Examining University Students' Motivation and Their Motivational Behaviors in English Learning with Structural Equation Modeling

Ping-Huang SHEU, PhD
Assistant Professor
Department of Children English Education
National Taipei University of Education
Taipei 106, Taiwan

Abstract

The purpose of this study was to analyze the effect of four end/exogenous motivation variables (i.e. integrativeness, instrumentality, intrinsic orientation and extrinsic orientation) on students' motivational behaviors, using structural equation modeling with the goal of understanding students' English learning processes. In this study, 343 students from 4 universities in Taipei responded to a survey about four components of motivation, and their motivation-related behaviors in learning English. The results of the structural equation modeling showed that significant relationships among four motivation variables exist, and they were positively and directly influenced motivational behaviors.

Keywords: Motivation, Motivational Behaviors, Structural Equation Modeling

1. Introduction

In many English learning contexts, roles of motivation in influencing students' learning processes and their impacts on students' success have received great attention by educators and researchers (Liu, 2007), acknowledging that motivation is the key to sealing the gaps in students' learning and performance (Belmechri & Hummel, 1998; Dörnyei, 2001; Dörnyei & Clèment, 2002; Ushioda, 2008; Wesely, 2009). Research has found that motivation appears to be among the most important factors in triggering students' wants or willingness of involvement in learning and, in turn, enhancing their achievement or reaching their goals (Noels, Clèment, & Pelletier, 2001; Wen, 2001). Furthermore, studies on the relationship among motivation, learning behaviors and achievement has been examined employing structural equation modeling, and has attempted to establish the influence of motivation on its related factors (Gao, Zhao, Cheng, & Zhou, 2004; Hao, Liu, & Hao, 2004; Liu & Huang, 2011; Yang, Liu, & Wu, 2010). However, Liu (2010) argued that it is difficult to capture the full dimensions of the impacts of motivation on learning, because students tend to learn a target language for different reasons or purposes, and there seems to be a great variation in the socio-cultural setting in which the research data are gathered (Dörnyei, 2001). Although the influence of motivation on learning has been investigated, how it affect students' motivational behaviors, such as desires and attitudes, has yet to be solved. This study therefore proposes a hypothetical model to examine via structural equation modeling, four motivation variables (i.e. integrativeness, instrumentality, intrinsic orientation and extrinsic orientation) in influencing students' motivational behaviors (e.g. effort expended in learning English, desire to learning English and attitude toward English).

2. Literature Review

The role of motivation and other factors in influencing students' English learning and its effects on learning achievement have been examined by empirical research using a structural equation model (SEM). An early study conducted by Gardner and Lambert (1959) attributed to the influence of an individual's orientation to learning a language on his or her motivation, attitudes and proficiency, while another study by Lalonde and Gardner (1985) has demonstrated that the three components of motivation tend to be correlated with each other and more highly with achievement. Tremblay and Gardner (1995) investigated the relationship between motivational behavior and motivational antecedents. They found that motivational antecedents including goal salience, valence and self-efficacy, influenced learners' attitudes and their motivational behaviors.

In addition, Gardner, Tremblay and Masgoret (1997) identified a positive relationship between attitudes and motivation and two success dimensions: self-confidence and language learning strategies. Noels's (2003) model indicated that teacher-control and informative feedback influenced students' perceived autonomy and competence, which in turn, affected their intrinsic and extrinsic motivation. Using a L2 communication model, Yashima, Zenuk-Nishide and Shimizu (2004) found an influential path of international posture, motivation to learn L2, L2 communication confidence, willingness to communicate in L2 and frequency of communication. They also perceived international posture as a determinant of willingness to communicate in L2 and frequency of communication. Csizer and Dornyei's (2005) model presented an internal structure of L2 motivation and found that integrativeness affected language choice, but was influenced, on the one hand, by instrumentality, vitality of L2 community and milieu; on the other hand, by attitudes toward L2 speakers, students' cultural interests and self-confidence. As an adoption of expectancy-value theory, Chen and Sheu (2005) identified that while parental encouragement was appropriate in measuring perceived ability and motivation, its impact was established on the value of learning English which lead to integrative and instrumental orientations, and then motivation. They also perceived students' attitudes toward learning situations as a measure of expectancy and perceived ability which in turn, affected their motivation.

As can be seen, it is difficult to capture the full dimensions of the relationship between students' motivation and other learning factors, because many combinations of variables can be adopted (Liu, 2010). Moreover, it is unclear how a number of variables relate to achievement in L2/FL, because individual variable do not operate independently of one another. It seems that despite the multidimensional and irregular nature of motivation, an attempt should be made to reduce the number of variables used to measure its effects, so that research results can be compared and findings validated (Delone & McLean, 2003). Thus, this study, by using structural equation modeling (SEM), implemented a simplified model to examine the influence of students' motivation on their motivational behaviors. The proposed model (see Figure 1) presents the relationship between motivation as operationalized by the 4 dimensions of integrativeness, instrumentality, intrinsic motivation and extrinsic motivation, and motivational behaviors (i.e. motivational intensity, desire to learning English and attitudes toward learning English) in Taiwanese universities.

2.1 Integrativeness and Instrumentality

Based on social psychological approach (Gardner, 1985), these two types of motivation can be referred to as the degree in which a learner engages in an activity "with a full sense of wanting, choosing, and personal endorsement" (Deci, 1992). Integrativeness includes a learner's willingness or affective ability to adapt to characteristics of another cultural group (desire to be like a member of the target language community) and is often seen as an influential factor in language learning (Dörnyei, 2001). That is, learners often hold a positive opinion of the target language and its culture, and may want to integrate themselves into this target language culture and become similar to the target language group (Csizer & Dornyei, 2005). Thus, integrativeness can be divided into integrative orientation, attitude toward English speaking countries and interest in foreign languages (Dörnyei, 2001). Instrumentality involves more functional reasons for learning a language, such as getting a better job or a promotion (Kouritzin, Piquemal & Renaud, 2009), and pertains to the potential pragmatic benefits of having higher language proficiency (Gardner & Lambert, 1972). In other words, if learners realize the usefulness of the target language in their current or future situation, they will feel compelled to improve their language proficiency so as to secure the potential pragmatic gains. It can be said that instrumentality provides the greatest driving force of learning for many language learners (Tremblay & Gardner, 1995).

2.2 Intrinsic Orientation and Extrinsic Orientation

According to self-determination theory (Deci & Ryan, 1985), these two types of motivation are based on how much a learner engages in an activity "with a full sense of wanting, choosing, and personal endorsement" (Ryan & Deci, ; Deci, 1992). Intrinsic orientation refers to learners' participation in a learning activity or task based on their anticipation of receiving some internal rewards, such as learning something new, taking challenges, satisfying curiosity, and developing expertise (Dornyei, 1998; MacIntyre, MacMaster & Baker, 2001). Students' learning is driven by incentives triggered inside rather than appearing factors outside. Extrinsic motivation relates to the desire of being involved in an activity in anticipation of external reward such as having good grades or higher pay, and comparing one's performance to that of others (Deci, Vallerna, Pelletier & Ryan, 1991). This motivation can be classified into three types (Vallerand, 1997). First, external regulation refers to being involved in activities determined by means external to the person, i.e. tangible benefits or punishments.

Then, introjected regulation is inner pressure or emotion, including shame, guilt, and anxiety, that individuals have imposed on themselves while performing an activity. Third, identified regulation refers to performing an activity out of personal choices or reasons, or based on the importance ascribed to the outcomes, rather than the activity itself.

2.3 Motivational Behaviors

Gardner, Lalonde and Pierson (1983) stated that motivation behaviors can be assessed in terms of three components, attitudes toward learning English, desire to learn English, and motivational intensity (i.e. the effort expended in learning the language) (Gardner, Lalonde & Pierson, 1983). Attitudes toward learning English is concerned with students' mental state involving their beliefs, feelings, value and dispositions to learn English in certain ways or to participate in learning activities (Hedge, 2001). Desire to learn English has been defined as students' inner wish or want for learning English that brings satisfaction or enjoyment to them. That is, they consider rewording this achievement and want to take actions to obtain their goal (Gardner & Lambert, 1972). Motivational intensity (i.e. effort expended in learning English) refers to the strength of the tendency that students have in learning English. In other words, learners hold a high degree of emotional excitement in English learning situations, and then make a great progress in learning English (Kouritzin, Piquemal, & Renaud, 2009). The relationship between the two perspectives of motivation and motivational behaviors has been divided into different clusters in previous research depending upon the sociocultural settings in which the research was conducted (Liu, 2010; Noels, Clèment & Pelletier, 2001). Therefore, this research only examined the impact of motivation on motivational behaviors in learning English in universities in Taiwan. The research purposes are listed below:

1. To test the fitness of the proposed model and observed data when students learn English.
2. To discuss the path relationship and effects of the structural model when students learn English.

3. Research Design

3.1 Research Hypothesis Model

Based on the literature review above, the factors in students' motivations and motivational behaviors were inspected, and the structural model of hypotheses is proposed as shown in Figure 1. This includes the latent independent variables of integrativeness, instrumentality, intrinsic motivation and extrinsic motivation, and the observable dependent variables of attitudes toward learning English, desire to learn English and motivational intensity.

According to the research purposes, the research hypotheses are listed as follows:

H1: Integrativeness has a positive relationship with motivational behaviors.
H2: Instrumentality has a positive relationship with motivational behaviors.
H3: Intrinsic orientation has a positive relationship with motivational behaviors.
H4: Extrinsic orientation has a positive relationship with motivational behaviors.

Based on these research hypotheses, the structural model of this study is shown in Figure 1.

3.2 Research Subjects

A total number of 343 college students from four universities in Taipei city participated in this study. All have studied English in school at least 6 years, and their English language proficiency is considered to be at an intermediate level, which is equivalent to a B level in the Common European Framework of Reference for Languages: Learning, teaching, assessment (CEFR). English was one of the subjects they all had to take in their first year of college. The demographics of the respondents are described as follows. The number of Females (59.6%) was higher than males (40.4%), which parallels the normal gender ratio of undergraduate students in public universities in Taiwan. 35% of the respondents were freshmen, 32% sophomores, 20% juniors, and 13% seniors. Finally, with regard to their majors, 42% of the respondents were Humanities and Arts departemts, 32% from Education, and 26% from Science. A total of 350 questionnaires were sent to students via email and 343 respondents were replied, with a reply rate of 99.4%. Since sample numbers between 200 and 500 are recommended for Structural Equation Modeling analyses (Carmines & McIver, 1981), there were 343 samples in this study which was considered reasonable.

3.3 Research Instrument

A questionnaire of Learning Motivation and Motivational Behaviors was adapted from Kyriacou and Coulthard (2000). The questionnaire consisted of 3 sections. The first section collected the demographic data including 6 items, the second section elicited information about motivational behaviors with 24 items, and section three focused on students' motivations, which was further divided into three sub-dimensions of integrativeness (15 items), instrumentality (5 items), intrinsic orientation (6 items), and extrinsic orientation (19 items). The responses to the second and third sections were captured by a rating scale with numeric values of 1, 2, 3 and 4, corresponding to "strongly disagree", "disagree", "agree", and "strongly agree", respectively. With this scale, the higher the score received, the higher the intensity the participant showed on the item. Three English teachers were invited to fill in the first draft of the expert questionnaire so as to establish the validity of the questionnaire. This enabled the experts to inspect the text of the questions and revise or delete those that were unclear. Then, the questionnaire was given to 35 students to examine its reliability, and the overall Cronbach's Alpha reliability value was 0.874.

3.4 Data Analysis

The research models in this study were tested by the AMOS 16.0 version of the structural equation model (SEM) approach. We followed a 2-step analytical procedure (Hair, Black, Babin, Anderson & Tatham, 2010). The model includes 11 items loading on five constructs, and the Confirmatory Factor Analysis (CFA) was first utilized for testing the convergent validity, goodness-of-fit index, and discriminant validity (Hair et al., 2010). Then, the structural model was further examined by the Path Analysis of Latent Variables, including the evaluation of overall fitness, the model parameter estimate test, and the hypothesis test of path coefficient.

4. Results

4.1 Confirmatory Factor Analysis

4.1.1 Convergent validity test

Convergent validity tests whether the questions developed from a variable will converge on a factor (dimension). The test standard refers to (1) the Standardized Factor Loading (SFL) of observed variables, (2) Composite Reliability (CR), and (3) the Average Variance Extracted (AVE) from each latent variable. First, factor loading is to estimate factor scores for each individual to all items (Comrey & Lee, 1992). Hair et al. (2010) recommend a factor loading value to be at least .50. From Table 1, the SFL was between 0.74 and 1.00, reaching a significance level ($p< .001$), and it meant that the items were related to the factor. Then, CR, also named Construct Reliability, refers to the reliability index of latent variables (dimensions) to measure the internal consistency of observed variables (questions in the questionnaire) of latent variables (Hair et al., 2010). At the construct level, a CR value of 0.70 or higher is acceptable (Bagozzi & Yi, 1988). As can be seen from Table 2, the CR values of the dimensions appeared between 0.72 and 0.89, so the overall reliability presented the reference value. Finally, the AVE was computed as a measure of the overall amount of variance that is attributed to the construct in relation to the amount of variance attributable to measurement error (Fornell & Larcker, 1981), and an AVE of more than 0.50 is recommended (Hair et al., 2010). Table 2 shows that all Average variance extracted values appear between 0.51 and 0.70, exceeding 0.50. Overall, all values appeared to provide support for convergent validity, and therefore, it can be conclude that convergent validity of the measurement model in this study has been establishment.

4.1.2 Discriminant validity test

Discriminant validity is established when the variance shared between a construct and any other construct in the model is less than the variance that the constructs share with its indicators (Fornell & Larcker, 1981). But it refers to the questions in various dimensions where the correlations should be low, and thus, is assessed by comparing the square root of the AVE for a given construct with the correlations between that construct and all other constructs. By doing so, when the correlation between the two dimensions is low, they present discriminant validity (Churchill, 1979). It is suggested that the AVE square root of each dimension should be larger than the number of the correlative coefficient in various dimensions and at least represented by 75% of the overall comparative number (Hair et al., 2010). As seen in Table 2, after the Correlation Analysis of the 5 dimensions, 10 correlations were between 0.37 and 0.70, compared with the AVE square roots between 0.71 and 0.84, and none was larger than 0.71.

In this case, the AVE square root of each dimension was larger than the number of correlative coefficients in various dimensions and the discriminant validity of the measurement model was favorable.

4.1.3 Fitness test

Hair et al. (2010) suggested using fit indices from three categories: absolute fit indices, parsimonious indices and incremental fit indices. In this study the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Residual (SRMR) were used. Moreover, the ratio of $\chi^2$2 to its degree of freedom (χ^2/df) was used with a range between 1.0 and 3.0, being indicative of an acceptable fit between the hypothetical model and the sample data (Carmines & McIver, 1981). As can be seen in Table 3, χ^2 in instrumentality (7.775, p=0.06>α) and extrinsic orientation (24.168, p=0.06>α) did not reach significance, corresponding to the fit index, while χ^2 in integartiveness (26.098, p=0.006<α), intrinsic orientation (21.251, p=0.031<α), and motivational behaviors (6.268, p=0.044<α) achieved significance, not corresponding to the fit index. The result of such an evaluation index might suggest that the theoretical model and observed data did not fit; however, when the ratio of χ^2/df of each dimension was examined, the results showed that all values of the five dimensions satisfied the recommended levels of the standard fitness.

With regard to other indices, GFI, AGFI, NFI, IFI and CFI of the dimensions in the theoretical model appeared above the recommended value of 0.9, except for AGFI of intrinsic orientation (being 0.891, close to 0.9). Considering the covariance percentage of observed data where the closer the value to 1 presenting the better fitness, the above index evaluation indicated that the fitness is regarded as optimal. Standardized root mean square residual (SRMR), as the mean square root of the square elements in the residual covariance matrix, reflects the residual value. When the value is small, the model fitness is better, and 0.05 is suggested as the standard value. Moreover, root mean square error of approximation (RMSEA) is regarded as the measure of discrepancy per degree of freedom (i.e. Good fit<0.05, Fair fit=0.05~0.08, Mediocre fit=0.08~0.10, and Bad fit>0.10). As shown in Table 2, all values of SRMR were less than the standard 0.05, reflecting the good fit, and RMSEA was regarded as a fair fit. Concerning PNFI and PGFI in the parsimony goodness-of-fit index, a standard value of 0.05 was recommended, and the results show that they did achieve standard fitness, and CN of the two indices also reached the standard, indicating that the entire measurement model presented favorable fitness.

4.2 Path Analysis of Latent Variables in the Structural Model

4.2.1 Offending estimate test

The results of the offending estimate in the structural model are demonstrated in Table 4. The Error Variance (EV) in the overall model was positive, the standardized regression weighted coefficient was between 0.35 and 1.00, and the standard error was between 0.031 and 0.085. Since the three tests corresponded to the standard, no offending estimate appeared in the structural model.

4.2.2 Model parameter estimate test

Table 4 presents the factor loading estimate (regression weighted coefficient) of latent variables and the squared multiple correlations (R^2) of observed variables. The factor loading estimates were between 0.35 and 1.00, achieving the significant standard (p>.05). According to Hair, et al. (2010), the R^2 value is to be at least 0.50, and all values were scored between 0.53 and 1.00. These results appeared to provide support for the appropriateness of the error covariance scaling in the model.

4.2.3 Overall goodness of fit index test

The level of acceptable fit and the fit indices for the proposed model in the study are listed in Table 5. The results show that χ^2 of the overall model (121.13, p=0.00<α) achieved the significant standard; the ratio of χ^2/df (3.461) reached the fit. In addition, all relative fit indices (i.e. GFI=0.948, AGFI=0.901, NFI=0.948, CFI=0.962, RFI=0.919, and IFI=0.963) were higher than the standard 0.9, and thus, achieved the optimal fitness. Both RMR and RMSEA were less than the fit standard 0.05 and 0.08 respectively. In the parsimony fit index, PNFI (0.612) and PGFI (0.603) also achieved above the fit standard 0.5; however, CN (186) did not reach the fit standard (200). Adding these results together, the structural model in this study has a good fit.

4.2.4 Hypothesis test

Table 6 shows the verification of the theoretical model, and the results of the path coefficient. All the paths showed significant effects at the 0.001 level, and among them, integrativeness has the strongest effect on motivational behaviors.

All the hypotheses were supported. Thus, the reliability, validity and fitness between theoretical model and observed variables corresponding to the four hypotheses were confirmed, and the path in the four hypotheses also reached significance so that the four hypotheses were confirmed.

5. Discussion

The purpose of this study was to examine the relationships between motivation (in terms of integrativeness, instrumentality, intrinsic orientation and extrinsic orientation) and motivational behaviors. Using structural equation modeling (SEM), the results show that four hypotheses were supported, and the four components of motivation directly and significantly affected their motivational behaviors. Among them, when integrativeness was concerned, interest in foreign language should be emphasized, while identified regulation was the key factor in promoting students' extrinsic orientation. In addition, motivational intensity appeared to hold the most influential effect on motivational behaviors. The present study provided some empirical insights into the relationship between motivation and motivational behaviors. The importance of these results lies in the fact that the four variables as influential factors have positive and significant impacts on students' motivational behaviors. In other words, students' learning behaviors are fueled by their passionate commitment to learn English and awareness of the pragmatic benefits of acquiring the language.

Concomitant to this are essential inclusion and promotion of these four factors in English programs. Teachers should realize the effects of these factors and transform static learning environments into opportunities for students to learn and grow. Thus, teachers should examine and evaluate their teaching, and then react to make necessary changes to improve students' motivation, which eventually will lead to students' better performance and achievement in learning English. An additional look at the results indicates that the four variables are highly and positively correlated. The implications of this finding is that teachers should do whatever they can to stimulate and foster these factors in their students' learning if they want to significantly influence students' learning behaviors. The end aim is to utilize these four factors as a powerful incentive to bring about higher student engagement in learning. There is a strong likelihood that fostering one will result in increasing the others, and thus, it is indispensable to promote these four factors in the present English learning settings.

References

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation for structural equation models. Journal of the Academy of Marketing Science, 16, 74-94.

Belmechri, F., & Hummel, K. (1998). Orientations and motivation in the acquisition of English as a second language among high school students in Quebec city. Language Learning, 2, 219-244.

Carmines, E. G., & McIver, J. P. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. Thousand Oaks, California: Sage.

Chen, I., & Sheu, S. P. (2005). Applying the expextancy-value theory to foreign language learning motivation: A case study on Takming college students. Journal of National Taipei Teachers College, 18(1), 201-208.

Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. Journal of Marketing Research, 16(1), 64-73.

Comrey, A. L., & Lee, H. B. (1992). A first course in factor analysis (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Csizer, K., & Dornyei, Z. (2005). The internal structure of language learning motivation and its relationship with language choice and learning effort. Modern Language Journal, 89, 19-36.

Deci, E. L. (1992). On the nature and functions of motivation theories. Psychological Science, 3, 167-171.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum Press.

Deci, E. L., Vallerna, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. Educational Psychology, 26, 325-346.

Delone, W. H., & McLean, E. R. (2003). The Delone and McLean model of information system success: A ten-year update. Journal of Management Information System, 19(4), 9-30.

Dornyei, Z. (1998). Motivation in second and foreign language learning. Language Teaching, 31, 117-135.

Dörnyei, Z. (2001). Teaching and researching motivation. Longman, UK: Pearson Education Limited.

Dörnyei, Z., & Clèment, R. (2002). Motivational characteristics of learning different target languages: Results of a nationwide survey. In Z. Dörnyei, & R. Schmidt (Eds.), Motivation and second language acquisition (pp. 399-432). Honolulu: University of Hawaii Press.

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement errors. Journal of Marketing Research, 18(1), 39-50.

Gao, Y., Zhao, Y., Cheng, Y., & Zhou, Y. (2004). Motivation types of Chinese university students. Asian Journal of English Language Teaching, 14, 45-64.

Gardner, R. C. (1985). Social psychology and second language learning. London, UK: Arnold.

Gardner, R. C., & Lambert, W. E. (1959). Motivational variables in second language acquisition. Canadian Journal of Psychology, 13, 266-272.

Gardner, R. C., & Lambert, W. E. (1972). Attitudes and motivation in second language acquisition. Rowley, MA: Newsbery House.

Gardner, R. C., Lalonde, R. N., & Pierson, R. (1983). The socio-educational model of second language acquisition: An investigation using LISREL causal modeling", Journal of Language and Social Psychology, 1, 1-15.

Gardner, R. C., Tremblay, P. F., & Masgoret, A. (1997). Towards a full model of second language learning: An empirical investigation. Modern Language Journal, 81(3), 344-62.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. Upper Saddle River, NJ: Prentice-Hall.

Hao, M., Liu, M., & Hao, R. P. (2004). An empirical study on anxiety and motivation in English as a foreign language. Asian Journal of English Language Teaching, 14, 89-104.

Hedge, T. (2000). Teaching and Learning in the Language Classroom. Oxford, UK: Oxford University Press.

Kouritzin, S. G., Piquemal, N. A., & Renaud, R. D. (2009). An international comparison of socially constructed language learning motivation and beliefs. Foreign Language Annals, 42, 287-317.

Kyriacou, C., & Coulthard, M. (2000), Undergraduates' views of teaching as a career. Journal of Education in Teaching, 26(2), 117-126.

Lalonde, R. N., & Gardner, R. C. (1985). On the predictive validity of the Attitude/Motivation Test Battery. Journal of Multilingual and Multicultural Development, 6, 403-412.

Liu, M. (2007). Chinese students' motivation to learn English at the tertiary level. Asian EFL Journal, 9, 126-146.

Liu, M. (2010). Motivation in Chinese university EFL learners in varying learning contexts. TESL Reporter, 45, 17-39.

Liu, M., & Huang, W. (2011). An exploration of foreign language anxiety and English learning motivation. Education Research International, 1, 1-8.

MacIntyre, P. D., MacMaster, K., & Baker, S. C. (2001). The convergence of multiple models of motivation for second language learning. In Z. Dornyei, & R. Schmidt (Eds.), Motivation and second language acquisition (pp. 461-492). Honolulu, HI: University of Hawaii Press.

Masgoret, A., & Gardner, R. (2003). Attitudes, motivation, and second language learning: A meta-analysis of studies. Language Learning, 53, 123-163.

Noels, K. A. (2002). New orientations in language learning motivation: Towards a model of intrinsic, extrinsic, and integrative orientations and motivation. In Z. Dörnyei, & R. Schmidt (Eds.), Motivation and second language acquisition (pp. 43-68). Honolulu, HI: University of Hawaii Press.

Noels, K. A., Clèment, R., & Pelletier, A. G. (2001). Intrinsic, extrinsic, and integrative orientations of French Canadian learners of English. The Canadian Language Review, 57, 424-442.

Noels, K. A. (2003). Learning Spanish as a second language: Learners' orientations and perceptions of their teachers' communication style. Language Learning, 53(1), 97-136.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new direction. Contemporary Educational Psychology, 25, 54-67.

Tremblay, P. F., & Gardner, R. C. (1995). Expanding the motivation construct in language learning. The Modern Language Journal, 79, 505-518.

Ushioda, E. (2008). Motivation and good language learners. In C. Griffiths (Ed.), Lessons from good language learners (pp.19-34). Cambridge, UK: Cambridge University Press.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation". In M. P. Zanna (Ed.), Advances in experimental social psychology (pp. 271-360). San Diego: Academic Press.

Wen, Q. (2001). Developmental patterns in motivation, beliefs and strategies of English learners in China. Foreign Language Teaching and Research, 33, 105-110.

Wesely, P. M. (2009). The language learning motivation of early adolescent French immersion graduates. Foreign Language Annals, 42, 270-286.

Yang, L., Liu, M., & Wu, W. (2010). An investigation of Chinese undergraduate non-English majors' English learning motivation. In Z. Lu, W. Zhang, & P. Adams (Eds.), ELT at tertiary level in Asian context: Issues and researchers (pp. 48-62). Hong Kong: Hong Kong Polytechnic University.

Yashima, T., Zenuk-Nishide, L., & Shimizu, K. (2004). The influence of attitudes and affect on willingness to communicate and second language communication. Language Learning, 54(1), 119-152.

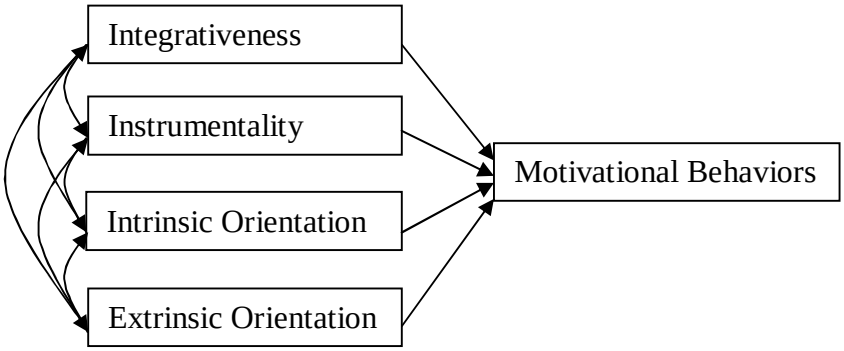

Figure 1: The Structural Model

Table 1: Confirmatory Factor Analysis (CFA) of the Measurement Model

Latent Variables	M	SD	Convergent Validity		
			FL (<.70)	CR (≥.70)	AVE (≥.50)
1.Motivational Behaviors	2.78	.49		.82	.60
MI			.81	.78	.51
ALE			.84	.89	.64
DLE			.79	.73	.56
2.Integrativeness	3.24	.54		.87	.70
ITO			.77	.84	.63
AEC			.84	.77	.53
IFL			.89	.82	.52
3.Instrumentality	3.24	.51			
ISO			1.00	.85	.58
4.Intrinsic Orientation	2.81	.63			
IO			1.00	.82	.50
5.Extrinsic Orientation	2.98	.61		.76	.57
ER			.76	.81	.62
INR			.74	.72	.57
IDR			.93	.80	.57

Note. M = Mean; SD = Standard Deviation; FL = Factor Loading; CR = Composite Reliability; AVE = Average Variance Extracted.

Table 2: Discriminant Validity for the Measurement Model

	M	SD	1	2	3	4	5
1.Integrativeness	3.24	.54	(.84)				
2.Instrumentality	3.24	.51	.65**	(.76)			
3.Intrinsic Orientation	2.81	.63	.37	.68**	(.71)		
4.Extrinsic Orientation	2.98	.61	.59*	.63**	.70**	(.75)	
5.Motivational Behaviors	2.78	.49	.64**	.55*	.57*	.67**	(.77)

Note. ** = p<.01; Diagonal in parentheses = squared root of average variance extracted from observed variables (items); Off-diagonal = correlations between constructs.

Table 3: The Summary of the Fit Indices for the Model

Fit measures	Standard	ITG	IS	EO	IO	MB
Absolute						
χ^2	p>.05	164.71*	7.775	24.168	90.32*	89.89*
GFI	>.90	.941	.999	.999	.951	.964
SRMR	<.05	.043	.018	.022	.045	.035
RMSEA	<.08	.068	.053	.052	.060	.056
χ^2/df	1>NC>3	2.745	1.555	1.272	2.516	1.798
Relative	>.90	.911			.891	.944
AGFI	>.90	.931	.993	.996	.941	.963
NFI	>.90	.955	.999	.999	.954	.983
IFI	>.90	.954	1.000	1.000	.953	.983
CFI			1.000	1.000		
Parsimonious	>.50	.734			.530	.745
PCFI	>.50	.716	.167	.400	.523	.729
PNFI	>200	285	.167	.399	233	287
CN			442	333		

Note. ITG = Integrativeness; IS = Instrumentality; EO = Extrinsic Orientation; IO = Intrinsic Orientation; MB = Motivational Behaviors.

Table 4: Parameter Estimates of the Overall Model

Parameter		SFL	SE	EV	SMC
Motivational Behaviors	← Integrativeness	.85*	.048	-	-
Motivational Behaviors Motivational	← Instrumentality	.47*	.036	-	-
Behaviors Motivational Behaviors	← Extrinsic Orientation	.35*	.046	-	-
	← Intrinsic Orientation	.67*	.056	-	-
MI	← Motivational Behaviors	.80*	.031	.437	.63
ALE	← Motivational Behaviors	.74*	.044	.384	.71
DLE	← Motivational Behaviors	.69*	.050	.523	.47
ITO	← Integrativeness	.77*	.050	.486	.60
AEC	← Integrativeness	.84*	.060	.554	.70
IFL	← Integrativeness	.89*	.053	.385	.79
ER	← Extrinsic Orientation	.36*	.060	.652	.53
INR	← Extrinsic Orientation	.54*	.071	.402	.59
IDR	← Extrinsic Orientation	.93*	.056	.335	.87
ISO	← Instrumentality	1.00*	.085	.664	1.00
IO	← Intrinsic Orientation	1.00*	.082	.584	1.00

Note. *p<.05; - = Represents No Estimate; SFL = Standardized Factor Loading (regression weighted coefficient); SE = Standard Error; EV = Error Variance; SMC = Squared Multiple Correlation (R^2).

Table 5: Test of Good-of-Fit Index of the Overall Model

	FI	MFC	Results	AF
Absolute Fit Indices	χ^2	p>.05	121.13(p=.000)	No
	χ^2/df	1>NC>3	3.461	Yes
	GFI	>.90	.948	Yes
	RMR	<.05	.017	Yes
	RMSEA	<.08	.080	Yes
Relative Fit Indices	AGFI	>.90	.901	Yes
	NFI	>.90	.948	Yes
	CFI	>.90	.962	Yes
	RFI	>.90	.919	Yes
	IFI	>.90	.963	Yes
Parsimonious Fit Indices	PCFI	>.50	.612	Yes
	PNFI	>.50	.603	Yes
	CN	>200	158	Yes

Note. FI = Fit Indices; MFC = Model Fit Criterion; AF = Assessment of Fit.

Table 6: Test of Path Relationship

Hypotheses	Path	Path coefficient	t-value	Results
H1	ITG→MB	.85**	7.34	Supported
H2	IS→MB	.47**	4.65	Supported
H3	EO→MB	.35**	4.20	Supported
H4	IO→MB	.67**	5.68	Supported

*p<.001