

Influential factors for gender differences in L2 learning

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Abstract. As language evolves and changes one gradually discovers the differences and characteristics of its acquisition in both genders. When it comes to second language learning, a number of internal and external factors are responsible for its impact. This paper examines gender differences in second language acquisition by looking at psychological factors and motivations, including personality, self-esteem, tension, internal motivation and the brain structure of learning, as well as the multiple ways in which learning occurs and the stereotypes that exist in society. Based on an extensive literature review and findings from a wide range of scholars, this paper concludes that there are multiple reasons for gender differences in second language learning ability. Individual personality and physiological functioning can have varying degrees of influence. Differences in learning ability can also arise when guided by different learning styles. In addition, existing social prejudices and stereotypes, as well as the home environment, may also contribute to gender differences in second language learning.

Keywords: second language learning; gender stereotype; motivation.

1. Introduction

Second language acquisition results from an integration of various influential factors. Different learners are influenced by different social factors and different ways of thinking, which affect their second language learning. From the development of history to the present, the problem of gender equality still exists in the field of education. Men are regarded as better at science subjects, while women are better at languages. Nonetheless, this argument is not compatible with rigorous data. As second language learning has been a widely discussed topic in contemporary society, issues regarding the influencing factors for second language acquisition attract many researchers' attention. According to previous studies, men and women present distinctive features in second language learning due to their diverse social influences and learning styles. The distinctiveness toward learning a second language may vary depending on the influence of parents, teachers, perceived academic difficulty of the subject, career aspirations, and gender stereotypes. This problem has aroused wide concern in this field. To explore the influencing factors of second language learning from diverse gender perspectives, this paper will be divided into two parts to discuss, respectively personal factors and social factors. The authors analyzed the individual factors that lead to the different status of learning a second language in different genders in the first part and analyzed which social factors cause different gender to have different states in second language learning in the second part.

2. Individual factors causing L2 learning differences

2.1 Psychological factors and motivation

2.1.1 Personality

Affective personality factors play a very important role in language learning. Personality factors include self-esteem and anxiety, while the process of learning involves two domains: cognitive and affective. According to Brown's definition, the cognitive domain refers to the psychological aspects

of human behaviour, while the affective domain refers to the emotional aspects of human behaviour. [1]. There are five levels of emotion that are still widely used today: reception, response, evaluation, organisation and value systems [2]. Self-esteem and insecurity are also part of emotions. An important assumption for the general public is that extroverted learners are faster and more successful than introverted learners. Some researchers believe that because extroverts are sociable, talkative and outgoing, they engage more easily with other second language speakers, have more knowledge and therefore have more opportunities to improve their speaking and listening skills. On the other hand, introverted learners may be inferior to extroverted learners in face-to-face communication, but they are able to improve their cognitive language skills, perform better in school and put more time and effort into learning language forms such as reading and writing.

2.1.1.1 Self-esteem

Self-esteem has a crucial impact on students' ability to learn languages. Self-esteem is defined as "a personal value judgement expressed by an individual's attitude towards himself or herself and indicates the degree to which the individual believes in his or her own abilities, importance and value." [3]. A 1979 study found a strong link between task self-esteem and performance on speaking tests [4]. Second language learners who are motivated, confident, have high self-esteem, and have a good self-image tend to be better language learners. Thus, self-esteem has a strong influence on language learning, and students with higher self-esteem are more likely to be successful in learning a second language.

2.1.1.2 Anxiety

Anxiety is another major emotional determinant for second language learners. Most people experience anxiety when learning a second language, and Scovel argued that anxiety is associated with emotions such as fear, frustration, self-doubt, uneasiness, and worry [5]. In recent years, several studies have shown that language anxiety affects the learning of a second language. Language anxiety consists of three components: communication anxiety, anxiety about negative social evaluations, and test anxiety. Communication anxiety refers to anxiety about communicating with others. Students who experience communication anxiety may not be involved in communication or may be more unresponsive, which has the negative effect of making them appear less competent, less motivated, and less likely to participate in class discussions. Low student participation can also distract the teacher, which further increases communication anxiety and creates a vicious cycle. In addition, people who fear negative evaluations feel uncomfortable and distressed in their relationships. Fear of negative evaluation affects students' ability to express themselves verbally. On the one hand, students want to make a good social impression on others; on the other hand, they are afraid of making mistakes. Therefore, they prefer to remain silent rather than actively communicate. Test anxiety includes excessive physiological excitement, anxiety, and fear in the face of exams. Test anxiety can negatively affect motivation, attention and performance, increase errors in the learning process, and decrease interest in language learning.

2.1.2 Internal motivation to learn

With the exception of perseverance, male and female students responded to the same extent on all learning power indicators. However, previous studies evidenced that language learning has certain advantages for girls. Some researchers developed a Second Language Learning Ability Questionnaire based on the constructs of students' second language learning ability designed by Koedinger et al. in 2012, which was adapted to the actual situation of English majors [6]. The results of the study show that girls are more likely to complete learning tasks of the same difficulty than boys, and therefore they receive more positive reinforcement, such as self-efficacy, and are therefore more internally motivated. The reasons for this phenomenon are related to the different cognitive processing styles of girls and boys. In addition, the researcher found that girls tend to devote more time and effort to learning than boys, and they are more internally motivated to learn, through post-hoc interviews with the participants combined with classroom observations. Therefore, the difference in language learning between girls and boys is due to the fact that internal motivation drives girls to devote more time to

language learning after school, while boys are reluctant to devote more time to language learning due to the lack of such internal motivation.

2.2 Brain structure

From the biological point of view of modern brain science, the ability to acquire a second language is linked to people's cognitive abilities. The field of cognitive development and research history has proposed three views on gender differences in the acquisition of a second language in relation to the cognitive module of individual differences: gender differences will lead to distinctive developmental directions of respective linguistic abilities for men and women; the functional functioning of male and female brain structures has specific tendencies for second language acquisition; and differences between the left and right hemispheres of men and women affect the speed of learning a second language [7].

2.3 Learning styles

Gender differences in second language acquisition are highlighted in differences in learning styles. Due to the different cognitive styles, sensory preferences and learning strategies of men and women lead to behavioral biases in the learning of a second language.

2.3.1 Differences in Cognitive Styles

There are many types of cognitive styles, such as field-independent and field-dependent types, contemplative and impulsive types, etc. These different types of cognitive styles are expressed in the process of second-language acquisition as to whether they are dependent on the environment and whether they actively communicate in second-language situations.

2.3.1.1 Field-dependent and field-independent learning styles

Bruno's research shows that male learners are usually field-independent, while females tend to be field-dependent [8]. People with field independent learning type find it easy to identify independent elements from more complex backgrounds, separate parts from the whole, and analyze a certain factor without being affected by related factors. These people usually have good spatial ability, logical thinking and analytical ability. Field-dependent people, on the other hand, seeing the environment as a united whole, are not good at separating individual parts from the whole [9]. Independent learners tend to be outside the environment and they are good at establishing their own learning goals and conducting independent learning. Field-dependent learners, on the other hand, are susceptible to external cues and are suitable for lecture-based learning, and their learning is dominated by extrinsic motivations. Field-dependent learners are more suitable for participating in various foreign language activities such as English Corner, English Debate Competition, English Speech Contest, etc. From Witkin's theory, he predicts that women are more likely to be sociable and have field-dependent style, to the contrary, men often have good spatial ability and field-independent style [10]. As a result, women predominate in areas for L2 learning, which requires a more holistic approach and strong social skills. The vast majority of women progress and improve faster in spoken English pronunciation and fluency than men.

2.3.1.2 Reflective and impulsive learning styles

Reid argues that impulsive students are able to respond immediately to a teacher's questions and do not care about right or wrong [11]. Reflective cognitive style refers to the work and study habit of thinking carefully and comprehensively considering various possible solutions, weighing the pros and cons, and then choosing the best solution from them. In the Belenky et al. study, women are accustomed to reflecting before judging a problem, and thus exhibit a reflective learning style, which has resulted in producing more fluent languages and greater empathy [12]. The men in the study were quick to conclude, interrupting conversations, which exhibit an impulsive learning style. Therefore, men tend to adopt impulsive learning styles in second language acquisition, while girls prefer reflective learning styles.

2.3.2 Sensory Preferences

Sensory preference is an important channel for students to obtain linguistic information, mainly through sight and hearing. Different students tend to get language information in different ways. Some students prefer to learn L2 through visual stimulation, such as reading articles and watching language-related videos. There is no gender difference in the nature of language learners in terms of visual learning, as the vast majority of learners adopt visual learning methods. A study by Hansen showed that in second-language classrooms, men prefer kinesthetic and tactile learning over women [13]. This is related to the fact that men are mostly field-independent cognitive styles and have strong spatial abilities. Farhady graded 800 college students and found that women outperformed men in hearing comprehension [14]. So women students prefer to discuss, communicate with others, and read out to practice pronunciation when they learn the second language.

2.3.3 Learning Strategies

Oxford believes that the strategies for learning are all the actions that learners take to promote learning [15]. The proper use of learning strategies can greatly contribute to the outcome of language learning. Men prefer planning and formal discipline, while women prefer strategies of effort and functional discipline. Numerous studies on gender and secondary acquisition confirm differences between women and men in the use of learning strategies. Overall, women use more learning strategies than men and use them more frequently in L2 learning.

Zhou's research suggests that girls prefer direct learning methods, so they will choose memory strategies more [16]. When they memorize words, they will think of related synonyms or antonyms, which are mainly related to their rich imagination. Boys, on the other hand, are better at creative thinking, so they are better at creating new words according to word formation to make up for the lack of vocabulary. Ehrman and Oxford found that women use L2 learning strategies such as general study strategies, negotiation strategies, self-management strategies and functional practice strategies significantly [17]. Women are better at using a variety of learning strategies to improve themselves than men and also learn more efficiently.

There are certain differences between male and female thinking. The general view is that in terms of the form of change in thinking, female thinking is divergent while male thinking is focused. In terms of the type of thinking, female thinking is figurative thinking or artistic thinking, while male thinking is a more abstract one. In terms of the speed of change in thinking, male thinking is slower than female thinking. These three differences in thinking lead to differences in their learning styles and approaches. Therefore, thinking difference is reflected in the following areas: when learning a second language, males focus on the systemic nature of knowledge; also, because of the abstract nature of their innate thinking, males lack a focus on the systemic nature of knowledge when acquiring a language, which reduces the integration of knowledge in the second language when communicating and learning. The female brain organism, due to its divergent thinking feature, increases the number of connections between knowledge systems but reduces the attention to detail in a single knowledge system, resulting in a high error rate in the details of the knowledge system when solving problems and communicating.

3. Social factors causing L2 learning difference

3.1 Stereotypes from family

Second language learning is, mainly divided into four parts: listening, speaking, reading and writing. Previous research shows language participation and achievement are predominantly the domain of women. However, in the Wucherer and Reiterer's research, it was found that men are better than women in their ability to imitate speech, namely pronunciation [18]. Women, on the other hand, outperformed men in grammar. This shows that men are superior to women in some ways.

According to previous studies, gender differences in second language learning result from parental influences. In specific, parents' educational level and companionship during the learning process will

influence how children acquire a second language. As a result, different genders have different motivations to learn a second language due to their parents' views. Several studies show that family background has a great influence on children's second language learning. There is a positive correlation between the educational background of both parents and the second language learning level of children, indicating that the higher the educational level of parents, the higher the second language learning level of children [19]. Other studies have pointed out that during the early development of children's language system, parents' correct companionship and encouragement can help children develop a mature language system and increase their willingness to contact new things in the future, such as second language learning. In the study of Jones [20], it is pointed out that females have more motivation to learn English than males, because families hold different views on language learning for different genders [20].

Most parents have different opinions and expectations about different genders. Due to the gender stereotypes that women face in society, parents think that women should be engaged in stable jobs with free time such as teaching or clerical work. Because this kind of work suits women to face the free time they need to take care of their home and children. In the workplace, most of the top management in many companies are held by men, and many women have to choose between focusing on their family and giving up their career or moving up the ladder and losing more time with their family and children [21]. In addition, many companies prefer male employees when faced with different genders with the same educational background and both have the same skills [21]. Because male employees can focus more on their careers and don't need to get pregnant. Therefore, many parents believe that women learning a second language is conducive to their future career development and can be engaged in discretionary work such as teaching. Many women agree and believe that learning a second language can improve their competitiveness. Nonetheless, men think they are better at science and don't need the time to learn a second language. The parents' view is that men can start their careers earlier and learn the second language they need to communicate in a social setting. Thus, family perceptions also influence gender motivation to learn a second language. It can be seen that parents' opinions can affect children's development in second language learning. Parents' companionship and support can also affect children's development in second language learning.

3.2 Stereotypes from teachers

School teaching is divided into classroom interaction, curriculum teaching and classroom atmosphere, which may lead to gender and racial inequality to some extent. Women and minorities have statistically lower levels of achievement and participation in math and science than most men. Teachers' opinions can influence students' decision to learn a second language or other subjects. Gray found in his research that many second language teachers changed the textbooks to suit their own teaching because they did not adapt to the textbooks and thought the textbooks did not conform to the cultural context they understood [22]. Foreign language learning is taught by language teachers with their own subjective ideas and personal experience [23]. Whether it is a second language or multi-language learning, teachers have a great influence on students. Many second language teachers are mostly women. In the second language learning class, female teachers have different teaching attitudes towards different genders. Students of different genders have different attitudes towards teachers when learning a second language, so students also have different attitudes towards learning. Female second language teachers give more attention and support to students of the opposite sex, but more second language teachers will recognize the outstanding performance of female students in the language performance [24]. It can be seen that the views and attitudes of second language teachers can affect the status of second language learning of different genders.

3.3 Social influence on different genders in learning a second language

Cornell once put forward a view on masculinity [25]. This view holds that there is not only one masculinity but also many masculinity, each of which is associated with different power and status [26]. Both men and women have fixed thinking in society. In terms of subject learning, men are

believed to be better at mathematics and science, while women are better at language [27]. When it comes to learning foreign languages, boys opt out of language learning in large part due to the influence of sociocultural pressure to conform to the "out-of-school" hegemonic version of masculinity [28]. Due to gender differences in the society, men rarely learn a second or third language after mastering their mother tongue because it is less helpful for employment, while women learn a second language because they can see the help of language for future employment [27].

In the study by Van der Slik et al., Dutch was used as a second language to compare the language proficiency of different genders [29]. It was found that there was no obvious difference between men and women in the level of second language acquisition. Although women performed better than men, men still had better mastery than women. In the experimental study by Van der Slik et al., it is believed that there are differences in spoken language [29]. Speaking examiners may have a more relaxed attitude towards women compared with men. In the context of second-language social life, proficiency in the dominant language is thought to be possible because it improves their social status and helps them gain more social life and economic freedom. In addition, social situations in other countries need to be discussed separately. For example, female second language learners in some countries face limited opportunities to be away from home and exposed to speakers of different languages. If they want to learn a second language, the language skill they focus on and excel at is more likely to be reading. This can undoubtedly be seen as a gender-related pattern of acculturation. Genetic or problem-based learning is not excluded in both male and female first and second language learning. However, it is mainly due to the interaction between social influences given by different genders that different genders have different degrees of impact on second language learning and mastery.

4. Suggestions

Based on the differences in cognitive styles, sensory preferences, and learning strategies between men and women in their second language learning styles, the followings are guides to improve students' second language learning and teachers' teaching methods.

4.1 Teach Students in Accordance with Their Aptitude

Cognitive Style is the comparatively stable and unconscious first choice learning style possessed by an individual, while teaching strategies are flexible, designed and adaptable to the nature of the specific learning task. Teachers can carefully observe the learner's speech and note-taking in class to understand the learner's personality and cognitive style characteristics, so as to choose effective teaching strategies.

Teachers can use various means to induce students to change their styles in teaching to make up for the lack of cognitive differences. The learning styles of male learners are mostly field independent and impulsive. For these learners, teachers should encourage them to ask bold questions and participate in discussions and express their ideas in the class, and actively participate in extracurricular programmes. In English listening and speaking training activities, teachers should provide more training opportunities for learners with strong independence in the field. What is more, male students speak enthusiastically in class though with mistakes. Teachers should be more concerned about them and correct their mistakes in time.

Conversely, female learners tend to be self-dependent and reflective. Teachers should give them more guidance and inspiration. Educators can assign more learning tasks that need to be completed independently, enhance the subjective initiative of learners, and cultivate their awareness of independent learning. Besides, teachers can train female learners to learn to make realistic plans to enhance students' motivation to complete tasks. In this way, learners are empowered to learn independently and interactively. Teachers also should be patient enough to give them enough time to think, so they can express well-thought-out ideas that are more accurate.

4.2 Sensory Exercises

Because in second language acquisition, women have an advantage in hearing, and men have more advantages in touch and kinesthetic, teachers should continuously improve teaching methods, guide students to learn English in various forms and ways, and strive to create a good classroom atmosphere for students. Teachers can use various multimedia resources to carry out multimodal teaching frequently, stimulate boys' auditory perception through video and audio, etc. to improve boys' listening skills and make teaching content available in a vivid and insightful form. In addition, more activities should be organized by teachers, both inside and outside the classroom, create a real language environment for girls, and provide students with more opportunities for language output and practice.

4.3 Learn to Apply Learning Strategies Correctly

According to the gender differences in learning habitual models, teachers should make students aware of their own learning habits so that they can adapt their learning behaviour and learning environment to suit their unique learning habits. In view of the students' conflicting learning patterns, teachers should use more diverse teaching methods to guide students to adapt to and transcend different learning models. At the same time, teachers should encourage boys to use more learning strategies through strategy training, because they have a relatively simple understanding of learning strategies. Teachers can also understand the learning strategies that students are employing and help students recognize which ones are better suited to them. Teachers should not impose a type on students but should provide male and female students with the opportunity to make full use of their learning abilities. Students themselves should also consciously master and apply a variety of learning strategies to achieve the desired learning results.

5. Conclusion

The above studies show that there are various reasons for gender differences to perform distinctively in second language acquisition. Overall, the female group has a better second language acquisition effect than the male group. In terms of individual factors, the different psychological factors and motivation, brain structure and learning styles of male and female learners lead to different second language learning outcomes for men and women; in terms of social factors, stereotypes from family, teachers and social perceptions are important factors that contribute to gender differences in second language acquisition. This study argues that teachers should help develop students' initiative and motivation to learn a second language and guide them to participate in learning with a correct and positive attitude. As teachers, it is necessary and obligatory to help students to improve their overall second language learning ability. More importantly, it is important to create a good independent learning environment, design classroom teaching according to gender differences, tailor teaching to students' needs, help them find learning strategies that suit them, and consciously guide the elimination of gender bias in second language acquisition during teaching. This paper is only based on relevant literature and data, which results in certain limitations in the study. Besides, the suggestions in this paper are not comprehensive enough and do not take into account the social implications. After all, eliminating the gender gap in second language acquisition cannot rely on teaching alone, but also requires one's own efforts and social support. This paper theoretically summarizes the gender differences between the influencing factors and second language acquisition, and provides some specific L2 teaching skills in practice, which is of certain enlightening significance for further expanding teaching ideas, implementing individualized teaching, and promoting teaching equity.

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