# EMPIRICAL STUDY

# Motivation, Vision, and Gender: A Survey of Learners of English in China

## Chenjing (Julia) You,[a] Zoltán Dörnyei,[a] and Kata Csizér[b]

[a]University of Nottingham and [b]Eötvös University

This study reports on the second phase of a large-scale stratified survey in China, examining the role of vision and imagery in the learners' motivation to learn English as a foreign language. Understanding visualization has been a featured area of recent developments in second language (L2) motivation theory, and this study is the first to offer a broad overview of the extent to which the capacity of vision contributes to the overall motivational setup of a whole language learning community. Besides surveying several imagery-related variables in an extensive sample of Chinese secondary school and university students ($N > 10,000$) by comparing male and female Chinese L2 learners' (often different) motivational dispositions with and without any prior visualization experience, the study also explores the visionary trajectories of learners who reported positive and negative changes in their imagery capacity over time, thereby examining the impact of the change in vision on motivational development.

**Keywords**  language learning; motivation; vision; gender; Chinese students

## Introduction

One of the main developments of second language (L2) motivation research over the past decade has been the increasing focus on language learners' self-concept in understanding their motivational dispositions (see Csizér & Magid, 2014), suggesting that the way people imagine themselves in the future plays an important role in energizing their learning behavior in the present. In his

theory of the L2 Motivational Self System, Dörnyei (2005, 2009) has proposed that (a) the learners' L2-related possible selves act as potent *future self-guides* and that (b) a key aspect of these future self-guides is that they involve *images* and *senses* (for recent reviews, see Dörnyei, 2014; Dörnyei & Kubanyiova, 2014). An empirical study of Hong Kong secondary school pupils by Dörnyei and Chan (2013) confirmed the link between future self-guides and salient imagery/visualization aspects in the learning of both English and Mandarin, suggesting that the potent combination of possible selves and imagery can be perceived as the learners' L2-related vision that has a strong motivational role. This study examines the extent to which the capacity of vision contributes to learners' overall motivational setup by analyzing a number of motivational and imagery-related variables within an extensive sample of secondary and university students in China ($N > 10,000$). The study reports on the second phase of a large-scale stratified survey that was aimed at exploring the motivational role of vision by comparing male and female Chinese L2 learners' (often different) motivational dispositions with and without any prior visualization experience and examining the visionary trajectories of learners who reported positive and negative changes in their imagery capacity.

## Phase One of the Survey

The first phase of our survey (You & Dörnyei, in press) examined the distribution of the components of the L2 Motivational Self System in China using stratified sampling, with the categories of the sampling frame including (a) two learning contexts: university and secondary school; (b) three geographical regions: eastern, central, and western; (c) two types of secondary schools: urban and rural; (d) two types of universities: key and ordinary; and (e) two strands within universities: English and non-English majors. The results confirmed the validity of the L2 Motivational Self System in the Chinese context, producing motivational patterns that were broadly compatible with results obtained from other countries studied in the past. Although the findings revealed a generally strong endorsement of motivation to learn English in China across the board, there was also considerable internal variation within the sample in terms of salient East–West differences, with the levels observed in the East typically being higher than those in the economically less developed West. It was argued that this pattern was related to the more globalized nature of the dastern regions, which fuels the learning of Global English.

The same reason was thought to explain a second consistent pattern that emerged from the data across the various teaching contexts: The more advanced or specialized a student's education, the stronger his/her ideal

language selves (for a definition, see below). Thus, within secondary school students, pupils in urban schools exceeded their rural counterparts, university students in general exceeded secondary school pupils, and within university students those in key universities and English degree courses had more developed ideal language selves than students attending ordinary universities and non-English degree courses. On the other hand, among the learners at the lowest end of this "pecking order"—secondary school pupils—situated motives associated with the actual learning environment played a more decisive role in energizing L2 learning than for their university counterparts, explaining in some subgroups more than 50% of the variance in the criterion measure, intended effort.

## The L2 Motivational Self System

Originating in possible selves theory and self-discrepancy theory in social psychology (Higgins, 1987; Markus & Nurius, 1986), the L2 Motivational Self System (Dörnyei, 2005, 2009) constitutes a tripartite construct, consisting of the Ideal L2 Self, the Ought-to L2 Self, and the L2 Learning Experience. As the key concept, the Ideal L2 Self concerns a desirable self-image of the kind of L2 user that one would ideally like to be in the future. If people see a discrepancy between this and their current state, they may be motivated to learn a new language or further develop their proficiency in an existing one. The Ought-to L2 Self reflects the attributes that one believes one ought to possess to meet expectations and avoid possible negative outcomes in the process of L2 learning. It may bear little resemblance to one's own desires or wishes because this is someone else's vision for the L2 learner in question and thus it concerns an imported image of the future that the learner will then internalize to some extent.

The third component, the L2 Learning Experience, is different from the first two in that it focuses on the learners' present—rather than imagined future—experience, covering a range of situated, executive motives related to the immediate learning environment (e.g., the impact of the teacher, the curriculum, the peer group, experience of success). Because this component did not originate in possible selves theory, its operationalization in actual research terms has been subject to more variation than that of the two future self-guides. For example, Taguchi (2013) and Taguchi, Magid, and Papi (2009) referred to it as "Attitudes to learning English," Kormos, Kiddle, and Csizér (2011) as "L2 learning attitude," while Csizér and Kormos (2009) used the term "L2 learning experience" and Papi (2010) "English learning experience." This has been, however, largely terminological variation because the specific questionnaire

items that were used to tap into this component were broadly similar across the studies. Over the past decade, the tripartite construct has been successfully validated in diverse L2 learning contexts (for a recent review, see Dörnyei & Ryan, 2015). The converging empirical evidence indicates that future self-guides, and the Ideal L2 Self in particular, function as potent motivators for L2 learners in a variety of learning environments, irrespective of the specific age group of the learners (from adolescence upwards) or the specific learning situations (e.g., secondary, university, or adult education).

### Main Components of the Construct

Because the L2 Motivational Self System was originally proposed as a framework with no directional links among the three components, past empirical studies employing structural equation modeling (SEM) have not been uniform in specifying these interrelationships. The most important difference among them concerned the link between the ideal L2 self and the L2 learning experience; some studies (e.g., Papi, 2010; Taguchi, 2013; Taguchi et al., 2009) presented a directional link from the ideal self to the learning experience component, whereas in some others (e.g., Csizér & Kormos, 2009; Kormos et al., 2011) the direction of the link was reversed. The reason for the mixed interpretation lies in the dual nature of the underlying relationship. On the one hand, temporal considerations suggest an experience → ideal self link, because the learning experience concerns the present, which is then expected to affect the future self-image. On the other hand, Dörnyei, Ibrahim, and Muir (2015) argue that within vision-governed behavioral chains the positive emotionality associated with the target vision is projected backward onto the constituent learning tasks and processes that are involved in the chain; therefore the authors argue, "As a consequence of this radiated positive disposition, activities that a person previously considered boring or tedious can suddenly become pleasant and enjoyable . . . because they are perceived as being conducive to the accomplishment of the higher purpose" (p. 101). Thus, the positive emotionality evoked by the Ideal L2 Self can be seen to feed into the learners' Attitudes to L2 Learning, which would explain the ideal self → experience link. On balance, we regard this latter option as more characteristic of the impact associated with the ideal self.

A second issue in the various conceptualizations is related to the Ought-to L2 Self, as past studies have linked it to the other two components of the L2 Motivational Self System as well as to the assessed criterion measures in different ways. The theoretical position about this self-guide is straightforward; in most respects, it is similar to the Ideal L2 Self, with the fundamental

difference being the source of the vision: Ideal self-images are formed within the learner, whereas ought-to self-images are imported from significant others in the learner's environment. A consequence of this difference is that ought-to self-images are less internalized than their ideal counterparts, and in an analysis of this issue, Dörnyei and Chan (2013) concluded:

> There is, thus, a tentative conclusion emerging from the existing body of research that, while externally sourced self-images (i.e., the images that are usually categorized under the rubric of the ought-to self) do play a role in shaping the learners' motivational mindset, in many language contexts they lack the energizing force to make a difference in actual motivated learner behaviors by themselves. (p. 454)

The various conceptualization differences in past studies of how the ought-to L2 self is related to other factors of the research paradigms are due to this weaker impact: In some investigations, when certain links between the ought-to self and other components did not reach significance, they were deleted from the SEMs. In the current study, we follow the spirit of the underlying theory and represent the ought-to self in a similar way to the ideal self by assuming a link leading from it to Attitudes to L2 Learning and Intended Effort.

A third issue about the interrelationships of the components of the L2 Motivational Self System concerns their dynamic nature. Henry (2015) points out that, although the initial theory had dynamic qualities, the operationalization of future self-guides resulted in a seemingly static construct:

> Although from the outset Markus and her colleagues emphasized the dynamic nature and multifaceted qualities of possible selves (Markus & Kunda, 1986; Markus & Nurius, 1986; Markus & Wurf, 1987), because of the use of experimental and questionnaire-oriented methodologies, research in both mainstream psychology and in our own field has tended to "freeze" current and ideal selves, presenting them as photographic stills rather than moving pictures. (p. 93)

However, both Henry (2015) and You and Chan (2015) highlight the fact that the "static target" understanding of future self-guides hides their dynamic character because these structures are affected by at least three primary processes on an ongoing basis: (a) the up- and downward revisions of the ideal and ought-to self-dimensions, (b) changes triggered by their interaction with other self-concepts, and (c) qualitative and quantitative changes in the imagery underlying possible L2 selves. Indeed, in a series of semi-structured interviews with

selected learners, You and Chan found that the mental imagery associated with L2 self-guides is subject to change during the process of L2 learning in terms of its content, elaborateness, and frequency. The dynamic interactions identified in their study between imagery, motivational intensity, language learning behavior, and L2 proficiency point to the operation of interlinked components of a broad motivational system: As learners start approaching the targeted goalposts (i.e., the envisaged goal states associated with future self-guides), the goalpost may not always remain constant but can start shifting—in some cases the gap is reduced by forward movement, whereas in other cases it can be reduced by bringing the goalpost nearer. Therefore, as the authors conclude, "[I]magery not only affects the process of L2 learning, but is itself affected by the process" (p. 416).

### Imagery and Vision

As a technical term, "mental imagery" refers to the neural representation of imagined sensory stimulus that gives rise to the subjective experience of perception without receiving any actual sensory input. Neurobiological research has confirmed that people activate similar neural mechanisms when they see or hear something as when they imagine seeing or hearing the same event in reality; in other words, the neural mappings of imagined and perceived stimuli largely coincide (cf. Kosslyn, Thompson, & Ganis, 2006; Moulton & Kosslyn, 2009). It is important to note here that, although visualization is a major aspect of mental imagery, the latter is not limited to the visual modality, that is, to "seeing with the mind's eye"—imagery involves the use of all senses including sight, touch, taste, sound, and smell.

The term "vision" is closely related to imagery, but it is used in motivational contexts, that is, when imagery is associated with ensuing behavior. According to the Oxford English Dictionary, a vision is "a vivid mental image, especially a fanciful one of the future" and it can be perceived as a future goal-state that an individual has personalized by adding to it the imagined reality of the actual goal experience (cf. Dörnyei, 2014). In other words, a vision involves preliving hoped-for future experiences, which is consistent with Markus and Nurius's (1987, p. 159) conceptualization of possible selves as encompassing "within their scope *visions* of desired and undesired end states" (emphasis added). Although one's L2 learning experience is affected by a wide range of diverse factors in one's learning environment or personal life, the concept of vision is particularly suitable to explain the prolonged process of striving for perfection in L2 learning, as it offers "a useful, broad lens to focus on the

bigger picture, the overall persistence that is necessary to lead one to ultimate language attainment" (Dörnyei & Kubanyiova, 2014, p. 4).

Recently, there has been a growing body of research on various aspects of language learning vision, mainly examining quantitatively the relationships among distinct future L2 self-guides, learning styles, imagery capacity, and motivated L2 behavior (e.g., Al-Shehri, 2009; Dörnyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011). The findings confirm that L2 motivation is associated with salient imagery/visualization aspects (such as visual/auditory sensory styles, imagination, and imagery capacity/skills); this was further corroborated by You and Chan's (2015) mixed-methods investigation, which found significant quantitative differences in all motivational measures (including the learners' intended effort) between students who reported to be engaged in the visualization of themselves as competent future L2 users and those who did not. Other studies (e.g., Chan, 2014; Mackay, 2014; Magid, 2014; Sampson, 2012) have investigated the impact of imagery intervention in various L2 courses and have consistently reported that increased visualization resulted in improved motivation after the training programs.

**Gender Differences in Motivation and Vision**
A recurring source of systematic variation in past motivation studies has been a marked difference between males and females in terms of their attitudinal and motivational dispositions, with female learners almost always exceeding their male counterparts. However, in a review of this matter, Henry (2010) has pointed out that, in spite of the widely observed gender division in most empirical studies across different sociocultural contexts, little focused analysis has been directed at finding an explanation for the disparity. He proposed that the core difference between male and female learners may lie in their self-construal, with women's possible selves being characterized by more interdependence and interpersonal qualities than those of men. In a follow-up study, Henry and Cliffordson (2013) further argued that females' greater concern with interpersonal interaction and investing in self–other relationships makes it easier for them to envision themselves in future L2 communication situations, which in turn allows for the development of more elaborate and phenomenologically more robust motivational future self-guides.

Consistent with this argument, the first phase of our survey (You & Dörnyei, in press) has revealed significant gender differences in the endorsement of the motivational scales by Chinese learners of English, but interestingly, there were also some noteworthy exceptions to the robust gender-disparity trend.

The male–female discrepancy was partially overridden in the most committed sample, university students who chose English as their main degree course. Similarly, we found a less prominent distinction in the students' perceived social expectations (Ought-to L2 Self and Parental Expectations), which might be explained by the fact that these are external to the learners in their origin and are therefore less determined by their gender. Because of the connection suggested by Henry and Cliffordson (2013) between gender concerns and future self-guides, the analysis of vision-related issues in the current study was hoped to shed further light on these questions.

## The Current Study

Motivated by the above considerations, the general aim of our study has been to explore some of the central aspects of the motivational capacity of L2 learning vision on the basis of a large database that is representative of a whole L2 learning community. More specifically, we intended to explore three aspects of vision: its significance, motivational role, and dynamics, and we formulated three research questions (RQs) to operationalize these goals, the second of which consists of two parts:

1. How much does vision contribute to the components of the L2 Motivational Self System and to the criterion measure, Intended Effort?
2a. What kind of a role do visionary aspects play in a model of L2 motivation?
2b. How does the role of vision-specific variables within a model of L2 motivation vary across gender and learning environment?
3. How do positive and negative changes in vision affect its motivational role and impact?

## Method
### Participants

Our large-scale, cross-sectional survey investigated a total of 10,569 students in two different L2 learner populations: secondary school pupils ($n = 4,508$) and university students ($n = 5,905$). They were evenly distributed across the eastern, central, and western regions of China (1,456, 1,484, 1,568; and 1,928, 2,059, 1,918, respectively). As is often the case with language studies in higher education, in the university sample female students were overrepresented (3,574 vs. 2,188; some questionnaires had missing gender data), which was caused by the significant imbalance among English majors (2,209 vs. 377); the same trend was less strong in the secondary school sample (girls = 2,320 vs.

boys = 2,047). All the secondary school pupils were selected from the first-, second-, and final-year populations (Years 11–13 in the UK system), with an average age of 16.5 years old; the university student sample was made up of freshmen and sophomores, with an average age of 19.6 years old. In selecting our participants, a stratified sampling method was followed, and while our limited recourses did not allow for fully random or systematic sampling within each stratum of the sampling frame, it is believed that the robust coverage ensures that no major motivational trends have gone unnoticed. After eliminating some inadequate data (see below), the final sample size was 10,413 (for more information about the subsamples, see You & Dörnyei, in press).

## Instrument

The instrument used in the study was a questionnaire specifically developed for our research following the principles in Dörnyei (2010). It contained 73 six-point Likert scale items and 7 background questions. The motivation domain targeted by the questions included two broad themes: aspects of (a) the L2 Motivational Self System and (b) language learning vision—as mentioned before, You and Dörnyei (in press) analyzed the former, while the focus of the current study is on the latter. When designing the questionnaire, we drew on Taguchi and colleagues' (2009; see also Dörnyei, 2010) instrument as well as various scales developed to assess imagery-related variables by Dörnyei and Chan (2013), Kim (2009), and Kim and Kim (2011), and we also included several newly designed items—mainly targeting imagery and visualization—based on initial interviews with 10 Chinese L2 learners (the specific scales and variables are described in the next section). The English version of the questionnaire was translated into Chinese both by the first author and a professional English–Chinese translator. The Chinese version was then backtranslated by a professional Chinese–English translator, resulting in the modifications of several items. Three Chinese university students were then asked to think aloud when completing the questionnaire and further minor amendments were made to the Chinese wording of certain items.

Prior to the administration of the instrument, the Chinese version of the questionnaire was piloted among 208 Chinese L2 learners (109 university students and 99 secondary school students), who were in the same age range as the participants in the main study, to check whether there were any difficulties in students comprehending the questions (the data from this pilot study were reported in You & Chan, 2015). The administrators were asked to note any problems raised by the respondents but no comprehension issues were

reported. Based on the reliability analysis of this pilot run, some unrealistic items were removed or rewritten before a final version of the questionnaire was composed.

### Target Variables

The current study utilized 10 primary variables measured by multiple questionnaire items, two derived variables that were formed for the purpose of dividing up the whole sample into vision-specific subgroups (Vision-Yes/No and Change-Positive/Negative; see below for details) and several background variables concerning the participants' gender as well as specifications of their educational institutions and study programs. In the following, we briefly describe the main variables, with the actual items that were used to assess them included in Appendix S1 available in the Supporting Information online.

The components of the L2 Motivational Self System were assessed by three variables, Ideal L2 Self, Ought-to L2 Self, and Attitudes to Learning English. These variables involved items that have been tried and tested in previous studies, and a fourth variable, Intended Effort, was also operationalized in accordance with previous empirical studies using the L2 Motivational Self System paradigm. The students' visualization capacity was targeted by two variables, Vividness of Imagery and Ease of Using Imagery. The first concerns a key characteristic of visualization, because as Dörnyei and Kubanyiova (2014, p. 65) conclude, "the mere existence of a desired self-image may not be an effective motivator of action if it does not have a sufficient degree of elaborateness and vividness." The following sample items illustrate the thrust of this variable well: *When I'm imagining myself using English skillfully in the future, I can usually have both specific mental pictures and vivid sounds of the situations.* The Ease of Using Imagery is related to the degree of internalization and automatization of visualization skills; a typical item is *I find it easy to "play" imagined scenes and/or conversations in my mind.*

The rationale for including Visual and Auditory Styles in the questionnaire has been provided by Dörnyei and Chan (2013) when they explain that, although these variables have often been treated in past research as attributes that placed students on a visual–auditory continuum, the actual measurement of these sensory styles usually involves separate numeric rating scales for both the visual and the audio components rather than a comparison or a forced choice between them. This explains the common observation that learners can be equally high or low in both style dimensions rather than displaying a marked preference for one or the other in an exclusive manner. This being the case, the graded response options measuring these scales (e.g., marking one's

response on a 1–5 scale) indicate not so much preference as strength (e.g., marking "5" indicates a stronger relevance than marking "3"). Consequently, a high score on these scales indicates, in effect, highly developed sensory processing skills in L2 learning as reported by the student.

The changeable nature of visualization was targeted by two variables, Positive Changes of the Future L2 Self-Image and Negative Changes of the Future L2 Self-Image. They both concern ongoing alterations in the learners' visualization skills/capacity; for example, an item measuring positive change is *My image or dream of myself using English used to be simple, but it has now become more specific* and one measuring negative change is *I used to have rich imaginations of myself using English in the future, but now I don't*. A special feature of these two scales as well as the Ease of Using Imagery variable discussed earlier is the fact that they formed a separate section at the end of the instrument and students were only to complete them if they felt that the items were relevant to them, that is, if they had had experienced L2-related imagery in the past. The instruction introducing this section was as follows: "Do you sometimes imagine yourself using English in the future when you have learnt it? If so, please answer the next few questions. If not, please go to Part III [i.e., background questions]."

Finally, the three variables in the last, and optional, section of the questionnaire (discussed above)—Ease of Using Imagery, Positive Changes of the Future L2 Self-Image, and Negative Changes of the Future L2 Self-Image—were used to form two additional grouping variables for the purpose of comparative analyses. The first one, Vision-Yes/No, reflects whether the respondents have responded to the last section or not, thereby indicating as to whether they have had any visualization experience before. Obviously, there are many possible interim positions on a Yes–No continuum, so we ensured the reliability of this dichotomy by making it as certain as possible (within the constraints of a self-report instrument) that the Vision-No group was homogeneous: We only assigned a learner to this condition if he/she did not respond to any of the five items making up the Ease of Using Imagery scale ($n = 2,364$).

The second grouping variable was labeled Change-Positive/Negative and it was intended to identify two subgroups within the Vision-Yes group (i.e., those who had completed the last, optional section of the questionnaire). We assigned students to the Positive-Change group ($n = 3,151$) if their mean score for Positive Changes of the Future L2 Self-Image variable was above the midpoint (i.e., 3.5) and at the same time their mean score on the Negative Changes of Future L2 Self-Image was below the midpoint (i.e., 3.5); the Negative Change group ($n = 744$) was formed in a similar manner but the other way around.

Thus, we included in both groups only students with a clear-cut change profile and excluded the interim or mixed cases.

**Procedure**

Data collection took place between October 2012 and July 2013. After specifying the strata of the sampling frame, we used our contacts to find participants from the selected cohorts and subgroups. In the case of remote locations, we asked colleagues as well as their contacts to assist us in a snowball sampling manner. We approached the chosen institutes by e-mail or by phone, providing information about the purpose of the survey and details of the administration of the questionnaire. After receiving permission, the first author directly contacted approximately 90% of the teachers of the selected classes individually, asking for their cooperation, while the remaining 10% was done by colleagues and friends. Printed copies of the questionnaire were mailed or personally delivered to each institution, where the questionnaires were filled in by the students during class time, taking 15 minutes on average. The completed forms were posted back to the research team and specially commissioned assistants keyed in the raw data using Microsoft Excel. This was then transferred to SPSS 21.

Before we started the analyses, we ran several checks to spot any outliers and errors (see Dörnyei, 2007, for a discussion of how to conduct such probes) and as a result eliminated 156 questionnaires from the sample; this was a low proportion (less than 1.5%) and was therefore considered acceptable. We then conducted a reliability analysis of the remaining data, and as shown in Appendix S2 in the Supporting Information online, the Cronbach's alpha internal consistency reliability coefficients for all the 10 multi-item scales rendered satisfactory levels, exceeding or being close to the recommended .70 threshold.

**Data Analysis**

The analysis of the data consisted of two types of procedures. First, we compared the mean scores of the assessed motivational and vision-specific variables across a number of subsamples defined by gender and educational background using one-way between-groups multivariate analyses of variance (MANOVAs) and multiple $t$ tests with a Bonferroni correction. Second, in order to examine the motivational role of vision and imagery-related variables, we applied SEM using the AMOS 20 software. We employed multigroup comparisons to analyze the differences in the links between the various latent variables across the different subsamples of participants involved in the study. First, measurement models were drawn up based on the theoretical considerations outlined in the review of

the literature. Following this, the various latent variables were combined into a full structural model. We then set up multigroup models for various subgroups (for details, see the specific analyses below); running multigroup procedures meant that the models were fitted simultaneously but separately in the structural models in order to assess possible differences between the groups. To evaluate the overall model fit, we used the indices most often advised in the SEM literature (e.g., Byrne, 2009). Besides the chi-square statistics and CMIN/df (chi-square divided by the degrees of freedom), we report additional indices: Comparative Fit Index (Hu & Bentler, 1999), the Bentler-Bonett normed fit index, the Tucker-Lewis coefficient, the root mean square error of approximation (Browne & Cudeck, 1993; Fan, Thompson, & Wang, 1999; Hu & Bentler, 1999), and the Parsimony-adjusted Comparative Fit Index.

## Results

### Significance of Vision

In order to examine the role and the significance of L2 imagery among Chinese language learners, we formed two contrasting subsamples in this respect by dividing the whole sample into Vision-Yes and Vision-No groups using the Vision-Yes/No grouping variable (see above). Table 1 presents the distribution of the students according to the Yes/No conditions across the various subsamples. Looking at the values in the table, some distinct patterns emerge. First and consistent with the findings of Dörnyei and Chan (2013) and You and Chan (2015), it is evident that the majority of Chinese L2 learners do engage in some form of mental imagery in their L2 learning. Although the Vision-Yes group subsumes a variety of levels and types of visualization experiences, the noteworthy point is that the Vision-No group—which was formed to include learners with no conscious visualization awareness—is a definite minority in the sample: As the Yes/No ratio values in Table 1 indicate, the Vision-Yes group outnumbers the Vision-No group by three to one on average, and although there is some variation in this respect, with the ratio ranging from 2.4 to 5.1, the general trend is consistent across the board.

Within the observed general trend, however, there is some systematic variation that carries important meaning in two respects. First, we find that there is a marked gender difference in the sample in terms of the use of visualization, which we return to when we examine the relationship between vision and gender in a separate section below. Second, an important pattern that transcends gender differences (as it emerged in the same manner among both males and females) is that the most dedicated subsample by definition, English majors,

**Table 1** Ratio of Vision-Yes to Vision-No participants

| | | | University students | |
|---|---|---|---|---|
| Group | Total sample | Secondary students | English majors | Non-English majors |
| All | 3.32 (7840/2364) | 2.93 (3273/1118) | 5.13 (2186/426) | 2.90 (2381/820) |
| Male | 2.59 (3035/1170) | 2.40 (1432/597) | 5.03 (312/62) | 2.53 (1291/511) |
| Female | 3.67 (4618/1257) | 3.20 (1759/550) | 4.72 (1819/385) | 3.23 (1040/322) |

*Note.* Some questionnaires had missing gender data.

includes by far the highest proportion of Vision-Yes students, a trend that is confirmed by a chi-square test, $\chi^2(2, 10,413) = 95.20, p < .001$.

The overrepresentation of Vision-Yes students in the most motivated subsample implies a positive link between visualization and motivation; in order to test the validity of this observation, we performed a one-way between-groups MANOVA to assess the impact of vision on motivation in the whole sample. The dependent variables comprised the four motivational variables—Ideal L2 Self, Ought-to L2 Self, Attitudes to L2 Learning, and Intended Effort—and the independent variable was Vision-Yes/No. There was a statistically significant difference between the Vision-Yes and Vision-No groups on the combined dependent variables: $F(4, 10199) = 220.43, p < .001$; Wilks's lambda = .92; partial eta squared = .08. When the results of the four dependent variables were considered separately, all the differences reached significance using a Bonferroni adjusted alpha level of .013; these results are presented in Table 2. We then repeated the same analysis in the three education-specific subgroups and obtained similar significant results: university English majors, $F(4, 2607) = 43.92, p < .001$; Wilks's lambda = .94; partial eta squared = .06; university non-English majors, $F(4, 3196) = 86.58, p < .001$; Wilks's lambda = .90; partial eta squared = .10; and secondary school pupils, $F(4, 4386) = 73.49, p < .001$; Wilks's lambda = .94; partial eta squared = .06. All the separate Vision-Yes versus Vision-No contrasts for the four dependent variables reached significance in the three subsamples and are presented in Table 2.

**Motivational Role of Vision**

The MANOVA statistics above indicated that vision has a clear bearing on the students' commitment to learning English, and in order to further explore the nature of this motivational role, we have applied SEM to process the data. As mentioned earlier, this procedure allows us not only to look at the interrelationship of the multiple variables within a broad construct but also to compare

**Table 2** One-way multivariate analysis of variance statistics comparing the motivational variables in the Vision-Yes ($n = 7,840$) and Vision-No ($n = 2,364$) subgroups

| | M (SD) | | | |
|---|---|---|---|---|
| Variable | Vision-Yes | Vision-No | $F$ | $\eta_p^2$ |
| Total sample | | | | |
| Ideal L2 self | 4.01 (1.05) | 3.29 (1.05) | 856.62* | .077 |
| Ought-to L2 self | 3.54 (0.83) | 3.28 (0.87) | 173.21* | .017 |
| Attitudes to L2 learning | 3.84 (1.02) | 3.36 (1.08) | 381.74* | .036 |
| Intended effort | 4.40 (0.85) | 4.04 (0.90) | 317.68* | .030 |
| Secondary students | | | | |
| Ideal L2 self | 3.84 (1.11) | 3.19 (1.11) | 282.26* | .060 |
| Ought-to L2 self | 3.51 (0.86) | 3.25 (0.89) | 75.24* | .017 |
| Attitudes to L2 learning | 3.74 (1.11) | 3.30 (1.13) | 128.20* | .028 |
| Intended effort | 4.30 (0.91) | 3.97 (0.95) | 110.21* | .024 |
| English majors | | | | |
| Ideal L2 self | 4.33 (0.91) | 3.70 (0.94) | 170.65* | .061 |
| Ought-to L2 self | 3.57 (0.84) | 3.27 (0.84) | 45.14* | .017 |
| Attitudes to L2 learning | 4.09 (0.87) | 3.75 (1.02) | 49.58* | .019 |
| Intended effort | 4.65 (0.76) | 4.38 (0.86) | 42.50* | .016 |
| Non-English majors | | | | |
| Ideal L2 self | 3.94 (1.01) | 3.20 (0.98) | 332.27* | .094 |
| Ought-to L2 self | 3.57 (0.79) | 3.34 (0.84) | 48.91* | .015 |
| Attitudes to L2 learning | 3.74 (0.97) | 3.25 (0.99) | 156.85* | .047 |
| Intended effort | 4.32 (0.79) | 3.97 (0.81) | 115.34* | .035 |

*Note.* *$p < .001$. Effect size is partial eta squared ($\eta_p^2$).

these relationships across various subgroups in the sample. The full structural model—presented in Figure 1 for the whole sample in a simplified form and in Appendix S3 in the Supporting Information online with more details—contains seven latent variables, and the rationale for the proposed links is as follows.

The variables on the right side of the figure are the main components of Dörnyei's (2005, 2009) L2 Motivational Self System, and the links to each other are consistent with our earlier theoretical discussion. The new elements in the model are found in the left side of the figure, with the inclusion of three imagery-related variables, Vividness of Imagery, Visual Style, and Auditory Style. Consistent with our previous discussion, Vividness of Imagery is expected to affect both future self-images, the Ideal and the Ought-to L2 Selves. Regarding Visual and Auditory Styles, we argued before that they can be seen as indices of sensory processing skills in L2 learning, and, accordingly, the model
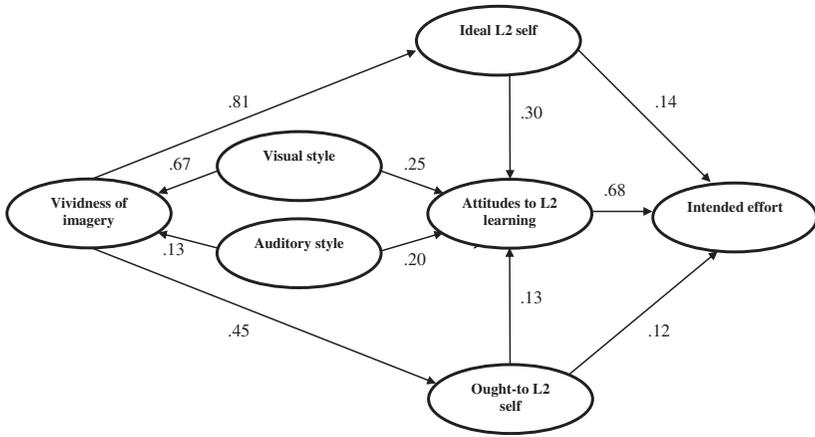
| Chi Square / df ratio | 25.715 |
|---|---|
| CFI | .921 |
| NFI | .918 |
| NNFI | .910 |
| RMSEA | .049 |
| PCFI | .837 |

**Figure 1** Full structural model for the whole sample and its selected goodness-of-fit measures. CFI = Comparative Fit Index; NFI = Bentler-Bonett normed fit index; NNFI = non-normed fit index; TLI = Tucker-Lewis coefficient; RMSEA = root mean square error of approximation; PCFI = Parsimony-adjusted Comparative Fit Index.

hypothesizes that such sensory processing skills are related to Attitudes to L2 Learning, because students with more developed processing skills are likely to be more successful than others in classroom learning and will thus find the learning experience more satisfying. The model also links the sensory styles to Vividness of Imagery, which is a natural connection that explains—through this mediation—the significant positive correlations between sensory styles and the future self-guides reported by Dörnyei and Chan (2013). We did not hypothesize direct links between the sensory styles and the future self-guides, because we assumed that the impact of sensory capacity was sufficiently mediated by the Vividness factor, as these variables all involved the visualization quality aspect of the construct. The goodness-of-fit measures in Figure 1 confirmed our initial model-building assumptions as they indicate that the model provides an adequate representation of the data. The regression coefficients offer further corroboration of our hypotheses because all the links are significant and meaningful.

**Motivational Role of Vision Across Subsamples**

Figure 2 presents combined multigroup comparisons breaking down the whole sample into three subsamples—secondary school pupils, university English majors, and university non-English majors—within the Vision-Yes and Vision-No groups. The goodness-of-fit measures indicate that the model remained stable across the various subgroups, but the coefficients in Table 3 reveal some interesting variation. The most noteworthy difference between the Vision-Yes and Vision-No conditions concerns the relationship of the two self-guides (the ideal and the ought-to selves) to Intended Effort. As can be seen, depending on the condition, the self-guides' relative importance reverses: for the Ideal L2 Self, students with visionary experiences display a stronger impact on the criterion measures than those with no visionary experiences (peaking at .31 among English majors), whereas for the Ought-to L2 Self this relationship is exactly the opposite (peaking at .31 among the non-English majors), and this reversed pattern is consistent across all the educational subsamples for both self-guides. A second conspicuous contrast concerns English majors and the link between the two self-guides and Attitudes to L2 Learning; this link is much stronger regardless of the Vision-Yes/No condition when it comes from the Ideal L2 Self than from the Ought-to L2 Self (.33/.35 vs. .04/.03).

Our earlier review of the literature suggested that one subdivision of the sample that might be of special significance with regard to future self-images and vision involves the separation of males and females, and we have already seen in Table 1 that there was a marked gender difference in the sample in terms of the use of visualization, with the proportion of Vision-Yes versus Vision-No group members considerably higher among females than males in the whole sample (3.67 vs. 2.59 ratio). In order to examine this issue, Table 3 presents *t*-test comparisons of the motivational and vision-specific variables between males and females, further broken down by the Vision-Yes and Vision-No conditions, across the three educational subgroups (secondary students, English majors, non-English majors). Because 14 comparisons were computed in each subsample, we used a Bonferroni adjusted alpha level of .004 for significance. As can be seen in the table, females consistently outscored males among secondary school students and non-English majors, with only four of the reported 28 comparisons not reaching significance; however, among English majors the same proportion of nonsignificant versus significant results was 9 out of 14.

In order to explore these patterns further, we also examined the functional aspect of gender differences in this respect, to see if visualization plays a different role in the overall motivational setup among females and males. Figure 3
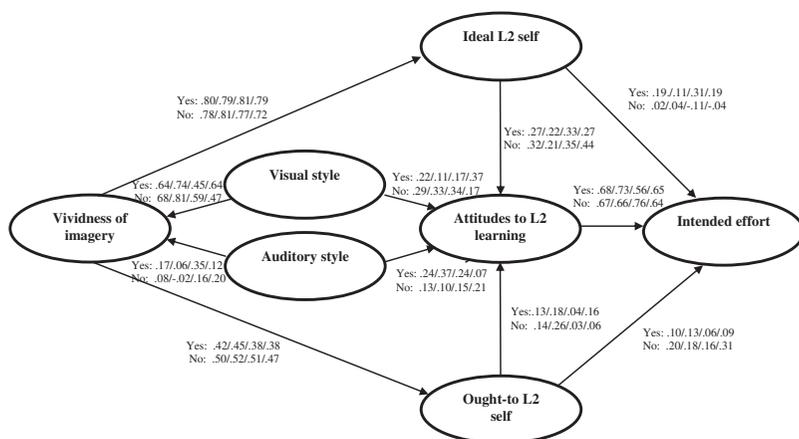
| Vision-Yes | | Vision-No | |
|---|---|---|---|
| Chi Square / df ratio | 7.561 | Chi Square / df ratio | 3.723 |
| CFI | .911 | CFI | .887 |
| NFI | .899 | NFI | .852 |
| NNFI | .889 | NNFI | .837 |
| RMSEA | .029 | RMSEA | .033 |
| PCFI | .828 | PCFI | .806 |

**Figure 2** Full structural model broken down by the Vision-Yes versus Vision-No contrast in the whole sample/secondary students/university English majors/university non-English majors, and the joint selected fit measures for the multigroup models. CFI = Comparative Fit Index; NFI = Bentler-Bonett normed fit index; NNFI = non-normed fit index; TLI = Tucker-Lewis coefficient; RMSEA = root mean square error of approximation; PCFI = Parsimony-adjusted Comparative Fit Index.

presents the same full structural model as Figure 1, this time contrasting the scores of males and females in the whole sample as well as in the Vision-Yes and Vision-No conditions. The goodness-of-fit measures indicate that the model remained valid in these permutations, and although we do find some discrepancies in the scores of the two genders, the key components of the model operate rather similarly for males and females: Vividness of Imagery feeds into the future self-guides at a similar level, and the interrelationships among the components of the L2 Motivational Self System and Intended Effort do not show any substantial gender-based distinction.

## Variable Nature of Vision

The final part of the questionnaire—that is, the one that only the Vision-Yes group filled in—included two variables (Positive Changes of the Future

**Table 3** $t$ test statistics comparing gender differences in the Vision-Yes and Vision-No groups

| Variables | Total sample | | | | Secondary students | | | | University students | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | | | | | | | English majors | | | | Non-English majors | | | |
| | M | | | | M | | | | M | | | | M | | | |
| | m | f | $t$ | $\eta^2$ | m | f | $t$ | $\eta^2$ | m | f | $t$ | $\eta^2$ | m | f | $t$ | $\eta^2$ |
| Ideal L2 self | | | | | | | | | | | | | | | | |
| Vision-Yes | 3.79 | 4.14 | −14.61** | .03 | 3.62 | 4.01 | −10.06** | .03 | 4.33 | 4.33 | .05 | | 3.84 | 4.06 | −5.07** | .01 |
| Vision-No | 3.14 | 3.47 | −7.70** | .02 | 3.07 | 3.37 | −4.58** | .02 | 3.77 | 3.74 | .26 | | 3.15 | 3.34 | −2.62* | .01 |
| Ought-to L2 self | | | | | | | | | | | | | | | | |
| Vision-Yes | 3.52 | 3.56 | −1.91 | | 3.45 | 3.56 | −3.32** | .01 | 3.61 | 3.56 | 1.10 | | 3.57 | 3.56 | .30 | |
| Vision-No | 3.27 | 3.35 | −2.01* | .01 | 3.25 | 3.31 | −1.17 | | 3.33 | 3.30 | .25 | | 3.30 | 3.46 | −2.66* | .01 |
| Attitudes to L2 learning | | | | | | | | | | | | | | | | |
| Vision-Yes | 3.57 | 4.01 | −18.68** | .04 | 3.41 | 4.00 | −15.24** | .07 | 4.03 | 4.11 | −1.45 | | 3.63 | 3.87 | −6.12** | .02 |
| Vision-No | 3.14 | 3.61 | −10.80** | .05 | 3.08 | 3.58 | −7.47** | .05 | 3.61 | 3.79 | −1.32 | | 3.14 | 3.43 | −4.09** | .02 |
| Intended effort | | | | | | | | | | | | | | | | |
| Vision-Yes | 4.15 | 4.57 | −21.09** | .06 | 4.04 | 4.51 | −15.13** | .07 | 4.44 | 4.68 | −5.23** | .01 | 4.21 | 4.46 | −7.63** | .02 |
| Vision-No | 3.82 | 4.25 | −11.72** | .06 | 3.78 | 4.18 | −7.04** | .04 | 4.02 | 4.44 | −3.56** | .03 | 3.86 | 4.16 | −5.32** | .03 |
| Vividness of imagery | | | | | | | | | | | | | | | | |
| Vision-Yes | 3.90 | 4.25 | −14.05** | .03 | 3.76 | 4.15 | −9.98** | .03 | 4.29 | 4.39 | −1.77 | | 3.97 | 4.15 | −4.40** | .01 |
| Vision-No | 3.15 | 3.43 | −6.38** | .02 | 3.07 | 3.38 | −4.48** | .02 | 3.63 | 3.64 | −.11 | | 3.18 | 3.27 | −1.35 | |
| Visual style | | | | | | | | | | | | | | | | |
| Vision-Yes | 3.65 | 4.05 | −21.38** | .06 | 3.55 | 3.99 | −14.75** | .06 | 3.87 | 4.16 | −6.12** | .02 | 3.71 | 3.96 | −7.91** | .03 |
| Vision-No | 3.32 | 3.79 | −14.31** | .08 | 3.24 | 3.77 | −10.45** | .09 | 3.62 | 3.90 | −2.62* | .02 | 3.38 | 3.71 | −6.10** | .04 |
| Auditory style | | | | | | | | | | | | | | | | |
| Vision-Yes | 4.10 | 4.30 | −10.59** | .01 | 4.04 | 4.29 | −8.49** | .02 | 4.27 | 4.34 | −1.70 | | 4.13 | 4.22 | −3.04* | .01 |
| Vision-No | 3.87 | 4.08 | −6.12** | .02 | 3.81 | 4.06 | −4.82** | .02 | 3.84 | 4.19 | −3.49** | .03 | 3.94 | 3.98 | −.64 | |

*Note.* $^*p < .004$; $^{**}p < .001$. Effect size is eta squared ($\eta^2$).
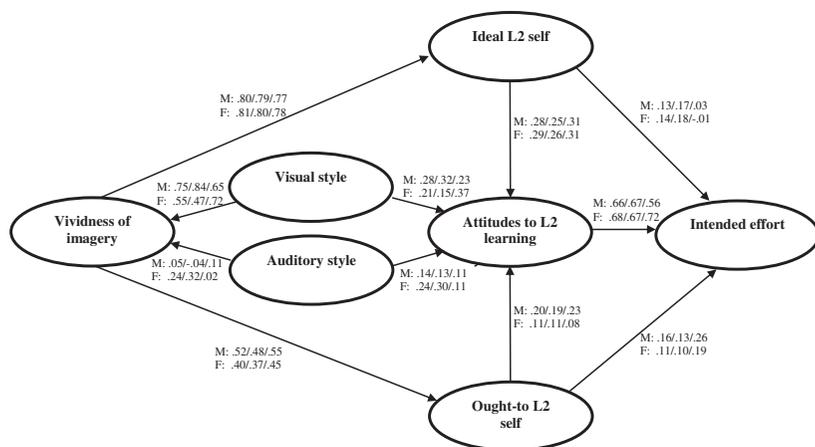
| Vision-Yes and Vision-No subsamples | | Males and females | |
| --- | --- | --- | --- |
| Chi Square / df ratio | 13.403 | Chi Square / df ratio | 13.161 |
| CFI | .917 | CFI | .918 |
| NFI | .911 | NFI | .911 |
| NNFI | .902 | NNFI | .903 |
| RMSEA | .035 | RMSEA | .035 |
| PCFI | .833 | PCFI | .834 |

**Figure 3** Full structural model for gender differences in the whole sample/Vision-Yes condition/Vision-No condition (M = males, F = females) and the joint selected fit measures for the multigroup models. CFI = Comparative Fit Index; NFI = Bentler-Bonett normed fit index; NNFI = non-normed fit index; TLI = Tucker-Lewis coefficient; RMSEA = root mean square error of approximation; PCFI = Parsimony-adjusted Comparative Fit Index.

L2 Self-Image and Negative Changes of the Future L2 Self-Image) that tapped into the motivational change of those who reported to have experienced language-related visualization. Using the grouping variable Change-Positive/Negative we have formed two subgroups: Positive-Change group and Negative-Change group (for an explanation, see the Target Variables section). Table 4 presents the frequency distribution of the Positive-Change and Negative-Change groups in the Vision-Yes sample and within various subsamples. The values offer unambiguous confirmation that, even when one has experienced an imagery-enriched future self-image, this image does not remain constant but changes over time. In the majority of cases, the change is positive, but the data indicate that there is a significant subgroup that for one reason or another

**Table 4** Ratio of Positive-Change to Negative-Change participants in the Vision-Yes group

| | | | University students | |
|---|---|---|---|---|
| Group | Vision-Yes | Secondary students | English majors | Non-English majors |
| All | 4.24 (3151/744) | 3.25 (1235/380) | 10.13 (1033/102) | 3.37 (883/262) |
| Male | 2.74 (981/358) | 2.13 (429/201) | 7.67 (115/15) | 3.08 (437/142) |
| Female | 5.89 (2102/357) | 4.74 (777/164) | 10.62 (892/84) | 3.97 (433/109) |

*Note.* Some questionnaires had missing gender data.

experiences a reduction in the strength of their ideal future self-guide. The proportions of the two groups echo the pattern that was observed in Table 1 concerning the Vision-Yes versus Vision-No division, but in an amplified manner. The average Positive/Negative ratio within the Vision-Yes sample is over 4 (in contrast to the 3.32 ratio in Table 1 for the whole sample), with the highest values being among university English majors. Similar to Table 1, we also find a marked female/male discrepancy: in Table 1 the male/female ratio was 2.59/3.67, in Table 4 it is 2.74/5.89. This latter ratio means in concrete terms that (according to Table 4), while in the Vision-Yes group there are roughly an equal number of males and females who experience negative change, in terms of their positive counterparts the females outnumber males more than two to one.

In order to investigate further the positive versus negative change contrast, we performed a one-way between-groups MANOVA in a similar way to how the Vision-Yes and Vision-No groups were compared in Table 2. The dependent variables were the seven motivational and vision-specific variables analyzed earlier, to which we added the Ease of Using Imagery, while the independent variable was Change-Positive/Negative. There was a statistically significant difference between the Positive-Change and Negative-Change groups on the combined dependent variables: $F(8, 3886) = 195.01, p < .001$; Wilks's lambda $= .71$; partial eta squared $= .29$. When the results of the eight dependent variables were considered separately, all the differences reached significance using a Bonferroni adjusted alpha level of .006; these results are presented in Table 5. We then repeated the same analysis in the three education-specific subgroups and obtained similar significant results: university English majors, $F(8, 1126) = 24.36, p < .001$; Wilks's lambda $= .85$; partial eta squared $= .15$; university non-English majors, $F(8, 1136) = 43.24, p < .001$; Wilks's lambda $= .77$; partial eta squared $= .23$; and secondary school pupils, $F(8, 1606) = 115.88, p < .001$; Wilks's lambda $= .63$; partial eta squared $= .37$.

**Table 5** One-way multivariate analysis of variance statistics comparing the motivational variables in the Positive-Change ($n = 3{,}151$) and Negative-Change ($n = 744$) conditions

| Variable | M (SD) Positive-Change | M (SD) Negative-Change | F | $\eta_p^2$ |
|---|---|---|---|---|
| Whole sample | | | | |
| Ideal L2 self | 4.38 (.94) | 3.32 (1.01) | 742.25* | .16 |
| Ought-to L2 self | 3.59 (.80) | 3.34 (.82) | 61.56* | .02 |
| Attitudes to L2 learning | 4.19 (.91) | 3.07 (1.00) | 880.08* | .18 |
| Intended effort | 4.71 (.72) | 3.88 (.88) | 733.19* | .16 |
| Vividness of imagery | 4.51 (.94) | 3.37 (.98) | 878.52* | .18 |
| Visual style | 4.05 (.75) | 3.49 (.80) | 335.45* | .08 |
| Auditory style | 4.41 (.70) | 3.84 (.82) | 373.52* | .09 |
| Ease of using imagery | 4.07 (.82) | 2.96 (.82) | 1108.37* | .22 |
| Secondary students | | | | |
| Ideal L2 self | 4.29 (.99) | 3.13 (1.02) | 394.77* | .20 |
| Ought-to L2 self | 3.62 (.81) | 3.27 (.84) | 52.40* | .03 |
| Attitudes to L2 learning | 4.21 (.97) | 2.87 (1.00) | 549.92* | .25 |
| Intended effort | 4.67 (.74) | 3.72 (.97) | 416.70* | .21 |
| Vividness of imagery | 4.47 (.98) | 3.22 (1.02) | 464.11* | .22 |
| Visual style | 4.01 (.77) | 3.34 (.84) | 211.72* | .12 |
| Auditory style | 4.44 (.72) | 3.76 (.87) | 235.64* | .13 |
| Ease of using imagery | 4.07 (.86) | 2.77 (.84) | 666.72* | .29 |
| English majors | | | | |
| Ideal L2 self | 4.53 (.86) | 3.82 (.98) | 61.43* | .05 |
| Ought-to L2 self | 3.52 (.80) | 3.49 (.85) | .11 | |
| Attitudes to L2 learning | 4.29 (.84) | 3.46 (.93) | 87.81* | .07 |
| Intended effort | 4.85 (.67) | 4.15 (.76) | 100.23* | .08 |
| Vividness of imagery | 4.63 (.91) | 3.59 (.93) | 122.69* | .10 |
| Visual style | 4.19 (.73) | 3.74 (.80) | 33.94* | .03 |
| Auditory style | 4.44 (.67) | 3.97 (.72) | 45.53* | .04 |
| Ease of using imagery | 4.14 (.78) | 3.25 (.71) | 123.33* | .10 |
| Non-English majors | | | | |
| Ideal L2 self | 4.32 (.91) | 3.41 (.93) | 197.99* | .15 |
| Ought-to L2 self | 3.64 (.76) | 3.37 (.77) | 25.48* | .02 |
| Attitudes to L2 learning | 4.07 (.89) | 3.22 (.94) | 176.30* | .13 |
| Intended effort | 4.59 (.72) | 4.01 (.74) | 131.58* | .10 |
| Vividness of imagery | 4.44 (.89) | 3.51 (.91) | 215.83* | .16 |
| Visual style | 3.96 (.72) | 3.60 (.71) | 49.39* | .04 |
| Auditory style | 4.35 (.70) | 3.92 (.76) | 72.05* | .06 |
| Ease of using imagery | 4.00 (.80) | 3.12 (.76) | 249.16* | .18 |

*Note.* *$p < .001$. Effect size is partial eta squared ($\eta^2$).

All but one of the separate Change-Positive/Negative differences for the eight dependent variables reached significance and are presented in Table 5. The only variable that did not display a difference in the two conditions was Ought-to L2 Self within the English majors subsample.

## Discussion

The most general finding of our study is the confirmation of You and Chan's (2015) results that the majority of Chinese L2 learners *can* engage in some form of mental imagery in their L2 learning by visualizing their future self-images to some extent. Our data showed that fewer than a quarter of the total number of participants did not recollect any visualization experiences in the past, and this trend was broadly consistent across all the subsamples.

### Significance of Vision (RQ1)

RQ1 concerned the extent to which vision impacted on the components of the L2 Motivational Self System and the criterion measure, Intended Effort. Our results have indicated that imagery capacity makes a significant contribution to the motivational disposition of Chinese L2 learners. In the most motivated subsample, university English majors, Vision-Yes students were overrepresented, and the MANOVA statistics in Table 2 displayed a robust and consistent pattern whereby the Vision-Yes subgroups always outscored the Vision-No subsamples on all the motivational variables assessed in our survey.

### Motivational Role of Vision (RQ2a)

Regarding the specific motivational role played by vision, we presented a theoretical model that successfully incorporated imagery-related variables into the L2 Motivational Self System. Of the sensory styles, Visual Style in particular had a strong influence on Vividness of Imagery, and as hypothesized, both styles had a solid impact on Attitudes to L2 Learning. Vividness of Imagery strongly affected the two future self-guides—we should note the particularly strong link with the Ideal L2 Self (.81)—which confirms the significant contribution of vividness of mental imagery to future self-guides, which is why these future self-images, and one's ideal L2 self-guide in particular, can be referred to as one's vision. Although the Ought-to L2 Self is considerably fueled by vivid imagery (.41), the impact of vivid imagery on the Ideal L2 Self is almost twice as strong (.81), which verifies the recurring claim discussed earlier that "imported visions" —that is, ought-to language selves—are often less internalized and visualized than one's own ideal language selves.

One area where our findings deviated from previously found patterns is that the Ideal L2 Self had a relatively low direct impact on Intended Effort but exerted its power mainly indirectly, through the mediation of Attitudes to L2 Learning. This is partly explained by the fact that, because our participants involved an extensive, stratified sample reflecting a cross-section of the Chinese L2 learner population, relatively few learners of this mixed sample will have had fully established L2-related ideal self-images, which depressed the Ideal L2 Self → Intended Effort association. In other words, within the total L2 learning population in China, the motivational power of ideal L2 self-imagery is limited only to a certain proportion of the population, and therefore its impact plays a smaller role when considering the whole sample. However, as we saw in Figure 2, when only the Vision-Yes group was selected, the coefficient increased, and it peaked at .31 in the most committed subsample within this latter group, university English majors. These findings thus indicate that visualization experiences do not automatically lead to the establishment of fully-fledged L2 self-images that have substantial motivational capacity, which is consistent with Dörnyei's (2009) and Dörnyei and Ushioda's (2011) argument that, for this to happen, a number of further conditions must be met.

**Variation in Motivational Role of Vision (RQ2b)**
Given the unique situation that our sample is representative of an entire L2 learning community, it was a logical step in the process of analysis to investigate whether the motivational role of vision identified in the whole sample was consistent across various subsamples, which in our case were defined by the participants' educational background and gender. The conducted multigroup comparisons showed that the model remained stable in the various subgroups, but we could also observe certain meaningful variations. Most significantly, the comparison of the model in the Vision-Yes and Vision-No conditions pointed to the conclusion that for learners with activated imagery skills (i.e., members of the Vision-Yes group), the visionary nature of the ideal self constitutes the most potent self-guide; whereas for someone who cannot or will not engage with mental imagery (i.e., members of the Vision-No group), duties and obligations associated with the ought-to self-guide become a substantial driving force. In both conditions, however, Attitudes to L2 Learning remains the dominant generator and mediator of motivation.

Related to this point, we have argued earlier that Attitudes to L2 Learning mediates some of the positive emotionality that is evoked by the vision, which is reflected by its connection to the two future self-guides. An important result in this respect is that for English majors this mediating link is considerably higher

coming from the Ideal L2 Self than from the Ought-to L2 Self. Considering this point together with the fact (seen earlier) that English majors exceeded the other subgroups in the direct link between Ideal L2 Self and Intended Effort, we may conclude that fundamental commitments such as choosing a career path are effectively energized by imagery-enriched vision.

A particularly strong source of observed variation in our data was caused by gender differences, thus warranting further attention. We found that the proportion of Vision-Yes versus Vision-No group members in the whole sample was considerably higher among females than males, indicating that females are more amenable to L2 visualization than their male peers, and among the subsamples only the English majors—that is, members of the highest motivated group—bucked this trend. This latter pattern that high-level motivation supersedes gender-based variation has also emerged in other results: We saw (in Table 3) that females consistently outscored males among secondary school pupils and non-English majors on all the measures assessed in our survey, but among English majors the same trend was weaker.

In order to have a more detailed understanding of the role played by gender in the overall motivational setup, we also conducted a gender-based multigroup comparison of the full structural model. This revealed that males and females do *not* differ from each other in their overall functional setup of visionary motivation, which—taken together with the differing proportion of visualizers among males and females and the differing magnitude of endorsement of most motivational and imagery-related variables among them—points to an interesting conclusion. Those men and women who engage in visualization apply the process in a functionally similar manner, but the proportion of the high-visualizers is smaller among males than females within the population at large. That is, broadly speaking, although high-visualizer males and females are similarly good, there are more of the latter in the overall population. This claim is supported by the fact that, in the subsample of English majors, which includes comparable numbers of highly motivated learners of both genders, the female advantage shrinks. Further clarification of this issue was obtained from the comparison of the Vision-Yes group across the positive/negative change conditions, where we found that females are more likely to expand positively on their visualization experiences than males, who are more likely to lose the power of the future self-imagery over time. This being the case, we may conclude that the general motivational superiority of females observed in cross-sectional learner samples is likely to be connected to the greater frequency of female high-visualizers in the population, which is at least partly the

consequence of women's better capacity to develop and nurture their visualization skills.

**Motivational Role of Vision (RQ3)**

The observed parallels of Tables 1 and 4 suggest that visualization-based individual differences in motivation are the function of two conditions: First, whether one experiences visualization at all and, second, whether the ongoing dynamics of one's mental imagery take a positive or a negative trajectory. Our final research question focused on this latter condition as it concerned the dynamics of vision in the light of how positive and negative changes in someone's imagery affected the person's motivational disposition. According to our data, the most striking characteristic of this positive/negative change contrast was its magnitude: Learners who experienced a positive change in their ideal self-image consistently outscored those who experience a negative change. Questionnaire surveys are usually ill-suited to explain the underlying reasons for an observed trend, but the fact that the largest differences in the whole sample between the positive/negative change conditions were found in Vividness of Imagery, Attitudes to L2 Learning, and Ease of Using Imagery suggests that a key issue in this respect is the individual's ongoing *experience*, related both to the overall experience of visualization and the overall language learning experience. This finding has considerable practical implications, because these three variables have been found to be amenable to conscious enhancement through teacher intervention (cf. Csizér & Magid, 2014; Dörnyei & Kubanyiova, 2014).

**Theoretical Implications and Conclusion**

Although the large stratified sample lends credibility to the results, we need to note that the linear relationships underlying SEM cannot do full justice to the dynamic processes involved in the ongoing changes and evolution of mental imagery. A further limitation of the SEM procedure is that it can only test the theoretical model that has been inputted and is only one of several possible constructs that might be applied to the data. Finally, the items assessing positive changes in the learners' imagery do not specify exactly the time frame of these changes and, for example, the "past" in the item *In the past I couldn't imagine of myself using English in the future, but now I do imagine it* could in principle even refer to a time before starting to learn English.

On the positive side, the primary theoretical implication of our study is the incorporation of imagery-related variables into the construct of L2 motivation,

thereby outlining a model of visionary motivation. The results indicated that this model applied not only to the whole sample but also to various subgroups, which evidences its consistency. Moreover, the findings confirmed the significance of vision in general and highlighted two central aspects of its development: the initial recognition and activation of imagery skills (which determines whether one experiences visualization at all) and the subsequent nurturing and expansion of these activated skills (defining the future trajectory of one's mental imagery). Our study produced some intriguing data in this respect that implied that women's general superiority in L2 attitudes and motivation might be linked to their better engagement with these processes.

Final revised version accepted 16 March 2015

## References

Al-Shehri, A. H. (2009). Motivation and vision: The relation between the ideal L2 self, imagination and visual style. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 164–171). Bristol, UK: Multilingual Matters.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural models* (pp. 136–162). Newbury Park, CA: SAGE.

Byrne, B. M. (2009). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). New York: Routledge.

Chan, L. (2014). Effects of an imagery training strategy on Chinese university students' possible second language selves and learning experiences. In K. Csizér & M. Magid (Eds.), *The impact of self-concept on language learning* (pp. 357–376). Bristol, UK: Multilingual Matters.

Csizér, K., & Kormos, J. (2009). Learning experiences, selves and motivated learning behavior: A comparative analysis of structural models for Hungarian secondary and university learners of English. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 98–119). Bristol: Multilingual Matters.

Csizér, K., & Magid, M. (Eds.). (2014). *The impact of self-concept on language learning*. Bristol, UK: Multilingual Matters.

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Erlbaum.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative and mixed methodologies*. Oxford, UK: Oxford University Press.

Dörnyei, Z. (2009). The L2 motivational self system. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 9–42). Bristol, UK: Multilingual Matters.

Dörnyei, Z. (2010). *Questionnaires in second language research: Construction, administration, and processing* (2nd ed.). London: Routledge.

Dörnyei, Z. (2014). Future self-guides and vision. In K. Csizér & M. Magid (Eds.), *The impact of self-concept on language learning* (pp. 7–18). Bristol, UK: Multilingual Matters.

Dörnyei, Z., & Chan, L. (2013). Motivation and vision: An analysis of future L2 self images, sensory styles, and imagery capacity across two target languages. *Language Learning*, *63*, 437–462. doi:10.1111/lang.12005

Dörnyei, Z., Ibrahim, Z., & Muir, C. (2015). "Directed Motivational Currents": Regulating complex dynamic systems through motivational surges. In Z. Dörnyei, P. D. MacIntyre, & A. Henry (Eds.), *Motivational dynamics in language learning* (pp. 95–106). Bristol, UK: Multilingual Matters.

Dörnyei, Z., & Kubanyiova, M. (2014). *Motivating learners, motivating teachers: The role of vision in language education*. Cambridge, UK: Cambridge University Press.

Dörnyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited*. New York: Routledge.

Dörnyei, Z., & Ushioda, E. (2011). *Teaching and researching motivation* (2nd ed.). Harlow, UK: Pearson Education.

Fan, X., Thompson, B., & Wang, L. (1999). The effects of sample size, estimation methods, and model specification on SEM fit indices. *Structural Equation Modeling*, *6*, 56–83. doi:10.1080/10705519909540119

Henry, A. (2010). Gender differences in L2 motivation: A reassessment. In S. Davies (Ed.), *Gender gap: Causes, experiences and effects* (pp. 81–102). New York: Nova Science.

Henry, A. (2015). The dynamics of L3 motivation: A longitudinal interview/observation-based study. In Z. Dörnyei, P. D. MacIntyre, & A. Henry (Eds.), *Motivational dynamics in language learning* (pp. 315–342). Bristol, UK: Multilingual Matters.

Henry, A., & Cliffordson, C. (2013). Motivation, gender, and possible selves. *Language Learning*, *63*, 271–295. doi:10.1111/lang.12009

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, *94*, 319–340. doi:10.1037//0033-295X.94.3.319

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55. doi:10.1080/10705519909540118

Kim, T. Y. (2009). Korean elementary school students' perceptual learning style, ideal L2 self, and motivated behavior. *Korean Journal of English Language and Linguistics*, *9*, 461–486. doi:10.15738/kjell.9.3.200909.461

Kim, Y. K., & Kim, T. Y. (2011). The effect of Korean secondary school students' perceptual learning styles and ideal L2 self on motivated L2 behavior and English proficiency. *Korean Journal of English Language and Linguistics*, *11*, 21–42.

Kormos, J., Kiddle, T., & Csizér, K. (2011). Systems of goals, attitudes, and self-related beliefs in second-language-learning motivation. *Applied Linguistics*, *32*, 495–516. doi:10.1093/applin/amr019

Kosslyn, S. M., Thompson, W. L., & Ganis, G. (2006). *The case for mental imagery*. New York: Oxford University Press.

Mackay, J. (2014). Applications and implications of the L2 Motivational Self System in a Catalan EFL context. In K. Csizér & M. Magid (Eds.), *The impact of self-concept on language learning* (pp. 377–400). Bristol, UK: Multilingual Matters.

Magid, M. (2014). A motivational programme for learners of English: An application of the L2 Motivational Self System. In K. Csizér & M. Magid (Eds.), *The impact of self-concept on language learning* (pp. 333–356). Bristol, UK: Multilingual Matters.

Markus, H. R., & Kunda, Z. (1986). Stability and malleability of the self-concept. *Journal of Personality and Social Psychology*, *51*, 858–866. doi:10.1037/0022-3514.51.4.858

Markus, H. R., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*, 954–969. doi:10.1037//0003-066X.41.9.954

Markus, H., & Nurius, P. (1987). Possible selves: The interface between motivation and the self-concept. In K. Yardley & T. Honess (Eds.), *Self and identity: Psychosocial Perspectives*, (pp. 157–172). Chichester, UK: Wiley.

Markus, H. R., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology*, *38*, 299–337. doi:10.1146/annurev.ps.38.020187.001503

Moulton, S. T., & Kosslyn, S. M. (2009). Imagining predictions: Mental imagery as mental emulation. *Philosophical Transactions of the Royal Society B*, *364*, 1273–1280. doi:10.1098/rstb.2008.0314

Papi, M. (2010). The L2 motivational self system, L2 anxiety, and motivated behavior: A structural equation modeling approach. *System*, *38*, 467–479. doi:10.1016/j.system.2010.06.011

Sampson, R. (2012). The language-learning self, self-enhancement activities, and self perceptual change. *Language Teaching Research*, *16*, 317–335. doi:10.1177/1362168812436898

Taguchi, N. (2013). Motivation, attitudes and selves in the Japanese context: A mixed methods approach. In M. T. Apple, D. Da Silva, & T. Fellner (Eds.), *Language learning motivation in Japan* (pp. 169–188). Bristol, UK: Multilingual Matters.

Taguchi, T., Magid, M., & Papi, M. (2009). The L2 motivational self system among Japanese, Chinese and Iranian learners of English: A comparative study. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 66–97). Bristol, UK: Multilingual Matters.

You, C. J., & Chan, L. (2015). The dynamics of L2 imagery in future motivational self guides. In Z. Dörnyei, P. MacIntyre, & A. Henry (Eds.). *Motivational dynamics in language learning* (pp. 397–418). Bristol, UK: Multilingual Matters.

You, C. J., & Dörnyei, Z. (in press). Language learning motivation in China: Results of a large-scale stratified survey. *Applied Linguistics*.

## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

**Appendix S1.** Questionnaire Items Used to Assess the Variables in the Current Study.
**Appendix S2.** Cronbach's Alpha Reliability Coefficients for the Assessed Variables.
**Appendix S3.** Full Structural Model for the Whole Sample.