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Second Language Orientation
and Self-Determination Theory

A Structural Analysis of the Factors
Affecting Second Language Achievement

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The purpose of the present study is two-fold. First, the present study examines statistical similarity between the integrative and instrumental orientation and Self-Determination Theory subtypes of motivation using chi-square invariance test. Second, based on the results of the chi-square invariance test, the present study further investigates the structural relationships among factors affecting second language achievement. Results of the chi-square invariance test evidence a statistical similarity between the instrumental orientation and external regulation, whereas similarity between the integrative orientation and intrinsic motivation did not reach the point of statistical significance. Results of the structural analyses demonstrate that intrinsic motivation was the strongest determinant of learners’ self-confidence and motivation to learn a second language. It is also found that intrinsic motivation was only indirectly related to second language achievement through the mediating effects of motivation and self-confidence. Pedagogical implications are discussed.

Keywords: self-determination theory; second language motivation; structural equation modeling; chi-square invariance test; orientation; second language achievement

Researchers in the field of second language motivation have paid scholarly attention to a host of reasons for or orientations to learning a second language (L2; Clément & Kruidenier, 1983; Crookes & Schmidt, 1991; Dörnyei, 1990; Gardner & Lambert, 1972; Oxford & Shearin, 1994). Among various L2 orientations, the pragmatic reason for learning an L2, referred to as the instrumental orientation, is often contrasted with another L2 orientation that emphasizes interactions and identification with members of the L2 community (i.e., integrative orientation), and it is further suggested that the integrative orientation is a better predictor of L2 outcomes (e.g., achievement or motivated behavior) than the instrumental orientation. The exact

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nature of the relationships between the instrumental and integrative orientation, however, seems to be unclear, because of the inconsistent findings reported on the relationships among the instrumental orientation, integrative orientation, and L2 achievement (Chihara & Oller, 1978; Gardner & Lambert, 1972; Gardner & Santos, 1970; Lukmani, 1972; Oller, Hudson, & Liu, 1977), thereby prompting researchers to consider alternative models of motivation (Crookes & Schmidt, 1991; Dörnyei, 1994, 2003; Oxford, 1996; Oxford & Shearin, 1994).

One alternative conceptualization of motivation that has direct implications to educational settings has been proposed by Deci and Ryan (1985). According to these researchers, different subtypes of motivation (i.e., intrinsic and extrinsic motivation) can be modeled along a single continuum depending on the degree of self-determination. Specifically, Deci and Ryan distinguished intrinsic motivation from extrinsic motivation and suggested that this distinction is particularly useful for understanding individual differences in educational outcomes. Despite the conceptual overlaps between the motivational subtypes suggested by self-determination theory (SDT) and the instrumental and integrative duality, there have been few attempts (e.g., Noels, 2001a) to see these related motivational constructs through the same lenses.

Furthermore, it is often suggested in the literature that L2 learning motivation is affected by specific L2 learning contexts to which L2 learners are exposed (Clément & Kruidenier, 1983; Dörnyei, 1990; Oxford, 1996; Oxford & Shearin, 1994; Schmidt, Boraie, & Kassabgy, 1996). For instance, in an ESL (English as a Second Language) situation, where direct contact with native speakers of English is possible, English is mastered through direct exposure to it. In an EFL (English as a Foreign Language) context, however, English learning mostly takes place in academic or formal classroom settings without regularly interacting with the English language community, thereby limiting generalization of the studies based on an ESL sample.

Therefore, the present study explores the relationships among SDT motivational subtypes (i.e., the intrinsic and extrinsic motivation) and the instrumental and integrative orientation for a sample of Korean EFL learners. Then, based on the information about the relationships among SDT motivational subtypes and the integrative and instrumental orientation, the present study examines the structural relationships between these orientation variables and L2 achievement in the presence of other potential mediating variables. Investigation of a Korean sample is of a special relevance to the current study, because specific L2 orientations may be confounded with ethnicity and linguistic milieu (Clément & Kruidenier, 1983; Clément, Noels, & MacIntyre, 2007) and most of the studies in the area of L2 motivation have been conducted with North American or European samples.

The Korean EFL Context

Traditionally, English education in South Korea has given emphasis to grammar translation method (GTM). English has been mainly taught in the formal classroom
settings without meaningful exposure to authentic use of English, and accordingly, GTM has been a guiding principle for English learning and teaching for a long time. Due to the introduction of English in the elementary school and Korean government’s campaign for globalization, however, communicative use of English has recently received attention from classroom teachers, researchers, and policy makers (Y. Kim, 2006; Kwon, 2000), thus bringing some changes in English curriculum design and assessment policy.

In South Korea, English is a required school subject from grade 3 to grade 12 (Kwon, 2000). In reality, however, a majority of students from kindergarten to university spend substantial amount of time learning English, because strong competence in English is a great advantage to enter and graduate from university, obtain better jobs, advance in companies or joint ventures, and study abroad (Y. Kim, 2006). According to a recent statistic released by the Bank of Korea, it is estimated that more than US$30 billion were wired from Korea to America to cover the tuition and living expenses for students studying abroad in the sole year of 2004 (H. Kim, 2006). In spite of the time and efforts invested in learning English, the average English proficiency of Korean students, as measured by standardized test scores such as TOEFL (Test of English as a Foreign Language), seems to be rather unsatisfactory (H. Kim, 2006). Regardless, few attempts have been made to examine the structural relationships among individual factors affecting English achievement for Korean learners of English. Accordingly, the direct and indirect paths that lead to learners’ increased achievement of English are not identified, thereby preventing a scientific design of English curriculum and teaching methods that are closely aligned to the Korean EFL context. Therefore, it is necessary to investigate the factors that directly affect English achievement for Korean EFL learners.

**SDT of Motivation**

SDT of motivation focuses on the dialectical relationships between growth-oriented human beings and social contexts that facilitate or block people’s motivation to actualize their potentials (Deci & Ryan, 1985, 2002; Deci, Vallerand, Pelletier, & Ryan, 1991). This motivation is maximized in a social context that satisfies inherent human needs for competence, autonomy, and relatedness. Therefore, in SDT, providing opportunities to satisfy these basic human needs is important for people to be innately motivated (i.e., self-determined).

SDT researchers (Deci & Ryan, 2002) have proposed a motivational framework based on the extent of self-determination. For instance, intrinsic motivation is the most self-determined form of motivation. Intrinsically motivated people are engaged in activities because of the inherent pleasure and satisfaction derived from doing so, rather than contingencies or reinforcements external to the activities.

Extrinsic motivation, on the other hand, refers to the motivational tendency that drives people to pursue an activity not because of the experience of interest and
enjoyment per se but because of some instrumental ends that are external to the activity. Extrinsic motivation can be further divided into four subcategories (i.e., external regulation, introjected regulation, identified regulation, and integrated regulation) depending on the extent of internalization (i.e., self-determination). Following advice from Noels (2001b), only the first three subcategories of extrinsic motivation are discussed here, due to the difficulty of distinguishing integrated from identified regulation. According to the theoretical framework suggested by Deci and Ryan (1985, 2002), external regulation is the least autonomous form of extrinsic motivation and refers to the behaviors where one performs an activity to satisfy external demands (e.g., praise or punishment) or social contingency. For instance, a student who practices a foreign language to obtain some rewards is externally regulated. Introjected regulation occurs when a person feels some kind of pressure (e.g., guilt, shame, or self-aggrandizement) to be involved with a task. Although the locus of regulation (i.e., pressure) is within the person, introjected regulation does not represent self-determination, because introjected behaviors are accompanied not by a true choice but coercion. Finally, identified regulation is the most self-determined form of extrinsic motivation and allows the person to value the goal of the behavior and to accept the behavior as personally important. Therefore, the person with identified regulation is engaged in an activity with more sense of choice or volition. It is notable that the person showing identified regulation voluntarily sustains an effort as long as he or she perceives the usefulness or instrumental value of doing so, which characterizes identified regulation to be a subcategory of extrinsic motivation rather than intrinsic motivation.

Research on the Links between SDT Motivational Subtypes and L2 Orientations

Two different views have been reported in the literature on the relationships between motivation and orientation. On one hand, the socioeducational tradition of L2 acquisition maintains a sharp distinction between motivation and orientation. Gardner (1985a), for instance, repeatedly emphasized that the two terms should not be confused with each other. Specifically, orientation is “a class of reasons” (Gardner & Tremblay, 1994, p. 361) for studying the language, whereas motivation reflects “the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity” (Gardner, 1985a, p. 10). Thus, under the socioeducational model of L2 acquisition, motivation is operationally defined as the combination of motivational intensity and desire to learn an L2 and attitudes toward learning an L2. However, SDT researchers of L2 motivation (Ryan, 1995) keep a less stringent distinction between motivation and orientation. Specifically, they suggest that motivation is not limited to the level or amount of motivational intensity or L2 desire but also includes certain motivational orientation, thereby signaling conceptual overlaps between motivation and orientation. Therefore, as discussed by
Noels (2001b) and Deci and Ryan (1985), SDT motivational subtypes such as extrinsic and intrinsic motivation can be also classified as subcategories of orientation (i.e., extrinsic and intrinsic orientation) and further provide a theoretical framework for studying the intrinsic and extrinsic motivation in reference to different L2 orientations (e.g., instrumental and integrative orientation).

So far, only a few studies have systematically explored the relationships between SDT motivational subtypes and various L2 orientations. For example, Noels, Pelletier, Clément, and Vallerand (2000) examined the relationships between several SDT motivational constructs and four common L2 orientations (i.e., knowledge, travel, friendship, and instrumental) suggested by Clément and Kruidenier (1983). The results of the study showed that the instrumental orientation was most highly correlated with external regulation (i.e., correlation coefficient \( r = 0.74 \)), whereas knowledge, travel, and friendship orientations were more closely related with intrinsic types of motivation (i.e., correlation coefficients ranged from 0.51 to 0.80), thus evidencing strong conceptual similarities between the instrumental orientation and external regulation on one hand and between the three remaining orientations and intrinsic motivation on the other. The relationships between the integrative orientation and SDT subtypes of motivation, however, were analyzed by a separate study (Noels, 2001b). This study performed a standard multiple regression to compute independent correlation between the integrative orientation and each subtype of SDT motivation after partialling out the common variance among SDT constructs. The results demonstrated that the integrative orientation was significantly associated with intrinsic motivation (i.e., correlation coefficient \( r = 0.63 \)) as well as identified regulation (i.e., correlation coefficient \( r = 0.62 \)). However, a significant correlation coefficient is defined as the one that significantly differs from zero (Crocker & Algina, 1986). Accordingly, it is still open to question how strong a correlation coefficient is needed to demonstrate the statistical similarity between two related constructs. Moreover, the results reported by Noels and her colleagues have not been replicated with a different national sample. Thus, it is necessary to accurately assess the relationships between SDT motivational subtypes and L2 orientations using a more rigorous statistical analysis for a sample collected outside North America.

Orientations and L2 Outcomes

L2 learning orientations are often correlated with or regressed to various L2 outcome measures to justify the importance of an individual L2 orientation relative to others. Among the many L2 orientations, the integrative orientation has received the strongest empirical attention from the field of L2 acquisition. Earlier studies showed inconclusive evidence in support of the integrative orientation in predicting L2 achievement. For example, Oller and his colleagues (Chihara & Oller, 1978; Oller et al., 1977) reported no significant, or even a negative, correlation between the integrative orientation and L2 proficiency. However, a recent empirical study that applied structural...
equation modeling (SEM) for a sample of Hungarian learners of English attested to the superior role played by the integrative orientation in explaining the variance associated with learners’ motivational effort (Csizér & Dörnyei, 2005). Another recent SEM study with 567 Chinese EFL learners found that integrative orientation made no direct or indirect influences on the Chinese learners’ self-evaluated English skills (Chen, Warden, & Chang, 2005). These results suggest that the exact relationship between sets of orientations and L2 outcomes merits a more advanced investigation using a different national sample, because it is well known that the relation of L2 orientations to achievement varies as a function of ethnicity and linguistic milieu (Clément & Kruidenier, 1983; Clément et al., 2007).

When it comes to intrinsic and extrinsic motivation, it is generally known that a high level of intrinsic motivation is linked to greater motivated behavior and persistence (Ramage, 1990), higher self-efficacy (Ehrman, 1996), stronger intention to continue L2 study (Noels, Clément, & Pelletier, 1999), less perceived anxiety, and children’s enhanced academic achievement (Harter & Connell, 1984), whereas extrinsic motivation tends to indicate the opposite patterns. For studies with EFL samples, it is found that both intrinsic and extrinsic motivations are associated with successful L2 learning. For instance, Wen (1997) reported that intrinsic-oriented as well as extrinsic-oriented motivations could lead to success for learners of Chinese as a foreign language. Similarly, Taiwanese EFL students were mainly motivated by requirement rather than by either integrative or instrumental orientation (Warden & Lin, 2000). Kang (2001) also examined the motivational basis of Korean EFL learners using exploratory factor analysis and found that both intrinsic and extrinsic motivations were involved with L2 achievement. However, these studies did not include important mediator or moderating variables, thus masking the true relationship between SDT motivational subtypes and L2 achievement.

In this regard, it is noted in the literature that L2 orientations exert their influences on L2 achievement indirectly through mediator variables such as motivational intensity or learners’ perceived self-confidence (Clément, Dörnyei, & Noels, 1994; Clément & Kruidenier, 1985; Gardner, 1985a, 2001; Masgoret & Gardner, 2003). This suggests that the relationship between various L2 orientations and achievement cannot be accurately determined without considering the full structural relationships among factors directly or indirectly affecting L2 achievement.

Factors Affecting L2 Achievement

Several factors are known to affect learners’ L2 achievement. Previous studies have shown that individual differences in motivation (Gardner, 1985a), self-confidence (Clément, 1980), or language learning attitudes (Gardner, 1985a; Gardner & Lambert, 1972) are closely linked to L2 achievement. A majority of these studies examined intercorrelations to assess the strength of the relations between L2 achievement and target variables without reference to other factors that directly or indirectly influence
L2 achievement, hence limiting the generalizability of the findings. A systematic investigation of structural relationship of the factors affecting L2 achievement requires the use of an advanced methodology known as SEM.

However, only a few studies have examined the structural specification of factors leading to L2 achievement. For instance, the socioeducational model of L2 achievement developed by Gardner (1985a) is a seminal investigation of the structural relationship among factors that are related to L2 achievement. According to the socioeducational model, motivation, defined as “the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity” (Gardner, 1985a, p. 10), is a direct determinant of L2 achievement, whereas attitudinal or affective variables indirectly influence L2 achievement through motivation. The structural relationship, as suggested by the socioeducational model of L2 achievement, has been supported through a series of empirical studies (Gardner, Tremblay, & Masgoret, 1997; Masgoret & Gardner, 2003; Tremblay & Gardner, 1995).

Another causal factor that directly explains the variances associated with L2 achievement is self-confidence. Self-confidence is operationally defined as low anxiety and high self-evaluation of L2 competence (Clément et al., 1994). Clément (1980) and Clément and Kruidenier (1985) argue that in bicultural or multicultural contexts, where direct contact with the L2 speakers is available, positive attitudes toward an L2 would promote interactions with the L2 speakers, which in turn develop an independent motivational process identified as self-confidence. In such a context, self-confidence becomes an important determinant of attitudes and efforts to learn an L2 and directly influences L2 achievement. A subsequent study by Clément et al. (1994) showed that a model of L2 achievement based on self-confidence is also applicable to a unicultural context, such as the case of Hungary.

To date, no studies have investigated the simultaneous structural relationships between several types of L2 orientations (i.e., integrative and instrumental orientation, intrinsic motivation, and three subtypes of extrinsic motivation) and L2 achievement in presence of other potential mediating or moderating variables in an EFL context. Hence, the current study aims to identify the full structural relationships among potential factors that directly or indirectly influence L2 achievement for Korean EFL learners under the framework of motivation and perceived self-confidence. Knowledge of the structure of the factors leading to successful L2 achievement is critical for developing learner-centered language curricula or classroom teaching methods that are geared to specific learner groups.

**Research Questions**

The first question of the present research concerns the relationships between the instrumental and integrative orientation and the extrinsic and intrinsic motivation. The formal statement of the first research question is provided as the following:
Research Question 1: What is the exact relationship between the instrumental orientation, three subcategories of extrinsic motivation, and intrinsic motivation on one hand, and the integrative orientation, three subcategories of extrinsic motivation, and intrinsic motivation on the other hand in the Korean EFL context?

The second research question is to simultaneously examine the full structural relationships between six motivational variables (i.e., instrumental, integrative, external, introjected, identified, and intrinsic) and L2 achievement in the presence of potential mediating or moderating variables. The formal statement of the second research question is as follows:

Research Question 2: What is the structural relationship between orientation variables, self-confidence, motivation, and L2 achievement for a sample of Korean EFL learners?

Competing Models

To statistically assess the relations of the instrumental and integrative orientation to the extrinsic and intrinsic motivation (i.e., Research Question 1), two sets of competing models were formulated. The first set of competing models was based on 15 orientation items (i.e., 3 instrumental items and 12 SDT items) and examined the relations of the instrumental orientation to the extrinsic and intrinsic motivation. The second set of competing models was based on another set of 15 orientation items (i.e., 3 integrative items and 12 SDT items) and investigated the relationships between the integrative orientation and the extrinsic and intrinsic motivation.

Baseline Model 1.0. This model assumed that there was no statistical relationship between the instrumental orientation and the extrinsic and intrinsic motivation. In the Baseline Model 1.0, therefore, five factors (i.e., instrumental orientation, external regulation, introjected regulation, identified regulation, and intrinsic motivation) were specified to model the independent relationships among these factors. Intercorrelations among the five factors were allowed, because the five factors are tapping independent but somewhat interrelated constructs of L2 motivation. This model served as a baseline, against which successively more constrained models were compared (Bentler & Bonett, 1980; Hsiao & Oxford, 2002).

Model 1.1. Model 1.1 postulated that one factor (i.e., instrumental-external) was sufficient to account for the variance between the instrumental orientation and external regulation. Hence, in Model 1.1, four correlated factors (i.e., instrumental-external, introjected, identified, and intrinsic) were modeled to explain the relationships among the instrumental orientation and the extrinsic and intrinsic motivation.

Model 1.2. This model assumed that one factor (i.e., instrumental-introjected) would explain the variance surrounding the instrumental and introjected regulation.
Accordingly, four correlated factors (i.e., instrumental-introjected, external, identified, and intrinsic) were specified to explain the variance among the 15 items.

**Model 1.3.** In this model, the instrumental orientation was combined with the identified regulation to form a single factor (i.e., instrumental-identified), keeping the other factors unchanged. Hence, a four-factor solution (i.e., instrumental-identified, external, introjected, and intrinsic) was postulated for this model.

**Model 1.4.** This tested the possibility that the instrumental orientation might share its construct with the intrinsic motivation. Thus, in this model, the variance of the 15 items was accounted for by 4 correlated factors (i.e., instrumental-intrinsic, external, introjected, and identified).

The same model-building strategy was applied to model the relationships between the integrative orientation and the extrinsic and intrinsic motivation. Therefore, each model (e.g., the Baseline Model 2.0, Model 2.1, Model 2.2, Model 2.3, and Model 2.4) corresponded to the previous models of the Baseline Model 1.0 through Model 1.4.

**Baseline Model 2.0.** This specified five correlated factors (i.e., integrative orientation, external regulation, introjected regulation, identified regulation, and intrinsic motivation) to account for the variances associated with the second set of 15 items.

**Model 2.1.** This combined the integrative orientation with the intrinsic motivation and modeled a four-factor solution (i.e., integrative-intrinsic, external, introjected, and identified) to explain the variances among the 15 observed variables.

Different combinations of a four-factor solution were modeled from Model 2.2 through Model 2.4. For instance, Model 2.2 specified a four-factor model (i.e., integrative-identified, external, introjected, and intrinsic) by combining the integrative orientation with identified regulation and Model 2.3 (i.e., integrative-introjected, external, identified, and intrinsic) by summing the integrative orientation with introjected regulation. Model 2.4 added another variation of a four-factor solution (i.e., integrative-external, introjected, identified, and intrinsic) by adding the integrative orientation to external regulation.

**Hypotheses**

Hypothesis 1: Model 1.1 will not be significantly worse than the Baseline Model 1.0, indicating that the instrumental orientation would not be statistically different from external regulation.

Hypothesis 2: Models 1.2 through 1.4 will be significantly worse than the Baseline Model 1.0, suggesting that all the other subcategories of extrinsic motivation (i.e., introjected and identified regulation) will be statistically different from the instrumental orientation.
Hypothesis 3: Model 2.1 will not be significantly worse than the Baseline 2.0, thus showing that the integrative orientation will not be statistically different from the intrinsic motivation.

Hypothesis 4: Models 2.2 through 2.4 will be significantly worse than the Baseline Model 2.0, and this will demonstrate that the integrative orientation will be statistically different from the remaining three subtypes of extrinsic motivation (i.e., external, introjected, and identified).

**The Target Model of L2 Achievement**

In response to the second research question, a structural model of L2 achievement for Korean EFL learners was developed. Development of the structural model of L2 achievement was guided by theoretical considerations. First, following the suggestion from Gardner (Gardner, 1985b; Gardner et al., 2004; Masgoret & Gardner, 2003), the strength of motivation as measured by three scales of the Attitude/Motivation Test Battery (i.e., motivational intensity, desire to learn English, and attitudes toward learning English) was hypothesized to directly influence L2 achievement. Another structural path was specified between L2 achievement and self-confidence, as per the advice from Clément (Clément, 1980; Clément et al., 1994; Clément & Kruidenier, 1985). Self-confidence was assessed by perceived self-confidence and absence of anxiety (i.e., English class anxiety and English use anxiety). Furthermore, it was also hypothesized that self-confidence indirectly influenced L2 achievement through motivation, because Clément et al. (1994) identified self-confidence as an important determinant of efforts expanded toward learning an L2 across unicultural and bicultural contexts. Finally, L2 orientations were hypothesized to influence motivation as well as self-confidence, thereby indirectly leading to L2 achievement through these two mediator variables (i.e., motivation and self-confidence), as discussed by several researchers (Clément, 1980; Clément et al., 1994; Clément & Kruidenier, 1985; Gardner, 1985a; Gardner, Masgoret, Tennant, & Mihic, 2004; Masgoret & Gardner, 2003).

**Method**

**Participants**

The sample consisted of 315 Korean university students who were learning EFL. All of the participants were sampled from a 2-month winter English program offered by a large university in Korea. They had been studying English for at least 6 years through their middle and high school education. Among them, about 62% were male, 53% of the students majored in the humanities and social sciences, and the remaining students majored in the sciences. The ages of the participants ranged from 18 to 32 years, with the mean value of 24.2.
Instrument

A questionnaire consisting of several subsets of items was developed based on previous studies in the area of L2 motivation. The original English items were translated into Korean and slightly modified to provide a better alignment with Korean EFL situations. All the questionnaire items were based on a 7-point Likert-type scale with the ranges between 1 (strong disagreement) and 7 (strong agreement), and negative items were recoded before data analysis. The final sets of items included in the questionnaire were confirmed through an iterative procedure of item analysis. If an item showed a low or negative item discrimination value, this item was removed from the subscale. Information about each subset of items along with internal consistency evidence is the following:

- **External regulation** (3 items, $\alpha = .836$): Noels et al. (2000)
- **Introjected regulation** (3 items, $\alpha = .778$): Noels et al. (2000)
- **Identified regulation** (3 items, $\alpha = .822$): Noels et al. (2000)
- **Intrinsic motivation** (3 factors scores, $\alpha = .864$): Noels et al. (2000)
- **Instrumental orientation** (3 items, $\alpha = .773$): Clément et al. (1994)
- **Integrative orientation** (3 items, $\alpha = .794$): Clément et al. (1994)
- **L2 achievement** (200 items, $\alpha = .98$): Test of English for International Communication (TOEIC)
- **Self-confidence** (1 aggregate score with 4 items, $\alpha = .893$): Gardner et al. (1997).
- **English class anxiety** (1 aggregate score with 8 items, $\alpha = .899$): The AMTB (Gardner, 1985b)
- **English use anxiety** (1 aggregate score with 10 items, $\alpha = .928$): The AMTB
- **Motivational intensity** (1 aggregate score with 8 items, $\alpha = .817$): The AMTB
- **Desire to learn English** (1 aggregate score with 9 items, $\alpha = .853$): The AMTB
- **Attitudes toward learning English** (1 aggregate score with 10 items, $\alpha = .876$): The AMTB

Procedure

Data collection was made on a normal class session. First, students heard about the purpose of the present study and were given a detailed instruction about how to answer the questionnaire. It was further emphasized that there were no right or wrong answers and all the information obtained through the current investigation would be kept confidential. Students were asked to indicate their responses on each item as honestly as possible. Demographic information such as gender, area of study, and length of studying English was also collected. They were also asked to fill a consent form for their participation. The entire data collection process took about an hour. One week after the administration of the questionnaire, students were invited to take an institutional version of the TOEIC. Administration of the TOEIC lasted for 2 hours. All the participants were given a free lunch ticket for their participation.
Analyses

Chi-Square Invariance Test

In addressing the first research question, the relationships between the instrumental and integrative orientation and the extrinsic and intrinsic motivation were examined across two separate stages. The first stage targeted the relationships between instrumental orientation and extrinsic and intrinsic motivation, and the second stage targeted those between integrative orientation and extrinsic and intrinsic motivation. This design makes intuitive sense, given the large body of research that has already documented the theoretical distinctiveness between the instrumental and integrative orientation (Gardner, 1985a). The separate analysis is also justified in terms of methodology, because it may prevent an unaccounted interaction effect between the instrumental and integrative orientation.

For the data analysis, two baseline Confirmatory Factor Analysis (CFA) models were formed (i.e., Baseline Models 1.0 and 2.0), and parameters of the CFA models were computed using the covariance matrix as an input to the LISREL 8.5 program (Jöreskog & Sörbom, 2001). For the hypothesis testing, the fit of the Baseline CFA Models was compared to the fit of subsequent models (i.e., nested models) through a chi-square invariance test. The chi-square invariance test is based on the difference in chi-square values between two nested models. Because the difference in chi-square values for two nested models distributes as a chi-square value with degrees of freedom equal to the difference in degrees of freedom for the two models (Anderson & Gerbing, 1988), a significant chi-square difference between two nested models indicates that the fit of the nested model is significantly worse (i.e., in the case of significant chi-square increase) or better (i.e., in the case of significant chi-square decrease) than that of the baseline model. For instance, if Model 1.1, which combined the instrumental orientation with the external regulation and was based on a four-factor solution, produces a significant chi-square increase from the Baseline Model 1.0, this will indicate that the fit of Model 1.1 is significantly worse than Baseline Model 1.0, hence verifying that the instrumental orientation is statistically different from the external regulation.

SEM Analysis

For the second research question, the structural relationships among the factors influencing L2 achievement were also examined using the LISREL 8.5 program via maximum likelihood estimation procedure. A structural equation model consists of two parts: the measurement model and the structural model (Bollen, 1989). The measurement model specifies the relationships between one or more latent variables and a set of observed (i.e., indicator) variables corresponding to each of the latent variables, and the structural model describes the relationships among latent variables. Structural relationships among unobserved variables should be modeled theoretically.
The SEM procedure provides several fit statistics, which give information about how well a given SEM model represents the data. The most widely used fit statistics are chi-square and the ratio of chi-square to degrees of freedom (i.e., chi-square divided by degree of freedom). Generally, a ratio of 2.0 or below indicates a good fit. However, chi-square statistic is sensitive to sample size; other fit statistics are also recommended (Bentler & Bonett, 1980; Hair, Anderson, Tatham, & Black, 1995). For example, Goodness-of-Fit Index (GFI) assesses the extent to which covariance of the overall model reproduces the observed covariance matrix, and generally a GFI or AGFI (Adjusted GFI) value of 0.90 or above signals a satisfactory fit of the model to the data. Similarly, a Root Mean Square Error of Approximation (RMSEA) value of 0.05 or below suggests a good fit of the model to the data. Non-Normed Fit Index (NNFI) and Comparative Fit Index (CFI) compare the proposed model with a baseline model (i.e., null model), and accordingly, these two fit indices are recommended for the studies with a nested model comparison, as explained above. Values of CFI and NNFI equal to 0.90 or above signal an acceptable fit.

**Results and Discussion**

**Chi-Square Invariance Test**

Two baseline CFA models (i.e., Baseline Models 1.0 and 2.0) were developed and tested for model-data fit. To solve scale indeterminancy for the latent variables, variance of each latent variable was fixed to be 1. For hypothesis testing, a series of chi-square invariance (or difference) tests were performed. Although chi-square is sensitive to sample size, the chi-square invariance statistic, which is based on the difference in chi-square values between two nested models, is relatively robust to sampling variations (Jöreskog & Sörbom, 2001; Pae & Park, 2006).

The results of the chi-square invariance tests are summarized in Tables 1 and 2. Chi-square invariance tests for the relationships among instrumental orientation and extrinsic and intrinsic motivation (see Table 1) demonstrated that instrumental orientation was not statistically different from external regulation, as indicated by an insignificant increase in chi-square values from the Baseline Model 1.0 to Model 1.1 (i.e., 361.45 – 352.47 = 8.98 with 4 degrees of freedom difference). This supports Hypothesis 1 and shows a strong statistical confirmation of the findings reported by Noels et al. (2000).

Moreover, it was found that the chi-square differences between Baseline Model 1.0 and Models 1.2 through 1.4 were statistically significant at both the .05 and .01 alpha level, as signaled by a large increase in chi-square values. This confirms Hypothesis 2 and further suggests that the instrumental orientation is statistically different from introjected and identified regulation as well as intrinsic motivation. A close examination of the chi-square differences reported in Table 1 shows that the difference between
the Baseline Model 1.0 and Model 1.4 was largest (i.e., 1145.30 – 352.47 = 792.83). This means that instrumental orientation is most highly different from intrinsic motivation, as consistent with previous findings (Noels et al., 2000).

Table 2 presents the results from chi-square invariance test for the relations among integrative orientation and extrinsic and intrinsic motivation. Regarding Hypothesis 3, it was found that the integrative orientation was statistically different from intrinsic motivation, as evidenced by a significant chi-square increase from the Baseline Model 2.0 to Model 2.1 (i.e., 377.40 – 335.34 = 42.06 with 4 degrees of freedom difference), which leads to the rejection of Hypothesis 3. However, the difference in chi-square values between the Baseline Model 2.0 and Model 2.1 was much smaller than the chi-square difference values for any other comparisons, thereby signaling a closer, although statistically insignificant, relationship between integrative orientation and intrinsic motivation than between integrative orientation and extrinsic motivation. This demonstrates that the integrative orientation is distinct from extrinsic motivation and further suggests that part of the construct representing the integrative orientation may be shared by intrinsic motivation, because both of them address positive attitudes toward L2 learning (Noels, 2001b), thereby challenging “the duality of the integrative orientation” (Noels et al., 2000, p. 54) in the sense that it touches both intrinsic and extrinsic motivation. In this regard, inclusion of integrated regulation, which is the most self-determined form of extrinsic motivation, would show a more fine-tuned picture about the relationships between the integrative orientation and SDT motivational constructs. However, integrated regulation was not considered in the present study, due to the difficulty of distinguishing integrated from identified regulation (Noels, 2001b) as well as the lack of reliable and valid scale for measuring this type of extrinsic motivation. A future study should address this point.

Hypothesis 4 was concerned with a nested model comparison between the Baseline Model 2.0 and Models 2.2 through 2.4. As shown in Table 2, these three nested models (i.e., Models 2.2 through 2.4) produced a significant increase in chi-square
values, hence the acceptance of Hypothesis 4. This indicates that the integrative orientation is statistically different from any of the three subcategories of extrinsic motivation (i.e., identified, introjected, and external regulation), thus showing contrast to the argument that the integrative orientation is a form of extrinsic motivation (Gardner, 1985a).

**SEM Analysis**

Because results from the previous chi-square invariance test evidenced the strong statistical similarity between the instrumental orientation and external regulation, only five types of motivational orientation (i.e., integrative, instrumental, introjected, identified, and intrinsic) were entered into subsequent SEM analyses. Table 3 summarizes model-data fit statistics of each model tested. Model 1, which tested the relationships among L2 achievement, motivation, self-confidence, and intrinsic motivation, produced a chi-square of 51.34 with 28 degrees of freedom. The ratio of the chi-square to degree of freedom (i.e., $\frac{51.34}{28} = 1.83$) was less than the recommended cutoff value of 2.0 for concluding a satisfactory model-data fit, hence suggesting a very good fit of the model to the data. Other fit statistics also demonstrated a satisfactory fit (AGFI = 0.93, RMSEA = 0.055). Model 2 examined the structural relationship among L2 achievement, motivation, self-confidence, and the integrative orientation. This model resulted in a chi-square value of 118.85 with 28 degrees of freedom. The ratio of the chi-square to degree of freedom (i.e., $\frac{118.85}{28} = 4.24$) was less than the recommended cutoff value of 2.0 for concluding a satisfactory model-data fit, hence suggesting a very good fit of the model to the data. Other fit statistics also demonstrated a satisfactory fit (AGFI = 0.86, RMSEA = 0.102). The structural relationship between L2 achievement, self-confidence, motivation, and the instrumental orientation was analyzed by Model 3. Model 3 showed a chi-square value of 116.27 with 28 degrees of freedom. The ratio of chi-square to degree of freedom was 4.15, and AGFI and RMSEA values suggest an unacceptable fit of the model. The same pattern was observed for Models 4 and 5, which investigated the structural

**Table 2**

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>$df$</th>
<th>$\chi^2_{df}$</th>
<th>CFI</th>
<th>NNFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>335.34</td>
<td>78</td>
<td>—</td>
<td>0.91</td>
<td>0.89</td>
</tr>
<tr>
<td>2.1</td>
<td>377.40</td>
<td>82</td>
<td>42.06$^a$ (4)</td>
<td>0.89</td>
<td>0.86</td>
</tr>
<tr>
<td>2.2</td>
<td>544.69</td>
<td>82</td>
<td>209.35$^a$ (4)</td>
<td>0.84</td>
<td>0.80</td>
</tr>
<tr>
<td>2.3</td>
<td>441.87</td>
<td>82</td>
<td>106.53$^a$ (4)</td>
<td>0.88</td>
<td>0.84</td>
</tr>
<tr>
<td>2.4</td>
<td>561.11</td>
<td>82</td>
<td>225.77$^a$ (4)</td>
<td>0.84</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Note: $N = 315$; $df_{df} = $ difference in degrees of freedom between the baseline model and each corresponding model; $\chi^2_{df} = $ difference in chi-squares between the baseline model and each corresponding model; CFI = Comparative Fit Index; NNFI = Non-Normed Fit Index.

$a$. Significant chi-square increase at .01 or .05 alpha level.
relationship between L2 achievement, self-confidence, motivation, and two subcategories of extrinsic motivation (i.e., introjected and identified regulation). Overall, out of the five tested models, Model 1 showed the best fit of the model to the data, whereas the other four models resulted in an unsatisfactory fit.

Because Model 1, which analyzed the structural relationship among L2 achievement, motivation, self-confidence, and intrinsic motivation, proved to be the only model that adequately represents the data, path loadings of Model 1 are presented in Figure 1 for close investigation. All the path coefficients in Figure 1 were significant at the alpha level of .05. Figure 1 shows that L2 achievement was directly influenced by motivation, operationally defined as the combination of motivational intensity, desire to learn English, and attitudes toward learning English. This supports the validity of Gardner’s socioeducational model (Gardner, 1985a; Gardner et al., 2004; Masgoret & Gardner, 2003) as applied to L2 achievement among Korean EFL learners.

At the same time, it was also found that self-confidence, as measured by perceived self-confidence and the absence of anxiety (i.e., English class anxiety and English use anxiety), was related to L2 achievement both directly and indirectly through motivation, thus confirming the suggestion from Clément (Clément, 1980, 1986; Clément et al., 1994; Clément & Kruidenier, 1985). English class anxiety and English use anxiety were negatively related to self-confidence.

Results of the current SEM analyses also suggest that L2 orientation was indirectly related to L2 achievement through motivation and self-confidence, as indicated by the fact that there was no direct path linking intrinsic motivation to L2 achievement. This verifies the effects of motivation and self-confidence on mediating the relationship between L2 orientations and L2 achievement.

It deserves special attention that out of the five types of L2 orientation tested in the present SEM analyses, only intrinsic motivation showed an acceptable fit to the data, suggesting that intrinsic motivation is the most powerful orientation variable that is related to L2 achievement in the Korean EFL context. Integrative orientation, however,

Table 3
Model-Data Fit Statistics

<table>
<thead>
<tr>
<th>Model</th>
<th>Latent Variables</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2$/df</th>
<th>AGFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACH, MOT, CONF, IM</td>
<td>51.34</td>
<td>28</td>
<td>1.83</td>
<td>0.93</td>
<td>0.055</td>
</tr>
<tr>
<td>2</td>
<td>ACH, MOT, CONF, INT</td>
<td>118.85</td>
<td>28</td>
<td>4.24</td>
<td>0.86</td>
<td>0.102</td>
</tr>
<tr>
<td>3</td>
<td>ACH, MOT, CONF, INS</td>
<td>116.27</td>
<td>28</td>
<td>4.15</td>
<td>0.86</td>
<td>0.100</td>
</tr>
<tr>
<td>4</td>
<td>ACH, MOT, CONF, IR</td>
<td>142.12</td>
<td>28</td>
<td>5.08</td>
<td>0.84</td>
<td>0.114</td>
</tr>
<tr>
<td>5</td>
<td>ACH, MOT, CONF, ID</td>
<td>111.50</td>
<td>28</td>
<td>3.98</td>
<td>0.87</td>
<td>0.097</td>
</tr>
</tbody>
</table>

Note: $N = 315$; ACH = Achievement; MOT = Motivation; CONF = Self-confidence; IM = Intrinsic motivation; INT = Integrative orientation; INS = Instrumental orientation; IR = Introjected regulation; ID = Identified regulation; AGFI = Adjusted Goodness of Fit Index; RMSEA = Root Mean Squared Error of Approximation.
did not fit the structural model of L2 achievement as specified in the current SEM analyses, thus showing a sharp contrast to the previous findings reported with North American or European L2 learners (Csizér & Dörnyei, 2005; Gardner & Lambert, 1959). The results of the current SEM analyses, however, are consistent with those from Chen et al. (2005), in which integrative orientation was not related to Chinese EFL learners’ expectancy and self-evaluated skills of English either directly or indirectly, hence lending support to the validity of the current findings.

Overall, results of the current SEM analyses suggest that for Korean EFL learners, focusing on intrinsic motivation rather than the other four types of L2 orientation may bring about more increased motivational intensity and desire or more positive attitudes toward learning English. This further implies that L2 orientation interacts with specific L2 learning contexts (e.g., ESL vs. EFL), hence supporting the findings reported from Clément and Kruidenier (1983) and Clément et al. (2007).

Intrinsic Motivation in the Korean EFL Context

The finding that out of the five orientation variables tested in the present study only intrinsic motivation significantly leads to L2 achievement merits further discussion.
Although the importance of intrinsic motivation in L2 learning has been consistently supported by empirical data and thus does not add new insight to the L2 motivation research in the ESL context, the superiority of intrinsic motivation in an EFL setting was unexpected, because previous studies with EFL samples attest that extrinsic motivation or instrumental ends of studying an L2 may well predict L2 achievement (e.g., Chen et al., 2005; Kang, 2001; Warden & Lin, 2000; Wen, 1997). In the formal EFL classroom settings where there is no regular contact between L2 learners and target language speakers, it is reasonable to assume that more pragmatic reasons may dominate the motivational backgrounds of studying an L2.

Then, what may have caused this unexpected result? Three possibilities are postulated. The first possibility is simply a sampling fluctuation. A replication study using a different Korean EFL sample will confirm this possibility. Second and more important, the recent change in the focus of English teaching from GTM to more communicative methods in Korea may have contributed to the differences between the findings reported in the present study and previous studies. In an English classroom where GTM is a guiding principle for all English teaching and learning activities, it is not hard to imagine that external pressure, such as preparation for college entrance exams, is more responsible for students’ motivation to learn English and therefore students are rarely exposed to authentic use of English, which limits the emergence of intrinsic motivation. In this respect, it is highly likely that the introduction of a Communicative Language Teaching (CLT) based English curriculum to the formal Korean elementary and middle schools (Kwon, 2000) may have provided more communicative opportunities for Korean EFL learners from earlier ages, hence increasing pleasure of learning English. To examine this possibility, it is necessary to add a new moderating variable to the current SEM model, whereby differential effects of instructional methods (i.e., GTM vs. CLT) on the structural relationship between intrinsic motivation, self-confidence, motivational intensity, and achievement can be systematically described. A third possibility is age. It is possible that different age level may moderate the direct and indirect relationships between intrinsic motivation and L2 achievement, because young Korean EFL learners may have a motivational tendency that is different from the one typically found among old learners. One way to check up this possibility is to add age as a controlling variable to the SEM model. A more rigorous way, however, is to trace the developmental nature of L2 motivation for Korean EFL learners (i.e., longitudinal analysis). Examination of these three possibilities is recommended for future studies.

**Conclusion**

The first purpose of the present study is to provide statistical evidence about the relationships between the integrative and instrumental orientation and SDT subtypes of motivation (i.e., extrinsic and intrinsic motivation) for a sample of 315 Korean
learners of English. A series of chi-square invariance tests demonstrated a statistical similarity between the instrumental orientation and external regulation. It was also found that the instrumental orientation was statistically different from the other three subtypes of SDT motivation (i.e., introjected, identified, and intrinsic). Investigation of the relationships between integrative orientation and SDT subtypes of motivation showed that integrative orientation was statistically different from both intrinsic motivation and three subtypes of extrinsic motivation. Between intrinsic and extrinsic motivation, however, the integrative orientation was relatively closer to intrinsic motivation than to any other subcategories of extrinsic motivation, thus challenging the idea that integrative orientation is a form of extrinsic motivation (Gardner, 1985a; Noels et al., 2000).

The present study also examined the structural relationships among factors leading to successful L2 achievement. To this end, five SEM models were developed according to the current theories of L2 motivation. Results of the present study highlight the importance of intrinsic motivation as an indispensable stepping stone to L2 motivation, because intrinsic motivation proved to be the most influential determinant of learners’ self-confidence and motivation to learn an L2. At the same time, the present SEM analyses suggest that intrinsic motivation is a necessary but not a sufficient condition for successful L2 achievement, because intrinsic motivation is only indirectly related to L2 achievement through the mediating effects of motivation and self-confidence.

Therefore, the pedagogical implications of the present study are straightforward. Intrinsic motivation should be promoted in a way that maximizes learners’ self-confidence and motivation, which in turn will bring about increased L2 achievement. Encouraging learners to be involved in L2 learning for the experience of stimulation and accomplishment—or satisfaction of desire for knowledge—leads to heightened motivational intensity and positive L2-related attitudes on one hand and enhanced perception of L2 competence and less perceived anxiety on the other hand. How, then, is it possible to cultivate an intrinsically motivated classroom? In response to this question, SDT researchers (Deci & Ryan, 1985, 2002; Deci et al., 1991) have recommended the promotion of intrinsic motivation through creating a social context that satisfies inherent human needs. With regards to the emergence of intrinsic motivation in L2 learning, Clément et al. (2007) theorize that interpersonal interactions with significant others, such as the instructor, parents, other family members, and members of the target language community, can foster feelings of intrinsic motivation, and they further argue that the cultural origin of the learner also influences the language learning experience. In view of the unicultural context of Korea, where there is no distinct English community and English is mostly learned through formal classroom settings, it is natural that the English instructor should play a more active role in promoting intrinsic motivation, thus highlighting that the instructor should provide more choices, informative feedback, and a warm and caring environment. In more practical terms, classroom teachers are strongly recommended to devise learning activities that are intrinsically motivating and maintain a learning environment in which
students’ needs are met. This further implies that a student-centered teaching methodology rather than a teacher-centered one, such as GTM, will promote more intrinsic motivation in the L2 classroom. In a related manner, language teaching and learning should be accompanied with interactive activities that strengthen the relatedness both between the teacher and learners and among peers. Hence, implementation of more communicative opportunities is advised for the English classroom in Korea. In addition, English curriculum should be designed to maximize students’ autonomy, which means that Korean EFL learners are encouraged to actively participate in the whole process of curriculum design, from the needs assessment to the evaluation of learning progress.

As a final reminder, it is notable that the present study is limited by its failure to include integrated regulation to the analyses of the relationships between the integrative orientation and SDT motivational subtypes. A further investigation with a reliable and valid measure of integrated regulation will complement the results of the current study.

Note

1. One may postulate that the lack of fit for other SEM models is due to a strong relation between the indicators of the subtypes of orientation and motivation constructs. For instance, if indicators of external regulation cross-load on the achievement factor, one could argue that external regulation is in fact strongly related to achievement despite the lack of fit. This possibility, however, may be rejected for two reasons. First, following close investigation of the modification fit indices provided by the LISREL program, it was found that allowing indicators of the orientation construct to freely cross-load on other constructs decreased the chi-square value of the model to some extent. However, the decrease in the chi-square value of the model was not sufficient enough for the overall fit of the model to be significantly better. Therefore, it is concluded that cross-loading of indicators of a construct to other constructs does not make a significant change in the model-data fit. Second, an additional multiple regression analysis was performed to examine the relationships between the six orientation subtypes (i.e., instrumental orientation, integrative orientation, external regulation, introjected regulation, identified regulation, and intrinsic motivation) and L2 achievement as measured by TOEIC score. For this purpose, the item scores for each subtype of orientation (e.g., three item scores of external regulation) were combined to produce an aggregate score. Overall, six aggregate scores representing the six subtypes of orientation were entered into the regression model with the TOEIC score as the dependent variable. Results of the regression analysis indicated that intrinsic motivation was the only variable showing a significant positive relation to the TOEIC score at the .05 alpha level, thus supporting validity of the interpretations given to the results of SEM analyses in the present study.

References


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