

An Investigation of Gender Differences in L2 Reading Accuracy and Fluency among Iranian Intermediate EFL Learners

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Received: 2019-11-10

Accepted: 2019-12-26

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Abstract

This study aimed to investigate gender differences in L2 reading accuracy and fluency among Iranian intermediate EFL learners. Initially, Oxford Quick Placement Test was administered to the 70 participants to assure homogeneity in terms of overall language proficiency and accordingly, 28 male and 28 female learners were identified as the legitimate participants who had been interviewed on 8 reading passages taken from Active Skills for Reading, Book 1 by Anderson (2008), and Top Notch, level 1 A by Saslow and Ascher (2007). The reading of the participants was recorded and subsequently analyzed by two raters based on the fluency and accuracy measurement criteria (Jenkins, Fuchs, Broek, Espin, & Deno, 2015). Inter-rater reliability was established for both the fluency and accuracy (.896 and .908, respectively). Having finished the analysis of the participants' performance, the findings showed that female participants outperformed the males in terms of fluency while males were superior in terms of accuracy. Finally, implications arising from the findings and suggestions for further research were explained.

Keywords: Gender, Reading Accuracy, Reading Fluency, Reading Skill

1. Introduction

Reading comprehension is an intricate process requiring multiple skills and abilities of subcomponents which differ between readers (Snow & Sweet, 2003). These variations in reading ability usually refer to two different levels of processing: lower-level word recognition accuracy and fluency, and higher-level verbal and intellectual skills linked to comprehension (Pazzaglia, Cornoldi & Tresoldi, 1993; Namaziandost, & Çakmak, 2020), for example, working memory, inferencing, combination of information and the utilization of metacognitive methodologies Both skill levels are important to a good comprehension of reading. There is a broad consensus that the use of higher-level procedures is hampered by incorrect and/or laborious word processing (Stanovich, 1991). According to this assumption, the majority of early reading work has centered on recognizing fast and accurate word decoding as the basic requirement for good reading comprehension. In spite of the fact that educating/getting the hang of reading has a significant job in learning English as either second or unknown dialect it was accounted for that L2 students are regularly hesitant to read (Day & Bamford, 1998) in light of the fact that they see reading as an undesirable and excruciating procedure to the degree that the absence of reading prompts the absence of jargon that is a major issue for L2 students.

One of the basic reading skills is reading fluency. Fluency in oral learning has an undeniably crucial role in the accomplishment of literacy. Recently, experimental studies have confirmed that fluency in oral learning plays a key role in effective literacy (Kuhn & Stahl, 2003; National Reading Panel [NRP], 2000; Rasinski & Hoffman, 2003). Oral reading fluency is, according to Adams (1990), one of the features of the strongest readers. Fluency impacts other reading components, such as word recognition and interpretation, and is listed as one of five significant reading components in the *National Reading Panel (NRP)* report. It thus seems to be a

fascinating topic for scholars and practitioners (Pikulski & Chard, 2005; Namaziandost, Rezvani, & Polemikou, 2020).

The ability to read a text easily, correctly and with an acceptable expression is known as reading fluency (NICHD, 2000). Rasinski (2004) noted that this interpretation should include comprehension. Using correct meaning units, a reader with fluent comprehension makes reading effortless and understands words automatically. When fluent learning students make an automatic comprehension, they learn how to easily connect words to interpret text (Tankersley, 2003). The foundations of reading fluency are theoretically based on the theory of automatic processing by LaBerge and Samuels (1974). According to this hypothesis, students who interpret words immediately while learning devote much of their intellectual resources to a higher level of cognitive functions such as text comprehension. Students also don't really get correct skills, and a certain degree of fluency in reading has trouble understanding with the text as they devote much of their time to correctly articulating words. Individuals who are unable to read fluently overwhelm their working memory at word level, according to Perfetti (1985), and their working memories are incapable of understanding the document.

Accuracy is the basic basis of fluency in reading. Reading must be correct, first and foremost, to be considered a fluent reader. The ultimate goal of reading is to grasp what is being written at all times. The text must first be read with a certain level of accuracy in order for a reader to comprehend what a text means. This might sound superficial. Nevertheless, in order to read text correctly, a reader must be able to accurately identify individual words that involve knowing the alphabetical principle: letters (graphemes) have corresponding sounds (phonemes) that need to be accurately recognized and interpreted (decoding) skillfully.

Oral reading fluency has three fundamental parts. These words unraveling exactness, automaticity of word acknowledgment and prosody (Penner-Wilger, 2008; Namaziandost, Hosseini, & Utomo, 2020). Prosody is characterized as reading aptitude which incorporates reading easily with suitable articulation and importance units. There will be not any nittier gritty clarification about prosody which is let alone for extent of this examination. Word interpreting is characterized as the ability of creating precise phonological portrayal of each word. Sight-word jargon of readings and testing reading forms which power them to turn to word acknowledgment procedures are identified with precise word acknowledgment ability. Strong understanding of the alphabetic principle, sound association skill, the ability to use other cues to the identity of words in text, in other words they are establishing necessary skills for word recognition (Tankersley, 2003). Exact word unraveling is an essential capability for automatization which is the following segment of familiar reading (Penner-Wilger, 2008).

2. Review of Literature

Studies identified with reading concoct confirmations which demonstrate that females are superior to males (Mullis, Martin, Kennedy & Foy, 2007). Numerous examinations which report sexual orientation distinction in reading demonstrate that females have better than males (Akyol, Yıldırım, Ateş, Çetinkaya & Rasinski, 2014), and reading troubles are discovered increasingly normal among males contrasted with females. In a longitudinal report, Siegel and Smythe (2005) distinguished that there existed no noteworthy distinction between learners with reading challenges and consideration shortfall scattered learners.

Past research shows that gender is a significant indicator of reading accomplishment. Various research studies have found a gender gap in proficiency accomplishment for females. Indeed,

the normal evaluation student is one and a half years behind the normal young lady as far as scholarly advancement, paying little respect to ethnic foundation or financial status (Marinak & Gambrell, 2010). The Progress in International Reading Literacy Study (PIRLS) announced that by and large, fourth grade young ladies scored ten higher than young men crosswise over 53 diverse instruction frameworks. Likewise, results from the 2012 Program for International Student Assessment (PISA) showed that fifteen-year-old females beat fifteen-year-old males on reading errands crosswise over 64 nations (Nasri, Biria, & Karimi, 2018). This sex uniqueness in reading execution was generous, as females performed, by and large, 38 PISA focuses higher than males, which is comparable to one year of instruction. These outcomes propose that the sex difference in reading accomplishment present in grade school-matured kids endures into the later scholarly years. In addition, PISA results showed that the sexual orientation hole in education execution extended in 11 nations somewhere in the range of 2000 and 2012, exhibiting that young men's impediment in reading is a developing concern.

Numerous investigations demonstrate that there is a solid connection between oral reading fluency and reading perception at various class levels (Azadi, Biria, & Nasri, 2018; Marinak & Gambrell, 2010). Additionally, first grade is critical for future reading achievement since essential proficiency aptitudes are accomplished in this evaluation. Studies report that there is an extensively high connection between oral reading fluency accomplished from the start evaluation and general reading achievement (Kim, Wagner, & Lopez, 2012; Padeliddu & Antoniou, 2014). For example, in the exploration led by Juel (1988), it is seen that word acknowledgment expertise from the start evaluation clarifies 44% difference of reading understanding aptitudes; in any case, at fourth grade it just clarifies 12% change. Also, in an exploration, it has been comprehended that learners from the outset grade who read easily keep

up these abilities at second grade (Hosseini, Nasri, & Afghari, 2017). A customary estimation of learners' oral reading fluency gives crucial information about foreseeing their later reading achievements (Padeliadu & Antoniou, 2014). Instructors use these evaluations by utilizing extraordinary upgrade techniques toward the starting phase of reading guidance; and accordingly, they have the chance of avoiding follow-up scholarly troubles and conceivable school disappointments. Appraisal of oral reading fluency works as a helpful apparatus not just for recognizing learners who need extra help (for example dyslexic learners); yet additionally observing the advancements of learners by and large training who may conceivably encounter disappointment while reading and get special education.

2.1. Previous Empirical Studies

MacArthur, Konold, Glutting, and Alamprese (2010) investigated gender differences in reading performance in a group of low literate adults and found that women performed significantly better on measures of reading fluency in comparison to men. Despite these findings, very little research has investigated factors that may contribute to the gender difference in reading performance of adult learners. As a result, the current study sought to examine the gender differences in reading achievement in a population of struggling adult readers.

In Greek, a language less straightforward than English, Padeliadu and Antoniou (2014) studied reading comprehension. Specifically, the purpose of this cross-sectional research was (a) to provide a qualitative analysis of narrative and expository text reading errors made by students in 9 grades and. There were 1,070 primary and secondary students in grades 1 through 9 who were tested by researchers using a newly developed reading difficulty recognition test. In the

context of understanding the role that decoding and fluency play in reading understanding, they discussed the results of frequency and regression analyzes.

The following questions will be answered in accordance with the main purpose of this research:

RQ 1. Does Iranian English learners' gender have any effect on their English-reading accuracy/fluency?

RQ 2. Which one of reading fluency or reading accuracy can be more affected by the Iranian learners' gender?

2. Method

2.1 Participants

To do this study, 56 EFL learners (28 male and 28 female) out of 70 learners from a private English institute in Ahvaz, Iran were selected. They were selected based on Oxford Quick Placement Test (OQPT). The participants were at intermediate level of language proficiency. The participants were selected based on convenience sampling — a type of non-probability sampling involving sampling from that near-hand part of the population. The participants' age range was between 17 to 19 years old. They were assigned in two groups- male and female.

2.3 Instruments

The first instrument which was utilized in the current study was the Oxford Quick Placement Test; it was used to make the students homogenous. It aided the researcher to determine her participants' proficiency level (i.e., elementary, pre-intermediate, intermediate, advanced). According to the results of the mentioned test, as devised by Allen, (2004), those students whose scores were between 38-44 out of 60 were at intermediate level and were chosen as the target population of the present research.

The next instrument used in this study was a reading test. Eight passages were extracted from Active Skills for Reading, Book 1 by Anderson (2008), and Top Notch, level 1 A by Saslow and Ascher (2007) and used in this study. In this test, the researchers asked each participant to read a passage. In this process, the student reads a five-minute text orally. At the end of five minutes, correct words per minute (WCPM) is determined by: excluding the words that are written incorrectly (errors) from the maximum number of words read by the pupil. In theoretical and observational tests, word right per minute seemed to be a good and strong determinant to describe general reading ability. In addition, the accuracy of word recognition is calculated by dividing the number of correct words into the total number of read words. Participant read products were recorded and subsequently analysed by raters on the basis of the criteria for fluency and accuracy measurement. Inter-rater consistency was defined on the two sets of scores for fluency and accuracy by running Pearson Correlation Coefficient Formula and it was respectively .896 and .908. Furthermore, two qualified reading teachers who had M.A in TEFL cooperated with the author to achieve accurate ratings for accuracy and fluency. One of the raters had about 12 years of teaching English at different language institutes and the other 10 years. Both had taught students from different skill levels and age groups.

2.4. Data Analysis

After collecting the data through the instruments mentioned above, the group's scores are measured and compared. Using Statistical Package for Social Science (SPSS) code, version 25, the data are analyzed. Next, descriptive statistics are measured, including averages and standard deviation. Furthermore, to check the quality of the Kolmogorov-Smirnov (K-S) test. Thirdly,

to investigate the gender differences in reading accuracy and fluency, paired samples t-test and independent samples t-test were run.

3. Results

Before doing any analyses on the test of reading fluency and reading precision, the normality of the distributions had to be tested. Thus, on the data obtained from the above-mentioned tests, Kolmogorov-Smirnov test of normality was run. Table 1 shows the results.

Table 1

One-Sample Kolmogorov-Smirnov Test (Both Groups' Fluency and Accuracy)

Tests	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
Male Group Reading Fluency Test	.27	28	.098
Male Group Reading Accuracy Test	.23	28	.111
Female Group Reading Fluency Test	.23	28	.122
Female Group Reading Accuracy Test	.23	28	.083

The values of p below the Sig. column in Table 1, decide whether or not the distributions are normal. A p value greater than 0.05 shows a normal distribution, whereas a p value less than 0.05 indicates that the distribution was not normal. Since all of the p values in Table 1 were greater than .05, it could be concluded that the distribution of scores from male and female learners for the reading fluency and reading accuracy test was normal. It is therefore safe to proceed with the parametric analysis (i.e. in this case the Independent Samples T test) and to allow further distinctions between the groups involved.

Table 2

Descriptive statistics of the male and female groups on the reading fluency test

	Groups	N	Mean	Std. Deviation	Std. Error Mean
RFT	MG	28	14.96	1.35	.25
	FG	28	18.75	.99	.18

Note. **RFT:** Reading Fluency Test; **MG:** Male Group; **FG:** Female Group

Table 2 displays the average MG (M= 14,9643) and FG (M= 18,7500) learners scores. The researcher had to examine the p value under the Sig to find out if the differences between these two mean scores were statistically significant or not through running an Independent Samples T test. A p value less than 0.05 in this table would suggest a statistically significant difference between the four groups, whereas a p value greater than 0.05 indicates a difference that has not achieved statistical significance.

Table 3

Independent Samples T-test (males and females reading fluency test scores)

		Levene's Test for Equality of Variances						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
RFT	Equal variances assumed	.26	.61	-11.92	54	.000	-3.78	.31
	Equal variances not assumed			-11.92	49.59	.000	-3.78	.31

Based on the information provided in Table 3, the competency test scores for MG (M=14.96, SD=1.35) and FG (M=18.75, SD=.99), $t(54)=-11.92, p=.000$ (two-tailed) are statistically significantly different. This conclusion was reached since the p value was lower than the level of meaning ($p < .05$). Therefore, in terms of learning fluency, it could be concluded that female participants significantly outperform male participants. In contrast, another independent-sample t-test was used on the study participants' reading accuracy scores to be able to give a defensible answer to the first research question. The descriptive statistics and results are shown in Tables 4 and 5.

Table 4

Descriptive statistics of the male and female groups on the reading accuracy test

	Groups	N	Mean	Std. Deviation	Std. Error Mean
RAT	MG	28	17.91	.78	.14
	FG	28	14.08	.66	.12

Note. **RAT:** Reading Accuracy Test; **MG:** Male Group; **FG:** Female Group

In Table 4, it could be found that the reading accuracy test mean score of the MG learners ($M = 17.91$) was larger than the reading accuracy test mean score of the FG learners ($M = 14.08$).

The author had to look down on the *Sig.* and figure out if this disparity was statistically significant or not. Table 5 column:

Table 5

Independent Samples T-test (males and females reading accuracy test scores)

		Levene's Test for Equality of Variances		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
		F	Sig.					
RAT	Equal variances assumed	2.17	.14	19.66	54	.000	3.82	.19
	Equal variances not assumed			19.66	52.69	.000	3.82	.19

As Table 5 shows the level of significance is .000 which is less than .05 and suggests that there was a statistically significant difference between the MG ($M = 17.91$, $SD = .78$) and FG ($M = 14.08$, $SD = .66$), $t(54) = 19.66$, $p = .000$ (two-tailed). Consequently, it could be concluded that male participants outperforming female participants in terms of reading accuracy remarkably.

Using Tables 3 and 5, it could be clearly concluded that the female group had better reading fluency performance and the male group had better reading accuracy performance; the female

participants were more affected by reading fluency whereas male learners were more affected by reading accuracy.

5. Discussion

In general, the purpose of this study was to investigate the role of gender in reading accuracy and fluency of Iranian intermediate learners. In particular, the research was an attempt to examine whether the sex of Iranian learners was more influenced by reading fluency or reading accuracy. Statistical analysis findings indicated that female participants outperformed male participants in reading fluency while male participants had improved reading accuracy efficiency. It was also discovered that male reading accuracy had a greater impact, and female participants had a greater impact on reading fluency.

In this context, several literature studies show that fluency in oral reading is an important factor, particularly in the first years of school life, in terms of school achievement. For example, Padeliadu and Antoniou (2014) explored the association between word recognition and fluent reading skills in their research with ninth grade Greek students. The association between basic reading skills and reading comprehension was found between .36 and .47 among grade 1st and 4th grade students; in other words, this correlation is at medium level; but in later grades it slowly becomes lower. By using the research sample from 1st to 12th grade, Benson (2008) explored the correlation between reading comprehension and fluency. Studies has shown that a powerful and direct impact occurred between these two factors up to 3rd grade; however, after 4th grade the association decreased from moderate to small level.

The main reason behind the results of this study is that females have a very strong connection between their right and left hemispheres of the brain via a well-developed corpus callosum, which is comparatively weaker in males (Phillips, Kim, & Kim, 2015). Because female brains seem to have a stronger connection between their logical and intuitive parts, “when women are asked to do particularly hard tasks, they might engage very different parts of the brain,” said Ragini Verma (2014), an associate professor of radiology at the University of Pennsylvania. “Men might over-engage just one part of the brain” (p.13). Hence females have analytical and logical and motor function very fluently organising their activities which is comparatively weaker in males. This also makes females more farsighted and analytically and sometimes emotionally wiser than males.

Reasons behind fluent advancement of females in reading are over the top. Diverse natural and socio-social components are considered. A few scientists underline the pace of organic and psychological improvement (Verma, 2014; Etemadfar, Namaziandost, & Banari, 2019). Young females grow sooner than young male. In discourse improvement they beat young men as right on time as in the initial two years of life (Phillips, Kim, & Kim, 2015). Discourse and reading are two unique methods for utilizing language. As language improvement of young men is increasingly slow criteria are the equivalent paying little respect to sex, that is the reason young men's exhibition is more unfortunate in reading abilities tests.

Discoveries of research led on twins (Harlaar, Spinath, Dale, & Plomin, 2005; Neisi, Hajjilili, & Namaziandost, 2019) give proof that the distinctions are brought about by hereditary elements to a more prominent degree than ecological components. They additionally infer that the etiology of individual contrasts and shortages in the underlying long periods of figuring out

how to read relies upon sex: the job of heredity is of more prominent significance in young men while in young ladies it is the job of condition.

Others (e.g. Below, Skinne, Fearington & Sorrell, 2011) point out differences in the way information is processed. The ability to process individual pieces of information is sequential processing, but the ability to integrate information into one cohesive whole is continuous processing. The increased testosterone level in the foetal period inhibits the development of the left cerebral hemisphere (Geschwind, 1983; Ziafar & Namaziandost, 2019), which is why boys are doing better in simultaneous (visual) processing, but worse in tasks requiring sequential (auditory) data processing. The sequential processing deficiency hinders the phonological decoding process, which is particularly important in the early reading development period.

Camarata and Woodcock (2006) confirm that the information processing speed determines the difference. Better grades have already been achieved in the pre-school era in the activities of limited time women. The gap increased at further educational levels, which does not mean that boys have a slower reaction time, but they do worse to retain focus and concentrate while under time pressure executing simple tasks. The slower rate of information processing in boys has a negative impact on many school activities, resulting in poorer reading fluidity scores.

McGeown, Goodwin, Henderson & Wright (2012) transfers pressure from biological differences (sex differences) to sexuality (gender differences) and association of characteristics generally identified as feminine or masculine. Reading is seen as an occupation that is rather feminine. It is usually the mother who reads more than the husband in the family setting and encourages children to read more often. The researchers carried out work on children aged 8-11

and found that the degree of association with traits commonly attributed to the position of male or female allows a better prediction of internal motivation to be read than biological differences, although it does not permit prediction of only the successes in learning. The lack of motivation and participation of boys in reading-related activities may lead indirectly to the poorer growth of reading skills (Lynn & Mikke, 2009). Women are usually more optimistic about learning and learn more.

The cited reports show an incomplete description of reading successes in girls and boys. Several studies illustrate that the gaps continue and even rise in the years to come (Camarata & Woodcock, 2006). Several data support girls' gaps that vanish in the first grade and recur in later elementary school grades (Below et al., 2010). The results tend to be more important, as similar conclusions can be drawn when analyzing the data. Earlier studies found that discrepancies emerged at the outset of the learning process and seemed to vanish in the initial levels (Włodek-Chronowska, 1985). Further studies allegedly showed no differences (KrasowiczKupis, 1999; Nasri, & Namaziandost, 2019; Szczerbiński, 2001) because there is a time when the differences even out in the development of children. They reappear after a while as indicated by international research evidence (OECD, 2010; Mullis et al., 2012), in which children participated. Variations that occur in the pre-school era may be caused by biological factors, whereas the variations found after a few years may be explained by socio-cultural factors. Examination of discrepancies between girls and boys in terms of earlier reading successes that were achieved in children's research between zero and first grade due to their consistency seemed to be important.

Despite the fact that sexual orientation contrasts in reading have been found by most

examinations that enlist adequately enormous and delegate tests, it is likewise imperative to recognize that there are some uncommon special cases. For instance, Kaufman, Kaufman, Liu, and Johnson (2009) detailed an investigation of the norming test for the Kaufman Test of Educational Achievement–Brief Form. The writers didn't discover noteworthy sexual orientation contrasts in reading for adults, however huge sex contrasts were found in youngsters as therefore detailed by Scheiber, Reynolds, Hajovsky, and Kaufman (2015) with this instrument. Be that as it may, it is misty whether this was the consequence of contrasts in test content crosswise over reading appraisals, or on the off chance that it was perplexed by authentic impacts of instructive disparity in their cross-sectional example (adults matured 22–90). In this manner, it is urgent to distinguish under what settings sexual orientation contrasts in reading might be found, yet their reality is certainly not an inevitable conclusion.

6. Conclusion

Boys and girls have differences in reading comprehension achievement. Obviously, one of the factors influencing the achievement of recognizing reading next to subject and genre is the term gender. The test shows that in reading the comprehension test, girls have higher score than boys. Several aspects of literacy success influence the gender differences. Different traits from family and society shape the sex of students that play a role as the impact on the achievement of comprehension learning. Gender differences also affect the accuracy of reading and fluency of reading, resulting in disparities in the achievement of reading. The result shows that in reading fluency girls are better than boys, and in reading accuracy boys are better. The syndrome is triggered by some factors that influence gender differences, such as subject matter, learning mood, environment, brain lateralization, and motivation.

For language teachers, the findings of this study have some implications. First of all, when selecting a text to assess reading comprehension text complexity, it should not be the only factor involved, but it should also take into account the accessibility of the material. Another implication of the present study is that despite the dominance of women in reading comprehension compared to men, educators should provide them with more reading comprehension training when working with male students.

The study results showed a statistically significant difference between the boys and girls in favour of the boys in reading comprehension accuracy test in the sense of L2. This indicates that in contrast with the boys, the girls had poor linguistic ability in L2. This requires teachers to make it possible to improve the linguistic skills of the women. In addition, the difference between girls and boys in reading understanding fluency was statistically significant that the girls were still ahead of the boys. This calls for educators to enable the boys to read a wide range of material, including reading the material traditionally known to be the subject for children. The report further calls on lawmakers to tackle gender inequalities in Iran's education.

This study suffered from the following limitations:

1. One drawback is that only students aged 17 to 19 years were included in the sample. It is therefore impossible to generalize the results to the other age groups.
2. The participants was reduced to 56 guests. It is therefore not appropriate to generalize this either.
3. This research was done in Iranian EFL context; it can be conducted in other countries.
4. This study was conducted on intermediate level and other levels were not included.

In the light of the findings and limitations, this study suggests the need for further research. To start with, it could be repeated with a greater number of participants at various institutions. Students from higher or lower levels could also be included with the aim of having more insight about the role of gender on reading skill. Moreover, some qualitative research methods could be employed (e.g., open-ended questionnaire items, interviews) in order to gain insight of what teachers and students think about the role of gender. Other studies could be conducted to explore different language skills such as listening, speaking, and writing. In addition, in order to obtain more accurate conclusions, future research will look at different age groups and rates and a wider variety of climates.

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