English Language & Literature Teaching, Vol. 19, No. 2 Summer 2013

Academic Motivational Orientations and Vocabulary Size of L2 Adolescent Learners

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Chon, Yuah V. & Jang, Hyungshim (2013). Academic motivational orientations and vocabulary size of L2 adolescent learners. *English Language & Literature Teaching*, *19*(2), 25-56.

While motivation has been widely embraced by both researchers and practitioners as a critical determinant of success in language learning, there are scarcity of studies that pay attention to the separate role of motivation in L2 vocabulary learning. The present study revisits the self-determination framework of motivational orientations to highlight the utility of the intrinsic/extrinsic distinction for predicting L2 learning outcomes, in our instance, vocabulary knowledge. Relationships were sought between L2 vocabulary size and motivation by conducting receptive and productive vocabulary size tests on 261 adolescent high school learners, with information on the learners' degrees of academic motivation via the *Academic Self-Regulation Questionnaire*. There were significant differences between all receptive vocabulary proficiency groups for the subtypes of *extrinsic motivation*. In examining significant predictors of receptive vocabulary knowledge, *identified regulation*, the most autonomous form of extrinsic motivation, was noted. Further subject variables, such as gender and year of study also indicated the female students and high school seniors scoring relatively higher on the receptive vocabulary test. The results imply how vocabulary learning needs to occur in contexts that can promote positive sensations for more self-determined subtypes of motivation.

[self-determination theory/amotivation/extrinsic motivation/intrinsic motivation/ vocabulary size/receptive vocabulary/productive vocabulary]

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I. INTRODUCTION

Motivation plays a key role in the rate and success of second or foreign language (L2) learning, particularly classroom language learning. Dörnyei (1998, p. 117) argues that "motivation provides the primary impetus to initiate learning the L2 and later the driving force to sustain the long and often tedious learning process." A wide range of studies on L2 motivation in the past decades (Csizér & Dörnyei, 2005; Dörnyei & Csizér, 2002; Elley, 1989; Ely, 1986; Gardner, 1985; Gardner & MacIntyre, 1991; Noels, Clément, & Pelletier, 1999; Schmidt & Watanabe, 2001; Tremblay & Gardner, 1995) have recognized motivation as a significant determinant of language learning. Hence, it is logical to assume that motivation also facilitates vocabulary learning. However, there is scarcity of studies of motivation that shed light on this specific sub-skill of L2 learning. In particular, vocabulary learning in the Korean classroom is often relegated as tasks to be taken care of by the learners themselves so that it often becomes difficult to ascertain the different types of motivational orientations that may prompt or deter vocabulary learning. To provide both indirect and direct evidence of the motivation/vocabulary link, we adopt the motivational orientations of self-determination theory (Deci & Ryan, 1985), which is closely linked to self-regulated learning (Ryan & Deci, 2000a). This is to investigate the different types and degrees of motivational orientation that may facilitate better vocabulary learning. More specifically, we examined how motivation can be thought of as a component of L2 vocabulary learning when the L2 learners' target vocabulary size reaches the 5,000 word frequency band, representing the "upper limit of general high-frequency vocabulary" (Read, 2000, p. 119). In the former part of the study, we assessed the extent to which the learners are able to reach this threshold level since different types and degrees of motivation may be involved according to learners' different L2 vocabulary sizes. In the latter part of the study, we tried to illustrate the different qualities and levels of academic motivation that the L2 adolescent learners exhibit. As a result of the study, we hope to provide guidelines on how to adopt or adapt motivational learning conditions or contexts that are more conducive towards self-directed vocabulary learning.

II. BACKGROUND

1. Threshold Vocabulary Size for L2 Learners

To increase the validity of our findings, we have limited our research to one particular learning domain only, that is vocabulary size of learners, and we later intend to examine

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this in relation to motivational orientations that learners experience.

Acquiring sufficient lexis is a prerequisite for developing language skills. Knowing a sufficient number of words is necessary for both daily oral communication and various types of reading (Nation, 2001; Nation & Waring, 1997). Then the question is how much vocabulary is necessary to enable communication. This will depend on one's learning goals. For an estimate of English native speaker's vocabulary size, there have been a few well-designed studies that provide reliable estimates. Goulden, Nation, and Read (1990) found that their New Zealand university undergraduates had a vocabulary size of about 17,000 word families.[1] Nation and Waring (1997) have estimated English native speakers to add roughly 1,000 word families a year to their vocabulary size. This means that a university graduate will have a vocabulary of around 20,000 word families. Then, the naturally occurring question is, how much lexis do second language (L2) learners need to know?

A reasonable vocabulary goal for L2 learners is the amount of lexis that is necessary to enable them to conduct various forms of communication. Hirsh and Nation (1992) have found a vocabulary size of 5,000 to be needed for "pleasurable reading" of simple fiction; 3,000 written word families for reading authentic texts (Laufer, 1997). Similarly, around 3,000 spoken word families are suggested to cover about 96 per cent of the words used in daily conversation (Adolphs & Schmitt, 2003). Carter (1998) remarks that non-native speakers need to learn 1,000 word families per year to catch up with the level of an educated native speaker. Nation (2006), using the word lists based on the Wellington Corpus of Spoken English, calculated that 6,000~7,000 word families are required to engage in informal daily conversation. Nation and Beglar (2007) have also presented how there is a recognition of a threshold vocabulary size for the different tasks L2 learners may want to conduct; the goal of around 8,000 word families is an important criterion for learners who wish to deal with unsimplified spoken and written texts, and a size of 9,000 word families is needed to have 98% coverage for reading novels. All in all, while it is now a widely known guideline that 2,000 and 3,000 word levels contain the high-frequency words that all learners need to be know (Nation, 1990) in order to function effectively in English, Read (2000) has designated the 5,000 word frequency band as representing the "upper limit of general high-frequency vocabulary," (p. 119), and it is this threshold level that we will benchmark to evaluate the vocabulary size of the L2 adolescent high school learners in the present study.

Although it may not be possible for most foreign learners to fully achieve reaching the level of an educated native speaker, it is nevertheless essential for foreign learners to

[1] A word family consists of a head word (e.g., *think*), its inflected forms (e.g., *thinking, thought*), and its closely related derived forms (e.g., *unthinkable*) (Nation, 2001, p. 8).

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commit themselves to sustained vocabulary study in order to reach the vocabulary requirements for daily conversation and the modest reading of authentic materials. Given English's very large lexicon, acquiring a vocabulary large enough to cope is probably the major hurdle facing EFL learners (Nation & Meara, 2002), and clearly different levels of academic motivation, and self-regulation are expected to be the important determinants of vocabulary learning.

2. Vocabulary and Motivational Orientations

A small number of studies, thus far, have been undertaken to examine the role of motivation in vocabulary learning (Elley, 1989; Gardner & MacIntyre, 1991; Zheng, 2012). In showing the link between motivation and vocabulary, Elley's study found that teaching materials targeted towards raising learners' interest and motivation led to better word learning. In Gardner and MacIntyre's (*ibid*) study, both integrative and instrumental motivation were found to facilitate vocabulary learning. Zheng (2012) reports on a longitudinal multiple-case study of four university Chinese EFL learners' role of L2 motivation in their productive vocabulary development with the Lexical Frequency Profile analysis. The results showed the learner recycling a small number of words while motivation regarding what they ought to do and what they wish to do largely mediated their productive vocabulary development. In the Korean context, Jeong-Yeon Kim (2011) sought to examine the relationship between motivational constructs, social, context-specific factors and achievement in English writing classes. The results, however, do not give separate attention to vocabulary, and to the researcher's knowledge there are few studies in the domestic context that exclusively consider vocabulary in connection to learners' motivational orientation. Accordingly, given the scarcity of studies that pay separate attention to the significant role that motivation plays in vocabulary learning, further research needs to be undertaken to examine its effect on the vocabulary learning process.

Motivation is usually understood to refer to the desire to initiate L2 learning and the effort employed to sustain it. In the late 1950s, Canadian researchers Robert Gardner and Wallace Lambert developed what was to become the dominant model of L2 learning motivation, which they placed within a wider model of L2 learning motivation (Gardner & Lambert, 1972; Gardner, 1985). This model posited two orientations (clusters of reasons for learning an L2): an integrative orientation through an interest in interacting with the L2 language group; and an instrumental orientation through an interest in the more practical advantages of learning a new language, such as job advancement.

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Beginning in the 1990s, however, the model underwent serious criticisms for being too restrictive and unresponsive to wider developments in psychology (Crookes & Schmidt, 1991; Dörnyei, 1994; Oxford & Shearin, 1994; Ushioda 2001). There was a shift towards viewing motivation as a more dynamic factor, more cognitive in nature, and more grounded in the educational contexts where most L2 learning takes place. This understanding views motivation as a continuously evolving construct, subject to various internal and external influences confronted by the learner (Dörnyei, 2001a). This reconceptualization of motivation opened up the research agenda for investigation of relationships between motivation and other aspects of language learning behavior commonly associated with the classroom (Crookes & Schmidt, 1991; Ushioda 2001).

One such formulation which captures both the dynamic dimension of motivation and its relevance for classroom applications is self-determination theory (SDT), an influential 'macro-theory' of human motivation developed in the late 1970s by Deci and Ryan (1985, 1995). The more contemporary motivation research generated since has distanced itself from the emphasis on *quantity* of motivation, and instead has turned to an exploration of various *qualities* of motivation. The theory focuses on 'the degree to which people endorse their actions at the highest level of reflection and engage in the actions with a full sense of choice' (Ryan & Deci, 2000a, p. 68). In SDT, the focus is mostly on two general orientations to motivation: one based on intrinsic interest in the activity *per se*, and the other based on rewards extrinsic to the activity. Deci and Ryan (1985) argue that different types of extrinsic and intrinsic motivation can be classified on a continuum according to the extent to which the motivation is self-determined or internalized within the learner. However, whereas extrinsic motivation has typically been characterized as an impoverished form of motivation that contrasts with intrinsic motivation (e.g., deCharms, 1968), SDT proposes that there are varied types of extrinsic motivation, some of which do, indeed, represent impoverished forms of motivation and some of which represent active, agentic states. Regarding SDT, Dörnyei (1998) suggests several advantages for using this framework in L2 motivation research: (1) its comprehensive nature allows for the inclusion of a large number of L2 learning orientations; (2) a continuum of motives suggest the possibility of a change in motivational orientation; and (3) the spectrum allows for a valid assessment of empirical evidence of L2 learner motivation using this framework as a reference point. Also, Ryan's (1995) discussion of intrinsic and extrinsic motivation suggests that it is reasonable to think of these constructs as orientations, where he states that the subtypes of motivation reflect the motivational 'orientation' but not necessarily the level or

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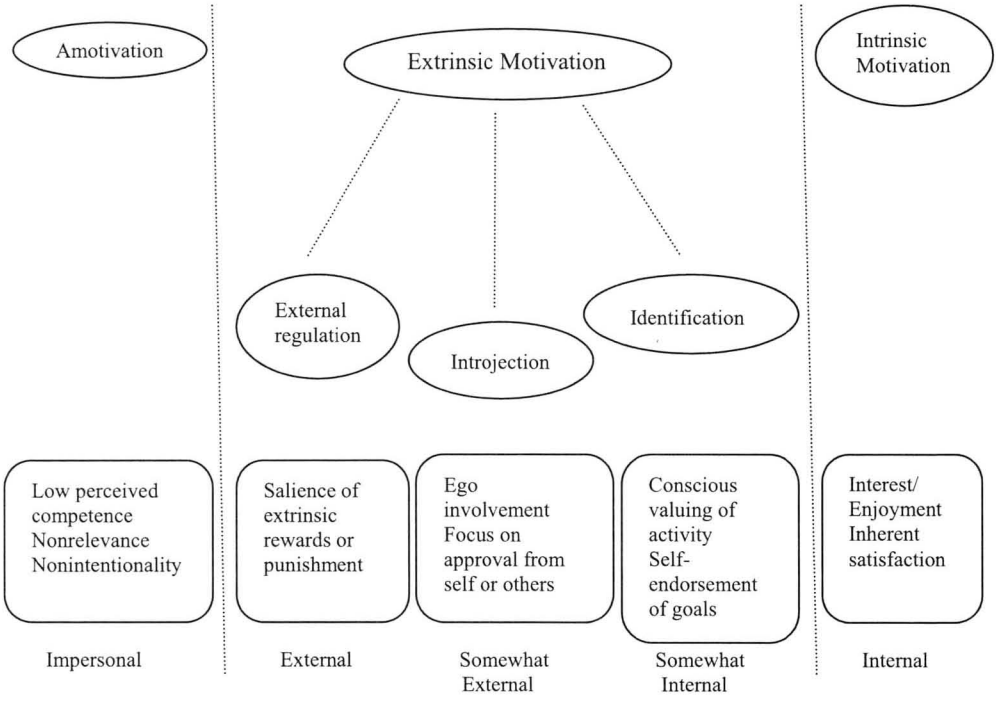
amount of motivation. He notes that a person acting for an external reward may be as energized and effortful as one who is acting for more self-determined reasons.

As indicated in Figure 1, the self-determination framework consists of three orientations to motivation that lie on a continuum of increasing self-determination: *amotivation*, *extrinsic motivation*, and *intrinsic motivation* (Ryan & Deci, 2000b). First, *amotivation* (AM), the least self-determined end of the continuum, is reflected by learners who see no relation between their actions and the consequences of those actions. Amotivated language learners have the impression that they are wasting their time studying the L2. They do not value language learning, do not feel competent to do it or do not expect to be successful. AM implies a lack of motivation; this may be case where L2 learners express resentment at what feels like a waste of their time. AM is not to be confused with demotivation which refers to a reduction of motivation due to some specific external force (Dörnyei, 2001b).

FIGURE 1

A Taxonomy of Human Motivation (adapted from Ryan & Deci, 2000b)



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Extrinsic motivation (EM) is manifested through a focus on achieving some kind of instrumental end, and it can be noted for its refined conceptualization in which extrinsic motivation is differentiated into types of regulation that vary in their degree of relative autonomy (Ryan & Connell, 1989; Ryan & Deci, 2000b). EM can be divided into three subtypes, each one increasingly self-determined: *external regulation*, *introjected regulation*, and *identified regulation*, and this was dependent on the extent to which people have been successful in internalizing the initial external regulation of the behavior. *External regulation* refers to pressure or reward from the social environment to learn a language, for example getting a good job. In this case, individuals construe their behavior as structured by pragmatic, instrumental causation that is imposed from the outside, and their sense of self-causation and autonomy is low. Second, *introjection* refers to taking in a regulation but not accepting it as one's own; this is the case when people 'buy into' the external pressure, by developing feelings of guilt or shame that then can only be avoided via compliance with the expected behavior. *Identified regulation*, the most self-determined form of EM, is closer to the intrinsic pole. It happens when external values are accepted and adopted as one's own and an individual comes to see the relevance and meaningfulness of an activity that in principle was not self-determined. The most self-determined form of motivation is *intrinsic motivation* (IM), and refers to when behavior is triggered by internal factors such as enjoyment and satisfaction for oneself. This is the case when individuals engage in behavior that they understand as self-initiated by choice and largely sustained by inherent enjoyment in the activity. According to Ryan and Deci (2000b), the feelings of satisfaction in IM come from a sense of *competence*, *autonomy*, and *relatedness*.

The present study, in light of Deci and Ryan's self-determination theory, intends to examine L2 learners' vocabulary size with relation to the different levels of subtypes of motivation that L2 adolescent learners exhibit for learning English. Previous studies have found motivation to be associated with cognitive variables, such as grammatical sensitivity, speaking and reading proficiency, and teacher ratings of competence (e.g., Ehrman, 1996; Noels, Clément, & Pelletier, 1999, 2001). More recent studies have shown intrinsic motivation to be optimal when the experimental results consistently showed motivation to be associated with higher levels of achievement (Vansteenkiste, Lens, & Deci, 2006). In a previous set of experimental studies, Vansteenkiste, Simons, Lens, Soenens, & Matos (2005) examined whether intrinsic versus extrinsic goal framing had a differential effect on two aspects of learning, that is, conceptual and rote learning. The researchers found in their research that extrinsic goal framing (relative to intrinsic goal framing) was found to enhance the literal and factual processing of material that is associated with rote learning. The results indirectly suggest that the harmful effects of extrinsic goal framing might not be found for learning tasks that only

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require rote learning, and the researchers state that there is no research to date that has directly tested this hypothesis. We also examine if this is true when relationships are examined between motivational orientation and learners' vocabulary size, which is often expected to be obtained by rote memorization. That is, in contexts where the L2 teaching method tends to be based on the grammar-translation method rather than the communicative language teaching approach, as in many of the Korean secondary English classrooms, the learning of new words may often become relegated as a task to be completed by the students themselves, and this entails learners often using rote memorization.

In light of both theoretical claims and evidence from previous studies, the present study examined the following questions:

RQ1: Within the limit of 5,000 word families (that represents the upper limit of general high frequency vocabulary), to what extent do the L2 adolescent learners reach this level in terms of their receptive and productive vocabulary sizes?

RQ2: How do high school adolescent learners exhibit different kinds of academic motivation on the self-determination continuum (i.e., Amotivation, Extrinsic Motivation, and Intrinsic Motivation)?

RQ2-1: Are there any variations in the levels of academic motivation according to different 'year of study' and 'vocabulary proficiency level'?

RQ3: Within the framework of self-determination theory, what are significant predictors of academic motivation that may explain for vocabulary knowledge?

III. METHODS

1. Participants

A total of 261 learners, who were a balanced mix of male (55.6%) and female (44.4%) adolescent high school learners participated in the study. Information on the learners' background is presented in Table 1, and indicates that data collection was conducted in three different schools—Co-Ed, Girls' and Boys' Schools. The learners were from the Seoul area and there was a fair proportion of learners from the Freshman (n = 101, 38.7%), Sophomore (n = 93, 35.6%), and Senior (n = 67, 25.7%) years. We note that the participant-learners recruited primarily from the municipal areas of Seoul may not be representative of those from other parts of the country.

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TABLE 1

Background Information on Learner-participants

School Type	Gender		Total
	Male	Female	
SI Girls' High Sch. (Seoul)	0	70 (100%)	70
CL Co-Ed High Sch. (Seoul)	62 (57.4%)	46 (42.6%)	108
YM Boys' High Sch. (Seoul)	83 (100%)	0	83
Total	145 (55.6%)	116 (44.4%)	261

2. Instruments

1) Vocabulary Levels Test

The vocabulary levels test to assess the high school learners' vocabulary size was presented in two forms, that is, one for assessing the learners' receptive vocabulary size and the other for the productive vocabulary size. Nation's (2012) bilingualized version of the vocabulary levels test (which can be downloaded from http://www.victoria.ac.nz/lals/staff/paul-nation.aspxcan) exists originally only for the receptive version. An adapted form of the test was utilized. The test is designed to measure learner's vocabulary size by selecting word items at each band (i.e., a single band contains 10 items) from the 1st to the 14th 1,000 word families based on the development of the fourteen 1,000 BNC wordlists (Nation & Beglar, 2007), so that to estimate vocabulary size at each word band, 100 had to be multiplied to the raw scores. Since the criteria level for vocabulary assessment was to seek how and to what extent the learners had a vocabulary size of 5,000 words, representing the upper limit of general high-frequency vocabulary (Read, 2000), we tested the learners on the 1st to the 7th 1,000 word bands, slightly beyond the target criterion level. A procedure was also involved to see that culture-specific words were not included in the items. For the words that needed substitution, we randomly re-selected words with *Random Item Generator* v.1 available at *Compleat Lexical Tutor* (http://www.lextutor.ca/) for each frequency band. Also, to reduce the possibility of test-takers guessing, we included the option ⑤ '잘 모르겠음' (i.e., Do not know) so as to improve the validity of the items. The following is one of the items of the receptive test:

45. constrain : He **constrained** her to go.
① 강요하다 ② 막다 ③ 전화하다 ④ 충고하다 ⑤ 잘 모르겠음

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An adapted productive vocabulary levels test was also developed for the 1st ~ 7th 1,000 word bands. Originally based on the format of Laufer and Nation's (1999) productive vocabulary test, a similar procedure was employed as in the receptive vocabulary test to select the target word items. In our version, however, as in a previous study (Chon & Shin, 2012), we added L1 sentence equivalents to L2 sentences, which would enable learners to more easily retrieve the L2 target word by referring to the accompanying L1 translation The following is one of the items of the productive test:

46. 해가 막 지평선 위로 떠오르고 있었다.
☛ The sun was just peeking over the ho_ _ _ _ _.

2) Academic Self-Regulation Questionnaire

In line with our interest in examining adolscent high school learners' degree of academic motivation orientation in relation to the learners' receptive and productive vocabulary size, we utilized one section of the *Self-Regulation Questionnaires* (Ryan & Connell, 1989), the *Academic Self-Regulation Questionnaire*, which has previously been developed for assesing domain-specific individual differnces in the types of motivation or regulation. The questions have been constructed based on the theoretical framework of self-determination theory (SDT) (Deci & Ryan, 1985), which differentiates types of behavioral regulation in terms of the degree to which they represent autonomous or self-determined functioning. The items on the questionnaire ask why the respondent does a behavior (or a class of behaviors) and then provides several possible reasons that have been preselected to represent the different styles of regulation or motivation. In our study, learners were asked questions in the domain of why they study English, and questionnaire items were utilized to obtain information on the learners' degree of regulation on five different types of behavioral motivation or regulation—*Amotivation*, *External regulation*, *Introjected regulation*, *Identified regulation*, and *Intrinsic regulation* (See later *2. Academic Motivation and L2 Vocabulary Size* for the reliability figures of the questionnaire items.) In total, there were twenty questionnaire items across the five types of regulation which were provided to the learners in their L1 as listed in the Appendix.

3. Procedure and Data Analysis

The *Academic Self-Regulation Questionnaire* and the vocabulary levels test (VLT), presented in a single qustionnaire, were administered in each of the high schools by the teachers at a time of the semester when the learners were not burdened with their usual

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lesssons. The *Academic Self-Regulation Questionnaire* and VLT were administered during the Fall of 2012. The learners were provided adequate time for completion. The responses from the instruments were coded to analyze with SPSS (Statistical Package for Social Sciences) 18.0. Repeated-measures t-tests were conducted for seeking differences in the receptive and productive VLT, and one-way ANOVA was employed to check differences among the subtypes of motivation themselves, and to find any differences in cross-grade and vocabulary proficiency groups for the motivational orientations. Further, muliple regression was conducted to seek any significant motivational predictors and subject variables with vocabulary size as the dependent variable.

In connection to our interest in examining different vocabulary proficiency groups, one procedure of the study involved distinguishing the learner groups. This involved visual interpretation of histograms and cumulative percentages obtained from the frequency of the vocabulary scores. The learners' scores were examined with descriptive statistics and an inferential test of one-way ANOVA with multiple comparison, and results showed that these groups were significantly different from one another (Receptive vocabulary: $F_{(2, 250)} = 428.85$, $p = .000$; Productive Vocabulary: ($F_{(2, 218)} = 299.14$, $p = .000$) so that the cut-off points used for division of the groups were considered appropriate.

IV. RESULTS AND DISCUSSION

1. Receptive and Productive Vocabulary Sizes of EFL Learners

The vocabulary size test administered on the 261 high school EFL learners yielded means and standard deviations for the receptive and productive vocabulary sizes as presented in Table 2. When the participants' responses from the tests were calculated for the vocabulary sizes from a total of 70 words (i.e., $1^{st} \sim 7^{th}$ 1,000 word bands), the mean scores indicated the receptive vocabulary size (RVS) of the learners to be slightly over 40 and the productive vocabulary size (PVS) to be almost 20. In effect, this indicates that the learners had RVS knowledge of 4,000 and PVS of 2,000 word families respectively from a total of 7,000 words when the raw scores were multiplied by 100 to obtain learners' total vocabulary size. This pattern found between RVS and PVS is not surprising since words are easier to access receptively than to use productively, and being able to use words productively involves many complex aspects of knowing words (Laufer, 1998; Nation, 2001; Waring, 1997, Webb, 2008; Wesche & Paribakht, 1996). When percentages for the overall PVS/RVS ratio was also calculated as seen in Table 2 to ascertain how much of the learners' receptive knowledge had been transferred to productive lexical knowledge, the

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results indicated the learners to be able to produce 49.08% of the words that they knew receptively. However, the percentages cannot be generalized for all word levels. Table 3 provides details on the receptive and productive vocabulary sizes at each word band.

TABLE 2
Overall Means and Ratios of Receptive and Productive Vocabulary Sizes at 1st ~ 7th 1,000 Word Bands

	RVS	PVS	PVS/RVS (%)
Mean	40.45	19.65	49.08
SD	15.58	12.48	27.73
Min	0.00	0.00	0.00
Max	69.00	61.00	166.67

Note: Receptive Vocabulary Size; PVS = Productive Vocabulary Size

TABLE 3
Receptive and Productive Vocabulary Sizes at Different Word Frequency Bands

	RVS [Mean]	PVS [Mean]	PVS/ RVS (%)	t	df	Sig.
1st 1000	9.13 (1.75)	7.54 (2.87)	81.45	10.04	261	.000
2nd 1000	8.34 (2.33)	4.34 (2.86)	50.25	25.48	262	.000
3rd 1000	6.67 (2.90)	2.70 (2.63)	38.23	23.77	262	.000
4th 1000	4.80 (3.13)	1.97 (2.28)	43.93	15.34	253	.000
5th 1000	4.51 (2.74)	1.29 (1.96)	24.60	21.30	260	.000
1st ~ 5th 1,000 TOTAL	**33.52 (11.09)**	**17.89 (10.59)**	**56.41**	**26.27**	**252**	**.000**
6th 1000	4.30 (2.84)	1.59 (1.76)	41.15	16.59	262	.000
7th 1000	2.57 (2.70)	.47 (1.04)	20.70	12.20	221	.000

* ( ) = Standard deviations; $p < .007$

With regard to the first research question which examines how closely the learners reach the limit of 5,000 word families, which represents the upper limit of general high frequency vocabulary (Read, 2000), the total scores for 1st ~ 5th 1,000 words (i.e., receptive: 3,352 words; productive: 1,789 words) indicated that the learners had not reached this criterion level. Across the word bands, there was a tendency for the learners' RVS and PVS to generally drop towards the low frequency word bands. The difference

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between RVS and PVS scores with the repeated t-test ($p < .007$ with Bonferroni Adjustment) indicated the receptive scores to be significantly higher than the productive scores at all bands. There was also a general steady drop in the PVS/ RVS ratios for the differential size of the receptive and productive vocabularies as the learners' vocabulary size decreased, and unexpected rises of the PVS/ RVS ratio was noticed at the 4th and 6th 1,000 word level. The percentages of correct answers are shown in Tables 4 and 5 respectively for receptive and productive vocabulary at the 4th and 6th words bands.

Lexical items such as *elastic, hazard, informal, microscope, worship, athlete, genius,* and *nutrition* resulted to be the receptive lexical items that were relatively better known than the rest even though the words had been selected in the same word band from the *British National Corpus* (i.e., one of the most well-established native speaker corpus) in the process of constructing the vocabulary levels test. We attribute this to how the learners have been learning words from textbooks and wordlists that have been designed for Korean EFL learners rather than for the learning of general English words (e.g., frequency-based list of words retrieved from native-speaker corpus). The productive words at the 4th and 6th 1,000 word levels produced relatively high PCAs for words such as *alike*, *explore, kite, melody, destiny*, and *vacations*, and these type of words seem to have contributed to the higher PVS/RVS ratios; *melody* is a loanword in Korean and *vacation* is an oft-mentioned word in the students' daily life so that they would have known them regardless of word band level.

TABLE 4

Items on Receptive Vocabulary Size Test at 4th and 6th 1,000 Word Levels

Item no.	Target word	PCA	Item no.	Target word	PCA
31	abandon	46.0%	51	athlete	60.8%
32	bruise	41.4%	52	chubby	31.9%
33	candid	22.1%	53	conceal	33.8%
34	decline	36.5%	54	emit	41.8%
35	elastic	54.4%	55	genius	77.6%
36	hazard	54.8%	56	nutrition	77.2%
37	informal	57.8%	57	prudent	22.1%
38	microscope	57.4%	58	stern	33.1%
39	reap	39.2%	59	thaw	11.0%
40	worship	64.3%	60	underestimate	45.6%

Note: PCA = 'Percentage of correct answers' in the VLT

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TABLE 5

Items on Productive Vocabulary Size Test at 4th and 6th 1,000 Word Levels

Item no.	Target word	PCA	Item no.	Target word	PCA
31	abnormal	5.3%	51	abbreviate	2.7%
32	alike	32.7%	52	melody	22.8%
33	bride	18.6%	53	destiny	24.0%
34	conduct	4.9%	54	grubby	0.0%
35	explore	26.6%	55	imperative	0.4%
36	gaze	19.4%	56	prevails	0.4%
37	instinct	13.3%	57	roared	12.9%
38	kite	49.0%	58	vacation	54.4%
39	philosophy	18.3%	59	wizard	34.2%
40	thorns	7.6%	60	womb	6.8%

Note: PCA = 'Percentage of correct answers' in the VLT

The results on the vocabulary size of L2 adolescent high school learners as a whole indicate that they were below the upper limit of general high frequency vocabulary (i.e., 5,000 words). To apply another threshold level, as validated by Adolphs and Schmitt (2003) who estimate that, at least, 3,000 words have to be mastered in order to understand the words in around 90% and 94% of spoken discourse in different contexts, the high school learners in our study seem to have surpassed the receptive lexical knowledge threshold level for this purpose (i.e., 3,352 words), but not in the realm of productive lexical knowledge (1,789 words). The results corroborate the vocabulary size found among another group of Korean L2 high school learners which was 3,856 words for receptive vocabulary and 1,990 words for productive vocabulary when the 1st ~ 5th 1,000 word bands were examined (Shin, Chon, & Kim, 2011).

2. Academic Motivation and L2 Vocabulary Size

The second research question of our study was to examine if different vocabulary sizes of the learners were related to the subtypes of motivation. However, before analyzing the relationship between vocabulary size and the different levels of self-regulation, we examined the different degrees of motivation. The alpha values for the multistatements utilized to assess the subtypes of academic motivation are presented in Table 6. All values were above the benchmark value (α = > .70) so that each of the constructs for representing the subscales of motivation were considered reliable.

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TABLE 6
Subtypes of Academic Motivation

(n = 257)		Min	Max	Mean	SD
	Amotivation (α = .87)	1.00	5.00	3.09 (4)	.94
Extrinsic Motivation	External Regulation (α = .84)	1.00	5.00	3.13 (3)	.67
	Introjected Regulation (α = .70)	1.00	5.00	3.17 (2)	.76
	Identified Regulation (α = .83)	1.00	5.00	3.37 (1)	.81
	Intrinsic Motivation (α = .91)	1.00	5.00	2.59 (5)	.97

Note: ( ) = Rank for subtypes of Academic Motivation

The total scores for the subscales of academic self-regulation resulted in the highest scores for *identified regulation* (mean = 3.37) and the lowest for *intrinsic motivation* (mean = 2.59). One-way within-subjects ANOVA found the differences to be statistically different with Greenhouse-Geisser correction ($F_{2.034, 520.685}$) = 32.680, p = .000, partial eta-sqaured = .113. Multiple comparisons with Bonferroni post-hoc tests found learners exhibiting the lowest level of regulation for *intrinsic motivation* ($p < .01$), and highest for *identified regulation* in comparison to those of other types of motivational regulation (See Table 7).

In the questionnaire, the items tapping *identified regulation* were *Because what I learn in school is important to my future goals* (mean = 3.72, SD = 3.72), *Because I see the usefulness of learning English in my life* (mean = 3.47, SD = 1.00), *Because English is the subject that helps me develop all sorts of valuable skills* (mean = 3.23, SD = 1.03), and *Because, to me, learning is so important- its valuable, worthwhile* (mean = 3.05, SD = 1.00).

TABLE 7
Multiple Comparisons for Subscales of Academic Motivation

(I) Academic Motivation	(J) Academic Motivation	Mean Difference (I-J)	Sig.	95% Confidence Interval for Difference	
				Lower Bound	Upper Bound
Amotivation	External R	-.043	1.000	-.187	.101
	Introjected R	-.078	1.000	-.268	.112
	Identified R	-.286	.024*	-.551	-.022
	Intrinsic M	.490	.000*	.195	.785
External R	Introjected R	-.035	1.000	-.161	.092
	Identified R	-.243	.002**	-.423	-.062
	Intrinsic M	.533	.000**	.311	.756
Introjected R	Identified R	-.208	.005**	-.376	-.040
	Intrinsic M	.568	.000**	.364	.773
Identified R	Intrinsic M	.776	.000**	.628	.924

** $p < 0.01$, * $p < 0.05$

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We had expected the learners to be regulated by the most controlled form of extrinsic motivation since these regular-track high school learners[2] are usually prompted to study for more imminent purposes (i.e., *external regulation*), commonly to enter high-ranking universities where English is a subject treated in the educational milieu primarily as a gatekeeper for university entrance. Although *identified regulation* is a category of *extrinsic motivation*, the results denote how the learners' reasons for studying English has emanated from the learners' acceptance in seeing the relevance and meaningfulness of being involved in the academic activity. This is a subcategory of *extrinsic motivation* that is more self-determined and personal than *external* or *introjected regulation*. The learners have personally identified with the importance of studying English and accepted it as a regulation of their own because it benefits achieving a goal, potentially for both immediate and future purposes (Ryan & Deci, 2000b). With this form of motivation, the individual doesn't have to find enjoyment in the behavior, and there doesn't have to be an immediate reward. The learner also is not motivated by guilt or shame (as in *introjected regulation*).

A follow-up to our second research question was also to check for any cross-grade (i.e., freshman, sophomore, senior) developmental patterns within the group of adolescent L2 high school learners regarding the types of academic motivation. There were non-significant differences, but a borderline significance level was noted for *identified regulation* ($F_{(2, 257)} = 2.957$, $p = .054$). The mean values in Figure 2 and Table 8 indicate dropping levels of *identified regulation* with advancing years of study, and vice versa for *Amotivation,* although non-significant ($F_{(2, 258)} = 2.446$, $p = .089$). Since *identified regulation* involves an individual's recognition and acceptance of the value and importance of a behavior, in this case studying English, the results suggest that there may be less integration of this into the self as learners progress towards their senior years. This may be due to how some learners are reaching a breaking point in studying English with the pressures from the impending Korean College Scholastic Ability Test (CSAT), where the learners are no longer able to internalize the goal of studying English into the self. In a similar vein, although non-significant ($F_{(2, 247)} = 2.122$, $p = .107$), there is also the lowest level of *intrinsic motivation* in the senior year, indicating falling levels of impetus or inspiration to study English for its inherent satisfaction. *Amotivation* also reaches its pinnacle in the senior year. Similar results have been demonstrated in a previous study by Tae-Young Kim (2012) who found Korean high school learners' demotivational trend for studying English increasing as they advanced to a higher school level (i.e., junior to high school).

[2] In the context of our study, those high school students who are aiming primarily to enter a four-year university are considered to be in the regular-track scheme.

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FIGURE 2

Academic Motivation for Cross-Grade Differences

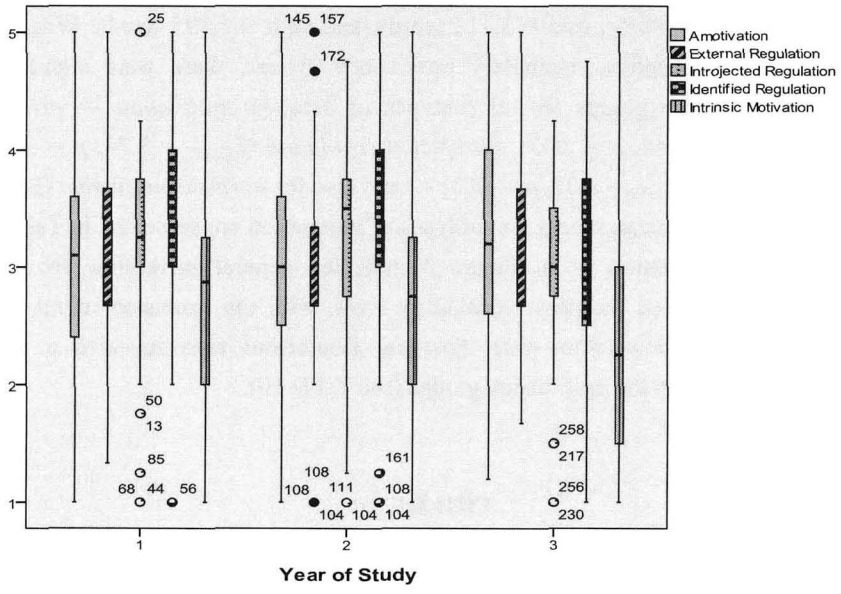

TABLE 8

Academic Motivation for Cross-grade Differences

Year of Study		N	Min	Max	Mean	SD
1	Amotivation	100	1.00	5.00	3.04	0.886
	External R	100	1.33	5.00	3.13	0.663
	Introjected R	101	1.00	5.00	3.24	0.773
	Identified R	99	1.00	5.00	3.46	0.772
	Intrinsic Motivation	100	1.00	5.00	2.71	0.939
2	Amotivation	93	1.00	5.00	2.99	0.915
	External R	93	1.00	5.00	3.12	0.708
	Introjected R	93	1.00	4.75	3.21	0.778
	Identified R	93	1.00	5.00	3.42	0.759
	Intrinsic Motivation	92	1.00	5.00	2.60	0.949
3	Amotivation	68	1.20	5.00	3.30	1.057
	External R	68	1.67	5.00	3.14	0.657
	Introjected R	68	1.00	4.25	3.02	0.728
	Identified R	68	1.00	4.75	3.17	0.913
	Intrinsic Motivation	68	1.00	5.00	2.39	1.039

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Another part of our second research question was to see if different levels of academic motivation existed for different vocabulary proficiency groups, whose vocabulary mean sizes were: low = 735 words, mid = 3,112 words, and high = 5,395 words. When we examined different receptive vocabulary proficiency groups, there were significant differences between the groups for all subtypes of *extrinsic motivation* — *external regulation* ($F_{(2,250)} = 6.044$, $p = .003$), *introjected regulation* ($F_{(2,250)} = 8.74$, $p = .000$), *identified regulation* ($F_{(2,248)} = 9.01$, $p = .000$) — and also for *intrinsic motivation* ($F_{(2, 249)} = 3.619$, $p = .028$). The mean scores for subtypes of motivation are presented in Table 9. While a visual examination as in Figure 3 indicated general increasing levels of motivation with improved receptive vocabulary sizes, with the exclusion of *intrinsic motivation,* multiple comparisons with Post-hoc Bonferroni tests revealed a more detailed analysis between the proficiency groups (see Table 10).

FIGURE 3
Academic Motivation across Receptive Vocabulary Size Groups

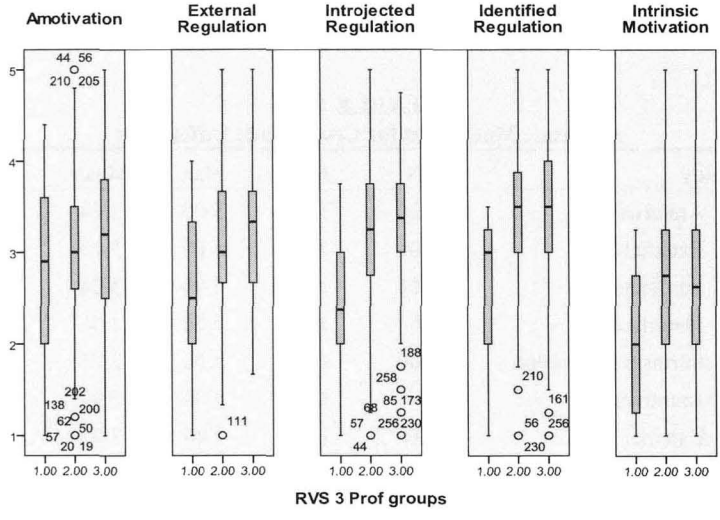

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TABLE 9

Receptive Vocabulary Proficiency and Academic Motivation

Motivation and Regulatory Styles		Prof. Groups	N	Mean	SD	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Amotivation (4)		1	14	2.76	1.08	2.13	3.38
		2	121	3.06	0.94	2.89	3.23
		3	117	3.17	0.94	2.99	3.34
		Total	252	3.09	0.95	2.98	3.21
Extrinsic Motivation	External R (3)	1	14	2.60	0.92	2.07	3.12
		2	121	3.10	0.65	2.99	3.22
		3	118	3.23	0.64	3.12	3.35
		Total	253	3.14	0.68	3.05	3.22
	Introjected R (2)	1	14	2.38	0.82	1.90	2.85
		2	121	3.17	0.74	3.03	3.30
		3	118	3.26	0.76	3.12	3.40
		Total	253	3.17	0.77	3.07	3.26
	Identified R (1)	1	14	2.50	0.87	2.00	3.00
		2	119	3.40	0.77	3.26	3.54
		3	118	3.44	0.80	3.29	3.58
		Total	251	3.37	0.82	3.27	3.47
Intrinsic Motivation (5)		1	14	2.05	0.77	1.61	2.50
		2	121	2.73	0.94	2.56	2.89
		3	117	2.53	1.01	2.34	2.71
		Total	252	2.60	0.97	2.47	2.72

Note: 1 = Low prof. group, 2 = Mid prof. group, 3 = High prof. group; ( ) = Ranking for subtypes of Academic Motivation

TABLE 10

Multiple Comparisons for Receptive Vocabulary and Academic Motivation

		(I) RVS 3 Prof groups	(J) RVS 3 Prof groups	Mean Difference (I-J)	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Extrinsic Motivation	External R	1	2	-.50945	.022*	-.9624	-.0565
			3	-.63923	.002*	-1.0927	-.1857
		2	3	-.12978	.399	-.3374	.0778
	Introjected R	1	2	-.79236	.001**	-1.3033	-.2814
			3	-.88771	.000**	-1.3994	-.3761
		2	3	-.09536	.982	-.3295	.1388
	Identified R	1	2	-.90336	.000**	-1.4422	-.3645
			3	-.93856	.000**	-1.4776	-.3995
		2	3	-.03520	1.000	-.2830	.2126
Intrinsic Motivation		1	2	-.67164	.043*	-1.3272	-.0161
			3	-.47207	.253	-1.1288	.1846
		2	3	.19957	.334	-.1015	.5006

** $p < 0.01$, * $p < 0.05$

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As indicated in Table 10, for all subtypes of *extrinsic motivation* (EM), the differences were apparent between the 'low' and 'mid' or 'high' proficiency vocabulary size groups regardless of the types of *extrinsic motivation* ($p < .05$). The results regarding *external regulation* demonstrate how the learners who have been learning English to satisfy an external demand (i.e., *to get grades,* later *earn money*, or to avoid *getting into trouble*) are also those that have developed larger receptive vocabulary sizes. In a similar way, exhibition of higher levels of *introjected regulation*, in which case the learners perform such actions with the feeling of pressure in order to avoid guilt or anxiety or to attain ego-enhancements or pride (Ryan & Deci, 2000b), was also apparent among the higher proficiency learners. The results corroborate findings from a previous study (Vansteenkiste *et al*., 2005) where researchers found extrinsic goal framing leading to a beneficial outcome on rote learning, which in our study can be associated with vocabulary learning.

Identified regulation, which is the self-determined form of extrinsic motivation was more evident in learners who recorded larger receptive vocabulary sizes. The pattern of results demonstrate how these learners also related the outcome of language learning to personal choice, priority, or value (i.e., learning is *personally important for achieving future goals*, *English connects to potentially developing skills*, or *learning English for their well-being of their future lives*).

Although *intrinsic motivation* recorded the lowest mean as a composite of academic motivation (mean = 2.60) for explaining why the learners study English, the difference shows that there was a noticeable difference between the 'low' and 'mid' proficiency groups. This difference was not apparent among the 'mid' and 'high' proficiency groups when learners were asked, for instance, the extent to whether learning English was inherently *fun* or *interesting,* or how they *enjoyed learning English*. Results suggest how there needs to be an increase of intrinsic motivation for those low proficiency learners who want to move onto obtaining a mid proficiency vocabulary size (i.e., when learners want to move up to a vocabulary size of 3,112 words.)

In the analysis of proficiency groups, we were also interested in investigating the relationship between academic motivation with regard to productive vocabulary size. As seen Table 11, with development in productive vocabulary proficiency, we also noticed rises in the motivational levels, excluding *intrinsic motivation*. The results are in accordance with the patterns discovered in the relationship between the subtypes of academic motivation and receptive vocabulary knowledge. However, there were no apparent significant differences between the productive vocabulary proficiency groups. Although this may have been a characteristic of the Korean high school learners' productive vocabulary profile *per se*, which can be inferred from how Korean high school learners rarely have the opportunity to conduct productive tasks in English (e.g.,

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L2 writing) and are primarily oriented towards test-taking practices and the memorization of isolated words in lists (2013, personal communication), we also attribute this partially to the way the productive vocabulary test items were scored.[3]

As a whole, the significant differences noted for the subtypes of *extrinsic motivation* indicate how extrinsic forms of regulation contributed to the causality for studying English, where *external* and *introjected regulation* have external perceived locus of causality (EPLOC; deCharms, 1968) and *identified regulation* has somewhat internal EPLOC where learners are conscious of valuing the activity and self-endorsing goals to be achieved, in this case learning English when seen in connection to their development of receptive vocabulary size.

TABLE 11
Productive Vocabulary Proficiency and Academic Motivation

Motivation and Regulatory Styles		Prof. Groups	N	Mean	SD	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Amotivation (4)		1	36	3.01	0.84	2.73	3.29
		2	154	3.05	0.99	2.90	3.21
		3	30	3.13	0.87	2.81	3.46
		Total	220	3.06	0.95	2.93	3.18
Extrinsic Motivation	External R (3)	1	36	2.99	0.91	2.68	3.30
		2	154	3.10	0.63	3.00	3.20
		3	30	3.26	0.71	2.99	3.52
		Total	220	3.11	0.70	3.01	3.20
	Introjected R (2)	1	36	2.97	0.89	2.67	3.27
		2	155	3.16	0.77	3.04	3.28
		3	30	3.38	0.74	3.11	3.66
		Total	221	3.16	0.79	3.05	3.26
	Identified R (1)	1	36	3.26	0.87	2.97	3.56
		2	153	3.39	0.83	3.26	3.52
		3	30	3.46	0.57	3.25	3.67
		Total	219	3.38	0.80	3.27	3.49

Due to the exam-oriented milieu and the Korean EFL high school learners' scarcity of opportunities to use English in their actual lives for personal or inherent satisfaction, we did not expect the learners' motivation to have emanated from *intrinsic motivation.* Nevertheless, we were able to detect how different levels of *intrinsic motivation* may

[3] For scoring the productive items, the procedure of strict scoring was adopted where any item even with a minor spelling error was marked wrong rather than given partial points so that any degree of freedom was not allowed when analyzing the relationship between academic motivation and the learners' knowledge of productive vocabulary. This is a methodological issue that the researcher needs to check in a subsequent study.

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contribute to the development of receptive vocabulary for different proficiency levels. The results demonstrate how teachers and practitioners, who believe that EFL contexts are immune to the development of *intrinsic motivation,* need to be concerned about developing motivation that is more autonomous or volitional and self-regulated in the high school classrooms.

The results also underscore how *extrinsic motivation* can be represented in various forms, some of which do, indeed, represent impoverished forms of motivation and some which represent active, agentic states (Ryan & Deci, 2000b). In other words, students can perform extrinsically motivated actions with resentment, resistance, and disinterest or, alternatively, with an attitude of willingness that reflects an inner acceptance of the value or utility of a task. Understanding these different types of extrinsic motivation, and what fosters each of them, may be an important issue for teachers and practitioners in the Korean context, who cannot always rely on intrinsic motivation to foster learning. In fact, many of the tasks that teachers and parents want the L2 learners to perform may not be inherently interesting or enjoyable, such as in activities of vocabulary learning, which often involve the process of decontextualized rote memorization of words. However, we teachers and practitioners should be able to promote the more active and volitional (versus passive and controlling) forms of extrinsic motivation as essential strategies of successful teaching. Teachers and materials developers should be aware of the utility of strategy-based instruction, such as through the teaching of vocabulary learning strategies (Schmitt, 1997), which is believed to facilitate more automated, self-regulated types of learning. Also, activities with extensive reading can be perceived as *autonomous* when reading materials are chosen at the learners' own will, and can leave learners feeling competent if the vocabulary in the books or materials have been controlled, such as by the use of graded readers (Nation, 2009).

3. Academic Motivation, Learner Variables and Vocabulary Knowledge

Our third research question concerned which of the subtypes of academic motivation were significant predictors of adolescent high school EFL learners' vocabulary sizes. In the analysis, we were interested in examining which of the subtypes of academic motivation was a significant predictor(s) for predicting Korean EFL high school learners' vocabulary knowledge. After ascertaining which of the subtypes of academic motivation are significant, we also examined if there were any subject variables (i.e., gender, year of study in high school) that could be identified as predictors of vocabulary knowledge. Multiple regression was conducted on the subtypes of academic motivation with receptive vocabulary as the dependent variable. Using the enter method, a significant model emerged with $F_{(5, 243)} = 2.815$, $p = .017$, and *identified regulation* was

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recognized as the primary significant subtype of academic motivation (Beta = .213, p = .014). The results demonstrate how those learners who exhibit the more autonomous and self-regulated types of *extrinsic motivation* are those likely to develop larger vocabulary sizes, in this case receptive vocabulary knowledge. The unstandardized coefficient (B) of 4.075 (t = 2.465, p = .014) indicated that learners who scored one level higher on *identified regulation* are expected to know around 400 more word families (4.075 * 100). This implies how fostering *identified regulation* for learning English is important for the purpose of increasing learners' receptive vocabulary size.

For a more comprehensive regression model, another multiple regression was conducted, this time with the inclusion of 'gender' and 'number of years' as additional predictors, as seen in Table 12. For this procedure, the categorical variables were dummy coded with 'male' and' freshman' as the baseline groups.

TABLE 12

Academic Motivation, Subject Variables, Receptive and Productive Vocabulary Size

	Receptive Vocabulary				Productive Vocabulary			
	Unstandardized Coefficients		t	Sig.	Unstandardized Coefficients		t	Sig.
	B	Std. Error			B	Std. Error		
(Constant)	19.943	7.209	2.766	.006**	15.301	6.316	2.423	.016
Amotivation	-.488	1.513	-.322	.748	-.610	1.342	-.454	.650
External R	1.334	1.968	.678	.499	1.195	1.743	.686	.494
Introjected R	1.423	1.543	.923	.357	-.116	1.368	-.085	.932
Identified R	3.246	1.635	1.985	.048*	.142	1.417	.100	.920
Intrinsic M	-1.840	1.294	-1.422	.156	-.861	1.137	-.757	.450
Male vs. Female	7.251	2.469	2.937	.004**	6.487	2.069	3.135	.002**
Freshman vs. Sophomore	3.799	2.391	1.589	.113	1.642	1.949	.842	.401
Freshman vs. Senior	10.198	2.572	3.966	.000**	3.536	2.597	1.362	.175

** $p < 0.01$, * $p < 0.05$

A significant model emerged with $F_{(8, 240)}$ = 4.561, p = .000, and while *identified regulation* still remained a significant predictor, unstandardized coefficients (B) indicated the 'female' learners scoring 7.25 points (i.e., knew 725 more word families) higher on the receptive vocabulary test (t = 2.937, p = .004) and the 'seniors' scoring 10.20 points (i.e., 1020 word families) higher over the 'freshman' (t = 1.589, p = .000). According to the regression analysis, the model as a whole indicates the significance of *identified regulation* as a contributing factor of receptive vocabulary knowledge, with female learners prone to have larger receptive vocabulary sizes, and the year of study (i.e., senior) contributing to the development of receptive vocabulary size. Previous

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research has recognized that internalizing a goal into the self, as is done when an individual has an identified self-regulation, is necessary for establishing the importance of the goal and also for developing and maintaining commitment to, and persistence at working toward the goal (Austin & Vancouver, 1996). Research has also indicated that the extent to which individuals identify with their goals is predictive of their goal commitment and progress, even in the face of adversity (e.g., Lydon, Burton, & Menzies-Toman, 2005; Lydon & Zanna, 1990).

When multiple regression was conducted similarly on the subtypes of academic motivation with productive vocabulary as the dependent variable, a non-significant model emerged ($F_{(5, 209)} = .607$, $p = .695$). With information on other subject variables, multiple regression was conducted with the inclusion of 'gender' and 'year of study.' A more comprehensive regression model resulted in being significant ($F_{(8, 206)} = 2.022$, $p = .045$), but it was only with 'gender' that a significant predictor appeared. It seems that this lexical knowledge, particularly that is related to the development of productive vocabulary knowledge, is not closely related to the different levels or types of academic motivation. In our sample of high school learners, it was the female learners that contributed to having greater productive vocabulary sizes. Compared to 'male' learners, the 'female' learners had productive vocabulary size around 650 word families (6.487 * 100) greater than those of the male learners. In subsequent research of inquiry, it may be within the interest of teachers and researchers to observe the different repertoire of vocabulary learning strategies, or the different orchestration of strategies (Cohen & Macaro, 2007) that female learners commonly use in comparison to their counterpart learners.

V. CONCLUSION

The present study, thus far, has examined L2 learners' development of vocabulary by connecting this to the types and degrees of motivational orientation, which is an under researched relationship according to current literature. The present study has been informative in being able to delineate L2 Korean high school learners' motivational spectrum in light of controlled measures of vocabulary size within the framework of self-determination theory. While the learners' receptive vocabulary size resulted to be sufficient to understand the words in spoken discourse in different contexts (i.e., 3,000 words for around 90% and 94% coverage), the results as a whole indicate the learners' tendency towards treating learning English with personal importance to the point of accepting its regulation as their own (as in *identified regulation*). There were differences

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in the levels of *extrinsic motivation* between the vocabulary proficiency groups. There were stronger degrees of extrinsic motivation among the higher proficiency learners, with *identified regulation* being the significant predictor of receptive vocabulary size. Although the level of intrinsic motivation was low, it seemed to be a motivational requirement for obtaining a larger vocabulary size, particularly for the low proficiency learners. The regression analysis indicated *identified regulation* to be a significant predictor in contributing to the learners' receptive vocabulary knowledge, and it was the female learners and students in their senior year that were likely to have developed larger receptive vocabulary sizes.

The implications of the study can be explained within Ryan and Deci's (2000b) *Cognitive Evaluation Theory* (CET), which is considered a subtheory of self-determination theory. CET argues that people must not only experience perceived competence (or self-efficacy), but must also experience their behavior to be self-determined if intrinsic motivation is to be maintained or enhanced (Ryan & Deci, *ibid*). In other words, the high school adolescent learners in the present study do not seem to have experienced the satisfaction of the needs both for competence and autonomy in order to sustain a high level of intrinsic motivation, and it is this aspect that English teachers may need to turn their attention to. In fact, the CET aspect of SDT suggests that classroom and home environments can facilitate or forestall intrinsic motivation by supporting versus thwarting the needs for autonomy and competence. This implies for teachers and practitioners of L2 language classrooms that learners need to perceive themselves as being competent. For instance, in vocabulary learning, new lexical items need to be introduced in a manner where the difficulty of the words can be controlled (e.g., *via* gradual presentation of new words based on frequency information, the use of graded readers where vocabulary has been controlled, the use extensive reading activities for fluency practice where 95~98% of the words are known), rather than by simply bombarding the learners with list of new words. Primarily though, as mentioned in SDT, it is critical to remember that intrinsic motivation will occur only for activities that hold intrinsic interest for an individual—those that have the appeal of novelty, challenge, or aesthetic value for that individual.

Since extrinsically motivated behaviors are not inherently interesting and thus must initially be externally prompted, the primary reason people are likely to be willing to do the behaviors is that they are valued by significant others to whom they feel (or would like to feel) connected, whether that be a family, a peer group, or a society. This suggests for teachers in Korean secondary schools that the foundation for facilitating internalization is providing a sense of belongingness and connectedness to the persons,

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group, or culture disseminating a goal, or what in SDT we call a sense of *relatedness* (Ryan & Deci, 2000b). In classrooms, this points to how teachers should build rapport with the learners, showing care and respect towards the learners so that they may be more willing to become a part of the population that can use English, which eventually will lead to building larger vocabulary sizes. According to SDT, another issue concerns perceived *competence*, which implies how learners are more likely to adopt and internalize a goal when one feels efficacious with respect to achieving it. This is expected to occur more easily when learners are offered optimal challenges in learning, such as at '$i + 1$' (Krashen, 1982) so that the learning level is just beyond what the learners can handle.

As a third element, SDT theorizes that *autonomy* supportive contexts will yield integrated self-regulation. In the L2 classrooms, autonomous learning is expected to occur when learning is more learner-centered, sometimes letting learners decide what and how they want to learn (e.g., in terms of materials, text, functional language), guiding learners to be metacognitively aware of the learning strategies they use for the different skills of English, including vocabulary. In sum, L2 learning contexts that are facilitative of *relatedness*, *competence*, and *autonomy* are expected to facilitate internalization of goals for learning English and the integration of behavioral regulations that are needed for those purposes. When that occurs, the L2 learners will not only feel competent and related, but also self-determined, as they carry out extrinsically valued activities, which include the task of learning vocabulary as seen in our study.

Last but not least, the study leaves some unanswered queries on how other affective factors may be related to L2 learners' vocabulary size, or on how academic motivational orientations may be related to the comprehensive measures of language proficiency (e.g., reading or listening) wherein vocabulary is the factual component of language knowledge. For other affective variables, there is the measure of anxiety such as in the *Foreign Language Classroom Anxiety Scale* (FLCAS; Horwitz, Horwitz, & Cope, 1986) that may be utilized to examine any relationship to vocabulary size. While our study was limited to measuring the vocabulary size of L2 learners in the controlled forms of receptive and productive tests, the present type of study can be extended for investigating the relationship between academic motivation and free productive measures of vocabulary in writing via the *Lexical Frequency Profile* (Laufer & Nation, 1995). We leave these gaps for future research.

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APPENDIX

Academic Self-Regulation Questionnaire

✂ 다음 문항부터는 여러분의 평소의 생각이나 관점을 이해하기 위한 것입니다. 각 문항을 잘 읽고 당신이 평소 느끼고 생각하는 정도와 가장 잘 일치한다고 생각하는 번호에 ⓥ해 주십시오. 모든 문항에 빠짐없이 솔직하고 정확하게 응답해주시기 바랍니다.

	[영어 공부를 하는 이유는 _____]	전혀 그렇지 않다	그렇지 않다	보통 이다	그렇다	매우 그렇다
1	영어를 배우는 게 정말 재미있어서	①	②	③	④	⑤
2	공부를 안하면 죄책감이 느껴져서	①	②	③	④	⑤
3	단지 내가 원하는 성적을 받기 위해서	①	②	③	④	⑤
4	장래의 꿈이나 목표를 이루는데 도움이 되어서	①	②	③	④	⑤
5	내게 중요한 분들 (예: 부모님, 선생님 등)을 실망시키지 않으려고	①	②	③	④	⑤
6	영어에 매우 큰 흥미를 느껴서	①	②	③	④	⑤
7	필수적으로 하라고 하니까 / 해야만 해서	①	②	③	④	⑤
8	주변 분들의 기대를 저버리지 않기 위해서	①	②	③	④	⑤
9	다양한 종류의 능력개발에 도움이 되는 교과목이어서	①	②	③	④	⑤
10	왜 영어공부를 꼭 해야 하는지 잘 모르겠지만 그냥 한다	①	②	③	④	⑤
11	만일 안하면 벌을 받거나 문제가 생기기 때문에	①	②	③	④	⑤
12	만일 안 해도 된다면, 굳이 영어공부를 하지는 않을 텐데	①	②	③	④	⑤
13	영어실력이 향상될수록 내 삶에 유익하니까	①	②	③	④	⑤
14	무엇인가를 배운다는 자체가 내게는 가치 있고 중요해서	①	②	③	④	⑤
15	영어를 꼭 공부해야 하는 중요성은 잘 모르지만, 일단 하라고 하니까	①	②	③	④	⑤

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16	나중에 돈을 버는데 도움이 될 테니까	①	②	③	④	⑤
17	영어가 그냥 좋아서	①	②	③	④	⑤
18	만일 영어를 잘 못하면 창피하니까	①	②	③	④	⑤
19	왜 굳이 영어공부를 해야 하는지 잘 모르겠다.	①	②	③	④	⑤
20	영어를 배우는 게 즐거워서	①	②	③	④	⑤

Examples in: English
Applicable Languages: English
Applicable Level: Secondary

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Received in April, 2013
Reviewed in May, 2013
Revised version received in June, 2013

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