Imagination, Senses, and Motivation: How are Sensory Styles, Imagery Capacity, and Gender Related to Motivational Attributes of Iranian EFL Learners?

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Abstract

Recent research on the second language (L2) motivation emphasizes the significant role of personal vision and future-oriented self-images on L2 learners’ motivation. This role is even more important in EFL contexts where learners have scarce access to authentic communicative situations. Therefore, EFL learners’ capacity to form vivid images can have an essential role in enhancing their motivation to learn. This article reports on a research study that investigated the potential links among Iranian EFL learners’ imagery capacity, sensory styles, gender, and future L2 self-guides (ideal L2 self and ought-to L2 self). A total of 311 adult Iranian EFL learners responded to a self-report questionnaire. Several correlations, multiple regressions, and t-tests were performed to analyze the data. The results revealed a significant association between EFL learners’ imagery capacity and their future L2 self-guides. The findings show that higher ability in generating mental images is strongly related to improved future L2 self-guides and increased motivation. Also, the results demonstrate that both visual and auditory sensory styles are involved in forming imagery and vision, and are both positively associated with EFL learners’ capability for imagining their future L2 self-guides. However, the analyses failed to find any significant connection between kinesthetic style and imagery capacity or L2 self-guides. Additionally, it was shown that self-guides, sensory styles, and imagery capacity are not affected by gender. The results indicate the multisensory nature of vision and imply the potential benefits of visualization and imagery training in the language classroom.

Keywords: Imagery capacity, Sensory style, Self-guides, Gender, Motivation

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INTRODUCTION

Ever since Dörnyei introduced his theory of the L2 motivational self-system (L2MSS) (2009), research on L2 motivation has entered a new era. His ground-breaking model is based on three major components: ideal L2 self (learners’ internal desire to master the L2), ought-to L2 self (external pressures requiring the learner to master the L2), and L2 learning experience (learners’ immediate experience and attitude towards their learning situation) (Dörnyei, 2009).

The L2MSS is originally founded on the psychological notion of possible selves (Markus & Nurius, 1986) which relate to the future-oriented aspects of the self-concept. They construed possible selves as “specific representations of one’s self in future states, involving thoughts, images, and senses, and are in many ways the manifestations, or personalized carriers, of one’s goals and aspiration” (Markus & Nurius, 1986, p. 954). As a matter of fact, possible selves denote future self-states rather than current states by drawing on the forward-looking hopes, wishes, aspirations, obligations, and fears. Therefore, they are essentially imaginative and involve personalized tangible images and senses which form reality to people (Segal, 2006). The perception of the discrepancy or distance between one’s current state and the vision of their imaginative future-oriented possible selves will be conducive to increased motivation and exertion of more effort. Thus, the main tenet of the L2MSS is that the ideal L2 self and the ought-to L2 self has the power to regulate and guide human behavior. That is why they are also called future self-guides (Dörnyei, 2009). The L2MSS postulates that the motivation focuses on the learners’ vision of their ideal and the ought-to L2 selves (Dörnyei, 2014).

Evidently, the motivational power of vision and future self-guides is crystalized through imagination (Dörnyei & Chan, 2013). Subsequently, the intensity of motivation depends, at least partly, on learners’ capacity to form vivid mental images (Dörnyei & Chan, 2013; Fukada, Fukuda, Falout, & Murphey, 2011; Safdari, 2019; Sampson, 2012). Besides, as Dörnyei and
Kubanyiova (2014) state, the crucial difference between vision and goal is that the former includes sensory elements (visual, auditory, olfactory, or tactile) while the latter is abstract and cognitive. The vision includes vivid and tangible mental images that involve sensory experience too so that the vision of achieving a desirable position exceeds the sheer abstract goal of getting there and is rather realized via the sensory experience of being there (Dörnyei, Henry, & Muir, 2016; Dörnyei & Kubanyiova, 2014). This becomes significant when seen in the light of neurobiological evidence indicating that human brain is incapable of distinguishing actual physical events from a mentally simulated scenario; thus, the mind activates the same neural processes when it receives actual sensory data and when it simulates the data through imagery (Cox, 2012; Moulton & Kosslyn, 2009; Reisberg & Heuer, 2005). Drawing on these findings, Dörnyei (2009) maintains that images and senses are indispensable constituents of future self-guides. The major postulation is that L2 learners with more tangible, vivid, and elaborate ideal selves tend to generate more motivation and intended effort to learn the target language than those who fail to crystallize a future-oriented vision.

A small number of other studies delved into the association between motivation, imagination, and sensory style preferences. Al-Shehri (2009), for instance, showed that Saudi students’ visual style and imagination capacity are closely related to the ideal L2 self. Several studies, examining the same issue among Korean, Chinese and Japanese learners, reported a positive relationship between imagery capacity and both visual and auditory sensory styles (Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Kim & Kim, 2018; Yang & Kim, 2011). Similarly, Dörnyei and Chan (2013) confirmed that the same two senses are at work and can contribute to forming elaborate images. They suggest that the combined effect of both visual and auditory styles can bring about richer visions of the future.

Moreover, regarding the role of gender and its association with sensory style preferences, self-guides, and other motivational traits, there is a dearth
of informative studies. While there have been decades of research focusing on gender differences in L2 learning, and to a lesser degree on gender differences in L2 motivation, the mediating role of gender in specific self-related constructs and imagery capacity, especially within the L2MSS framework, has not received its due attention. Furthermore, the existing body of research demonstrates great local variation (Henry & Cliffordson, 2013; Iwaniec, 2019; Kim and Kim, 2018). In the context of Iran, the majority of studies show no significant gender differences concerning perceptual learning style preference and general L2 motivation (Akbarian & Qasemi Rezveh, 2018; Hemmati & Sharifi, 2018; Naserieh & Anani Sarab, 2013). However, a paucity of information about the possible differences between Iranian male and female learners’ imagery capacity and self-related motivational attributes exists that warrants study and scrutiny.

Notwithstanding the crucial association between imagery capacity, sensory style preference, gender, and motivational attributes, their relationship has not been sufficiently investigated. As mentioned earlier, the research studies, focusing on this subject, have been very scarce and the results obtained from them have proven indecisive. Besides, no such studies have been conducted in the Iranian context. Therefore, a need for further studies exists. This is specifically relevant since, as Ellis (2012) remarks, modern motivation research must get away from merely discovering motivation-achievement relationships and consider the underlying elements and processes by which motivation exerts its influence on the learners’ learning behavior and other contributing factors. Thus, the current study intends to investigate the potential associations between the components of L2 motivation and L2 learners’ imagery capacity and sensory style to see how such individual attributes are connected to L2 learners’ motivational disposition.
LITERATURE REVIEW

Vision and Imagery in L2 Motivation

Vision and imagery have been newly added to L2 motivation research; however, these concepts have much longer precedence in education and psychology (Dörnyei, 2014). The American educationalist, John Dewey, deeply believed in the education potentials of vision and imagery. Dewey (1897, as cited in Dörnyei & Kubanyiova, 2014) expressed his ideas about the issue:

I believe that much of the time and attention is now given to the preparation and presentation of lessons might be more wisely and profitably expended in training the child’s power of imagery and in seeing to it that he was continually forming definite, vivid, and growing images of the various subjects with which he comes in contact in his experience (p. 1).

Vision

As already mentioned, the motivational power of possible selves and future self-guides heavily depends on imagery and vision (Dörnyei, 2009; Henry, Davydenko, & Dörnyei, 2015; Markus, 2006). Vision can be characterized as “a personalized goal that the learner has made his/her own by adding to it the imagined reality of the goal experience” (Dörnyei & Chan, 2013, p. 455). Possible selves and future self-guides, that form learners’ ideal L2 self and ought-to L2 self, exert their motivational power through learners’ visions. In other words, an ideal self is a personalized vision that characterizes the person that one wishes to become. Similarly, a feared self is a personalized vision of the person one is afraid of becoming (Boyatzis & Akrivou, 2006).

According to van der Helm (2009), vision is necessary for people to converge their actions and efforts into a desired future direction. van der Helm emphasizes the key role of vision in helping people to coach
themselves to change through realizing their dreams. Markus (2006) believes that people spend a large amount of time on envisaging their future. Klinger (2009) tried to measure this time by conducting a series of experiments that revealed that around half of human mental activities are primarily related to imagining future events and states. He believes that such daydreams are people’s reminders of their wishes and aspirations.

In discussing the basic tenets of the L2MSS it should be noted that the major difference between self-guides and future goals is the sensory element inherent in the future self-guides (Dörnyei, 2009; Dörnyei et al., 2016; Dörnyei & Ryan, 2015; Markus, 2006). Since vision is interconnected with the possible selves and self-guides, the same comparison is true between vision and goals. Dörnyei and Kubanyiova (2014) focus on this conceptual distinction by stating that “unlike an abstract, cognitive goal, a vision includes a strong sensory element: it involves tangible images related to achieving the goal” (p. 10). Therefore, the vision of becoming a doctor is more than the abstract goal of obtaining a degree in medicine and involves seeing oneself receiving the degree and practicing as a doctor. Adding sensory elements to a goal renders it personalized and allows the individual to transport his/her identity into the desired future state to experience it (Muir & Dörnyei, 2013; Vasquez & Buehler, 2007).

Vision is significant because individuals’ current engagement and activities depend on their envisioned future selves. Positive vision creates positive emotions and facilitates language learning (Munezane, 2015). As a case in point, Safdari and Maftoon (2017) showed how an imagined vision of a desirable future state can intensify an L2 learner’s motivation and, consequently, redouble her effort and persistence to learn the target language. As Higgins (1987) explains, perception of the discrepancy between the current state and the imagined future vision motivates an individual to take action and travel the distance. That is why creating vivid and thought-out images of future selves are critical to the success of using vision as a motivational tool (Dörnyei et al., 2016). It has been demonstrated that learners’ capability to generate mental imagery determines the intensity
of the resulting motivation (Renner, Murphy, Ji, Manly, & Holmes, 2019). They highlight the significant role of mental imagery in constructing vision and nurturing motivation.

**Imagery**

Imagery could be understood as an “internal representation of a perception of the external world in the absence of that external experience” (Hall, Hall, & Leech, 1990, p. 28). Imagery is described as the ability to transcend the time and space just like looking at the apple seed and seeing a tree (Dörnyei, 2014). While imagination is commonly associated with visualization and seeing, Weinberg (2008) states that imagery is the creation of mental images through various sensory modalities, such as visual, auditory, tactile, and olfactory. Imagery can be distinguished from daydreaming in that the former is a deliberate, directed, and the purposeful process by which individuals can focus on a future goal in a disciplined manner (Klinger, 2009), while daydreaming does not follow a purposeful and intentional arrangement.

As Markus and Nurius (1986) suggest, possible selves contain tangible images and senses that provide people with the same thoughts and feelings that they may experience in real-life and actual situations. In other words, through imagination, possible selves form a reality for people by which they can see and hear their future selves (Dörnyei, Muir, & Ibrahim, 2014). Dörnyei and Ryan (2015) maintain that detailed and vivid images of the self are powerful in pushing individuals to engage in pursuing their goals. Dörnyei (2014) believes that those people who possess richer self-images are motivationally more potent than their peers who lack such images. Not only the richness of the details but also the frequency of envisaging the ideal L2 self are positively correlated with high levels of motivation and effort (Hessel, 2015). In a similar vein, MacIntyre and Gregersen (2012) emphasize that repetition of images and vision will help reduce anxieties and worries about future events. Trying to connect the theoretical concepts
to practical action, You and Chan (2015) explain that generating positive images of future end-states can potentially lead to the development of the necessary plans and strategies for attaining the intended goals. Similarly, some other studies (Al-Shehri, 2009; Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2018) converge in suggesting the effective role of elaborate and clear images in motivating L2 learners. In terms of the imagery ability or the capacity of individuals to imagine and visualize, Gould, Damarjian, and Greenleaf (2002) underscore the necessity of imagery training: “imagery is a skill like any other, requiring consistent effort to attain a high level of proficiency” (p. 70).

**Vision, Imagery and Sensory Style Preferences**

Another issue that attracted the attention of researchers was the relationship between imagery capacity and sensory style preference. Imagery capacity is considered “an individual’s capability of forming vivid, controllable images and retaining them for sufficient time to affect the desired imagery rehearsal” (Dörnyei & Chan, 2013, p. 443).

Al-Shehri’s (2009) study shows that students’ visual style and imagination capacity are closely related to the ideal L2 self. He reports that students with higher visual and imagery abilities are likely to produce more vivid ideal selves which leads to increased motivation. Kim (2009) and Kim and Kim (2011) report a positive relationship between imagery capacity and both visual and auditory sensory styles. Kim and Kim (2014) focused on the relationship between perceptual learning styles, English learning motivation, and achievement. They examined more than 2600 Korean EFL learners’ visual, auditory and kinesthetic styles, and their relationship with imagery capacity, ideal L2 self, motivated behavior, and proficiency. Their findings suggest that both visual and auditory styles are positively correlated with motivational variables and language proficiency. These results were obtained from primary and secondary level students. Later on, Kim and Kim (2018) came up with comparable findings among college students. Dörnyei and Chan (2013), too, confirmed that imagery and visualization are closely
connected to future self-guides. They affirm that vision is not unidimensional and does not depend on visualization alone. Corroborating Kim and his associates’ conclusions, they suggest that both visual and auditory senses are at work and can contribute to forming elaborate images. All of these studies agree on the key role of visual and auditory styles (visual style being stronger), imagination, ideal L2 self, and motivated behavior; whereas, none of them could find any significant correlation between kinesthetic style and the other variables.

**Gender**

Research on gender issues in second or foreign language learning has a long history and a variety of language learning variables have been assessed against gender difference; however, the role of gender in L2 motivation has been much less explored (Iwaniec, 2019). Even less probed are the more recent motivational attributes which have emerged in the wake of the L2MSS. Among the existing literature from different countries, a few have suggested that L2 motivation and self-guides can be affected by gender differences. For example, studies conducted in Japan (Ryan, 2009; Yashima, Nishida & Mizumoto, 2017), China (You & Dörnyei, 2016; You, Dörnyei & Csizer, 2016), Korea (Kim & Kim, 2011), and England (Courtney, Graham, Tonkyn & Marinis, 2017) concluded that female learners have some kind of advantage over their male peers, though only in a few motivational factors. On the other hand, several other studies revealed contrastive results. For instance, the results of some studies in Poland (Iwaniec, 2019), Sweden (Sylvén & Thompson, 2015), and Turkey (Thompson & Erdil-Moody, 2016) support the notion that gender does not exert a significant influence over self-related motivational traits.

In Iran, several research studies have indicated that gender differences do not significantly affect learners’ perceptual learning style preferences (e.g., Akbarian & Qasemi Rezveh, 2018; Pishghadam, 2008; Naserieh & Anani Sarab, 2013). Additionally, Hemmati and Sharifi (2018), in their
extensive meta-analysis reviewed 177 research articles containing data about gender differences in EFL learning. Their findings showed no significant difference between male and female learners’ success and achievement in Iran. As far as the links between gender and either self-guides or imagery capacity are concerned, no academically sound study has been reported to scrutinize the potential relationships or effects. Thus, it seems that the literature is still opaque about how gender is associated with imagery, sensory styles, and motivational traits of L2 learners, especially in the context of Iran.

**PURPOSE OF THE STUDY**

The current study intends to explore the potential associations between the components of L2 motivation and language learners’ imagery capacity and sensory style to see whether such individual attributes are connected to Iranian EFL learners’ motivational disposition. Thus, the present study sought to answer the following questions:

1. Are there any relationships among sensory styles (visual, auditory, and kinesthetic), imagery capacity, future L2 self-guides (ideal L2 self, and ought-to L2 self), and motivated behavior?
2. How do sensory styles, imagery capacity, and future L2 self-guides predict motivated behavior?
3. Is there any gender difference in terms of sensory styles, imagery capacity, future L2 self-guides?

**METHOD**

**Participants**

Participants of the present cross-sectional survey study were recruited from eight language institutes across four provinces of Iran (three in Tehran, two in Mazandaran, two in Guilan, and one in Khorasan Razavi). Through snowball sampling, a couple of EFL teachers at two institutes were
contacted and invited to join the project. Then, the participating teachers introduced the researcher to some other colleagues who consented to take part and contribute to the study. Finally, there were a total of nine teachers who agreed to distribute the questionnaires among their students and collect the data. Since the questionnaires were distributed inside the classrooms, all of them were given back to the researcher, with a perfect return rate. Eventually, the study sample consisted of 311 adult Iranian EFL learners (197 females, and 114 males). Their ages ranged from 17 to 38 (mean= 22.66; SD= 1.8). The learners were at two proficiency levels (161 pre-intermediate; 150 intermediate). They attended English classes every week for two or three sessions, depending on the course program.

**Instrumentation**

To measure the variables and collect the data, a self-report questionnaire was utilized. The instrument consisted of two major sections. The first section contained the multi-item scales that measured respondents’ traits. There were seven scales which, in sum, incorporated 31 items. The full details of the questionnaire and the variables measured by the scales are as follows:

1. Motivated behavior: representing learners’ intended effort to learn English (5 items)
2. Ideal L2 self (5 items): representing leaners’ future-oriented desired self
3. Ought-to L2 self (5 items): representing perceived external pressures for success
4. Imagery capacity: the ability to form vivid mental images (5 items)
5. Sensory styles: visual (4 items), auditory (4 items), and kinesthetic (3 items) styles

The multi-item scales measuring motivational attributes and imagery capacity were borrowed from Dörnyei and Chan (2013), and those of sensory styles were taken from Cohen, Oxford, and Chi’s (2002) learning
style survey. Both sources have validated the scales and reported high validity estimates. The Persian version was subjected to a process of scrutiny. First, it was back-translated by three translators who were sufficiently competent in both Persian and English. Then, in a panel of experts, the products underwent comparison and discussion. Consequently, after a few minor modifications were made, the final version was agreed upon. In the next stage, the questionnaire was piloted. It was administered to a group of 20 adult EFL learners to see if they face any difficulties in reading and understanding the items. The students could easily read and understand all the items and did not report any problem in grasping the ideas included in the questionnaire.

An important point is that the questionnaire items were designed on a 5-point Likert-type scale, ranging from strongly disagree to strongly agree. However, in order to make the values quantifiable and statistically meaningful, instead of assigning the simplified 1-5 numerical range to answer points, the respondents were instructed to assign a number in a range of 1-100 (with intervals of 20) to their desired answer. For example, instead of checking strongly disagree (traditionally meaning 1), the respondents could choose a number between 1-20; for disagree 21-40; for neither agree nor disagree 41-60; for agree 61-80; and for strongly agree 81-100. This provides the respondents with a more extensive and meaningful range of options so that the chosen answer is a more accurate reflection of their opinions. There have been strong arguments against using the Likert scale in arithmetic operations due to its ordinal nature (Hodge & Gillespie, 2007; Wu & Leung, 2017). In lieu, statisticians suggest that researchers handle this problem by increasing the points and enabling the respondents to choose their numerical value. Therefore, bringing the numbers up to 100 facilitates quantification and statistical calculations of the data and justifies treating the data as interval and using parametric tests (Wu & Leung, 2017).

The second section of the questionnaire asked some questions to collect the respondents’ personal information such as gender and age. Besides, a salient and bold-typed note was added to the end of the questionnaire which
assured the respondents’ consent to fill in the questionnaire. A full unshuffled copy of the questionnaire can be viewed in the appendix.

**Data Collection Procedure**

Each of the cooperating teachers was instructed on how to administer the data collection instrument. Before distributing the questionnaire, they described the research purposes and reassured the students that their information and answers would be held confidential and used only for research purposes. They were notified that they do not have to write their names on the papers. Then, although the method of answering the items was exemplified in the questionnaire, to prevent any potential threats to the validity and reliability, the teachers explained the way the students were supposed to choose a number to represent their choices. Afterward, the questionnaire was administered and it took around 20 minutes to finish. The obtained data were put to statistical analysis by using SPSS version 22.

**RESULTS**

Before considering the dataset for answering the research questions, the descriptive statistics are summarized in Table 1. As depicted, Cronbach α indices of reliability of the multi-item scales are above .70 which confirm the internal consistency of the questionnaire, thus, rendering it a reliable instrument.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Number of items</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivated behavior</td>
<td>5</td>
<td>1</td>
<td>100</td>
<td>66.43</td>
<td>14.00</td>
<td>.88</td>
</tr>
<tr>
<td>Ideal L2 Self</td>
<td>5</td>
<td>1</td>
<td>100</td>
<td>68.18</td>
<td>15.22</td>
<td>.92</td>
</tr>
<tr>
<td>Ought-to L2 self</td>
<td>5</td>
<td>1</td>
<td>100</td>
<td>60.29</td>
<td>13.75</td>
<td>.83</td>
</tr>
<tr>
<td>Auditory sensory style</td>
<td>4</td>
<td>1</td>
<td>100</td>
<td>55.33</td>
<td>16.33</td>
<td>.72</td>
</tr>
<tr>
<td>Visual sensory style</td>
<td>4</td>
<td>1</td>
<td>100</td>
<td>70.08</td>
<td>11.68</td>
<td>.71</td>
</tr>
<tr>
<td>Kinesthetic sensory style</td>
<td>3</td>
<td>1</td>
<td>100</td>
<td>38.55</td>
<td>9.05</td>
<td>.77</td>
</tr>
<tr>
<td>Imagery capacity</td>
<td>5</td>
<td>1</td>
<td>100</td>
<td>69.11</td>
<td>12.38</td>
<td>.82</td>
</tr>
</tbody>
</table>
The first research question considers the potential relationship among sensory styles (visual, auditory, and kinesthetic), imagery capacity, future L2 self-guides (ideal L2 self, and ought-to L2 self), and motivated behavior. To answer the question, a correlational analysis was utilized. Initially, the Kolmogorov-Smirnov test was applied to ensure that the assumption of normality was not violated (see Table 2). Since the data proved normally distributed, a series of Pearson product-moment correlations were conducted. The results of all correlation analyses are summarized in Table 3. As Table 3 demonstrates, there are statistically significant relationships among several variables. Motivated behavior had significant positive correlation with ideal L2 self (r = .55, p = .000), ought-to L2 self (r = .35, p = .009), visual sensory style (r = .37, p = .000), auditory sensory style (r = .29, p = .036), and imagery capacity (r = .41, p = .000). Ideal L2 self revealed significant correlation coefficients with both visual (r = .39, p = .000) and auditory (r = .23, p = .011) sensory styles. However, kinesthetic sensory style, unlike the other two sensory styles, did not achieve any significant correlation with any of the other variables. As far as auditory sensory style is concerned, there was a significant correlation between it and ought-to L2 self (r = .22, p = .044) and motivated behavior (r = .29, p = .036). Auditory style was also associated with ideal L2 self (r = .23, p = .047). Furthermore, as displayed in Table 3, imagery capacity was significantly correlated with all other variables except the kinesthetic sensory style.

Table 2: Results of the Kolmogorov-Smirnov test of normality

<table>
<thead>
<tr>
<th>Variables</th>
<th>Kolmogorov-Smirnov</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>statistic</td>
</tr>
<tr>
<td>motivated behavior</td>
<td>.11</td>
</tr>
<tr>
<td>ideal L2 Self</td>
<td>.33</td>
</tr>
<tr>
<td>ought-to L2 self</td>
<td>.12</td>
</tr>
<tr>
<td>auditory sensory style</td>
<td>.16</td>
</tr>
<tr>
<td>visual sensory style</td>
<td>.23</td>
</tr>
<tr>
<td>kinesthetic sensory style</td>
<td>.74</td>
</tr>
<tr>
<td>imagery capacity</td>
<td>.18</td>
</tr>
</tbody>
</table>
The second research question focuses on the explanatory power of sensory styles, imagery capacity, and future L2 self-guides for motivated behavior. The major issue is how well these variables can predict the motivated behavior of L2 learners. Finding the answer to this question warrants a regression analysis. Thus, a standard multiple regression analysis was performed with motivated behavior (representing L2 motivation) as the dependent variable and ideal L2 self, ought-to L2 self, visual sensory style, auditory sensory style, kinesthetic sensory style, and imagery capacity as the independent variables.

The analysis was performed by evaluating the regression assumptions. With the use of Mahalanobis distance, no outliers among the cases were found. No cases had missing data and no suppressor variables were found N = 311. Multicollinearity diagnostics results are presented in Table 4. According to this table, all tolerance values are above .10 (a value smaller
than .10 indicates the possibility of multicollinearity). Also, all VIF (variance inflation factor) values are well below 10 (values above 10 indicate multicollinearity).

Table 4: Details of the multiple regression analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized coefficients(B)</th>
<th>Standardized coefficients(β)</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ideal L2 self</td>
<td>.253</td>
<td>.294</td>
<td>2.141</td>
<td>.001</td>
<td>.537</td>
<td>1.863</td>
</tr>
<tr>
<td>ought-to L2 self</td>
<td>.195</td>
<td>.228</td>
<td>1.088</td>
<td>.001</td>
<td>.788</td>
<td>1.269</td>
</tr>
<tr>
<td>auditory sensory style</td>
<td>.143</td>
<td>.152</td>
<td>1.219</td>
<td>.042</td>
<td>.348</td>
<td>2.853</td>
</tr>
<tr>
<td>visual sensory style</td>
<td>.212</td>
<td>.221</td>
<td>2.074</td>
<td>.001</td>
<td>.555</td>
<td>2.011</td>
</tr>
<tr>
<td>kinesthetic sensory style</td>
<td>.005</td>
<td>.009</td>
<td>0.103</td>
<td>.939</td>
<td>.988</td>
<td>3.477</td>
</tr>
<tr>
<td>imagery capacity</td>
<td>.206</td>
<td>.233</td>
<td>1.883</td>
<td>.008</td>
<td>.458</td>
<td>2.184</td>
</tr>
</tbody>
</table>

The results of the regression indicated that the six predictors explained 53.4% of the variance (R2= .617, R2Adjusted= .534). The ANOVA results showed that the regression result is statistically significant [F(6,304)= 32.41, p= .000]. Since the independent variables do not constitute a coherent theoretical model, the unique contribution of each factor is of greater importance here. The standardized coefficients, included in Table 4, reveal the contribution of each independent variable. Thus, as the Beta values demonstrate, the ideal L2 self makes the strongest unique contribution to explaining the dependent variable (Beta=.29), when the variance explained by all other variables in the model are controlled for. The second contributor is imagery capacity (Beta=.23) and the third in rank is ought-to L2 self (Beta=.22). Regarding the sensory styles, there seems to be a remarkable difference between the three styles. Visual style demonstrated a strong unique contribution and explanatory power for motivated behavior (Beta=.22). Auditory style (Beta=.15) came second in rank; it proved weaker than visual style, nonetheless, it showed a statistically significant predictive
power. On the contrary, the kinesthetic style (Beta= .009) were far weaker in explaining the dependent variable. It almost did not demonstrate any significant contribution.

Examining gender differences was the third aim of the present study. To accomplish this objective, an independent-samples t-test was run. The male and female participants were compared in terms of sensory styles, imagery capacity, and self-guides. After checking for the assumptions, a series of t-tests were conducted. The results are summarized and illustrated in Table 5.

**Table 5: T-test results comparing male and female learners**

<table>
<thead>
<tr>
<th>variable</th>
<th>Male learners</th>
<th>Female learners</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>mean</td>
<td>N</td>
<td>mean</td>
</tr>
<tr>
<td>ideal L2 self</td>
<td>114</td>
<td>66.75</td>
<td>197</td>
<td>69.12</td>
</tr>
<tr>
<td>ought-to L2 self</td>
<td>114</td>
<td>62.33</td>
<td>197</td>
<td>58.54</td>
</tr>
<tr>
<td>auditory sensory style</td>
<td>114</td>
<td>53.05</td>
<td>197</td>
<td>55.99</td>
</tr>
<tr>
<td>visual sensory style</td>
<td>114</td>
<td>71.27</td>
<td>197</td>
<td>69.88</td>
</tr>
<tr>
<td>kinesthetic sensory</td>
<td>114</td>
<td>39.14</td>
<td>197</td>
<td>38.01</td>
</tr>
<tr>
<td>style</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>imagery capacity</td>
<td>114</td>
<td>68.21</td>
<td>197</td>
<td>69.90</td>
</tr>
</tbody>
</table>

The descriptive statistics suggest that male and female L2 learners fit in very similar patterns in terms of different sensory styles, imagery capacity, and L2 self-guides. According to Table 5, there was no statistically significant difference between male and female L2 learners in any of the variables under investigation.

**DISCUSSION**

The purpose of this research study was to investigate whether there are any relationships among various sensory styles, imagery capacity, future L2 self-guides, gender, and motivated L2 learning behavior. First of all, the correlational analyses showed the presence of a significant positive link between the learners’ imagery capacity and their future self-guides, i.e. both
their ideal and ought-to L2 selves. This finding means that learners who had a higher ability at generating mental images possessed stronger and more vivid images of their hypothetical future L2 selves. Because future self-guides are imaginative by nature, an individual learner’s vision of his/her ideal L2 self or ought-to L2 self is inherently mental and abstract. Hence, the power of imagination bears remarkable responsibility to generate the necessary images. That is why it is not surprising to discover a significant link between the imagery capacity and both future self-guides. As Dörnyei (2014) emphasizes, the elaborateness and vividness of a future self-image are one of the conditions required for it to take effect. A possible self with insufficient specificity and detail could not elicit a proper motivational response. The interrelationship between imagery capacity and imagined selves is also highlighted by Boyatzis and Akrivou (2006) and Markus (2006) when they concluded that the dream or image of the desired future is the core content of the ideal self. In the same vein, Dörnyei (2009) asserts that it is this power of imagined reality that is critical to our understanding of how possible selves are formed and empower motivation. The findings can also be substantiated by some past investigations which found a similar connection between imagination and future self-guides (Al-Shehri, 2009; Dörnyei & Chan, 2013; Henry, Davydenko, & Dörnyei, 2015; Hessel, 2015; You & Chan, 2015; You, Dörnyei & Csizér, 2016).

The leading issue of the present study is how sensory styles are interrelated with imagery capacity and future L2 self-guides. Data analysis demonstrated that visual and auditory sensory styles were both significantly correlated with motivated behavior, future L2 self-guides, and imagery capacity. This is consistent with several previous studies including Dörnyei and Chan(2013), Kim (2009), Kim and Kim (2011, 2018), and Yang and Kim (2011). On the contrary, the kinesthetic style proved unrelated to any of the mentioned variables and showed not only insignificant but almost negligible correlations (never exceeding .07) with them. The findings of Kim and Kim (2018) corroborate this as well. Other known studies such as Dörnyei and Chan (2013) and Al-Shehri (2009) did not take kinesthetic
style into account. Moreover, the regression analysis indicates that both visual and auditory styles have predictive power for L2 motivated behavior, with visual style being a stronger factor, while the kinesthetic style was impotent in explaining any variance in the dependent variable i.e., L2 motivation. In sum, it can be extrapolated that adult Iranian EFL learners display an inclination towards both visual and auditory sensory styles whereas very little tendency towards kinesthetic style can be observed in them.

The strong correlation between imagery capacity and two sensory styles of visual and auditory suggests that imagination is multisensory. As Dörnyei (2009) believes, imagery may not be equated with sheer visualization. It is a stimulated mental activity that involves other senses too. The findings of the present study are in line with Dörnyei’s statement and imply that engaging both perceptual modes is associated with more robust imagery ability and more effective future self-guides. Using both sensory styles with equal frequency is associated with the more successful generation of mental images and creating vivid possible selves. This result could signal a probable privilege for those who rely on both perceptual styles. Kim and Kim’s (2014) findings, too, confirm the same contention.

Concerning gender differences, there was no difference between male and female EFL learners in any of the variables. Research findings on the role of gender in sensory style preferences are inconclusive. While in this study, both male and female Iranian learners demonstrated a tendency towards first, visual style and then, auditory style, Aliakbari, and Tazik (2011) came up with contrasting results in Ilam (west of Iran). Their findings indicate that female Iranian EFL learners prefer visual style but male students tended towards auditory style. In another study on Iranian EFL learners, Akbarian and Qasemi Rezveh (2018) reported no gender differences in terms of perceptual learning styles. Nonetheless, just to add to the ambiguity, they maintain that kinesthetic style is the most prevalent style among EFL learners with visual and auditory styles falling behind.
Furthermore, Naserieh and Anani Sarab (2013) offer outcomes which are in inverse with what other studies reveal. They hold that Iranian college students prefer auditory style over the others. Drawing on such disparate outcomes, it can be deduced that sensory style preference may depend on a plethora of ethnic, cultural, regional, academic, proficiency factors and a one-fits-all verdict cannot be reached.

Moreover, the results highlight no gender influence in imagery capacity and self-guides. Male and female learners performed similarly on both measures and demonstrated no significant difference. As mentioned previously, the existing literature on gender differences bears disparity. the findings of the present study match those of Campos (2014) and Lasagabaster (2016) who observed no gender differences in either possible selves or imagery capacity; nevertheless, there is substantial contradictory evidence to support gender differences. Some studies indicate a female advantage in mental imagery and self-guides (Henry & Cliffordson, 2013; Ryan, 2009; Yashima et al., 2017; You et al., 2016). Yet, a critical point is that most such studies have reported indefinite outcomes. For instance, while female learners have been reported to outweigh male learners in ideal L2 self, their ought-to L2 self measures were almost equal (Yashima et al., 2017). Furthermore, Henry and Cliffordson (2013) state that female supremacy in visualization does not seem to affect the components of L2 motivation. As these studies were conducted in entirely different social milieus, most of the contradictory findings might be reasonably ascribed to various social, cultural, and contextual factors.

CONCLUSION AND IMPLICATIONS

This study was an attempt to examine the interrelationship among future L2 self-guides, imagery capacity, and sensory styles. It was shown that imagery is a strong predictor of L2 motivation and remarkably associates with self-guides. Additionally, the results suggest that vision and imagination are not confined to visualization only and that imagination may be driven by
simultaneous coordination of visual and auditory senses. Hence, auditory stimuli and cues are comparable to visual ones in providing a platform for representing imagined objects, situations, and experiences. The major contention is that both auditory and visual styles can contribute to developing effective possible selves. This implies that the clarity, vividness, and elaborateness of the ideal L2 self and ought-to L2 self greatly depend on the ability of the individual learner to deploy his/her mental imagery capacity and enrich the images with ample sensory elements. The pedagogical relevance of the results pertains to the effectiveness of imagery training and visualization activities in improving learners’ motivation. Imagery is a trainable skill. L2 teachers can exploit the motivational potentials of imagery through implementing imagery techniques and nurturing L2 learners’ capacity to form vivid L2 self-guides (Safdari, 2019).

It was confirmed that visual and auditory sensory style preferences are significantly linked to L2 motivation and gender difference does not manipulate this relationship. Despite that, inconclusive findings and interpretations of the existing literature on sensory styles and gender differences impede straightforward pedagogical applications. It seems that many more research projects are warranted to uncover the underlying factors affecting Iranian EFL learners' preferences. A lot of different elements pertaining to context, gender, culture, etc. may impact a given learner’s inclination toward one or more sensory styles. The issue is still unclear and blurred; however, it is obvious that learners bring with them varying preferences and styles. Therefore, teachers can enrich their classes by utilizing different teaching styles and learning materials that appeal to an extended range of perceptual learning styles. Nevertheless, since visual style preference exceeded the other counterparts, it seems wise to allow a considerable portion of the pedagogical options to visually-oriented materials and activities. These might include various maps, charts, diagrams, pictorial sources (e.g., illustrated books or magazines), films, and demonstrated tasks.
References


Imagination, Senses, and Motivation: How are Sensory Styles, Imagery Capacity, and Gender-Related to Motivational Attributes of Iranian EFL Learners?


**Appendix**

<table>
<thead>
<tr>
<th>نتایج</th>
<th>کاملا موافق</th>
<th>موافق</th>
<th>نه موافق</th>
<th>مخالف</th>
<th>کاملا مخالف</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100-81</td>
<td>80-61</td>
<td>60-41</td>
<td>40-21</td>
<td>20-1</td>
</tr>
</tbody>
</table>

اکثر یا جمله ای کاملا موافق هستند، عدیدی از 81 تا 100 را بر اساس نظر خود انتخاب کنید و در مقابل هر جمله بنویسید. مثال: 

90. من به فوتبال علاقه‌مند هستم.
<table>
<thead>
<tr>
<th>باشگاه</th>
<th>Ideal L2 Self</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>میتوانم خودم را در حال مکانیکه به زبان انگلیسی باست در حال مکانیکه به زبان انگلیسی باست.</td>
</tr>
<tr>
<td>2.</td>
<td>من قادریم را به صورت کسی که به خویشی انگلیسی صحبت می‌کند بگیرم.</td>
</tr>
<tr>
<td>3.</td>
<td>میتوانم خودم را در حال تحسین در یک دانشگاه خارجی که دروسش به انگلیسی ندرس می‌کند صحبت می‌کنم.</td>
</tr>
<tr>
<td>4.</td>
<td>من میتوانم خودم را در آینده ببینم که دارم به زبان انگلیسی صحبت می‌کنم.</td>
</tr>
</tbody>
</table>
Imagination, Senses, and Motivation: How are Sensory Styles, Imagery Capacity, and Gender-Related to Motivational Attributes of Iranian EFL Learners?

<table>
<thead>
<tr>
<th><strong>Visual style</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. من در یادداشت‌هایم اشکال یا چیزهایی را ترسیم می‌کنم.</td>
<td></td>
</tr>
<tr>
<td>2. اگر مطلوب را یادآور نمی‌کنم، آن را بهتر به خاطر می‌بهرم.</td>
<td></td>
</tr>
<tr>
<td>3. من برای یادگیری بهتر از گذاری با رنگ استفاده می‌کنم (مثلاً با مازیک و هابیت‌های).</td>
<td></td>
</tr>
<tr>
<td>4. من یا دیدن و حوادند مطالعه که معلم روز تخله می‌نماید، بهتر یاد می‌گیرم.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Auditory style</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. وقتی معلم دستورالعملی را به من می‌گوید آن را بهتر می‌فهمم.</td>
<td></td>
</tr>
<tr>
<td>2. ترجیح می‌دهم با کوش کردن مطلب را یاد بگیرم تا با خواندن متن،</td>
<td></td>
</tr>
<tr>
<td>وقتی معلم در کلاس توضیح می‌دهد، با کوش کردن به او بیشتر یاد می‌گیرم.</td>
<td></td>
</tr>
<tr>
<td>چیزهایی را که شنیده‌ام بهتر از آنچه خوانده‌ام به خاطر می‌آورم.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Kinesthetic style</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. وقتی درس می‌خوانم باید در فاصله‌های کوتاه به خودم زنگ تفریح بدهم.</td>
<td></td>
</tr>
<tr>
<td>2. وقتی درس می‌خوانم باید همزمان یک چیزی هم بخورم.</td>
<td></td>
</tr>
<tr>
<td>3. اگر حرکت کنم بهتر یاد می‌گیرم (مثلاً پایم را تکان بدهم، راه برو، با صادم را برخی کنم)</td>
<td></td>
</tr>
</tbody>
</table>

لطفاً به دو پرسش زیر پاسخ دهید.

| سوال | پاسخ | نسبت
<table>
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</thead>
<tbody>
<tr>
<td>سن شما</td>
<td></td>
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</tr>
</tbody>
</table>

شما با یک پاسخ دادن و تحویل داوطلبانه این پاسخنامه موافقت خود را برای اینکه از محتوای آن بصورت راهنما تنها برای اهداف پژوهشی استفاده شود اعلام می‌دارید.