

The Effect of Interaction between the Speaker's Gender (Male/ Female) and the Learner's Gender (Male/ Female) on Developing Reading Skills

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Abstract: The purpose of this study is to investigate the effect of interaction between the speaker's gender (male/ female) and the learner's gender (male/ female) on developing reading skills through multimedia programs. There were two experimental treatments: FS (female speaker) and MS (male speaker). Participants were 64 pupils (32 males and 32 females) of grade five. Thus, there are four groups: female speaker with male learners group (FSML), female speaker with female learners group (FSFL), male speaker with male learners group (MSML) and male speaker with female learners group (MSFL). Data analyses were conducted to investigate the hypotheses derived from research questions. Two-way ANOVA test was used to investigate the main effects of the independent variables on the overall reading skills and each reading sub skill. The findings revealed that female speakers were better than male ones in reading skills and in the fluency skill, and there is no significant difference between female speakers and male ones in the accuracy skill. Furthermore, female learners were better than male ones in reading skills and in the fluency skill but male learners were better than female ones in the accuracy skill. There are no significant interactions between the speaker's gender and the learner's gender in reading skills and in each reading sub skill.

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Key Words: multimedia programs, speaker's gender (male, female), learner's gender (male, female), reading skills, fluency skill, accuracy skill.

Introduction

Multimedia programs are considered one of the most important learning sources. Thanks to their elements such as text, pictures (static or motion), music, sounds and videos, they address more than one sense of the learner. One of the most important elements in multimedia programs is sound. Although the sound is a very important element in multimedia programs especially concerned to learning English language as EFL or ESL, it was not researched a lot like the other elements.

Multimedia learning environments have become optimal means for supporting knowledge acquisition. Cognitive theories of multimedia learning like the Cognitive Theory of Multimedia Learning (CTML, Mayer 2001) provide empirically validated guidelines for the design of multimedia messages that have been mainly formulated against the background of cognitive information-processing models.

It has generally been assumed in the field of second language (L2) learning and teaching that there are various factors, external and internal, which affect language learning. These factors include the role of the first language, setting differences and the role of instruction, age differences, individual learner differences and gender differences. The importance of investigating these factors is that they might enable us

to specify the nature of the input that best suits L2 learners' comprehension, and the nature of the output which they produce at a particular stage of their learning.

No matter what gender differences are primarily culturally or biologically determined, educational research in the last several decades has proven that the gender differences manifestly influence students' academic interests, needs and achievements (Halpern, 1992; Collins, Kenway & McLeod, 2000; Swiatek & Lupkowski-Shoplik, 2000).

Some researches were done on the effect of the speaker's gender (male, female) on developing Language skills through multimedia programs but the findings were inconsistent. Where some researches refer that male speaker is better than female one such as Kulkarni (2000) while others refer that female speaker is better than male one such as Hamad (2010); Sedeik (2011), however; other researches refer that there is no significant effect of the speaker's gender on the learning outcomes such as Linek, Gerjets & Scheiter (2009).

Also, some researches were done on the effect of some variables on the learner's gender (male/ female) and the findings were inconsistent, where some researches revealed that females are better than males in learning language such as Aslan (2009);

Kaushanskaya, Marian, & Yoo (2011); Kazemi, Zoghi, Kalani (2013); Lopez (2006); Wilkins (1980) while others revealed that males are better than females such as Badran (2001); Sunderland (1992); Lori (1998), therefore other researches revealed that there are no significant statistically differences between them in learning language such as Benbow & Minor (1990); Pica, Holliday, Lewis, Berducci & Newman (1991), so this research is done to reach the best speaker's gender (male and female) that suits the learner's gender (male and female).

Literature Review

Research on multimedia learning is basically concerned with the questions of how to best design verbal and pictorial representations and how to combine them most effectively. For example, according to the modality principle, dynamic visualizations that need verbal explanations are best presented as animations with auditory text (narrated animations) instead of written text (Moreno & Mayer, 1999). This principle can be explained by purely cognitive assumptions and without taking into account social-motivational considerations, for instance, by assuming that auditory text offloads the visual processing channel and allows for attending to pictorial and verbal information in parallel. However, when using narration instead of written text, the question arises which kind of voice should be used? Lately, questions on how to design verbal representations beyond their presentation modality have been addressed in design principles for multimedia messages that rely on a socially enhanced view, for instance, the voice principle. (Mayer, Sobko & Mautone, 2003)

The speaker's gender (SG):

The speaker's gender is one of the most important elements in multimedia programs. However, Jewitt (2006) said that the role of speaker was not researched well in learning languages. In this issue, Sedeik (2011) refers that the speaker in multimedia programs presents words and new concepts and it shows how they are pronounced well, so their pronunciation should be standard.

Research inspired by the media equation theory has provided evidence that social principles relevant to human-human interaction also have an impact on human-computer interaction (for an overview, see Reeves & Nass, 1996). For example, users ascribe a personality to a computer based on verbal cues it delivers and prefer computers that resemble their own personality (Nass & Lee, 2001). However, there is not only evidence in favor of similarity-attraction, but also for complementary-attraction towards interactive computer characters (Isbister & Nass, 2000). This inconsistency of results matches the inconsistent findings regarding similarity- and complementary-

attraction in human-human interaction (Franzoi, 1996). Research on media equation has also provided support for gender stereotyping towards media. For instance, computer programs using female voices were rated as being more competent regarding "female topics" like love and relationships, whereas male-voice computer programs were estimated as being more competent regarding "male topics" like mathematics or computers (Nass, Moon & Green, 1997).

In accordance with these findings from media equation research, it can be assumed that the speaker's gender may trigger gender stereotypes and other social principles, which, in turn, influence the perception and evaluation of the speaker. As a result, either a male or a female speaker might be seen as a more knowledgeable or likeable person depending on the topic and on learner characteristics. A positive evaluation of the speaker should increase the learner's inclination to follow Grice's cooperation principle during the interaction with the learning environment, foster subsequent sense-making processes, and finally result in better learning outcomes.

Moreover, gender stereotyping or principles of interpersonal attraction with respect to the speaker's gender will occur more likely, the more the learner is aware of the speaker's gender. Here, it can be assumed that individual differences moderate whether a learner pays special attention to a speaker's gender. It has been proposed that it is the cognitive availability of the gender schema that determines the awareness for the gender of others (Bem 1981; Markus, Crane, Bernstein & Siladi, 1982). Gender schema theory (Bem, 1981) assumes that the cognitive availability of the gender schema is associated with the gender-related self schema. The gender-related self schema is reflected in the sex-role orientation, which is defined by the masculinity and femininity of a person in combination with the person's biological sex.

The learner's gender (LG):

Gender has been regarded as an important affective factor that plays a specific role and influences second language acquisition. There are some differences between the language of males and that of females, and no education or social conditioning can wholly erase these differences. According to gender role theory, prevalent gender stereotypes are culturally shared expectations for gender appropriate behaviors. Females and males learn the appropriate behaviors and attitudes from the family and overall culture they grow up with, and so non-physical gender differences are a product of socialization. (Eagly, 1987; Eagly & Karau, 2002)

The theorists of Second Language Acquisition (SLA) believe that female learners show possible

superiority in their second language learning process (Ehrlich, 2001). Therefore, whether ESL students leaning English with CALL programs will gain or counteract the learning efficiency due to their gender difference has become a significant issue of ESL instruction. As (Bernhardt's,1991) model predicted that studies revealed significant gender differences in comprehension with different passages at early stages of acquisition, but not at more advanced stages.

Given the importance placed on the role of gender, the researchers hold gender is not the necessary conditions for second language acquisition, although genetically there are some benefits that can be reaped for those who begin L2 acquisition early. Furthermore, both males and females are equipped with some predetermined tendencies that would be helpful for them to acquire some aspects of language much faster and easier. (Shakouri & Saligheh, 2012)

In second language acquisition, the concept of gender is variously interpreted. To Ellis (1994), there was nothing conclusive in studies of gender differences in SLA in achievement, attitudes and strategy use at that time. Accordingly, Ellis (1994) holds:

Sex is, of course, likely to interact with other variables in determining L2 proficiency. It will not always be the case, therefore, that females outperform males. Asian men in Britain generally attain higher levels of proficiency in L2 English than do Asian women for the simple reason that their jobs bring them into contact with the majority English speaking group, while women are often "enclosed" in the home. Sex interacts with such factors as age, ethnicity, and, in particular social class (p. 204).

Kimura (2006, cited in Piasecka, 2010, pp. 146-149) concluded females are better at calculations and tests which refer to the material that was learned at school. In terms of verbal abilities, females usually begin speaking earlier than boys; they use longer sentences. Their articulation and grammar are more correct. Consequently, they have a richer vocabulary. Moreover, they are better at spelling, reading and tests in which they have to generate words according to a certain rule (e.g. words that start with a certain letter).

While Shakouri & Saligheh (2012) shows that the topic of the text was an important factor in the reading performance; for example, female learners did better on female topics, gender differences have also been identified in attitudes to reading. Furthermore, females have more positive attitudes to reading and higher reading achievement than males.

Kaushanskaya, Marian & Yoo (2011) report the mechanisms of gender differences in language acquisition have been proposed to involve the declarative memory system. The study shows that the mechanism responsible for the female advantage

when learning phonologically-familiar novel words therefore appears to be greatly flexible and dynamic in nature, and is likely based on the active recruitment of descriptive structures (long-term memory) during the encoding of verbal information.

Kazemi, Zoghi & Kalani (2013) aims to investigate the effect of gender on English as a foreign language (EFL) achievement test. The results indicated that EFL learning is to some extent related to gender and it has a significant effect on the achievement test. The results of this study help instructors to select their instructional strategies more effectively related to the learner's gender.

Research Questions:

The research questions can be determined in the following questions:

- 1- What is the effect of the speaker's gender (male/ female) on developing reading skills for the fifth grade pupils?
- 2- What is the effect of the learner's gender (male/ female) on developing reading skills?
- 3- What is the effect of interaction between the speaker's gender (male/ female) and the learner's gender (male/ female) on developing reading skills?

Hypotheses:

The current research investigates the validity of the following hypotheses:

- 1- There is a statistically significant difference at (0.05) level between the mean scores of the experimental groups in reading skills test due to the main effect of the speaker's gender (male/ female).
- 2- There is a statistically significant difference at (0.05) level between the mean scores of the experimental groups in reading skills test due to the main effect of the learner's gender (male/ female).
- 3- There is no statistically significant difference at (0.05) level between the means of the experimental groups in reading skills test due to the main effect of interaction between the speaker's gender (male/ female) and the learner's gender (male/ female).

Methodology:

The current research belongs to this category that aims at examining casual relationships between independent variables and dependent variables and those that study the relationship between aptitude and treatment, thus the experimental methodology is the most suitable for achieving that purpose, so the current research follows the experimental methodology as follows:

1- Research Variables:

- **Independent variables:** the following research includes two independent variables:

- The speaker's gender (SG): **male** versus **female**.
- The learner's gender (LG): **male** versus **female**.

- **Dependent variables:** the dependent variables of the research are reading skills which have two main skills:

- **Accuracy** skill.
- **Fluency** skill.

Experimental Design:

The experimental design according to the independent variables is 2x2 factorial design, which has four experimental groups. Figure (1) shows the experimental design of the study:

Figure 1. The experimental design of the research

| Speaker's gender \ Learner's gender | Male | Female |
|-------------------------------------|-----------|-----------|
| Male | Group (1) | Group (2) |
| Female | Group (3) | Group (4) |

Sample:

Participants were 64 pupils (32 female and 32 male) of grade five. Pupils were divided into four experimental groups, (16) pupils for each one.

Instrument:

1- A reading skills test: The test consists of some reading activities that look like what they learned.

Procedures:

The Analysis Phase:

In this phase, the learners' characteristics were determined, and two multimedia programs were defined. Also, the general purposes of the multimedia programs were defined which focused on developing reading skills.

The Design Phase:

To construct the multimedia learning environments, *Microsoft Word XP*® was used to

create the texts. All digital photos were processed with *Adobe Photoshop 7*®. All voices were recorded in a studio and processed with *Adobe Audition 1.5*®. All multimedia elements were then processed with *Auto Play Media Studio 8*® which provides enhanced capabilities for creating artwork.

Two multimedia programs designed as the following:

- A multimedia program has a presentation of some new words of the lessons of unit 1 "At the Campsite" and that was a subject to the experimental manipulation. The narrator of the new words was a male speaker.

- The second multimedia program was the same as the previous but the narrator of the new words was a female speaker.

The Implementation Phase:

During this phase, the pre-test was applied. A meeting with the pupils was held to explain the nature of the experiment, and then the pupils studied the unit through the multimedia programs. Finally, the post-reading skills test was applied. The findings were collected to be analyzed.

Findings:

Data analyses were conducted to test the hypotheses derived from the three research questions. Two-way ANOVA was used to investigate the main effects and interaction effect of the independent variables on the overall reading skills and each reading sub skill.

1- Reading skills:

Tables 1 and 2 show the means, standard deviations, and 2-way ANOVA for the four treatment groups in reading skills as dependent variables.

Table 1. Means and Standard Deviations of the Four Treatment Groups' reading skills

| Reading skills | | speaker's gender | | Total |
|------------------|--------|-------------------------------|-------------------------------|-------------------------------|
| | | male | female | |
| learner's gender | male | M= 44.56 SD= 2.44 N= 16 | M= 47.75 SD= 2.79 N= 16 | M= 46.15 SD= 3.04 N= 32 |
| | female | M= 46.00 SD= 4.06 N= 16 | M= 49.75 SD= 2.86 N= 16 | M= 47.87 SD=3.94 N= 32 |
| Total | | M= 45.28 SD= 3.38 N= 32 | M= 48.75 SD= 2.96 N= 32 | M= 47.01 SD=3.60 N= 64 |

To test our hypotheses, reading skills were analyzed using two-way ANOVA, showing the main effect of the speaker's gender [F=19.986, p<0.05]. Thus, there is a significant difference in reading skills scores due to the main effect of the speaker's gender in favor of female speakers. Also, the main effect of the learner's gender is [F=4.907, p<0.05]. Thus, there is a

significant difference in reading skills scores due to the main effect of the learner's gender in favor of female learners. However; the data showed no significant interactions between the speaker's gender and the learner's gender [F=.131, p>0.05].

1-1- Accuracy skill:

Tables 3 and 4 show the means, standard deviations, and 2-way ANOVA for the four groups in

accurate skill as a dependent variable.

Table 2. 2-way ANOVA with reading skills as Dependent Variables

| Source of variance | SS | df | MS | F | Sig. |
|-----------------------|---------|----|---------|--------|--------|
| speaker's gender (SG) | 192.516 | 1 | 192.516 | 19.986 | .000** |
| learner's gender (LG) | 47.266 | 1 | 47.266 | 4.907 | .031 |
| SG * LG | 1.266 | 1 | 1.266 | .131 | .718 |
| Error | 577.938 | 60 | 9.632 | | |
| Total | 142289 | 64 | | | |

Note: ** p < .05

Table 3. Means and Standard Deviations of the Four Groups' accuracy skill

| accuracy skill | | speaker's gender | | Total |
|------------------|--------|-------------------------------|-------------------------------|-------------------------------|
| | | Male | Female | |
| learner's gender | male | M= 26.56 SD= 1.36 N= 16 | M= 27.31 SD= 1.01 N= 16 | M= 26.93 SD= 1.24 N= 32 |
| | female | M= 20.31 SD= 2.89 N= 16 | M= 20.75 SD= 2.43 N= 16 | M= 20.35 SD= 2.63 N= 32 |
| Total | | M= 23.43 SD= 3.87 N= 32 | M= 24.03 SD= 3.80 N= 32 | M= 23.73 SD= 3.82 N= 64 |

Table 4 2-way ANOVA with accuracy skill as a Dependent Variable

| Source of variance | SS | df | MS | F | Sig. |
|-----------------------|---------|----|---------|---------|-------|
| speaker's gender (SG) | 5.641 | 1 | 5.641 | 1.313 | 0.256 |
| learner's gender (LG) | 656.641 | 1 | 656.641 | 152.818 | 0.000 |
| SG * LG | 0.391 | 1 | 0.391 | 0.091 | 0.764 |
| Error | 257.813 | 60 | 4.297 | | |
| Total | 36973 | 64 | | | |

Two-way ANOVA showed that the main effect of the speaker's gender [F=1.313, p>0.05]. Thus, there is no significant difference in accuracy skill scores due to the main effect of the speaker's gender. Moreover, the data showed that the main effect of the learner's gender [F=152.818, p<0.05]. Thus, there is a significant difference in the accuracy skill scores due to the main effect of the learner's gender in favor of

male learners. Also, the data showed no significant interactions between the speaker's gender and the learner's gender [F=.0091, p>0.05].

1-2- Fluency skill:

Tables 5 and 6 show the means, standard deviations, and 2-way ANOVA for the four groups in fluency skill as a dependent variable.

Table 5. Means and Standard Deviations of the Four Groups' fluency skill

| fluency skill | | speaker's gender | | Total |
|------------------|--------|-------------------------------|-------------------------------|-------------------------------|
| | | Male | Female | |
| learner's gender | Male | M= 18 SD= 2.52 N= 16 | M= 20.43 SD= 2.94 N= 16 | M= 19.21 SD= 2.97 N= 32 |
| | female | M= 25.68 SD= 3.11 N= 16 | M= 29 SD= 3.14 N= 16 | M= 27.43 SD= 3.50 N= 32 |
| Total | | M= 21.84 SD= 4.79 N= 32 | M= 24.71 SD= 5.28 N= 32 | M= 23.28 SD= 5.21 N= 64 |

Table 6. 2-way ANOVA with fluency skill as a Dependent Variable

| Source of variance | SS | Df | MS | F | Sig. |
|-----------------------|----------|----|----------|---------|-------|
| speaker's gender (SG) | 132.250 | 1 | 132.250 | 15.278 | 0.000 |
| learner's gender (LG) | 1056.250 | 1 | 1056.250 | 122.022 | 0.000 |
| SG * LG | 3.063 | 1 | 3.063 | .354 | 0.554 |
| Error | 519.375 | 60 | 8.656 | | |
| Total | 36400 | 64 | | | |

Two-way ANOVA showed that the main effect of the speaker's gender [$F=15.278$, $p<0.05$]. Thus, there is a significant difference in the fluency skill scores due to the main effect of the speaker's gender in favor of female speakers. Also, the main effect of the learner's gender [$F=122.022$, $p<0.05$]. Thus, there is a significant difference in the fluency skill scores due to the main effect of the learner's gender in favor of female learners. The data showed no significant interactions between the speaker's gender and the learner's gender [$F=.354$, $p>0.05$].

Discussion:

1- Effects of the speaker's gender:

The findings revealed that female speakers were better than male ones in reading skills. Thus, this result was consistent with the results of some researchers such as Hamad (2010); Sedeik (2011) while it was inconsistent with Kulkarni (2000).

Also, the results revealed that there is no significant difference in the accuracy skill scores due to the main effect of the speaker's gender. But, there is a significant difference in the fluency skill scores due to the main effect of the speaker's gender in favor of female speakers.

Nass, Moon & Green, (1997) reported computer programs using female voices were rated as being more competent regarding "female topics" like love and relationships, whereas male-voice computer programs were estimated as being more competent regarding "male topics" like mathematics or computers.

I think that computer programs using female voices were rated as being more competent regarding language skills especially reading and fluency skills.

2- Effects of the learner's gender:

The data showed female learners were better than male ones in reading skills; and there is a significant difference in the accuracy skill scores due to the main effect of the learner's gender in favor of male learners. Also, there is a significant difference in the fluency skill scores due to the main effect of the learner's gender in favor of female learners.

Male learners were better than female ones in the accuracy skill while female learners were better than male ones in the fluency skill.

No matter what gender differences are primarily culturally or biologically determined, educational research in the last several decades has proven that the gender differences manifestly influence students' academic interests, needs, and achievements (Halpern, 1986; Collins, Kenway & McLeod, 2000; Swiatek & Lupkowski-Shoplik, 2000). However, different educational domains have different claims to the gender issue. The theorists of Second Language Acquisition (SLA) believe that female learners show possible superiority in their second language learning process (Ehrlich, 2001).

3- Interactions between the speaker's gender and the learner's gender:

The data showed no significant interactions between the speaker's gender and the learner's gender in reading skills and in each reading sub skill whether in the accuracy skill or the fluency one.

The designers of language instructional computer programs do not need to reconsider the interaction effect between the speaker's gender and the learner's gender when designing multimedia programs.

Conclusion:

With respect to the speaker's gender, the data revealed a bias in favor of female speakers, who were rated as being better than male speakers in reading skills. This latter finding on learning outcomes will be referred to as the speaker's gender effect.

Based on gender schema theory, it was suggested that the perception of the speaker's gender might be mediated by individual-difference variables, particularly the sex-role orientation of the learners.

The interaction between the masculinity of the learner and the speaker's gender indicates that the availability of the gender schema may interact with gender-related social cues. This implies that individual differences may act as a mediator for the impact of social cues on learning outcomes.

Female learners were better than male ones in reading skills and the fluency skill while male learners

were better than female ones in the accuracy skill. This refers that males are better than females in subjects that need accuracy such as maths, science and programming while females are better than males in subjects that need fluency and using language such as languages and broadcasting.

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