A Path-Analytical Investigation of Perceptual Learning Styles, Future Self-guides and L2 Motivation

Aycan DEMİR-AYAZ

Middle East Technical University, Ankara, TURKEY
aaycan@metu.edu.tr
ORCID: 0000-0001-8105-434X

Abstract: Studies have thus far established that learners with visual and auditory learning styles can create a strong vision of their ideal and ought to L2 selves, which positively affect their motivated L2 behavior and achievement. This study also investigated the interactions between perceptual learning styles, future self-guides, vision, L2 motivation, and achievement. Unlike the previous studies, the current one aimed to analyze the unidirectional linkages and the multifaceted linkages among the variables via path analysis. To do so, a quantitative research design was pursued using a composite instrument. The study was conducted with tertiary-level EFL learners in Turkey. Findings showed that visual, auditory and kinesthetic learning styles exerted significant influences on L2 motivation and achievement mediated by vision and future self-guides. Future self-guides had positive impacts upon L2 motivation, and both direct and indirect effects on L2 achievement. L2 achievement was strongly dependent on L2 motivation and actual L2 self. In proportion to these findings, addressing various learning style preferences in language education, providing vision training to the learners via external interventions, and creating a positive academic self-concept were proposed. Revisions can also be made in the L2 curriculum in line with these purposes.

Algısal Öğrenme Stilleri, Geleceğe Yönelik Benlik, Dil Öğrenme Motivasyonu ve Dil Öğrenme Başarısının Yol Analizi İncelemesi

Özet: Birçok çalışma görsel ve işitsel öğrenme stillerine sahip öğrencilerin ideal ve beklenen yabancı dil benliklerini güçlü bir şekilde görselleştirebildiklerini ve bunun da dil öğrenme motivasyonlarını ve başarılarını olumlu bir şekilde etkilediği ortaya koymuştur. Bu çalışma da algısal öğrenme stilleri, geleceğe yönelik benlikler, görselleştirme becerisi, yabancı dil öğrenme motivasyonu ve başarı arasındaki etkileşimleri incelemeyi amaçlamaktadır. Önceki çalışmalardan farklı olarak, sadece tek yönlü bağlantıları değil, değişkenler arasındaki çok yönlü bağlantıları da yol analizi ile analiz etmeyi amaçlamıştır. Bu bağlamda, birden fazla ölçek bir araya getirilerek nicel bir araştırma deseni yürütülmüştür. Araştırma verileri Türkiye'deki yabancı dil olarak İngilizce öğrenen üniversite öğrencilerinden toplanmıştır. Bulgular, görsel, işitsel ve kinestetik öğrenme stillerinin dil öğrenme motivasyonu ve başarısı üzerinde önemli etkiler yaptığını ve görselleştirme becerisi ve geleceğe yönelik benliklerin bu etkilere aracılık ettiğini göstermiştir. Geleceğe yönelik benliklerin dil öğrenme motivasyonu üzerindeki olumlu etkilerine ilaveten dil öğrenme başarısı üzerinde hem doğrudan hem de dolaylı etkileri olduğu görülmüştür. Yabancı dil öğrenme başarısının büyük ölçüde dil öğrenme motivasyonuna ve gerçek yabancı dil benliğine bağlı olduğu verilerle ortaya koyulmuştur. Bu bulgulara dayanarak çeşitli öğrenme stili tercihlerine değinilmesi, öğrencilere görselleştirme becerisi eğitimi verilmesi ve onlar için olumlu bir akademik benlik kavramı oluşturulması önerilmiştir. Yabancı dil eğitimi müfredatında bu amaçlar doğrultusunda yapılacak revizyonların da etkili olabileceği düşünülmektedir.

1. Introduction

Investigating L2 motivation is a continuing concern within language learning psychology due to its theoretical and practical implications. Studies on L2 motivation have significantly evolved for many years. While the initial ones focused on a static mode of it, recently, the Socio-Dynamic period, which has centered upon the L2 Motivational Self-system (L2MSS henceforth) (Dörnyei, 2005) and the dynamic nature of L2 motivation has been recognized. During the first decade of the millennium, investigations on L2 motivation and L2MSS attracted considerable notice, and a new line of research appeared in the field. Initiated in 2009 by Al-Shehri, many researchers (e.g., Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Kim & Kim, 2018; Yang & Kim, 2011) drew their attention to the interactions between perceptual learning styles, future L2 self-guides, imagery capacity (vision), and L2 motivation at that time. Several of them demonstrated a positive relationship between the variables in their specific contexts. They established that visual learning style is the most preferred one among the perceptual learning styles and visual learning style preference, vision, ideal L2 self, and L2 motivation are strongly related to each other. However, further evidence from different contexts is still desirable for a more robust understanding of these relations. Since nearly all of the previous studies, excluding one by Kim and Kim (2018), include primary, secondary, and high school level learners as their participants (Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Yang & Kim, 2011), university-level students are underinvestigated. In addition, most of the earlier research suffers from a restricted range of methodological approaches, mainly utilizing descriptive, correlation, and regression analysis. Although studies have already recognized that interactions network, there is a need for further research to investigate the effect of these relations on L2 achievement more systematically. Since L2 achievement is the ultimate goal in learning the language, it needs a more profound understanding. This study explores how perceptual learning styles, future L2 self-guides, vision, L2 motivation, and language learning achievement interact with each other in the Turkish tertiary level EFL context. To this end, the structural relationships between the variables will be examined using path analysis. Thus, gaining deeper insight into that interactions network, the lessons, and the curriculum can be planned and conducted accordingly to comply with the preferences and needs of the students.

1.1. Literature Review

1.1.1. *L2 Motivation and Dörnyei's L2 Motivational Self System*

L2 motivation research has gone through several periods in its history. The Social-Psychological Period of the 1950s centered on integrativeness, which was described as "the willingness to be like valued members of the language community" (Gardner & Lambert, 1959, p. 271). With the shift from the community level to classroom level orientations, the concept of integrativeness was challenged by the well-known distinction of intrinsic and extrinsic motivation. Deci and Ryan (1985) suggested that categorization initiating the Cognitive-Situated Period. Then, around the beginning of the millennium, the dynamic nature of L2 motivation was acknowledged influenced by the prevalence of the Complexity Theory (Larsen-Freeman & Cameron, 2008). L2 motivation was recognized as a complex phenomenon affected by not only personal or situational factors but also the interactions among these factors (Ushioda, 2012). The three-stage model of L2 motivation (pre-actional, actional, and post-actional stages) by Dörnyei and Otto (1998) was developed during that period, reflecting the construct's dynamicity. Named the Process-Oriented Period by the

leading researchers of the time, it functioned as a transition into the Socio-Dynamic Period which is based on the L2MSS developed by Dörnyei (2005).

L2MSS aimed to explain the language learning motivation of the new millennium environment. It has been based on the Possible Selves (Markus & Nurius, 1986) and Self-Discrepancy theories (Higgins, 1987; Higgins, Klein, & Strauman, 1985) in positive psychology. In line with these theories, Dörnyei's self-system has three main dimensions, which are ideal L2 self, ought to L2 self, and L2 learning experience. According to Dörnyei, the ideal L2 self is the "representation of all the attributes that a person would like to possess" (Csizer & Dörnyei, 2005b, p. 616). The learners with high ideal L2 self value learning L2 with great emotions. They personalize its significance and internalize their reasons to learn the language (Kim, 2009). The second main dimension in the L2MSS, the ought to L2 self, is identified by Csizer and Dörnyei (2005b) as the self imposed upon the learner. Kim (2009) estimates that ought to L2 self can turn into the ideal L2 self if the learner manages to internalize it, and following that, ought to L2 self can also function to increase the motivational level, and thus L2 success of the learners'. L2 learning experience refers to "the situation-specific motives related to the immediate learning environment and experience" (Csizer & Dörnyei, 2005b, p. 617). It is more situation-specific compared with the future self-guides (ideal and ought to L2 selves) and diverges from them in that respect. To explain L2 motivation from a self-perspective, it can be defined as the wish of the learner to minimize the available discrepancy gap between the actual L2 self and the ideal or ought to L2 self (Csizer & Dörnyei, 2005b).

Initial studies on L2MSS were conducted to validate the construct and explain its components (e.g., Al-Shehri, 2009; Csizér & Kormos, 2009; Ryan, 2009; Taguchi et al., 2009). Then, two novel lines of studies followed them with different foci: one on the connections between L2MSS and various ID factors such as willingness to communicate and self-regulation (e.g., Alenezi, Al-Saeed, & Alazemi, 2021; Irgatoğlu, 2021; Kanat-Mutluoğlu, 2016; Öz & Bursalı; 2018) and the other on vision-based interventions to improve the learners' future L2 self-guides (e.g., Ghasemi, 2021; Safdari, 2021; Sato, 2021). To clarify, Alenezi et al. (2021), Kanat-Mutluoğlu (2016), and Öz and Bursalı (2018) revealed positive relations between L2 WTC and the ideal L2 self. Investigating the interactions between self-regulation and L2MSS, Irgatoğlu (2021) presented that the learners with high ideal L2 self levels preferred deep learning strategies that necessitate metacognition and advanced capabilities. Thus, she concluded that the teachers who anticipate their students to be more successful need to train them on deep learning strategy use. The second set of studies conducted on vision-based interventions indicated significant roles of vision-based activities on the future L2 self guides and L2 motivation (Ghasemi, 2021; Safdari, 2021; Sato, 2021). Specifically focused on secondary school students' learned helplessness (LH) experience, Ghasemi (2021) justified the positive influence of their vision-based program to deaden their LH levels. In line with this study, Safdari (2021) and Sato (2021) also revealed positive and significant influences of their vision-based motivational interventions to enhance their participants' future-self guides, specifically their ideal L2 selves.

Since the first studies on L2 motivation began, the ultimate goal has been to understand this construct better and lead to more successful language learning processes and outcomes. Previous research recognizes the critical role played by L2 motivation to increase L2 achievement (Dörnyei & Kubanyiova, 2014; Dörnyei et al., 2015; Skehan & Dörnyei, 2003; Engin, 2009). L2 motivation is suggested to give learners the initial drive to start the learning process and provide the energy and power to sustain the process (Dörnyei & Ryan, 2015)

and integrate with the construed future L2 self and highly valued personal goals. Learners with a clear future self-guide as part of their self-image are likelier to put extra effort into the learning process, which may result in higher levels of L2 achievement (Engin, 2009; Khan, 2015). It is significant, though, for an ideal L2 self to be evident in the learner's vision so that it can contribute to successful learning of L2 more effectively.

1.1.2. Perceptual Learning Styles and Vision in Relation to L2 Motivation

Perceptual learning style preferences and imagery capacity of the learners are the other critical components of the interactions investigated in the current study. Also called sensory preferences, perceptual learning styles refer to the learners' inclinations for the senses they feel most comfortable with to get input and process the content of the language (Reid, 1998). They include four different aspects: visual, auditory, kinesthetic, and tactile (Reid, 1998; Sprenger, 2008). Visual learners prefer attaining novel information through reading and looking at some pictures, diagrams, or graphs. Learners favoring the auditory style make use of conversations, lectures, and oral instructions. Kinesthetic and tactile learners benefit from their sense of touch, but they diverge from each other in that kinesthetic learners need whole-body actions as in role plays, while tactile learners prefer hands-on activities such as building models and making collages (Dörnyei, 2005) as they favor feeling the materials while learning (Erten, 1998). Research reveals that the visual learning style seems to be the most preferred of all four dimensions by L2 learners, followed by the auditory learning style and then the kinesthetic and tactile learning styles (Kırkgöz & Doğanay, 2003; Kim & Kim, 2011; Tabatabaei & Mashayekhib, 2013). However, using an effective combination of various styles rather than sticking to one of them in every context is suggested to prove to be more resourceful in terms of input receiving and processing (Kinsella, 1995).

Within the SLA context, the imagery capacity or vision was described based on the Possible Selves Theory (Dörnyei & Chan, 2013) as "the mental representation of the sensory experience of a future goal state" (Muir and Dörnyei, 2013, p. 357). It was asserted to be one of the most effective determiners of L2 motivation in that it can create continuing effort by the learner (Dörnyei & Kubanyiova, 2014). Muir and Dörnyei (2013, p. 358) stated that a clear vision of the valued end goal causes "emotional reactions" in learners and, since they have already experienced success in their imagination, they have a great passion for making it real; thus, they cannot stop their effort. A vivid vision helps learners create a stronger and clearer ideal L2 self which, in turn, may lead to increased L2 motivation (Dörnyei & Chan, 2013; Murray, 2013). This is simply because learners who enjoy success in their imagination often tend to put more effort into reducing the discrepancy between their current state and the imagined one, which promotes their motivated L2 behaviour (Ueki & Takeuchi, 2013).

Concerning the relationship between perceptual learning styles, vision, ideal L2 self, and L2 motivation, some studies advocated, from a neurological perspective, that the brain area responsible for creating vision was similar to the visual area (e.g., Kosslyn, Cacioppo, and Davidson, 2002; Modell, 2003). Thus, learners with visual preferences could be more successful in constructing and visualizing their ideal L2 self. A broader perspective was adopted though by Dörnyei and Chan (2013) who argued that visualization could benefit from auditory aids as well to create a more vivid vision. Learners could imagine holding a real conversation with a proficient person, hearing their own utterances and the interlocutor's words, each of which will substantially increase their L2 motivation (Dörnyei & Chan, 2013).

1.1.3. Background research

Research into the study of the relationship between perceptual learning styles, future self-guides, vision, and L2 motivation appears to have started with the early work of Al-Shehri (2009) and others (e.g., Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Kim & Kim, 2018; Yang & Kim, 2011). Preliminary work on the interactions mentioned thus far was undertaken by Al-Shehri (2009) with Saudi learners of English. The results of the study revealed a strong relationship among visual learning style, creation of a vision of the ideal L2 self, and motivated learning behavior. Kim (2009) further expanded upon the previous research by adding auditory and kinesthetic learning style preferences as significant variables. Findings showed that auditory learning style was also positively related to the other variables, while kinesthetic learning style was found to be negatively related to vision, ideal L2 self, and consequently L2 motivation. In follow-up studies, Kim and Kim (2011, 2014) also reinforced Kim's (2009) findings. However, their research differed from the previous ones in exploring the interactions with L2 achievement as well. The results provided concrete support for the former studies and elaborated that L2 motivation and academic achievement were positively related, but it was not possible to directly attribute high achievement level to motivated behavior.

Besides the ideal L2 self, Yang and Kim (2011) explored the role of ought to L2 self as well. They presented that ought to L2 self could also function to increase L2 motivation in some contexts, such as in China. Dörnyei and Chan (2013) supported earlier studies with similar results. Finally, Kim and Kim (2018) aimed to clarify how this interactions network unfolds for the English-major university students in Korea. While the results mainly complemented the previous studies, slight changes have been observed due to age and context differences. Adult learners were revealed to have lower levels of imagery capacity than the younger ones in previous studies (Kim, 2009; Kim & Kim, 2011), and their imagination affected their motivated behavior more directly probably because they were more successful at creating realistic and attainable imaginations. Moreover, despite the visual learning style being the most commonly preferred one by the adult learners, the auditory learning style had stronger predictive power on the motivated L2 behavior, which is explained by the aural course flows adult learners get at universities.

1.2. The Rationale for the Study

The research to date established that learners with visual and auditory learning styles can create a strong vision of their ideal and ought to L2 selves impacting their motivated L2 behavior and achievement. However, they have been limited to a small number of countries. The learning style preferences, imagery capacity, and future self-guides can be context-bound and peculiar to the country's culture. Although research provides some evidence that visual learning style is often the most preferred one and a positive correlation between vision, ideal L2 self, and visual learning style preference is available (Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Yang & Kim, 2011), further empirical evidence from different contexts is still needed to extensively explore the link among these constructs. Earlier studies mainly focused on elementary (Kim, 2009, Kim 2014), secondary (Dörnyei & Chan, 2013; Kim & Kim, 2011; Yang & Kim, 2011), and high schools (Kim 2014), which indicates the scarcity of research on university-level students.

Although several studies have been carried out thus far, they are limited to similar methodological techniques such as descriptive statistics, and correlation and multiple regression analysis with their practicalities and limitations (e.g., Al-Shehri, 2009; Dörnyei &

Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2018; Yang & Kim, 2011). Though these analyses allow for explaining unidirectional relations between a dependent variable and several independent variables, they do not provide a comprehensive picture of the relationships network when multiple dependent variables are present in the design (Tabachnick & Fidell, 2007). In these cases, more complex inferential statistical analysis is needed to explain the multifaceted linkages among the variables. Therefore, the path analysis technique, which is a subset of the structural equation modeling (SEM) approach, presenting both direct and indirect relations among the several variables of the study has been preferred to scrutinize the data (Kline, 2005).

Finally, much uncertainty still exists about the relationship between the variables of interest and L2 achievement. The reference studies have mainly targeted at exhibiting the interactions of sensory preferences, vision, future self-guides, and L2 motivation (see Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2018; Yang & Kim, 2011) while the ones looking into their effect on L2 achievement have been quite limited (Kim and Kim, 2011, 2014). Therefore, the extent to which L2 achievement benefits from those interactions remains poorly understood. Although Kim and Kim (2011, 2014) reported positive links among the variables and L2 achievement in the Korean context, evidence is confined to their context. More evidence is needed to better understand the link between these constructs. To this end, this study seeks answers to the following research question:

- How appropriate is the proposed model to explain the structural relationships between perceptual learning styles, vision, future self-guides, L2 motivation, and L2 achievement?

2. Method

2.1. Research design

In this study, the researcher adopted a survey design. Regarding the nature of surveys, Fraenkel and Wallen (2006) explain that in a survey study, rather than the whole population, a representative sample of participants is included, and the results are generalized to the whole population. The most significant advantage of survey studies is that they allow the researcher to reach a large number of participants at a time (Best & Kahn, 2006). As the number of the respondents increases, the reliability and generalizability of the study increases. In this study, a cross-sectional survey design was practiced, and to collect the data, a 73-item composite survey instrument was utilized.

2.2. Setting and Participants

The settings for the current study were two different schools at Giresun University, which is a state university in the north of Turkey. One of them was the School of Foreign Languages, and the other one was the Faculty of Economic and Administrative Sciences Department of Economics. First-year students participated in the study from that department. The curriculums adopted in both schools were based on communicative language teaching (CLT).

The participants were chosen through convenience sampling, and 343 students took part in the study. Those from the School of Foreign Languages consisted of 242 adult EFL learners. Among them, 148 were from the business administration department, and the remaining 94 belonged to the translation studies department. 109 of the participants from the School of Foreign Languages were male (44.9 %) and 133 were female (55.1 %) students with a mean age of 20.08 (SD = 1.08). The participants from the Department of Economics were 101

learners with the mean age of 19.46 (SD = 1.12). Of them, 64 (63.4 %) were male and 37 (36.6 %) were female. 1ˢᵗ-year students were included in the study to increase the number of participants and thus the generalizability of the results. Besides, the participants from both schools shared many characteristics in common. Firstly, 1ˢᵗ-year students had not gone through prep-class education the previous year, and they were the same age as the prep-class students. Also, their language-learning background was similar to prep-class students in terms of the years of instruction. Considering that the data were collected at the beginning of the academic year, both groups did not get much English language instruction yet, ensuring no violation of the great similarities between their backgrounds.

2.3. Data Collection

For this research study, data were collected at the beginning of the 2015-16 fall term. A 73-item composite survey instrument including perceptual learning styles (visual, auditory, kinesthetic, and tactile), self-guides (ideal L2 self, ought to L2 self, and actual L2 self), imagery capacity/vision, and motivated behavior and effort scales were utilized.

2.3.1. Perceptual Learning Styles Instrument

Erten's (1998) Perceptual Learning Style Preference Inventory (PLSPI) was employed to measure this variable. The instrument had 20 items. In the original study, Erten (1998) reported the reliability scores as $\alpha = .73$ for visual items, $\alpha = .61$ for auditory, $\alpha = .69$ for kinesthetic, and $\alpha = .73$ for tactile items.

2.3.2. Future Self-Guides Instrument

The self-guides of the learners were measured via Taguchi, Magid, and Papi's (2009) questionnaire. Of the large number of items in it, the ones referring to the ideal self and ought to self, 20 in total, were adopted in the study. The lack of an actual L2 self scale in the area was a challenge for the research. Therefore, with permission of the authors of the scale, the items of ideal L2 self were restructured for "actual L2 self", and the actual L2 self scale consisted of 10 items as well. Dörnyei and Chan (2013) also employed Taguchi et al.'s (2009) questionnaire and they reported Cronbach's alpha score as $\alpha = .78$ for ideal English self, and $\alpha = .77$ for ought to English self, both of which are quite satisfactory.

2.3.3. Imagery Capacity Instrument

Richardson's (1994) imagery capacity scale was used to survey the vision of the participants. Five items are included in it, and it has been used by Dörnyei and Chan (2013) as well. The Cronbach's alpha score is reported to be $\alpha = .68$ in the reference study.

2.3.4.   Motivated Behavior and Effort Instrument

To measure the motivated behavior and effort of the learners, the questionnaire by Al-Shehri (2009) was utilized. The motivated behavior scale had 18 items and the Cronbach's alpha value of it was reported to be $\alpha = .89$ by Al-Shehri (2009). It was also used in different research (Kim, 2009; Kim & Kim, 2011; 2014; Yang & Kim, 2011). Academic achievement in the English language course was also one of the most significant variables of this study, and it was measured via composite scores that were attained at the end of the academic term.

To collect the data, the researcher visited the classes; she informed the students about the procedure and stated that participation was voluntary. Confidentiality and anonymity of their data were also ensured. Then, the instrument was administered by her.

2.4. Data Analysis

The data were analyzed quantitatively. First, descriptive statistics and confirmatory factor analysis (CFA), and then path analysis which is an inferential statistical technique, were employed. The aim of the research question was to present the structural relationships between perceptual learning styles, vision, future self-guides, L2 motivation, and L2 achievement. Therefore, visual, auditory, kinesthetic and tactile learning styles, vision, ideal L2 self, ought to 2 self, actual L2 self, L2 motivation, and L2 achievement were put into path analysis to reveal the interactions between them. IBM SPSS Statistics and IBM SPSS AMOS were utilized to examine the data.

3. Findings

In order to test the construct validity of the scales in the study, first of all, confirmatory factor analysis (CFA) was conducted. The assumptions of normality and linearity were tested, and missing data were treated via mean score insertion. Then, indices of goodness-of-fit such as degrees of freedom ratio (X2/df), the Goodness-of-Fit Index (GFI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) were administered for each scale.

The initial analysis of the scales revealed unacceptable model fit scores for some of them, and modifications were carried out. Table 1 below can be visited to see a summary of the changes conducted to reach acceptable model fit values.

Table 1.

Modifications for the Scales

Scales	Number of items	Number of omitted items
Visual	5	2
Auditory	5	0
Kinesthetic	5	0
Tactile	5	1
Ideal L2 self	10	2
Ought to L2 self	10	0
Actual L2 self	10	3
L2 motivation	18	4
Vision	5	0

Following the adaptations to meet the adequacy of fit criteria, reliability coefficients were also calculated to confirm the internal consistency of the scales. As presented in Table 2, Cronbach's alpha scores were.74, .89, .92, and .84 respectively for the perceptual learning styles, self-guides, L2 motivation, and vision scales. The high levels of internal consistency have been approved for each scale. As a result of the analyses, it was indicated that further inferential statistics, such as path analysis, were appropriate to be performed.

Table 2.

Psychometric Properties of the Scales

Scales	X2/df	GFI	CFI	RMSEA	α
Perceptual learning styles	1.93	.93	.87	.05	.74
Self-guides	2.29	.88	.92	.06	.89
L2 motivation	2.80	.91	.95	.07	.92
Vision	2.78	.99	.99	.07	.84

Note: X2/df = degrees of freedom ratio; GFI = the Goodness-of-Fit Index; CFI = the Comparative Fit Index; RMSEA = the Root Mean Square Error of Approximation

Prior to the inferential statistical analysis of the data, the learners' levels of perceptual learning styles, vision, future self-guides, L2 motivation, and L2 achievement were scrutinized descriptively. Mean scores and standard deviations were calculated for each variable and the results are presented in Table 3.

Table 3.

Descriptive Statistics: Perceptual Learning Styles, Vision, Future Self-Guides, L2 Motivation, and L2 Achievement

Variables	N	Mean	SD
Visual	343	4.01	.63
Auditory	343	3.91	.52
Kinesthetic	343	3.87	.62
Tactile	343	3.44	.75
IdealL2self	343	3.66	.97
OughttoL2Self	343	3.22	.99
ActualL2self	343	2.29	.79
Vision	343	3.58	.93
L2 motivation	343	3.57	.88
L2 achievement	343	63.55	10.44

To start with the perceptual learning style preferences of the participants, descriptive statistics showed that visual learning style appeared to have the highest mean value (M = 4.01, SD = .63), indicating its popularity for the learners. Auditory learning style followed it with a high mean score (M = 3.91, SD = .52). While kinesthetic learning style was the next preference of the learners (M = 3.87, SD = .62), tactile learning style had the lowest mean value (M = 3.44, SD = .75).

Analysis of the future self-guides revealed that the participants had the highest mean value in ideal L2 self (M = 3.66, SD = .97), which signified the importance of L2 learning for them. It was succeeded by ought to L2 self (M = 3.22, SD = .99) with a slightly lower mean value. The actual L2 self had the lowest mean score (M = 2.29, SD = .79), and it suggests that L2 does not have such a significant place in their actual selves as in their ideal or ought to selves.

Finally, the investigation of the learners' levels of vision, L2 motivation, and L2 achievement suggested that the EFL learners in this study had a quite high level of vision (M = 3.58, SD = .93) and they were motivated to learn L2 (M = 3.57, SD = .88). However, the mean value of their L2 achievement seemed to be 63.55 (SD = 10.44), demonstrating that the participants had a moderate success level.

Thereafter, inferential statistics were conducted. The model to be tested (see Figure 1) estimated that visual, auditory, kinesthetic, and tactile learning styles would affect the participants' ideal L2 self, ought to L2 self and actual L2 self both directly and through the

mediation of vision. In addition, it was assumed that L2 motivation would be directly predicted by visual, auditory, kinesthetic, and tactile learning styles, vision, ideal L2 self, ought to L2 self, and actual L2 self. Indirect effects of perceptual learning styles on L2 motivation via the mediation of vision and future self-guides were expected. Vision was also hypothesized to indirectly influence L2 motivation through the mediation of self-guides. Finally, direct paths from L2 motivation, ideal L2 self, ought to L2 self, and actual L2 self to L2 achievement were assumed.
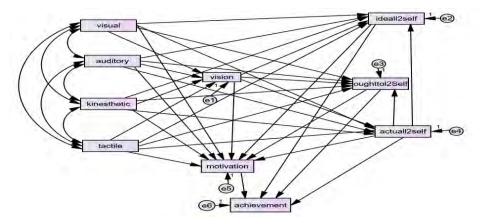

Figure 1. The Hypothesized Structural Model of Perceptual Learning Styles, Future Self-Guides, Vision, L2 Motivation, and L2 Achievement

A close investigation of the hypothesized model presented satisfactory goodness-of-fit indices of the data (X2/df = 2.86, GFI = .99, CFI = .98, RMSEA = .07). However, analysis of the estimates required some modifications in the initial model since some non-significant regression weights were observed. Therefore, the paths between these variables were consecutively excluded from the model. Then, the analysis was conducted again, and both acceptable fit indices and significant regression weights were calculated.

According to the final model (see Figure 2), X2/df ratio was 2.25, the GFI was revealed to be .98, the CFI was .97, and lastly, the RMSEA appeared to be .06, all of which indicated a highly satisfactory model fit. Thus, it can be concluded that the final model fits the data perfectly.
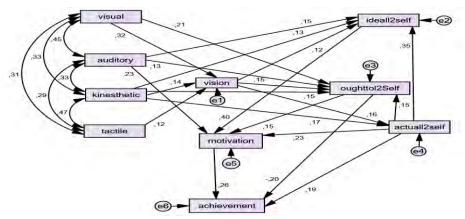

Figure 2. The Final Structural Model of Perceptual Learning Styles, Future Self-Guides, Vision, L2 Motivation, and L2 Achievement

To further examine the interactions between the variables, standardized direct, indirect, and total effects were calculated. Findings showed that visual (.32), kinesthetic (.14), and tactile (.12) learning styles exerted significant direct effects on vision while the effect of visual learning style was the highest. Kinesthetic learning style and vision appeared to have strong predictive abilities for the ideal, ought to, and actual L2 selves. Ideal (.34) and ought to (.14) L2 selves were directly and strongly influenced by actual L2 self as well.

Investigation of the standardized effects of perceptual learning styles, vision, and self-guides on L2 motivation suggested that ideal L2 self exerted the greatest positive direct influence (.40) on L2 motivation. Actual L2 self followed it with the second largest total effect score (.39). While the direct effect of actual L2 self on L2 motivation was .23, the indirect path scored .16, and the indirect interaction between actual L2 self and L2 motivation was due to the mediating roles of ideal L2 self and ought to L2 self. Following them, the auditory learning style had both direct (.23) and indirect impact (.08) on L2 motivation. The indirect path from auditory learning style to L2 motivation went through ideal and ought to L2 selves. Kinesthetic learning style and vision exhibited only indirect influences on L2 motivation, .16 and .13, respectively. Further analysis of these indirect paths indicated that vision, ideal L2 self, ought to L2 self, and actual L2 self were mediators between kinesthetic learning style and L2 motivation. The indirect relationship between vision and L2 motivation (.13) was mediated by ideal, ought to, and actual L2 selves. Finally, ought to L2 self seemed to impact upon the L2 motivation positively and directly (.15).

Table 4.

Standardized Direct, Indirect, and Total Effects in the Final Model

Paths	Direct effects Estimates	Indirect effects Estimates	Total effects Estimates
Tactile → Vision	.11		.11
Kinesthetic →Vision	.14		.14
Visual → Vision	.32		.32
Kinesthetic → Actual L2 self	.17	.02	.19
Vision → Actual L2 self	.16		.16
Auditory → Ought to L2 self	.13		.13
Kinesthetic → Ought to L2 self	.14	.05	.19
Visual → Ought to L2 self	-.21	.05	-.16
Vision → Ought to L2 self	.15	.02	.17
Actual L2 self → Ought to L2 self	.14		.14
Auditory → Ideal L2 self	.14		.14
Kinesthetic → Ideal L2 self	.13	.08	.21
Visual → Ideal L2 self		.05	.05
Vision → Ideal L2 self	.12	.05	.17
Actual L2 self → Ideal L2 self	.34		.34
Auditory → Motivation	.23	.08	.31
Kinesthetic →Motivation		.16	.16
Vision → Motivation		.13	.13
Actual L2 self → Motivation	.23	.16	.39
Ought to L2 self →Motivation	.15		.15
Ideal L2 self →Motivation	.40		.40
Actual L2 self → Achievement	.20	.07	.27
Ought to L2 self → Achievement	-.20	.04	-.16
Ideal L2 self → Achievement		.10	.10
Motivation → Achievement	.26		.26

As can be seen in Table 4, L2 motivation had the greatest direct effect on L2 achievement (.26). Actual L2 self followed it with .20 direct effect score, but it also exerted indirect effect (.07) on L2 achievement via the mediations of ideal and ought to L2 selves, and L2 motivation. The results revealed a significant negative direct path from ought to L2 self to L2 achievement (-.20), and a positive indirect path (.04) via the mediation of L2 motivation. Ideal L2 self exerted indirect effect (.10) on L2 achievement mediated by L2 motivation. To check for the significance of the indirect effects presented previously, bootstrap analysis was conducted. The results indicated that the indirect effects presented in Table 4 were all at statistically significant levels.

To summarize the main findings of the study, perceptual learning styles exerted significant influences on L2 motivation and achievement primarily with the mediation of vision and future self-guides. Self-guides had positive impacts on L2 motivation, and both direct and indirect effects on L2 achievement. L2 achievement was strongly dependent on L2 motivation and actual L2 self. While ought to L2 self increased L2 motivation of the participants, it affected their achievement negatively. Finally, it can be clearly stated that vision, ideal L2 self, and actual L2 self appeared to be central variables in that relations network.

4. Discussion
4.1. Predictors of future self-guides

The present study was designed to determine the structural interactions between perceptual learning styles, vision, future self-guides, L2 motivation, and L2 achievement. To start with the predictors of future self-guides, findings revealed strong explanatory power of vision on them. The results agree with the earlier studies, which indicate that a high imagery capacity is crucial to be able to form a clear ideal L2 self (Al-Shehri, 2009; Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Yang & Kim, 2011). Ought to L2 self was also revealed to be positively related to the imagery capacity of the learners (Dörnyei and Chan, 2013). Thus, it was concluded that the learners with substantial imagery capacity could create a vivid and more accessible vision of their desired selves since a superior vision leads to "emotional reactions" for the learners and when they feel the pleasure of attaining the L2 self in their imagination, they put greater efforts to verify it (Muir & Dörnyei, 2013, p. 358).

Besides imagery capacity, visual and auditory learning styles were found to impact the ideal L2 self. While Al-Shehri (2009) presented a strong relationship between visual learning style and ideal L2 self, several other researchers confirmed the interaction between both visual and auditory learning style and the ideal L2 self (Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011, 2014). Similarly, Dörnyei and Chan (2013) and Murray (2013) showed that visualization helps the learners construct a stronger and clearer ideal L2 self. However, in contrast to earlier research suggesting that visual learning style had stronger predictive power on ideal L2 self (e.g., Kim, 2009; Dörnyei & Chan, 2013), the present study indicated higher direct and total effects of auditory learning style on ideal L2 self. Similar findings were reported by Kim and Kim (2018), claiming that auditory learning style had a stronger influence on L2 motivation than visual learning style. Considering the potent interactions between motivated behavior and ideal L2 self, the explanation by Kim and Kim (2018) may be asserted to provide some insights into the current findings. Kim and Kim (2018) argued that the instruction adult learners are exposed to at universities is based on listening to lectures and speaking about them; thus, they benefit more from the auditory learning style to create the vision of their desired selves.

Unlike previous studies (Kim, 2009; Kim & Kim, 2011, 2014), in this study, kinesthetic learning style also appeared to exert significant positive impacts on future self-guides of the participants. This rather intriguing result can be explained by the assertions of Naserieh and Sarab (2013) stating that being a dynamic explorer of the physical environment around them, the learners are a part of the entire language learning experience and active participants of the tasks. Thus, they do not get bored and distracted as they are not inactive for a long time, and they learn best in that way. As revealed by the descriptive analysis of the current data, although the kinesthetic learning style was the third preference of the participants, it still had a high mean score showing that it was not disfavored by them. It can be speculated that a fairly strong preference of the learners for kinesthetic learning style and the positive learning environment created via employing that style may possibly help learners create strong self-guides.

Actual L2 self, which is another predictor of ideal L2 self, is concerned with how the individuals see themselves as L2 learners today (Higgins, 1987). It is incredibly possible for the learners' current state to create a realistic and attainable ideal L2 self. Therefore, it can be discussed that if L2 learning is an essential part of the students' current selves, which is the actual L2 self or the self-concept related to L2 learning, it can also be a substantial part of their ideal L2 self (Dörnyei, 2009a). Similar to ideal L2 self, ought to L2 self which is another desired self (though imposed) by the learners, is influenced by the actual L2 self of the learners. Since a high level of discrepancy between the actual L2 self and ought to L2 self leads to feelings of shame and guilt (Carver, Lawrence, & Scheier, 1999), the learners put great effort to achieve their purposes not to be ashamed or not to feel guilty in the end.

4.2. Predictors of L2 motivation

The current study presented that self-guides are substantial predictors of L2 motivation as confirmed in the literature (Al-Shehri, 2009; Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011; Kim & Kim, 2014; Yang & Kim, 2011). Ideal L2 self was shown to lead among the self-guides concerning the predictive ability of them on L2 motivation. Csizer and Dörnyei (2005b) declare that ideal L2 self is the core of motivated L2 learning behavior, and they suggest redefining L2 motivation as the effort to reach the ideal L2 self. Dörnyei (2009b) also emphasizes the power of ideal L2 self as a motivator of L2 learning. In line with these results, Khan (2015) asserts that ideal L2 self has substantial effect on L2 motivation, because learners with this self aim to be proficient L2 users due to their own wishes and desires. Actual L2 self appeared to follow ideal L2 self in promoting L2 motivation. Dörnyei (2009a) suggests that the academic self-concept of L2 learning, which is the correspondence of actual L2 self in this study, contributes significantly to shaping the perception of future goal states of the learners, and finally leads to motivated action in order to achieve it. The positive effect of ought to L2 self on L2 motivation is also supported in the literature. It has been presented by Dörnyei (2013) that ought to self is a strong factor at the heart of L2 motivation; however, it does not shape L2 motivation as much as ideal L2 self does in that ought to L2 self functions only at the cognitive level of the learners and in order for it to be more effective on L2 motivation, it needs to be internalized by the learners (Kim, 2011).

In addition to self-guides, auditory and kinesthetic learning styles had the predictive ability on L2 motivation. In previous research, auditory learning style was suggested to lead to increased L2 motivation with the mediation of self-guides and vision (Al-Shehri, 2009; Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2014; William et al., 2015; Yang & Kim, 2011) which has been partially supported by the present results. Analysis showed both direct

and indirect effects of auditory learning style on L2 motivation. While its indirect effect was mediated by the self-guides as suggested in the literature, the direct interaction between them could be attributed to the learners' strong preferences of auditory learning style and the learning environment, including high amounts of oral input and output. One unexpected finding of the study was that though literature presented negative interactions between kinesthetic learning style and L2 motivation (Kim, 2009; Kim & Kim, 2011, 2014; Yang & Kim, 2011), they were found to be positively related in that study. This rather contradictory result may be explained by Naserieh and Sarab's (2013) arguments that being active learners and physically interacting with the environment helps overcome distractions and enhances motivated learning behavior.

4.3. Predictors of L2 achievement

This study produced results indicating that visual learning style enhances creating a vivid vision of the ideal L2 self, and thus by increasing motivated behavior to learn the L2, higher levels of achievement can be attained. It has been confirmed by the analysis that vision is largely related to visual learning style. Kosslyn et al. (2002) and Modell (2003) explained this interaction from a neurological point of view, stating that the part of the brain responsible for creating a vision is very similar to the visual area, and therefore it is quite predictable for visual learners to be better at creating visions. The strong link between the participants' high level of vision, ideal L2 self, L2 motivation, and major preference of visual learning style was endorsed by many studies in the literature (Al-Shehri, 2009; Dörnyei & Chan, 2013; Kim & Kim, 2011; Kim & Kim, 2014; Yang & Kim, 2011). First of all, Al-Shehri (2009) explored the case in Saudi Arabia and revealed that the learners with visual style preference were better at creating a vivid vision of their ideal L2 self which finally intensifies motivated L2 learning behavior. In the following years, Dörnyei and Chan (2013), Kim (2009), Kim and Kim (2011, 2014, 2018), and Yang and Kim (2011) presented the same results about visual learning style, vision, ideal L2 self, L2 motivation, and achievement.

L2 motivation has widely been accepted as a premise of language learning achievement (e.g., Dörnyei & Kubanyiova, 2014; Dörnyei et al., 2015; Dörnyei & Ryan, 2015; Engin, 2009; Kim, 2011; Skehan & Dörnyei, 2003), and the current study adds to them with the same conclusion. It has been affirmed as a result of the analysis that L2 motivation and L2 achievement are largely connected to each other, and L2 motivation is a very strong predictor of achievement. Concerning these assertions, Dörnyei and Ryan (2015) suggest that L2 motivation gives the learner the initial impetus to start the learning behavior as well as the power to sustain the effort until accomplishing the final goal of learning.

An interesting finding of the study was the negative direct impact of ought to L2 self on L2 achievement, which could be attributed to the other-standpoint of that self. Although ought to L2 self increased motivated behavior of the learners, it predicted L2 achievement negatively. According to Carver et al. (1999), contrary to the ideal L2 self, ought to L2 self is not intrinsically desired, but it is an instrumental drive with a prevention-focus. Thus, as clarified in self-determination theory by Deci and Ryan (1985), it is a less internalized motive. In line with these, it may be advocated that although learners with that self extend their motivated behavior to learn the language, they cannot be successful in L2 since it is not an internal desire by them. Similarly, a recent study by Saito, Dewale, Abe, and In'ami (2018) suggested that although learners with strong ought to L2 self tend to put effort into learning the language, their "ought to-driven experience" (p. 737) does not lead to improved L2 learning and achievement. Besides, literature acknowledges the positive interactions between

ought to L2 self and L2 anxiety (e.g., Carver et al., 1999; Papi, 2010). It can be speculated that though the learners report that they are motivated to learn the language, anxiety may hinder effective learning experiences and achievement, which opens up room for further investigation.

Lastly, actual L2 self appeared to have a high predictive power on L2 achievement. It can be discussed that seeing themselves as good language learners of today may give the learners confidence to picture themselves as proficient L2 learners and speakers in the future. So, it can trigger an effort to achieve the learning behavior (Dörnyei, 2009a). Many research findings support that view in the literature (e.g., Huang, 2011; Marsh, Hau & Kong, 2002; Marsh & Martin, 2011). To exemplify, Huang (2011) investigated 39 longitudinal studies and explored that there was a strong relationship between academic self-concept and language learning achievement. Similarly, Marsh and Martin (2011) reached the conclusion that academic self-concept and language learning achievement have a mutual power over each other. Marsh, Hau, and Kong (2002) revealed the same results, stating that positive academic self-concept had a positive influence on general academic achievement and language learning achievement.

5. Conclusion and Pedagogical Implications

The results that appeared in the Turkish EFL context indicated that variables of the study, which were perceptual learning styles, future self-guides, vision, L2 motivation, and L2 achievement, were intensely interlinked. To clarify, perceptual learning styles exerted significant influences on L2 motivation and achievement mediated by vision and future self-guides. Self-guides had positive impacts on L2 motivation, and both direct and indirect effects on L2 achievement. L2 achievement was strongly dependent on L2 motivation and actual L2 self. Finally, while ought to L2 self increased L2 motivation of the participants, it affected their achievement negatively.

This study offered three pedagogical implications. First of all, it was shown in the study that besides visual learning styles, auditory and kinesthetic learning styles were also positively influential on language learning. Thus, it can be claimed that rather than a single perceptual learning style that appeals to everyone in every context, the preferences of the learners are more significant in their learning process. The results showing strong influences of kinesthetic learning style on self-guides provide support for that. Secondly, vision, ideal L2 self, and actual L2 self appeared to be central variables in this relations network. Their key roles in the language learning process were clearly presented in the study, which calls for the attention of educators to focus more on them. Employing vision-setting activities in language classes can support the learners to create stronger and more vivid visions of their ideal L2 self in the future, and vision-sustaining activities can help the learners follow their visions until reaching learning goals. To do so, educators can devise their own activities or refer to the ones designed by Hadfield and Dörnyei (2013) with these purposes. Vision-based intervention programs investigated by Ghasemi (2021), Safdari (2021), and Sato (2021) can also be viewed.

In addition, actual L2 self exerted both direct and indirect impacts upon effective language learning. Considering the similarities between the actual L2 self and academic self-concept, guiding the learners to have a more positive self-concept may lead to increased motivation and achievement. Lastly, it was reported that though ought to L2 self functioned to increase motivated behavior of the learners, it affected L2 achievement negatively. Hence, it should

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be cautioned that increased levels of future self-guides do not always entail greater achievement levels. At that point, the nature of the self may be scrutinized and interventions may be employed for them. For example, the learners with strong ought to L2 self and L2 motivation can be guided to internalize that self, so they can see that self as attainable and can turn it into ideal L2 self to ensure longer-term sustainment of motivated behavior and achievement. The teacher can provide some external interventions such as behavioral strategies to guide this process.

Since the study was conducted in the Turkish EFL context with tertiary level learners, it cannot be generalized to other contexts, thus decreasing its generalizability. It can be replicated in different settings with various groups of learners to gain more insight into the interactions under investigation. Secondly, a quantitative research design using a composite survey instrument was utilized in the study. Supporting the findings with detailed qualitative investigations would provide more information for the researcher.

Ethical Issues

The author confirms that the study does not need ethics committee approval according to the research integrity rules in their country.

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