside and Outside of School

Overall, participants placed high value on the importance of digital resources in influencing their learning both inside ($M = 5.25, SD = 1.36$) and outside of school ($M = 5.19, SD = 1.36$). The importance of the traditional book both inside ($M = 4.65, SD = 1.60$) and outside of school ($M = 3.84, SD = 1.64$) was also rated quite highly, however the traditional book was

significantly less important in both the school, $t(410) = 6.11, p < .001$, and home setting, $t(414) = 13.57, p < .001$, when compared to the importance placed on digital materials.

In the school environment, females ($M = 4.84, SD = 1.47$) placed significantly more importance on the traditional book in supporting their learning than males ($M = 4.37, SD = 1.66$), $t(344) = 2.77, p = .006$, but there were no gender differences with regards to the importance of digital resources in school, $t(347) < 1, p = .394$. At home, no differences in the importance of digital resources was found between males and females ($p = .069$), however females ($M = 4.10, SD = 1.54$) placed more importance on the traditional book than males ($M = 3.47, SD = 1.71$), $t(343) = 3.60, p < .001$.

Top 10 multiliteracy activities. Participants ranked their top 10 reading choices when they were both inside (Table 2) and outside (Table 3) of school. For the individual difference analyses on these ranking positions, only those participants who ranked the item were included in analysis (i.e., if the item did not make the participant's top 10 list, they were excluded from analysis with that item). Individual differences in average ranking position were then analyzed using a series of independent samples t-tests. Note that lower ranking positions indicate higher preference (i.e., 1 = top ranked position; 10 = lowest rank position).

Table 2. Multiliteracy preferences inside of school. The number of students ranking that item is provided (N) along with the mean (M) ranking position and standard deviations (SD) for ranking positions. Note that lower numbers indicate a higher-ranking position (i.e., 1 = highest ranked item; 10 = lowest ranked item).

Multiliteracy Preferences Inside of School			
Item	N	M	(SD)
Print Books	354	2.57	(2.10)
Online Encyclopedia	309	3.22	(2.51)
Research Studies/Articles	290	3.79	(2.24)
Electronic/Online Newspaper Articles	244	4.07	(2.12)
Print Encyclopedia	253	4.60	(2.42)
E-Books	84	4.68	(2.88)

Print Newspaper Articles	254	4.69	(2.32)
Magazines	243	4.70	(2.74)
Television	97	4.87	(2.90)
E-zines	58	5.07	(3.29)
Electronic/Online Graphic Novels/Manga	52	5.25	(2.92)
Movies	191	5.30	(2.72)
Comics	77	5.43	(3.11)
Graphic Novels/Manga	125	5.70	(2.84)
Blogs	150	5.76	(2.94)
Online Movies	76	6.11	(2.92)
Online Television	102	6.29	(5.56)
E-comics/Online comics	55	6.31	(3.26)

Table 3. Multiliteracy preferences outside of school. The number of students ranking that item is provided (N) along with the mean (M) ranking position and standard deviations (SD) for ranking positions. Note that lower numbers indicate a higher-ranking position (i.e., 1 = highest ranked item; 10 = lowest ranked item).

Multiliteracy Preferences Outside of School			
Item	N	M	(SD)
Text Messages	395	2.08	(2.15)
Social Networking Sites	371	3.32	(2.16)
Novels/Print Books	324	4.00	(2.73)
Online Video	345	4.60	(2.55)
EBooks	103	4.64	(2.83)
Instant Messages	252	4.32	(2.66)
Email	316	4.87	(2.46)
Magazines	332	4.81	(2.32)
Print Encyclopedia	52	5.58	(3.32)
Online Shopping Sites	214	5.73	(2.61)
E-comics/Graphic Novels/Manga	77	5.78	(2.74)
Comics/Graphic Novels/Manga	121	5.80	(2.62)
Short Stories	216	5.82	(2.75)
Online Encyclopedia	180	5.84	(2.95)
Blogs	115	6.01	(2.85)
Information Books	159	6.04	(2.91)
Print Newspaper Articles	201	6.17	(2.72)
Poetry	119	6.21	(2.90)
Electronic Newspaper Articles	83	6.25	(3.00)
E-zines	43	6.37	(2.63)

Individual differences in multiliteracy inside of school. When examining multiliteracy practices inside of school, a few individual differences emerged. The only differences found between genders were in regards to magazines where males ($M = 4.08, SD = 2.64$) ranked their preference in using magazines significantly higher than females, ($M = 5.15, SD = 2.74$), $t(221) = 2.92, p = .004$. Although quite similar, four multiliteracy activities completed inside of school also differed according to participants' age (Table 4) and grade level (Table 5). The use of online encyclopedias inside of school was found to be ranked significantly higher for individuals wither high reading ability ($M = 2.90, SD = 2.27$) than for those with low reading ability ($M = 3.50, SD = 2.68$), $t(304.94) = 2.11, p = .036$.

Table 4. Differences in Top 10 ranked sources of information used inside of school between older and younger participants. Only results with significant differences are displayed.

Item	Age		T-test
	Younger M (SD)	Older M (SD)	
Magazines	4.28 (2.72)	5.32 (2.72)	$t(224) = 2.82, p = .005$
Movies	4.85 (2.61)	5.90 (2.78)	$t(176) = 2.60, p = .010$
Comics/Graphic Novels/Manga	5.23 (3.08)	6.39 (3.29)	$t(113) = 2.16, p = .033$
Print Encyclopedia	5.16 (2.57)	4.13 (2.08)	$t(232) = 3.33, p = .001$

Table 5. Differences between Grade 10 and Grade 12 participants' top 10 ranked sources of information used inside of school. Mean rank positions (M), standard deviation (SD), and independent samples t-tests (T-test) are provided. Note that lower numbers indicate a higher-ranking position (i.e., 1 = highest ranked item; 10 = lowest ranked item).

Item	Grade		T-test
	Grade 10 M (SD)	Grade 12 M (SD)	
Magazines	4.28 (2.70)	5.36 (2.70)	$t(239) = 3.03, p = .003$
Movies	4.84 (2.57)	5.83 (2.82)	$t(186) = 2.52, p = .013$
Graphic Novels/Manga	5.26 (2.88)	6.42 (2.58)	$t(120) = 2.26, p = .025$
Print Encyclopedia	5.10 (2.62)	4.08 (2.07)	$t(247) = 3.38, p = .001$

Individual differences in multiliteracy outside of school. Independent samples t-tests for multiliteracy preferences outside of school revealed that females ranked e-books significantly higher than males, $t(95) = 2.24, p = .028$ while females ranked short stories, $t(200) = 2.54, p = .012$, poetry, $t(107) = 2.12, p = .036$, print newspaper articles, $t(187) = 2.40, p = .017$, and online video, $t(314) = 4.55, p < .001$ significantly lower than males. See Table 6 for a summary of these differences.

Table 6. Differences in reading preferences outside of school between male and female participants. The number of students ranking that item as their first choice is provided (N) along with the mean (M) ranking position and standard deviations (SD) for ranking positions across gender. Note that lower numbers indicate a higher-ranking position (i.e., 1 = highest ranked item; 10 = lowest ranked item).

Item	Reading Preference Outside of School					
	Males			Females		
	N	M	(SD)	N	M	(SD)
Text Messages	158	1.97	(1.99)	207	2.22	(2.31)
Social Networking Sites	144	3.30	(2.01)	199	3.33	(2.20)
Print Books	117	3.85	(2.66)	192	4.07	(2.75)
Online Video**	139	3.96	(2.45)	177	5.25	(2.52)
Instant Messages	103	4.27	(2.65)	132	4.50	(2.75)
Email	123	4.68	(2.48)	172	5.03	(2.48)
Magazines	125	4.88	(2.58)	183	4.79	(2.16)
Print Encyclopedia	19	5.00	(2.87)	25	5.36	(3.62)
Short Stories*	72	5.18	(2.63)	130	6.18	(2.73)
Poetry*	37	5.38	(3.04)	72	6.61	(2.78)
EBooks*	37	5.46	(2.77)	60	4.17	(2.76)
Blogs	40	5.53	(2.82)	66	6.38	(2.83)
Information Books	68	5.63	(3.02)	81	6.41	(2.80)
Print Newspaper Articles*	88	5.66	(2.67)	101	6.58	(2.62)
Online Encyclopedia	80	5.68	(2.97)	84	6.04	(3.01)
Electronic Newspaper Articles	37	5.68	(3.26)	38	6.89	(2.78)
Comics/Graphic Novels/Manga	63	5.73	(2.61)	49	5.84	(2.73)
Online Shopping Sites	78	5.79	(2.66)	120	5.79	(2.62)
E-zines	23	5.91	(2.52)	18	7.06	(2.69)
E-comics/Graphic Novels/Manga	40	5.93	(2.56)	32	5.31	(2.89)

* $p < .05$, ** $p \leq .001$

Several differences in preferred multiliteracy activities outside of school were found between Grade 10 and 12 students (Table 7) as well as number of age differences. Younger students ($M = 3.65$, $SD = 2.63$) ranked novels/printed books significantly higher than older students ($M = 4.28$, $SD = 2.75$), $t(307) = 2.05$, $p = .041$. A similar pattern was found for both online encyclopedias and online video. Younger students ($M = 5.00$, $SD = 2.91$) ranked online encyclopedias significantly higher than older participants ($M = 6.53$, $SD = 2.80$), $t(163) = 3.45$, $p = .001$. Younger participants ($M = 4.42$, $SD = 2.49$) also preferred online videos more than their older counterparts ($M = 5.01$, $SD = 2.64$), $t(316) = 2.07$, $p = .040$. A number of differences in preferred multiliteracy activity was also found between participants with low versus high reading ability, which are summarized in Table 8.

Table 7. Differences between Grade 10 and Grade 12 participants' preferred multiliteracy activities outside of school. Mean rank positions (M), standard deviation (SD), and independent samples t-tests (T-test) are provided. Note that lower numbers indicate a higher-ranking position (i.e., 1 = highest ranked item; 10 = lowest ranked item).

Item	Grade		T-test
	Grade 10	Grade 12	
	M (SD)	M (SD)	
Novels/Printed Books	3.68 (2.63)	4.32 (2.79)	$t(317) = 2.11$, $p = .036$
Online Video	4.33 (2.47)	4.95 (2.61)	$t(339) = 2.23$, $p = .026$
Online Encyclopedias	5.14 (2.93)	6.43 (2.79)	$t(175) = 2.98$, $p = .003$
Online Shopping	5.43 (2.70)	6.15 (2.47)	$t(210) = 2.00$, $p = .047$

Table 8. Differences in preferred multiliteracy activities outside of school between those with low and high reading ability. Mean (M) rank positions, standard deviations (SD), and independent samples T-test statistics are provided. Note that lower numbers indicate a higher-ranking position (i.e., 1 = highest ranked item; 10 = lowest ranked item) and only results with significant differences are displayed.

Item	Reading Ability		T-test
	Low	High	
	M (SEM)	M (SEM)	
Text Messaging	1.68 (.115)	2.59 (.194)	$t(389) = 4.25$, $p < .001$

Online Video	4.25 (.181)	5.07 (.206)	$t(340) = 3.01, p = .003$
Novels/Printed Books	4.39 (.214)	3.61 (.214)	$t(319) = 2.55, p = .011$
Magazines	4.60 (.169)	5.12 (.195)	$t(326) = 2.02, p = .044$
Comics/Graphic Novels/Manga	6.21 (.303)	5.25 (.383)	$t(117) = 1.99, p = .049$
Print Encyclopedia	6.50 (.553)	3.83 (.668)	$t(50) = 2.96, p = .005$

Discussion

Understanding the multiliteracy preferences and practices of rural students has the potential to influence a wide range of educational and practical decisions and policies. Raising the awareness of school boards, directors of education, superintendents, principals, and teachers can positively impact their decision-making in favor of student needs. For example, specific literacy activities could be selected for schoolwork based on the need to engage a particular group. Alternatively, a policy may be implemented where more than writing assignments would be required for assessments in order to allow students to practice, develop, and demonstrate their multiliteracy abilities. The purpose of the current paper was to identify the multiliteracy preferences and practices of rural Canadian youth both in and outside of school and to examine potential individual differences that may influence these variables. Several trends in participants' multiliteracy practices were identified and a number of individual differences in those patterns emerged. The following sections provide an interpretation of the results along with some of the implications that the data carry for understanding rural students' multiliteracy. A brief discussion of study limitations and possible future directions for research in this area are then provided.

Individual Differences in Rural Students' Literacy Self-Perceptions

Across all students in the study, average levels of reading performance were reported but the range of responses was quite wide with some students deeming themselves exceptional readers and others self-assessing their reading quite poorly. These results suggest that there is

room to improve rural students' reading ability and to find ways to continue to challenge the reading level of exceptional readers while keeping those with poorer reading ability interested. Students' self-assessments of their reading enjoyment was considerably lower than their assessment of their own reading ability yet reading ability and enjoyment were positively correlated for both genders, both in and outside of school. Building confidence in rural students' reading abilities may therefore help build reading enjoyment while increased reading enjoyment may translate into increased engagement (Brozo, 2013). In other words, if rural students' interests and engagement with literacy material can be increased, motivation may also be positively impacted resulting in more interest (Brozo, 2013) and time spent with the material (e.g., Cox & Guthrie, 2001). Educators should work to support the preferred multiliteracy activities of rural students regardless of medium, in an effort to improve engagement and subsequent ability especially in those who may need additional support.

Although no age differences were found, rural male participants reported significantly poorer reading ability than rural females. Females in our sample also reported significantly more reading enjoyment both in and outside of school than their male peers. These findings are consistent with previous work finding gender differences in reading ability where females appear to excel compared to males (e.g., Baker & Wingfield, 1999; Durik, Vida, & Eccles, 2006; Eccles et al., 1993; Freedman-Doan et al., 2000; Marsh, 1989) and highlights the need for educators to help males develop their reading abilities. Perhaps the multiliteracy preferences of males could be engaged more often in the classroom to further boost motivation and interest in literacy material for those males who may be struggling. Educators may also be wise to separate males and females when completing literacy activities so that males do not feel behind when directly compared to females. Rather than challenge their male counterparts, males' self-efficacy and

motivation may decline due to feelings of failure or delay. However, females do not always demonstrate better reading ability than males - the pattern is not consistent in all studies or for all performance outcomes (e.g., Baker & Wingfield, 1999; Yarborough & Johnson, 1980). Thus, more research is still needed in this area.

Being aware of the potential for gender differences in multiliteracy in their classrooms should help educators better plan literacy activities and even target activities towards those who need additional encouragement (e.g., males). By reviewing the current findings regarding preferred literacy materials and comparing it to the literacy materials used by teachers in the classroom, it may be revealed that rural males are not being provided with the opportunities to work with their preferred literature format that rural females are receiving. This lack of exposure to the material they would be most likely to enjoy may subsequently reduce their motivation, interest, and engagement with the material which can negatively impact literacy achievement (Brozo, 2013; Weinstein, 2002). In rural settings, educators may select male preferred materials such as magazines for use in assignments or allow students to choose their own educational materials including videos, to help engage males in multiliteracy activities. Although members both genders ranked text messages and social networking sites, rural males preferred to engage with online videos and magazine materials over the printed book while females preferred the printed book over magazines and videos when outside of school revealing that that males have distinct literacy preferences from females. If the preferred materials such as magazines are not being used during instruction or for assignments while e-books are (a material preferred by females outside of school), females would be experiencing a differential motivational benefit from that material use. By identifying these gender differences in the current study, along with preferred materials for both groups, a variety of professionals can make informed decisions about

the types of materials to use with students with the goal of maintaining or gaining student interest in literacy activities. Teachers may need to be creative and responsive to the desires of students in their classroom in order to find ways to engage and embed their individual home-literacy interests inside of the classroom (Brozo, 2013).

Multiliteracy Activity Inside and Outside of School

Many materials deemed to be important sources of information inside of school across all participants were traditional literacy materials such as encyclopedias, and printed books or novels. Rural participants also placed significant importance on digital resources in supporting their learning and understanding and rated digital resources as significantly more important to their learning than the traditional printed book. These findings suggest that educators need not be concerned about lack of engagement when introducing digital materials for use in class. Rural Canadian youth appear to desire digital material and value it over many print literacy materials. Thus, increasing the availability of digital material inside of school, and encouraging engagement with preferred digital material outside of school may prove beneficial in fostering literacy engagement.

Age and grade differences in participants' preferences for sources of information were also found where younger rural Grade 10 students tended to adhere to a more traditional literacy preference pattern than older rural Grade 12 participants when in school (e.g., Grade 10 students ranked printed materials as significantly more important to learning than Grade 12 students). It may be that younger rural classrooms tend to model more traditional literacy activities while classrooms with older students permit learners to exercise their ability to choose other literacy mediums and show a shift towards digital media in upper grades. Future research in rural classrooms may aim to examine developmental trends in achieving global citizenship and

multiliteracy through a longitudinal study to help identify the multiliteracy preferences and patterns of youth of all ages.

Understanding the various individual differences in participants' preferred sources of information inside and outside of rural school settings has the potential to inform selections of materials made available to those particular youths. For example, if one is aiming to engage a young rural male with literacy activities, the current data suggest that providing magazines and graphic novels to work with may increase engagement given that these are preferred activities for participants with those characteristics in our sample. Further, encouraging exchanges with other rural students through email and text messaging may also help build multiliteracy skills of young males as these are two of the top activities that they reported engaging with outside of school.

Although there were no gender differences in the perceived importance of digital resources, rural females placed greater value on the traditional book than rural males, further illustrating individual differences in the value of certain formats over others, for some groups of individuals over others. Not only do the current findings demonstrate that males and females in rural learning settings have different multiliteracy preferences but also demonstrate the need to broaden both groups' multiliteracy horizons. Rural females will likely benefit from engaging with digital materials and other mediums beyond the printed book that will likely be used in their professional future. These findings can help provide some evidence to rural educators for the need to encourage females to avoid becoming a *bookworm* and to learn to work and communicate with other mediums.

As expected, participants demonstrated a clear preference for text messaging and social networking when outside of school. The use of videos as a source of information both inside and outside of school was also consistently in participants' top five choice regardless of age, grade,

reading ability, or gender. Whether or not there are ways of including activities such as these in rural classroom activities will be up to individual educators to decide, however, the strong preference in using these mediums and high engagement with them regardless of individual characteristics suggests it would be a worthwhile option to consider. For example, would it be beneficial to encourage texting of questions and discussion items to group members or the teacher? Or, would such an option be overwhelmingly distracting? Would it be possible to offer group work that can be partially completed online, through social networking sites, or require a final product that is posted in an online video format? Rural students in the current study demonstrated a clear and strong preference for these types of activities and materials and are actively engaging with them on a daily basis. Finding ways of developing those preferred out-of-the-classroom skills inside of the classroom (e.g., online seminars, creating digital products) may be extremely beneficial, especially for those who do not have a preference for traditional literacy activities. For example, although the vast majority of rural students are engaging with text messaging, and many with magazines, individuals with low reading ability consistently demonstrated a preference for these materials. Those with high reading ability, on the other hand, engaged more with comics/graphic novels, print books/novels, and print encyclopedias for sources of information. If one wishes to try and draw in rural students with poorer literacy ability into literacy activities, it would be wise to lure them with material they would enjoy! In other words, bring in magazines, allow text messaging, and work to keep those students engaged by catering to their multiliteracy interests. Whether the rural student is working with a printed book or an electronic magazine, the student is still engaging with the written word and images. If the magazine brings more enjoyment and encourages the student to pick another one up in the future, the goal of increased literacy activity is still met regardless of the absence of the printed book.

The current results help identify specific multiliteracy activities that may help draw in one type of student into literacy activities over another.

Limitations and Future Directions

The current research provides a good first step towards understanding the multiliteracy preferences and practices of rural Canadian youth, however, it is not without its limitations. Data were collected from within only one rural school division with limited cultural and ethnicity variability. Thus, the findings may not capture subtle differences that may be found in a more generalizable sample. In future research, an online survey that can be delivered to a wide range of rural and/or urban school divisions would help increase the generalizability of the sample. The age range of students included in the current study is also quite limited and does not allow for an in-depth examination of potential age differences or trends in the data. Following participants longitudinally to see how their preferences and practice change over time, or examining multiliteracy activities in a cross-sectional manner to examine potential age differences would help develop a developmental trajectory of multiliteracy skills and abilities.

The current study demonstrates that there are subtle but reliable differences in rural Canadian youth's multiliteracy preferences and practices that should not be ignored. Research involving Canadian youth has the potential to fill a large gap in high-school literacy understanding, especially in rural situations. Although urban-dwelling students may have easier access to digital mediums, rural students are also demonstrating a preference for some of these materials and should not be ignored.

References

- ABC Life Literacy Canada (2016). Facts and research. Retrieved from <http://abclifeliteracy.ca/workplace-literacy-facts>
- Anstey, M., & Bull, G. (2006). Teaching and learning multiliteracies: Changing times, changing literacies. Kensington Gardens, SA, Australia: International Reading Association Inc.
- Bandura, A. (1997). Self-efficacy: The exercise of control. New York, NY: Worth Publishers.
- Baker, L., & Wigfield, A. (1999). Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly, 23*, 285 – 303.
- Brozo, W. G. (2013). Outside interests and literate practices as contexts for increasing engagement and critical reading for adolescent boys. In B. J. Guzzetti and T. W. Bean (Eds.) *Adolescent literacies and the gendered self: (Re)constructing identities through multimodal literacy practices* (pp. 3 – 12). New York, NY: Routledge Press.
- Canadian Radio-television and Telecommunications Commission (2015). Communications monitoring report 2015: Canada's communications system: An overview for citizens, consumers, and creators. Retrieved from <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2015/cmr.pdf>
- Chander-Olcott, K., & Mahar, D. (2003). Adolescents' anime-inspired "fanfictions": An exploration of multiliteracies. *Journal of Adolescent & Adult Literacy, 46* (7), 556 – 566.
- Coles, M., & Hall, C. (2002). Gendered readings: Learning from children's reading choices. *Journal of Research in Reading, 25*, 96 – 108.
- Cox, K. E., & Guthrie, J. T. (2001). Motivation and cognitive contributions to students' amount of reading. *Contemporary Educational Psychology, 26* (1), 116-131.

- Durik, A. M., Vida, M., & Eccles, J. S. (2006). Task values and ability beliefs as predictors of high school literacy choices: A developmental analysis. *Journal of Educational Psychology, 98*, 382-393.
- Eccles, J., Wigfield, A., Harold, R. D., & Blumenfeld, P. (1993). Age and gender differences in children's self- and task perceptions during elementary school. *Child Development, 64*, 830 – 847.
- Evans, E. M., Schweingruber, H., & Stevenson, H. W. (2002). Gender differences in interest and knowledge acquisition: The United States, Taiwan, and Japan. *Sex Roles, 47*, 153 – 167.
- Freedman-Doan, C., Wigfield, A., Eccles, J. S., Blumenfeld, P., Arbreton, A., & Harold, R. (2000). What am I best at? Grade and gender differences in children's beliefs about ability improvement. *Journal of Applied Developmental Psychology, 21*, 379 – 402.
- Gambell, T., & Hunter, D. (2000). Surveying gender differences in Canadian school literacy. *Journal of Curriculum Studies, 32* (5), 689 – 719.
- Government of Canada (2015). Literacy and essential skills. Retrieved from http://www.esdc.gc.ca/en/essential_skills/index.page?
- Glaus (2014). Text complexity and young adult literature. *Journal of Adolescent & Young Adult Literacy, 57* (5), 407 – 416.
- Government of Saskatchewan (n.d.) Post-secondary international education strategy. *Saskatchewan International Education*. Retrieved from <https://www.saskatchewan.ca:443/residents/education-and-learning/international-education/post-secondary-international-education-strategy>
- Greaney, V., & Hegarty, M. (1987). Correlates of leisure-time reading. *Journal of Research in Reading, 10*, 3 – 20.

- Maje, E. B., Overby, M., Tysvaer, N., & Morris, K. (2008). The complex world of adolescent literacy: Myths, motivations, and mysteries. *Harvard Educational Review, 78* (1), 1 – 35.
- Mallette, M. H., Henk, W. A., & Melnick, S. A. (2004). The influence of Accelerated Reader on the affective literacy orientations of intermediate grade students. *Journal of Literacy Research, 36*, 73 – 84.
- Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology, 81*, 417 – 430.
- MediaSmarts (2010). Digital literacy in Canada: From inclusion to transformation. *Media Awareness Network*. Retrieved from <http://mediasmarts.ca/sites/mediasmarts/files/pdfs/publication-report/full/digitalliteracypaper.pdf>
- MediaSmarts (2011). From consumer to citizen: Digital media and youth civic engagement. *Executive summary, 3*. http://mediasmarts.ca/sites/mediasmarts/files/publication-report/full/civic-engagement_0.pdf
- MediaSmarts (2014). Executive Summary: Key findings. *Young Canadians in a Wired World, Phase III: Life Online, 2 – 6*. Retrieved from http://mediasmarts.ca/sites/mediasmarts/files/pdfs/publication-report/summary/YCWWIII_Life_Online_ExecutiveSummary_2.pdf
- OECD (2010). Education at a glance 2010: OECD indicators, OECD Publishing. Retrieved from <http://www.oecd.org/education/skills-beyond-school/45926093>
- Sentell, T. L., & Halpin, H. A. (2006). Importance of adult's literacy in understanding health disparities. *Journal of General Internal Medicine, 21* (8), 862 – 866.

- Schunk, D. H. (2003). Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation. *Reading and Writing Quarterly, 19*, 159 – 172.
- Scott, J. E. (1996). Self-efficacy: A key to literacy learning. *Reading Horizons, 36* (3), 195 – 213.
- Statistics Canada (2005). Building on our competencies: Results of the international adult literacy and skills survey. 89-617-XWE. Retrieved from <http://www.statcan.gc.ca/pub/89-617-x/2005001/4159154-eng.htm>
- Statistics Canada (2009). Innovation Analysis Bulletin, 11 (1), Catalogue no. 88-003-X.
- Stipek, D., & Granlinski, H. (1991). Gender differences in children's achievement-related beliefs and emotional responses to success and failure in mathematics. *Journal of Educational Psychology, 83* (3), 361 – 371.
- The New London Group (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66* (1), 60 – 92.
- Wilson, J., Briere, J. L., & Nahachewsky, J. (2015). Rural high school students' digital literacy. *Journal of Literacy and Technology, 16* (2), 55 – 95.
- Wingfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89* (3), 420 – 432.
- Weinstein, S. (2002). The writing on the wall: Attending to students' self-motivated literacy. *English Education, 35* (1), 21 – 45.
- Yarborough, B. H., & Johnson, R. A. (1980). A six-year study of sex differences in intellectual functioning, reading/language arts, achievement and affective development. *The Journal of Psychology, 106*, 55 – 61.