Does *It* Really Matter?
The Impact of Pronoun Use on
Reading Comprehension and Perceived Passage Quality
with an Adolescent Population

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Background Information

I.   Since I was a child, I have been intrigued by grammar and writing. These two subjects not only affected my education, but also were areas of discussion in my household. This was partly because my younger brother has a learning disability. Also, ever since I started high school, I found that teachers had to correct my papers for silly grammar mistakes. My parents and I wondered if I shared my brother's problem or if my school's "whole language" approach was to blame. I never had a proper grammar lesson before I entered the 10th grade. However, the notion of inculcating various grammar techniques into teenagers' minds at such a late stage seemed to be little more than wishful thinking. Many times I wondered why I had not been taught grammar earlier, like my friends who attended private schools. Why was it that my brother and my friends in the city spent so much time on direct grammar instruction, while my school and so many other public institutions considered it a non-priority? For that matter, why did our superintendent insist on calling primary schools, "elementary schools" rather than "grammar schools"? There was a distinct philosophical reason at work. If this is the sort of thing my parents and I discussed at the dinner table when I was 14, it should not be too difficult to see why I searched for a psychology project that involved grammar and education.

One day while browsing the Internet for various research done in the field of grammar, I came across articles on gender-free pronoun usage. One study in particular, by Dr. Laura Madson, captivated my interest and led me into a discussion with my advisor about the political correctness of ambiguous writing and gender-free pronouns. Soon after reading Dr. Madson's study (2002), my questions became a rather unique hypothesis. One of these questions was, "Can the use or misuse of gender-free / "politically correct," pronouns actually affect the reading

comprehension of a gender neutral passage?" I was surprised that no researcher had actually addressed the issue in this way before, or that none had worked with younger subjects before. I finally had found something that I could contribute to the world of education.

Unexpectedly, my project ended up combining all four mandated subjects taught to students nationwide – Social Science, English, Math and Science. The latter two subjects were integrated subtly yet had pronounced effects. The scientific aspect of my project came into play when following the ubiquitous scientific method.

After formulating my hypothesis, I sat down with my advisor, Mr. Stephen J. Sullivan, to discuss how I would begin to answer my research question. After numerous discussions, I was finally on my journey to conducting research (testing my hypothesis by doing an experiment/study). The first step was creating surveys by finding reading comprehension passages that I could "make my own" by inserting gender-neutral pronouns where the names had been placed. After typing up the surveys and compiling them into packets, I was finally able to distribute them; my sample consisted of both middle school and high school students from my school district (Lawrence). After grading each survey by hand, the data now had to be interpreted statistically to be converted to explicable results. It was now time to tap into my math skills.

In order to evaluate the data, I learned to use a statistical program known as Statistical Package for the Social Sciences (SPSS). I also had to learn to use various analytical techniques, such as Analyses of Variance (ANOVAs) and Analyses of Co-Variance (ANCOVAs). In order to determine whether the results were significant or not, I had to assign each condition tested to dependent or independent status. Each test derived its own probability, or p-value. This is the

first time that I actually used math for a real life application. Without understanding these

mathematical/statistical concepts, this project could not have been completed.

Looking back, I can honestly say that working on my project was one of the best

experiences in my lifetime. Not only did I reap rewards from all the hard work that I put in, but I

learned numerous life lessons that I can take to college and beyond. Although at some points the

process became extremely frustrating, I still persevered and eventually bypassed all the

roadblocks. I would recommend working on a research project to anyone who is willing to work

hard, has time management skills, is motivated, and has a thirst for knowledge and discovery.

Going an extra step by adding a research project onto my already jam-packed schedule enabled

me to not only challenge myself, but to also explore avenues that would not have necessarily

presented themselves to me. All in all, the research experience was life altering and one that I

would not have changed for the world.

Introduction

*"The use of **he** as a pronoun for nouns embracing both genders is a simple, practical convention rooted in the beginnings of the English language. **He** has lost all suggestion of maleness in these circumstances…. It has no pejorative connotation; it is never incorrect" (Strunk and White, <u>The Elements of Style</u>, 1979, p. 60).*

II.   When Professor Strunk first published this statement in his "little book," no debate ensued. No questions were raised. The notion was largely uncontroversial, even as the 1980's dawned. However, a quarter century later, most people - scholars and laypersons alike - view Strunk's statement as heresy. By modern standards, Strunk's statement is the very definition of *political incorrectness*: "the use of expressions or actions that can be perceived to exclude or marginalize or insult groups who are socially disadvantaged or discriminated against" (wordnet.princeton.edu, 2001). By advocating the use of the pronoun "he" in "gender-free" situations, the famous wordsmith was certainly encouraging sexist language in the view of any 21st century reader. However, in the mid-twentieth century, it was still commonplace to use the masculine pronoun ("he", "him" or "his") to refer to an antecedent that designated a person of unspecified gender (e.g., a student, doctor, or executive). Even as Betty Friedan's <u>Feminine Mystique</u> (1963) and Gloria Steinem's *National Woman Political Caucus* raised national consciousness about the societal disabilities women still suffered, the pronoun issue remained undressed- essentially a non-issue.

Yet, as woman began to gain more economic and political power, the very language required alteration. This contemporary notion is represented in numerous studies that have evaluated gender-biased language as inherently sexist. A study by Murdock and Forsyth (1985), argued that authors could avoid unfair treatment of the sexes by conforming to the standards

stated in the American Psychological Association's "Guidelines for Nonsexist Language" (1975, 1977). Murdock and Forsyth's findings were in accordance with the APA's Guidelines: generic phrasings were perceived to be somewhat biased and sexist, designation and evaluation stereotyping was considered biased and sexist, and neutral alternatives were judged to be appropriately non-sexist (1985). Now, after years of research and increasing gender equality, the latest edition of The Elements of Style reads, "*The use of **he** as a pronoun for nouns embracing both genders is a simple, practical convention rooted in the beginnings of the English language. Currently, however, many writers find the use of generic **he** or **his** to rename indefinite antecedents limiting or offensive (p. 60)*". Clearly, the last word on the subject has yet to be written.

Recently, Dr. Madson (2002) revisited the issue of the use of masculine pronouns for gender-neutral subjects. Over three decades of research has shown that masculine constructions such as "he" and "man" are perceived as male-biased or as referring exclusively to males (Bem & Bem, 1973; Fisk, 1985; Gastil, 1990; Hamilton, 1988; Kidd, 1971; MacKay, 1980; MacKay & Fulkerson, 1979; McConnell & Fazio, 1996; McConnell & Gavanski, 1994; Moulton, Robinson, & Elias, 1978; Murdock & Forsyth, 1985; Schneider & Hacker, 1973; Stericker, 1981; Switzer, 1990; Wilson & Ng, 1988). In recent years, the American Psychological Association (APA, 2001) and many other academic and professional organizations, such as the Modern Language Association (Gibaldi & Lindenberger, 1998), have specifically instructed authors to avoid using masculine pronouns to represent gender-neutral situations. However, following this guideline is not nearly as easy as it would seem.

Although style guides recommend a number of techniques for avoiding generic use of masculine pronouns, these techniques often create more problems than they prevent. One approach available to authors is pluralization. In order to avoid dealing with the problem of

gender bias, authors can rephrase text to allow the use of plural pronouns. For example, instead of "A writer must choose <u>his</u> words carefully," an author can simply write, "Writers must choose <u>their</u> words carefully" (Madson and Shoda, 2002, P.3). In a 1997 study by Foertsch and Gernsbacher, the pronoun "they" was found to be an efficient substitute for the generic "he or she" when the antecedent was non-referential (not referring or pointing to something), but inefficient when the antecedent was referential (wordnet.princeton.edu, 2006). Even though this technique is becoming more widely accepted, it is hardly ideal. It can change the meaning of text that refers to a singular entity or it can introduce confusion (e.g., "Although style guides discuss a number of techniques to avoid generic use of masculine pronouns, <u>they</u> each have disadvantages") (Madson and Shoda, 2002 p.3). Also, pluralization can introduce incoherent and grammatically incorrect constructions. Another alternative is the use of paired pronouns ("he/she"). This substitute avoids the problem of gender bias because "he or she" is an inherently non-sexist construction (Madson and Shoda, 2002). However, many style guides discourage their use because they are seen as stylistically awkward and hard to read, especially when they are used repetitively in a text (AMA, 1996; APA, 2001; Dumond, 1990; Miller and Swift, 1988; Spencer, 1978; Gibaldi, 1998). Gender-neutral constructions - such as chairperson or police officer- are other means to avoid generic use of masculine pronouns. Instead of saying, "When a reader skims text, <u>he</u> often overlooks key information" one can say, "Skimming text can cause <u>a reader</u> to overlook key information" (Madson and Shoda, 2002 p.4). This technique, unfortunately, can be time-consuming and cumbersome - directly undermining the point of using pronouns in the first place (*Chicago Manual of Style*, 2003). It is hard to argue with the <u>*Chicago Manual of Style*</u>, when it concludes that, "None of these techniques achieve the 'invisible gender neutrality' writers need (P233, Shoda and Madson, 2002)."

One feminist-influenced technique style guides often suggest can make the reader perceive the text as non-sexist - alternating between masculine and feminine singular pronouns (Madson and Shoda, 2002; Addison Wesley Longman, 1998; Frank & Treichler, 1989; McConnell-Ginet, 1989; Schwartz, 1995). If one paragraph/sentence employs "he" and the following paragraph/sentence uses "she," where masculine and feminine pronouns are used with equal frequency, then the text should be perceived as non-biased. This technique offers several advantages. It is easier to read than the paired pronouns "he or she" and is more stylistically pleasing. It allows the writer to use all the various forms of pronouns as they naturally occur in written and spoken text (i.e., "him", "his", "her", and "hers") and avoids the problems associated with pluralization (e.g., numerical imprecision). Also, it is simpler to use because it does not require rephrasing text. Alternating the text between singular masculine and feminine pronouns, not only seems to be "politically correct," but it, "allows writers to concentrate more on what they want to say than on how they need to say it" (Madson and Shoda, 2002, p. 5).

Ironically, alternating between masculine and feminine pronouns has often been perceived as biased in favor of females. According to two studies by Madson and Hessling (1999,2001), subjects believed text that alternated between the two pronouns to be biased in favor of women and perceived it to more frequently use feminine pronouns when, in fact, usage was precisely equal. These patterns may occur because the feminine pronouns seem to stand out in the readers' minds (Madson and Shoda, 2002). For the most part, feminine pronouns (e.g., "she") are only used in allusion to females (Clark & Clark, 1977; Moulton, Robinson, and Elias, 1978; Spencer 1978). On the other hand, masculine pronouns are commonly used to refer specifically to males *or* generically to refer to both males and females. Therefore, masculine pronouns are "unmarked," while female pronouns are "marked" (Lyons, 1968; MacKay, 1983; Madson and Shoda, 2002).

This difference between unmarked and marked is similar to the difference between "tall" and "short". The word "tall," like masculine pronouns, is unmarked because it can be used to describe both tall and short individuals. For example, if someone asks, "How tall is your boss?" it does not directly imply that your boss is tall. This logic is the same for masculine pronouns. Using the pronoun "he" to describe a person does not necessarily mean that the target is male (e.g., "A writer must choose <u>his</u> words carefully"). However, both feminine pronouns and the word "short" are marked in that they imply that the individual has that particular characteristic. If a person asks, "How short is your boss?" it implies that your boss is short. Likewise, describing a person as "she" implies that the target is indeed female (e.g., A writer must choose <u>her</u> words carefully). In short, feminine pronouns are more significant in context because of their marked value (Madson and Shoda, 2002). Therefore, in text with alternating male and female pronouns, readers tend to overestimate the frequency of feminine pronouns and think the text is biased in favor of women (Madson & Hessling, 1999; 2001).

Even though political correctness may expunge some of the perceived sexism, it still introduces problems in comprehension and quality of text. Alternatives of the masculine pronoun "he," (e.g., alternating "he" and "she") are lacking in quality. Although their use may make text easier to read than the paired masculine and feminine pronoun ("he/she"), alternating pronouns seem to confuse the reader and can obscure the meaning of the context (Madson and Shoda, 2002).

A great deal of research has examined how being "politically correct" (using feminine and masculine pronouns) or "incorrect" (using only masculine pronouns), has affected the readers overall perception and perceived frequency of pronouns. One particularly good example of this approach is MacKay and Fulkerson's 1979 study, which examined the comprehension of pronouns in the light of pronoun-antecedent agreement. McKay found that the generic *he* is not

neutral at all, but rather "perceptually polarizes an otherwise neutral antecedent, while male interpretation of generic *he* is more readily available than the female interpretation" (MacKay and Fulkerson, 1979 P.669). Countless other studies have examined the gender-aspect effect of different pronoun conditions. For example, Gastil found that for both men and women, the masculine pronoun "he*"* produces mostly male images, and the gender neutral "he/she" produces an equal amount of female/male images (1990) An earlier study by Moulton, Robinson and Elias, found that using male terms as "gender-neutral" pronouns in their contexts induced subjects to think of males even when the context was gender neutral (1976). In 1988, Hamilton's study tested whether subjects' own use of masculine pronouns had an effect on their imagery. Like Gastil (1990), Hamilton found that when using male pronouns, most subjects think about males specifically (1988). Clearly, these studies demonstrate that the use of male pronouns is not "gender-neutral".

Most of the recent research that has been conducted with alternating feminine and masculine pronouns has been undertaken by Madson and Hessling (1999,2001). As noted earlier, these scholars found that alternating between feminine and masculine pronouns was more effective at combating sexism, but sometimes led to the perception of perceived female bias, grammatical errors, and stylistic awkwardness. However, no research has yet addressed the use of gender-free pronouns among an adolescent sample population. Moreover, no scholar has sought to directly test the influence of pronoun use on reading comprehension. Does the legitimate end of avoiding sexist language outweigh the need to properly educate our nation's youth in two of the "three R's" – "reading and 'riting"? The current study evaluates whether being politically correct (i.e., using both male and female pronouns) does in fact affects reading comprehension and passage quality among adolescent subjects in a school setting. Gender-free pronoun usage is a worthy goal, but not if it comes at the expense of comprehension for school-

aged children. Striking a balance is of supreme importance. To that end this research is

dedicated.

Hypotheses

Research Questions

1. Do readers perceive a singular "he/she" pronoun or alternating "he" or "she" pronouns as good alternatives to generic masculine pronouns (e.g., "he")?

RPEQ Questions	*Predicted that…*
1. The topic **was/was** not enjoyable to read about.	** Condition 3 will be considered least enjoyable.*
2. The writing was **easy/difficult** to understand.	** Condition 3 will be considered most difficult.*
3. The article **was/was not** boring	** No significant differences will emerge.*
4. What is your impression of the overall quality of the article? **(poor – excellent)**	** #3 will be rated as lowest in quality.*
5. In your opinion, who would find this article/story most interesting? **(boy – girl)**	** Condition 1 will be seen as more interesting for males.*
6. Because of the way pronouns were used, the article **was/was not** confusing .	** #3 will be considered most confusing*

2. Does the use of such alternatives impact reading comprehension among adolescent subjects (middle and high school students)?

3. Can the effect of these primary relationships be mediated by factors such as age, gender, and feminist attitudes?

Specific Hypotheses

Hypothesis 1a: Middle School subjects will perceive a singular "he/she" pronoun or alternating "he" or "she" pronouns as acceptable alternatives to generic masculine pronouns (e.g., "he").

Hypothesis 1b: High School subjects will perceive a singular "he/she" pronoun or alternating "he" or "she" pronouns as acceptable alternatives to generic masculine pronouns (e.g., "he").

Hypothesis 2a: Middle School subjects will score highest on reading comprehension questions associated with Pronouns Condition #1 ("He"), and lowest on questions associated with Pronoun Condition #3 ("He" alternating with "She") among both younger and older adolescent subjects.

Hypothesis 2b: High School subjects will score highest on reading comprehension questions associated with Pronouns Condition #1 ("He"), and lowest on questions associated with Pronoun Condition #3 ("He" alternating with "She") among both younger and older adolescent subjects.

Hypothesis 3a: Middle School subjects will be affected by the primary relationships being mediated by factors such as age, gender, and feminist attitudes.
Hypothesis 3b: High School subjects will be affected by the primary relationships being mediated by factors such as age, gender, and feminist attitudes

Method

Participants

During September, 2006 a random sample of 476 male and female sixth, seventh, tenth, and eleventh graders read three short passages followed by comprehension questions, and completed two surveys: 1) Reading Passage Evaluation Questionnaire (RPEQ) and 2) Feminist Perspective Scale Form Young Adolescent (FPSYA). Subjects were drawn from neighboring middle school and high schools. Both are part of the Lawrence public school system, located just outside New York City. The district is perhaps the most ethnically and racially diverse in Nassau County and can be considered a reasonably accurate representation of the American suburban middle/high school population. (See Table 1 for age and gender breakdown. See Table 2 for ethnicity statistics).

Table 1

Gender	Middle School		High School	
	6th Grade %	7th Grade %	10th Grade %	11th Grade %
Male	8.0%	43.3%	19.8%	16.0%
Female	7.3%	41.5%	22.5%	21.4%

Table 2

Ethnicity**	Nassau County	Lawrence UFSD	United States*	Sample
White	74.9%	54.0%	69.1%	43.3%
Black	10.1%	16.9%	12.3%	14.9%
Hispanic	10.0%	23.2%	12.5%	27.7%
Asian/Pacific	4.8%	6.0%	3.6%	6.3%
Native American	0.2%	0.0%	0.9%	0.4%

*The total does not equal 100% because of those respondents who reported themselves as "multiracial."
**New York State Education Department categories

Sources

New York State Education Department Public School "Report Cards, 2003-2004"
　　　(www.emsc.nysed.gov/repcrdfall2003/).
United States Census Bureau, *Current Population Reports*, Series P23-205, Population Profile
　　　of the United States: 1999, U.S. Government Printing Office, Washington, DC, 2001.

Procedure

　　　Before experimentation, informed consent was obtained and teacher permission was

granted. Surveys were distributed in September in order to 1) optimize teacher cooperation and

2) avoid any differential "teaching effect" regarding grammar, pronoun use, etc., which might

occur during the school year. Both male and female adolescents from the sixth, seventh, tenth,

and eleventh grades were then given a demographic questionnaire, which asked about: *gender,*

age, ethnicity, grade level, and parental education (i.e., SES). After this form was completed,

the participants received survey packets in their middle school/high school English classes. Subjects were asked to read three distinct reading comprehension passages, each with its own corresponding multiple-choice questions. Each passage was followed by a version of Madson's *Reading Passage Evaluation Questionnaire* (*RPEQ*). At the end of the session, subjects completed two subscales of Henley's (2000) *Feminist Perspectives Scale Form 3* (*FPS3*), adapted with Henley's help to suit our younger subject population, and renamed *Feminist Perspective Scale Form Young - Adolescent* (*FPSYA*). The sixth and seventh grade reading passages were drawn from Wheeler's *Reading Test Practice Grade 6 and 7* (2005). The tenth and eleventh grade passages were drawn from Thompson Peterson's *The Real ACT Prep Guide* (2005). All passages were retyped and adapted to gender-neutral format, before pronoun conditions were inserted. Three different versions of each passage were created and rotated to avoid order effect. The first version used exclusively masculine pronouns (e.g., "he"); the second version used paired masculine and feminine pronouns throughout the passage (e.g., "he/she"), and the final version alternated between masculine and feminine pronouns from sentence to sentence. Following the completion of the surveys, all data was scored and entered into an Excel database, then analyzed with the *Statistical Package for the Social Sciences (SPSS)* program.

Instruments

Title	Author(s) / Date	Purpose / Sample Questions

Reading Passage Evaluation Questionnaire
 	
Reading Passage Evaluation Questionnaire (*RPEQ*), Revised
   * Language simplified to suit younger
    adolescent sample.
	Madson, 2002
	
	Madson and Rosen, 2006*
		To rate the overall perception of passage and pronoun quality. Each question was graded on a Likert scale from 1 (strongly disagree) to 7 (strongly agree).
		 • # 3 "The writing was easy to understand"
		 • #4 "What is your impression of the overall quality of the article?
		 • # 6 "Because of the way pronouns were used, the article was hard to read."
		Gender perception was also rated.
		 • # 5 "In your opinion, who would find this article/story most interesting?

Feminist Perspectives Scale Form 3 (FPS3)
 	
Feminist Perspectives Scale Form Young Adolescent (FPSYA)
   * Language simplified to suit younger
    adolescent sample.
	Henley, 2000
	
	Henley and Rosen, 2006*
		CO: examines the extent to which subjects would want to keep gender arrangements traditional. Meaning, wanting males dominant and in public roles, and females subordinate who stay at home.
		CU: examines the extent to which subjects would want a more female-valued society. It examines "women's culture" and "women's values" against what are termed "masculine values".

❖ Conservative Feminist (FPS3-CO)		• #4 "Using "he" for "he and she" are convenient and harmless to men and women." • #5"It is a man's right and duty to maintain order in his family by whatever means necessary."
❖ Cultural Feminist (FPS3-CU)		• #6 "Women's experience with cleaning, feeding people, caring for babies, etc. makes their view of life clearer than men's." • #8"Having more women doctors and lawyers would make those professions less cut-throat and less competitive."

Variables

Independent (x)	Dependent (y)	Mediating
Grade (6th, 7th, 10th, or 11th)	***Reading Passage Evaluation Questions*** • #1 "The topic was enjoyable to read about." **(1-7)** • #2 "The writing was easy to understand." **(1-7)** • #3 "The article was boring." **(1-7)** • #4 "What is your impression of the overall quality of the article?" **(1-7)** • #5 "In your opinion, who would • find this article/story most interesting?" **(1-7)** • #6 "Because of the way pronouns were used, the article was hard to read." **(1-7)** • #7 "Because of the way pronouns were used, the article was confusing." **(1-7)**	***Feminism Scores*** • Conservative Feminist • Cultural Feminist
Condition - pronoun usage **(he, he/she, he...she…)**	***Reading Comprehension Scores*** **(0%, 33%, 67%, 100%)**	***Gender of individual*** **(male or female)**
Age **(11-17 years)**		

Results

I.   *Hypothesis 1a: Middle School subjects will perceive a singular "he/she" pronoun or alternating "he" or "she" pronouns as acceptable alternatives to generic masculine pronouns (e.g., "he").*

     Hypothesis 2a: High School subjects will perceive a singular "he/she" pronoun or alternating "he" or "she" pronouns as acceptable alternatives to generic masculine pronouns (e.g., "he").

Two repeated measured analyses of variance (ANOVAs) were conducted to answer these questions. The first examined middle school subjects, and the second examined high school subjects. Intriguingly, only the high school subjects thought that condition #1, ("he") might be more interesting to male readers, but the results were only marginally significant for evaluation question # 5 (interesting) [$F_{(2,155)}= 2.751$, $p=.067$]. For middle school students, the question

produced no significant effect. So the gender effect described in Madson and Shoda's (2002) study did not materialize in this younger sample. Evaluation questions #'s 1 (enjoyable), 3 (boring) and 4 (quality) were statistically insignificant in both samples (p-values ranged .418 to .725). There were highly significant effects for two reading questionnaire questions in both high school and middle school subjects (See Table 3). For the middle school subjects, evaluation question 2 (easy) had significant values for pronoun condition #1 ("he") [F (2,187)= 22,930, p <.001]. Among high school subjects, evaluation question 2 (easy) also produced significant values, but only for pronoun condition #2 ("he"/ "she") [F (2,154)= 3.362, p=.037]. These values indicate that middle school subjects found pronoun condition #1 to be the easiest to read (as expected) and high school subjects found pronoun condition #2 easiest to read (contrary to hypothesis). Responses to evaluation question #6 (confusing) had significant values for both samples. Middle school subjects found pronoun conditions #2 and #3 to be the most confusing [F (2,188)= 25.815, p <.001] whereas high school subjects found pronoun condition #3 to be confusing [F (2,156)= 9.399, p<.001]. This provides clear support for the hypotheses by confirming that non-sexist pronoun usage (alternating between masculine and feminine pronouns or "he/she") is not considered an acceptable alternative to the generic masculine pronoun ("he") by younger subjects. These 11-17 year-olds seem to view gender-free pronouns as confusing constructions that only make the passages more difficult. By trying to be politically correct (using both masculine and feminine pronouns), the researcher created confusion among both high school and middle school students. Unexpectedly, middle school subjects found *both* non-sexist usages of pronouns to be confusing. Thus, schoolteachers might want to avoid focusing on gender-neutral pronouns (i.e., "he/she") because they apparently are affecting the way students are learning. Moreover, these results are supported by the data produced by Hypothesis #2, which involve direct tests for reading comprehension.

Table 3

Means (standard deviations) for the Reading Comprehension Scores, Reading Passage Evaluation Questions

	Pronoun Condition # 1 " He"	Pronoun Condition # 2 "He/She"	Pronoun Condition # 3 "He... She" (alternating)
MS3			
RC	89.66 [a]	81.25 [b]	78.26 [b]
Q1 (enjoyable)	3.62 [a]	3.63 [a]	4.01 [a]
Q2 (easy)	5.67 [b]	4.63 [a]	4.34 [a]
Q3 (boring)	3.67 [a]	4.06 [a]	3.99 [a]
Q4 (quality)	3.73 [a]	3.79 [a]	3.64 [a]
Q5 (interesting)	4.01 [a]	3.81 [a]	3.94 [a]
Q6 (confusing)	2.70 [a]	3.69 [b]	4.06 [b]

	Pronoun Condition # 1 " He"	Pronoun Condition # 2 "He/She"	Pronoun Condition # 3 "He... She" (alternating)
HS			
RC	58.85 [a]	57.62 [a]	44.71 [b]
Q1 (enjoyable)	3.13 [a]	3.32 [a]	3.39 [a]
Q2 (easy)	4.47 [a]	4.81 [b]	4.31 [a]
Q3 (boring)	4.34 [a]	4.16 [a]	4.28 [a]
Q4 (quality)	4.17 [a]	4.28 [a]	4.12 [a]
Q5 (interesting)	4.13 [*]	4.39 [+]	4.31 [+]
Q6 (confusing)	3.55 [a]	3.59 [a]	4.04 [b]

Significant: Means with different superscript letters differ at least at p<.05 level.
Marginal: Means with different superscript symbol (*) differ at least at p<.099 level.

II.   Hypothesis 2a: Middle School subjects will score highest on reading comprehension questions associated with Pronoun Condition #1 ("He"), and lowest on questions associated with Pronoun Condition #3 ("He" alternating with "She") among both younger and older adolescent subjects.

*   Hypothesis 2b: High School subjects will score highest on reading comprehension questions associated with Pronoun Condition #1 ("He"), and lowest on questions associated with Pronoun Condition #3 ("He" alternating with "She") among both younger and older adolescent subjects.*

This hypothesis involves reading comprehension, the most salient contribution of this paper to the existing literature. Again, two identical ANOVAs were run to address the bifurcated (high school/middle school) hypotheses. As predicted, there was a significant effect among both high school and middle school subjects. High school subjects found pronoun condition # 3 readings ("he" alternating with "she") most confusing and consequently scored lowest on these questions [$F_{(2, 287)} = 22.733$, $p < .001$].   However, the effect manifested itself differently in the younger subjects.   Younger subjects were apparently confused by *both* "un-biased" pronoun constructions (conditions #2 and #3). Scores for Reading Comprehension #2 (RC2 - "he"/"she") and Reading Comprehension #3 (RC3 - "he" alternating with "she") were both significantly lower than those for Reading Comprehension #1 (RC1 -"he") [$F_{(2,156)} = 9.399$, $p < .001$]. Yet, these results ultimately represent a paradox, rather than a contradiction. The fact that the middle school subjects behaved in the way they did actually strengthened the results. High school students are more educated and have certainly been exposed to some gender-neutral constructions (i.e., paired "he"/ "she", if not "he" alternating with "she") before. Middle school students apparently have not had this exposure, and were clearly confused by, not only the

alternating pronoun construction, but also by the paired pronoun construction as well. What this tells us is that unfamiliar pronoun arrangements significantly impact reading comprehension. These children may be too young to wrestle with reading comprehension and unfamiliar, gender-free pronoun arrangements at once.

III.   *Hypothesis 3a: Middle School subjects will be affected by the primary relationships being mediated by factors such as age, gender, and feminist attitudes, as measured by Henley's (2000) survey, revised by Henley and Rosen (2006).*

        Hypothesis 3b: High School subjects will be affected by the primary relationships being mediated by factors such as age, gender, and feminist attitudes as measured by Henley's (2000) survey, revised by Henley and Rosen (2006).

        A series of analyses of co-variance (ANCOVAs) were conducted to answer these questions. As a result of Hypotheses 1 and 2, the primary relationships, which were deemed significant, were retested with "feminist attitude" as a mediating variable. The key dependent variables tested were: *reading comprehension scores* and *reading passage evaluation questions* #2 (easy) and #6 (confusing). The independent variable remained *condition* (pronoun usage). Age and gender had no significant effect on these primary relationships. There was no cultural feminist interaction. However, a significant interaction emerged between conservative feminism and reading comprehension, [$F_{(2,276)}= 3.089$, $p=. 047$] for middle school subjects only. This suggests that conservative feminism adversely affects reading comprehension, but only in the alternating and paired pronoun conditions. In other words, conservative young adolescents (anti-feminists) showed a tendency to score especially poorly on pronoun condition passages 2 ("he/she") and 3 ("he" alternating with "she"), perhaps because they did not like the feminine pronouns. They also reported in disproportionate numbers that those same passages were confusing [$F_{(2,284)}= .723$, $p=001$]. Evidently, the same subjects found the first passage with

masculine pronoun ("he") to be very easy [F (2,183)= 3.326. p=.038] and scored the best on the corresponding reading comprehension questions. It is interesting to note that this effect only occurred on the younger (middle school) subjects. There were no significant results between conservative feminism and reading comprehension for the high school subjects [F (2,152)= .078, p=. 925]. Their p-values for reading evaluation question 6 (confusing) and 2 (easy) were not at all significant [p=. 487, p=. 537] respectively. Thus, even if some of the older subjects were anti-feminist, their beliefs had no additional effect on their ability to read, or on their perception of pronoun usage.

Discussion

In recent years, "political correctness" in word and deed has been the topic of much debate. However, as shown by the current study, "politically correctness", in the sense of using gender-free pronouns, can actually be counter-productive in some ways. Consistent with previous research in this field (Madson and Shoda, 2002), both middle school and high school readers rated alternating pronouns (pronoun condition #3) as confusing and awkward to read. In addition, beyond what was expected, middle school subjects also reported confusion with passages containing the second gender-neutral pronoun construction ("he"/ "she"). Consequently, this confusion with both alternating and paired masculine and feminine pronouns negatively impacted reading comprehension for both middle school and high school readers. Why did the younger subjects react negatively to *both* gender-neutral constructions, (alternating "he" or "she" and "he"/ "she"), while the older subjects reacted negatively only when feminine pronouns alternated with masculine pronouns? Perhaps it was because the high school readers have already been exposed to the paired "he/she" construction, whereas the middle school readers, were largely unfamiliar with "he"/ "she".

Educators worried about introducing gender-free language into their curricula, would do well to "quit while they are ahead" because, according to the results of this study, such concern can adversely affect their pupils' reading comprehension and lessen pupils' perception of passage quality. Especially in the current No Child Left Behind, high stakes testing environment, (e.g., SATs, ACTs, Iowa Tests), introducing anxiety over unfamiliar gender-free language seems unwise. Does it make sense to do something that will introduce confusion, raise anxiety, and ultimately lower test scores?

This study raises as many questions as it provides answers. It seems wise to extend this research to young adults and college students to see if the same gender-neutral pronoun constructions actually impact their reading comprehension. Clearly the middle school and high school students were adversely affected. Also, it would be interesting to see what effect pluralization ("they") would have on reading comprehension, since only perception has been tested with that particular variable (Foertsch and Gernsbacher, 2002). There are endless pronoun possibilities that future researchers can bring. The current research does not oppose gender-free pronoun usage. It only seeks to point out some of its limitations and to reopen discussion and debate. Educators and scholars must work together to discourage sexism, but only in a manner which does not undermine "reading and 'riting".

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