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Senior High School EFL Students' L2 Motivational Configurations and Learning Outcomes: A Person-centered Approach

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Abstract
This study utilized a person-centered approach to explore senior high school EFL students' motivations and their learning outcomes. Cluster analysis extracted four second language (L2) motivational configurations among the 922 participants: 1) the *High Motive* group which is characterized by high amount of L2 motivation, 2) the *Performance-focused* group which is characterized by low intrinsic motivation and a focus on examination scores, 3) the *Socioculture-focused* group characterized by low intrinsic motivation but an interest in the L2 culture, 4) and the *Low Motive* group characterized by low motivation. It was found that a good quality group was absent from this particular EFL context. The *High Motive* group and the *Performance-focused* group outperformed the other two groups in terms of the L2 learning outcomes. Integrative motivation emerged from the person-centered approach. Contextual factors such as the economic situation and influence of Confucianism were discussed in relation to the results.
Keywords: Second language learning motivation, Motivational configuration, English as a foreign language, Learning outcomes, Person-centered approach

1. Introduction

In the field of second/foreign language (L2) learning, language learning motivation has been traditionally researched through a variable-centered approach that explores relevant variables in relation to motivation and successful L2 learning (e.g., Chamot, 1998; Cohen, 2011; Ehrman, Leaver, & Oxford, 2003; Hernández, 2006; Kizilgunes, Tekkaya, & Sungur, 2009). The variable-centered approach, as the name suggests, examines the relationships among those crucial variables (Laursen & Hoff, 2006), providing researchers with the most significant results. On the basis of a variable-centered approach, intrinsic motivation has been associated with positive effects on learning outcomes (Gottfried, 1985; Lepper, Corpus, & Iyengar, 2005; Noels, 2001; Ryan & Deci, 2000) while extrinsic motivation usually links up a negative connotation (Clark & Schroth, 2010; Lin, McKeachie & Kim, 2003; Ryan & Connell, 1989). Moreover, instrumental motivation, which refers to practical value and advantages of learning a new language (Gardner, 1985), has been considered the most dominant motivation in the English as a foreign language (EFL) context (Afshar, Rahimi & Rahimi, 2014; Ahmadi, 2011; Carreira, 2011; Chen, Warden & Chang, 2005; Dörnyei, 1990; Latifah et al., 2011; Warden & Lin, 2000). In the meanwhile, integrative motivation, learning an L2 because of a favorable interest in the language (Gardner, 1985), may not exist in certain EFL contexts, such as Taiwan (Warden & Lin, 2000). The results derived from variable-centered approaches were based on the probability of average statistics about all individuals in the sample (Asendorpf, 2014) and considered identical for all individuals in the sample (Masyn, 2013), which reflected the phenomenon regarding a small group of individuals (Bergman, Magunsson, & El-Khorui, 2003). Variable-centered approaches, focusing on a single dimension of motivation, can hardly recognize each individual's distinct motivational pattern (Linnenbrink & Pintrich, 2001).

Research has indicated that an individual's motivation for learning an L2 may come from multiple sources (Deci & Ryan, 1980; Dörnyei, 1994; Dörnyei & Clément, 2001). All the efforts of an individual learner cannot be purely ascribed to one single need (Kolesnik, 1978). It is possible that an individual learner may not only be an inherent L2 enthusiast but extrinsically motivated by pragmatic goals and by admiration for foreign cultures as well (Keller, 2010; Walqui, 2000). This speculation of motivation as a multidimensional construct has led us to a person-centered approach, which focuses on the identification of individuals' key patterns or configurations across variables (Bergman & Magnusson, 1997). Instead of targeting a single dimension of L2 motivation, this study aims at exploring senior high school EFL students' L2 motivational configurations and the relationship to L2 learning outcomes on the basis of a person-centered approach.

Although a person-centered approach has seemed to be rarely considered in the field of L2 motivation (Csizér and Dörnyei's, 2005), it has been commonly applied in other fields, such as education (Hayenga & Corpus, 2010; Ratelle, Guary, Vallerand, Larose, & Senecal, 2007; Viljaranta, Aunola, & Hirvonen, 2016; Wormington, Corpus, & Anderson, 2012), physical education (Ntoumanis, 2002; Wang, Chatzisarantis, Spray, & Biddle, 2002) and sports (Boiché, Sarrazin, Grouzet, Polletier, & Chanal, 2008; Gillet, Vallerand, & Rosnet,

2009). For person-centered studies on motivation, self-determination theory (SDT) (Ryan & Deci, 2000) has been regarded as the central framework to identify individuals' motivational configurations. Many of these SDT studies explore learners' academic motivational clusters in terms of the ratio of intrinsic to extrinsic motivation and the overall amount of motivation, which commonly identified four clusters: the good quality cluster (high intrinsic with low extrinsic motivation), the poor quality cluster (high extrinsic with low intrinsic motivation), the high quantity cluster (high level of all types of motivation), and the low quantity cluster (low level of all types of motivation). The research results mainly show that a positive relationship exists between academic motivational clusters and academic performance, especially in the high quantity cluster (Ratelle et al., 2007), in the good quality cluster (Hayenga & Corpus, 2010; Vansteenkiste, Soenens, Sierens, Luyckx, & Lens, 2009) and in both the high quantity and the good quality clusters (Wormington, Corpus, & Anderson, 2012). The good quality cluster has been proved the best performance pattern on the basis of a person-centered approach. However, the good quality cluster might not exist in the EFL context because of the economic and social background of the EFL context.

Due to economic and social influences, extrinsic motivation related factors can be the dominant components of L2 motivational configuration in the EFL context. English has been considered a *lingua franca* in international business contexts (Nickerson, 2005). The ability to communicate in English may bring about a strong and positive effect in promoting trade across the globe (Ku & Zussman, 2010). Because English is an international language, people living in nations that engage in international trade, such as Taiwan, tend to positively view English as a powerful tool. Moreover, people with high English proficiency may be considered highly educated elites who have more chances to obtain better positions in transnational enterprises. Furthermore, individuals in Asian cultures greatly value academic achievement and are eager to fulfill individuals' duties and obligations set by the society, both of which may result in the development of the instrumentality of schooling (Ng, 2003). Since people in Asian cultures perceive the increasingly positive society values toward English, they engage in English learning for the economic benefits and a variety of utilities outside the learning pleasure itself. Out of consideration for the specific economic and social background of the EFL context, it is obvious that EFL learners' L2 learning heavily lies in a great diversity of extrinsic motivations. By contrast, intrinsic motivation seems to be comparatively subordinate to extrinsic motivation for the EFL learners. The ratio of intrinsic to extrinsic motivation of EFL learners in L2 learning is not as high as that of learners in academic performance. Contrary to the indefinite position of the good quality cluster in the EFL context, the poor quality cluster could be the prevailing motivational configuration in the EFL context.

In light of the specific conditions in the EFL context, it is reasonable to hypothesize that the good quality cluster may not exist in the EFL context while the poor quality cluster may prevail in the EFL context. The purpose of the present study is (a) to explore L2 motivational configurations in the EFL context, and (b) to identify the relationship between an L2 motivational configuration and the corresponding L2 learning outcomes of that configuration. In line with of the purpose of the study, the specific research questions are addressed below:

(1) What L2 motivational configurations do senior high school EFL students display?
(2) What is the relationship between an L2 motivational configuration and its corresponding L2 learning outcomes?

2. Method

2.1 Participants

In Taiwan, there are 3 grades in senior high school, including 1st grade (freshman), 2nd grade (sophomore) and 3rd grade (junior). Eight out of 21 classes were randomly sampled from each grade, totaling 24 classes and 1,018 students, were sampled from a boys' senior high school located in central Taiwan. The boys' senior high school was selected because of its renowned reputation for English curricula according to the general principles for senior high schools proposed by the Ministry of Education of Taiwan. After eliminating 73 invalid questionnaires, the number of the participants of the three grades was 297, 327, and 321 respectively.

2.2 Measures

2.2.1 L2 motivation

The Motivation Questionnaire (Wu & Chang, 2014) was conducted to investigate the motivational orientation of senior high school EFL students. Motivation Questionnaire (Appendix A) of the present study, comprising 28 items, was rated at a 5-point Likert scale which ranged from "1=never or almost never true of me" to "5=always or almost always true of me". For the sake of eliminating the obstacle to participants' English abilities, Motivation Questionnaire was carried out in Chinese version.

Motivation Questionnaire (Wu & Chang, 2014) was chosen for its rigorous verification. It was established and verified through item analysis, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) in Lisrel, Simplis, with a reliable internal consistency reliability (Cronbach's Alpha =.93), construct reliability (.80

< CR <.89), good validity (.31 < squared multiple correlation, SMC < .76), and three measurements of construct validity: 1) Standardized loading estimates (> .50), 2) Average variance extracted (AVE >.50), and 3) Construct reliability (CR >.70). Motivation Questionnaire of the present study consists of five factors (MF1 to MF5). MF1 was labeled as *Intrinsic Motivation* while the other 4 factors, MF2 to MF5, were characterized by different external needs. Each factor was named by its major feature respectively. MF2 was named as *Present Needs and* MF3 was labeled as *Future Needs.* MF4 was denominated *Needs for good Performance* and MF5 was named as *Sociocultural Needs*. MF1 was intrinsic motivation while the other four factors (MF2 to MF5) were all extrinsically related motivations.

SDT is often used to distinguish a great diversity of extrinsically related motivations. According to SDT, extrinsic motivation can be classified into three regulations on the basis of an ascending self-determined level: external, introjected, and identified regulation (Ryan & Deci, 2000). Externally regulated learners' behavior is controlled by some external source, such as tangible rewards or punishment (Noles, 2003). Introjected regulation refers to behaviors originating from pressure and guilt for poor performance and promises of self-aggrandizement and pride for good performance (Vansteenkiste, Smeets, Soenens, Lens, & Matos, 2010). Identified regulation relates to those behaviors judged important and chosen by the individual (Zhu & Leung, 2011).

To calculate the mean of extrinsic motivation, four extrinsically related motivations were classified into two regulations, introjected and identified regulation. MF4 *Needs for good Performance* was grouped into introjected regulation because of learners' self aggrandizement of outdoing others in L2 performance. MF2 *Present Needs*, MF3 *Future Needs*, and MF5 *Sociocultural Needs* were all classified into identified regulation because they were all self-chosen behaviors originating from self-judged importance on L2 practicability and on the admiration of foreign cultures. Identified regulation is the most self-determined form of extrinsic motivation while introjected regulation is a more self-determined form of extrinsic motivation. That is, identified-regulation-motivated learners are not extrinsically motivated as strong as introjected-regulation-motivated learners. Therefore, MF4 *Needs for good Performance*, the introjected regulation, was weighted by 2 for its stronger extrinsic feature.

2.2.2 L2 learning outcomes

In Taiwan, senior high school students usually take an English examination monthly over one semester. In this study, L2 learning outcomes were defined by the average scores of three English monthly exams of the selected boys' senior high school. The monthly English exams contained five sections on a basis of numerical grades: (1) vocabulary (20%), (2) grammar multiple choice (20%) (3) cloze test (15%), (4) reading comprehension (30%) and (5) Chinese-English translation (15%). To compare the raw scores measured on different scales, the original units should be eliminated by converting the raw scores to their z-transformed scores (Pagano, 2007). The raw scores of the three English monthly examinations were transformed into Z-score for a meaningful comparison. The mean of Z-score, therefore, served as the measure of *L2 Learning Outcomes* in the present study.

2.3 Data Analysis

With the statistical package SPSS 24.0 for Windows, the data were processed. The correlation between senior high school EFL student's English learning motivation and L2 learning outcomes was significant at the .01 level ($p < .01$) and the coefficients all fell into the range of ($.20 \leqq r \leqq .72$). Although none of the correlation coefficients between the two dimensionalities (motivation and L2 learning outcomes) were greater than .80, the possibility of multicollinearity may still remain if there are more than 3 independent variables. The diagnosis of multicollinearity indicated that the possibility of multicollinearity among the five independent variables (the five motivation factors) on L2 learning outcomes could be eliminated because of the reliable indicators of multicollinearity – tolerance values (>.10) and variance inflation factor (VIF< 10) of the five motivation factors.

2.4 Cluster Analysis

To explore the constituents of senior high school EFL students' English learning motivation, hierarchical cluster analysis (HCA) and nonhierarchical clustering (K-means) cluster analysis were conduced respectively, both of which ensure the heterogeneity between clusters and homogeneity within clusters (Hair, Anderson, Tathan, & Black, 1998). HCA was carried out by Ward's Linkage with the interval of Squared Euclidean distance. Twenty-three univariates (3 SDs above or below the mean values of motivational factors (MF1-MF5) were eliminated since HCA is sensitive to outliers (Almeida, Barbosa, Pais, & Formosinho, 2007). The number of participants was 922.

Through agglomeration schedule process with squared Euclidean distance interval and Ward's linkage, dendrogram of HCA indicated 4 level of hierarchical cluster in motivation (MF1-MF5). Large changes in fusion coefficients indicate greater dissimilarity in clusters being collapsed, thus arguing against collapsing those clusters (Aldenderfer & Blashfield, 1984). The fusion coefficients of HCA are listed in Table 1. Although the first two largest difference lies in the fusion coefficients between stages 921 and 920 and between 920 and 919, 2-cluster and 3-cluster solution may not well represent senior high school EFL students' multifaceted English

learning motivation. Since the difference between the fusion coefficients keeps decreasing, the cluster formation should be stopped at stage 919, indicating a 4-cluster solution.

Table 1. Fusion coefficients of hierarchical cluster analysis

Suggested cluster number	Stage	Fusion coefficients	Differences
	915	1819.64	
7	916	1931.60	111.96
6	917	2044.57	112.97
5	918	2191.32	146.75
4	919	2398.77	207.45
3	920	2998.91	600.14
2	921	4605.00	1606.09

K-means cluster analysis was carried out at the number of 4 clusters according to the suggesting results of HCA. To ensure the resulting cluster solution is both stable and replicable, a double-split cross-validation procedure should be performed (Breckenridge, 2000). The data of the present study (N=922) was split into two random halves for K-means cluster analysis and the Cohen's kappa is .918, which indicates very good strength of agreement on stability and replication.

2.5 MANOVA Analysis and Post Hoc Tests of Homogeneous Subsets

Based on Wilks' Lambda, Multivariate tests of the four clusters indicated significant differences among the four groups, F (3, 917) = 91.81, p<.001,η^2=.525. Tests of between-subjects effects indicate that students in different clusters have significant differences of motivation (MF1 – MF5). The effect size attributable to between-group differences is large (partial η^2 > .138) (Cohen, 1988). Post Hoc Tests (Tukey HSD) of homogeneous subsets for 4 clusters in terms of 5 motivational factors (MF1– MF5) indicated that the 5 motivational factors could be significantly classified into 4 different clusters except for MF1, which could only be significantly classified into 3 different clusters because MF1 of Cluster2 and Cluster4 is sorted into the same cluster, suggesting there is not much difference on MF1 between cluster2 and cluster4.

3. Results

3.1 Senior High School EFL Students' L2 Motivational Configurations in the EFL Context

With the procedures of cluster analysis and the follow-up homogeneity test, a 4-cluster solution proved fittest for the identification of L2 motivational configurations in the EFL context. Cluster centroids for the final solution were listed in Table 2 and cluster differences in the standardized criteria variables were shown in Figure 1. The percentage of each group population presents uniform distribution of the four clusters without any extreme values.

Cluster3 was named *High Motive Group* (n=238; 25.81%) because all the five motivations of L2 motivational configuration for this group were much higher than the average. Cluster4 was typified by MF4 *Needs for Good Performance* and MF3 *Future Needs.* Accordingly, Cluster4 was labeled *Performance-focused Group* (n=188; 20.39%). The EFL learners in the *Performance-focused Group* learned English for pursuing the sense of achievement and outperforming others and the utilities for the future. Cluster2 was featured by MF5 *Sociocultural Needs* and MF2 *Present Needs*. Therefore, Cluster2 was denominated *Socioculture-focused Group*. The senior high school EFL learners in *Socioculture-focused Group* (n=284; 30.80%) learned English partially for cultural admiration and partially for the present utilities, such as getting more knowledge and the latest news in the world. Cluster1 was characterized by five weak motivations. Thus, it was labeled as the *Low Motive Group* (n=212; 23.00%).

Table 2. Descriptive statistics and effect size of four clusters

	Cluster					
	Cluster3	Cluster4	Cluster2	Cluster1	F	η_p^2
N(%)	238(25.81%)	188(20.39%)	284(30.80%)	212(23.00%)		
MF1(3.38[a]; .72[b])	4.12[c](.48[d])$_a$	3.31(.54)$_b$	3.36(.51)$_b$	2.65(.51)$_c$	309.01*	.50
MF2(3.65; .65)	4.33(.41)$_a$	3.42(.44)$_b$	3.76(.37)$_c$	2.94(.44)$_d$	451.75*	.60
MF3(4.18; .59)	4.71(.29)$_a$	4.27(.42)$_b$	4.16(.42)$_c$	3.53(.53)$_d$	303.05*	.50
MF4(3.41; .74)	4.10(.52)$_a$	3.85(.43)$_b$	3.07(.45)$_c$	2.68(.52)$_d$	424.36*	.58
MF5(3.27; .73)	4.01(.52)$_a$	2.79(.44)$_b$	3.47(.39)$_c$	2.57(.50)$_d$	450.00*	.60
O(65.88; 15.21)	74.12(11.70)$_a$	67.29(14.20)$_b$	63.63(14.75)$_c$	58.40(15.63)$_d$	50.05*	.14

Note. a= mean values of motivational factor (N=922), b=standard deviation of motivational factor (N=922), c=mean values of each cluster, d=standard deviation of each cluster; MF1= Intrinsic Motivation, MF2=Present Needs, MF3=Future Needs, MF4=Needs for Good Performance, MF5=Sociocultural Needs; O=Learning

Outcomes. Different subscripts within each row indicate significant differences.*$p<.05$

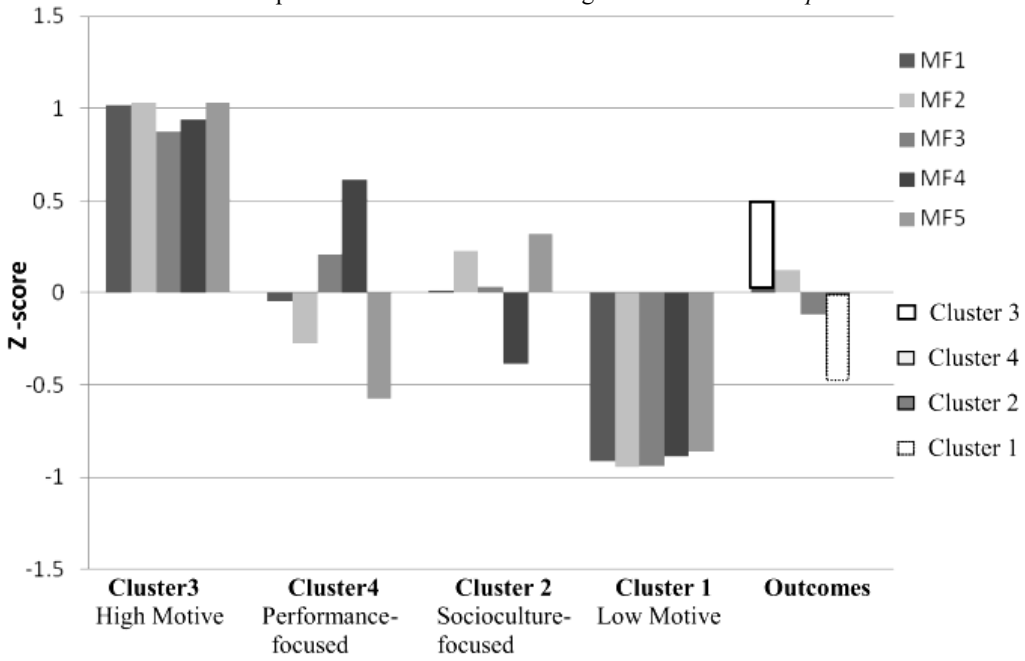

Figure 1. Z-score for five motivation and L2 learning outcomes in the 4-cluster solution.
Note. MF1= Intrinsic Motivation, MF2=Present Needs, MF3=Future Needs, MF4=Needs for Good Performance, MF5=Sociocultural Needs; Outcomes= L2 Learning Outcomes.

Homogeneity test of variances (Levene's test) for *Intrinsic Motivation* (*IM*) [F(3, 918) = .97, p=.406] and *Extrinsic Motivation* (*EM*) [F(3, 918) = 2.44, p=.063] indicated that variances were equal across the 4 groups while Levene's test for *Ratio of Intrinsic to Extrinsic Motivation* (*I/E Ratio*) [F(3, 918) = 15.16, p<.001] and *L2 Learning Outcomes* [F(3, 918) = 7.68, p<.001] did not revealed the homogenous result. Therefore, a one-way ANOVA was carried out for *IM* and *EM* respectively, suggesting a significant difference among the 4 groups [F(3, 918) = 309.01, p<.001; F(3, 918) = 70.94, p<.001]. The follow-up Post Hoc Tests indicated that there was no significant difference in *IM* between the *Performance-focused Group* and the *Socioculture-focused Group* and that *EM* of *Performance-focused Group* was significantly higher than that of the *Socioculture-focused Group*. Meanwhile, Welch and Brown-Forsythe tests were carried out for *I/E Ratio* and *L2 Learning Outcomes*, both of which revealed significant differences among the 4 groups (See Table 3). The follow-up Game-Howell test further indicated that the *I/E Ratio* of the *High Motive Group* and of the *Socioculture-focused Group* were both significantly higher than that of the *Performance-focused Group*. Moreover, the Game-Howell test also revealed a significant difference in *L2 Learning Outcomes* among the 4 groups.

The first purpose of the present study was to explore what types of senior high school EFL students' L2 motivational configuration exist in the EFL context. Four motivational configurations were identified as existing in the EFL context. They were *High Motive Group*, *Performance-focused Group*, *Socioculture-focused Group* and *Low Motive Group*. Following the classification of either motivational quantity (overall amount of all motivations) or quality (ratio of IM to EM), the four motivational configurations of the present study can also be classified into the high/low quantity and the poor quality group (See Table 4). In this study, the good quality group was not detected in the EFL context while two poor quality groups were detected in the EFL context. *EM* was higher than *IM* across the four groups. The *High Motive Group* received the highest I/E Ratio (.97). However, *I/E Ratio* was not stable among the other three groups. The *Low Motive Group* did not show the lowest *I/E Ratio*; however, it obtained in the *Performance-focused Group*, the poor quality group with the second highest L2 learning outcomes.

3.2 L2 Learning Outcomes

Senior high school EFL students in the *High Motive Group* had the highest L2 learning outcomes (M=74.12) and those who fell into the *Performance-focused Group* were in the second rank of L2 learning outcomes (M=67.29) followed by those in the *Socioculture-focused Group* (M=63.63). The EFL students in the *Low Motive Group* also had the lowest L2 learning outcomes (M=58.40). Levene's test for *L2 Learning Outcomes* [F(3, 918) = 7.68, p<.001] did not reveal the homogenous result. Thus, Welch and Brown-Forsythe tests were carried out for *L2 Learning Outcomes* [F(3, 485.41)=55.56, p<.001; F(3, 840.94)=49.67, p<.001], which revealed significant

differences among the 4 groups (See Table 3). The follow-up Game-Howell test revealed a significant difference in *L2 Learning Outcomes* among the 4 groups.

The differences of L2 learning outcomes in the standardized criteria of the four groups were shown in the rightmost histogram of Fig. 1. The EFL students of the *High Motive Group* produced the most optimal L2 learning outcomes, followed by those students of the *Performance-focused* and then students of the *Socioculture-focused Group* while the EFL students of the *Low Motive Group* yield the least optimal L2 learning outcomes.

Table 3. Robust tests of equality of means for ratio and learning outcomes

Variables	Test	F	df1	df2	Sig.
I/E Ratio	Welch	6.27	3	479.86	.000***
	Brown-Forsythe	5.45	3	781.80	.001***
L2 Learning Outcomes	Welch	55.56	3	485.41	.000***
	Brown-Forsythe	49.67	3	840.94	.000***

*Note. ***p<.001*

Table 4. Descriptive statistics and group differences on related variables

	High Motive	Performance-focused	Socioculture-focused	Low Motive	F	η_p^2
	High Quantity	Poor Quality	Poor Quality	Low Quantity		
N(%)	238(25.81%)$_a$	188(20.39%)$_b$	284(30.80%)$_c$	212(23.00%)$_d$		
IM (3.38^a; .72^b)	4.12^c(.48^d)$_a$	3.31(.54)$_b$	3.36(.51)$_b$	2.65(.51)$_c$	309.01*	.50
EM (3.58, .55)	4.25(.29)$_a$	3.63(.25)$_b$	3.51(.26)$_c$	2.88(.29)$_d$	951.51*	.76
I/E Ratio(.95, .17)	.97(.13)$_a$	.92(.17)$_b$	.96(.17)$_c$	.93(.21)$_d$	5.51*	.02
O(65.88; 15.21)	74.12(11.70)$_a$	67.29(14.20)$_b$	63.63(14.75)$_c$	58.40(15.63)$_d$	50.05*	.14

Note. a= mean values of motivational factor (N=922), b=standard deviation of motivational factor (N=922), c=mean values of each cluster, d=standard deviation of each cluster; IM= Intrinsic motivation; EM=Extrinsic motivation; I/E Ratio= Ratio of Intrinsic to Extrinsic Motivation; O=L2 Learning Outcomes. Different subscripts within each row indicate significant differences. *$p<.05$.

4. Discussion

4.1 The Absence of the Good Quality Group from the EFL Context

In this study, a four-group solution represented senior high school EFL students' L2 motivational configuration in the EFL context, including one *High Motive Group* (high quantity), one *Low Motive Group* (low quantity) and two specific-focused groups – *Performance-focused* and *Socioculture- focused Group*, both of which can be compared to the poor quality group (low intrinsic with high extrinsic motivation) of previous studies (Hayenga & Corpus, 2010; Vansteenkiste et al., 2009; Wormington, Corpus, & Anderson, 2012). The good quality group (high intrinsic with low extrinsic motivation), however, was not detected in the EFL context. This result of the present study differed from the previous person-centered related studies. The divergent result may be explained by different motivations and the learning context. Although previous studies indicated the detection of the good quality group, it referred to academic motivation related to common school subjects (Hayenga & Corpus, 2010; Vansteenkiste et al., 2009; Wormington, Corpus, & Anderson, 2012) and sport motivation (Gillet, Vallerand, & Rosnet, 2009) rather than L2 motivation. Gardner (1985) claimed that learning an L2 is different from learning other school subjects; L2 learning is not a task of simply learning new information like other school subjects but a deeply social event that necessitates the incorporation of a variety of elements of L2 cultures (Gardner, 1985, 1979; Dörnyei, 2004). The enjoyment of L2 learning itself inevitably involving a wide range of elements of L2 cultures might be too complicated for the EFL students to persist in. On the contrary, the internal interests in other school subjects are common, such as the notoriously difficult subject of mathematics (Sengodan & Iksan, 2012). Moreover, many athletes' sport motivation is stimulated by love and enjoyment for what they choose to do (Hartley, 2011). Due to the distinctive characteristic of L2 learning, students' intrinsic motivation of L2 learning might not as strong as other school subjects and sports.

Furthermore, the school setting of L2 learning may cause weak intrinsic motivation. Ratelle and her coauthors (2007) reported that it is difficult to cultivate high intrinsic motivation in the controlling high school environment without fostering extrinsic motivation. It is possible that most EFL students hardly learned an L2 for the pleasure of L2 learning itself but enthusiastically pursue the utilities of L2 at the same time. Subject to the economic and social background of the EFL context, L2 seems to be considered a multi-purpose tool for pragmatic goals and social obligation.

4.2 The Prevalence of the Poor Quality Group in the EFL Context

Two out of 4 motivational configurations of the present study were the poor quality groups: *Socioculture-focused Group* and *Performance-focused Group*, both of which accounted for the majority of the total group population. The result contradicted earlier person-centered related research; no specific motivational group with similar characters has been reported more than one group. The previous studies usually reported the detection of 4 different motivational groups: the high quantity, the low quantity, the good quality, and the poor quality (Daniels et al., 2008; Hayenga & Corpus, 2010; Vansteenkiste et al., 2009; Wormington, Corpus, & Anderson, 2012) In other words, the prevalence of any particular motivational group has not been indicated in the learning context. The dissimilar result may be attributed the profound influence of the economic and social background of the EFL context. The majority of the senior high school EFL students in this study focused on specific needs, either on good performance or on the admiration for socio-cultures and the present utilities. The EFL students in the *High Motive Group* were both intrinsically and extrinsically motivated by all types of motivation while the EFL students in the *Low Motive Group* was only slightly motivated. Namely, the majority of the EFL students were extrinsically motivated and slightly intrinsically motivated. The EFL students lean pragmatically towards the present and future needs and tend to tilt towards the single-minded pursuit of the sense of achievement to meet social expectation of the society.

Socioculture-focused Group revealed the existence of integrative motivation in the EFL context. This result seems to announce against Warden and Lin's (2000) statement that Taiwanese EFL learners might lack for integrative motivation on the basis of a variable-centered approach. It is possible that the result of the present study could further complement Warden and Lin's statement. The EFL students in the *Socioculture-focused Group* were partially integratively and partially instrumentally motivated; their L2 motivation not only originated from the admiration for foreign cultures (MF5 *Sociocultural Needs*) but from the needs for the present (MF2 *Present Needs*), such as traveling abroad and being familiar with the English labels of products. In other words, the EFL learners in the present study are not purely integratively motivated. The EFL students in the *High Motive Group* and in the *Socioculture-focused Group* are both integratively and instrumentally motivated. Integrative motivation has been integrated into Socioculture Needs. From the aspect of a single dimension of motivation, integrative motivation could be invisible on the basis of a variable-centered approach. However, it emerges if it is explored from individuals' L2 motivational configurations on the basis of a person-centered approach.

Performance-focused Group particular reflects the far-reaching effects of *Confucianism* on L2 learning. In Confucian-influenced cultures, such as Taiwan, learners' learning behaviors are largely dominated by the obligations of their social roles (Chen et al., 2009; Hwang, 2012). To meet the obligations of their social roles, such as being successful in L2 to honor their families, the learners will energetically pursue a sense of achievement and to outperform others because English has been considered a basic educational skill (Ushioda, 2013) and good English proficiency is also an effective method for climbing up the social ladder to success in future career (Huang, Hsu, & Chen, 2015).

4.3 Learning Outcomes

4.3.1 A quantitative relationship between L2 motivation and L2 learning outcomes for the EFL context

The present study revealed that the EFL students of the *High Motive Group* produced the most optimal L2 learning outcomes among the four groups. This result differed from that of the previous person-centered related studies; the good quality group showed the most outstanding academic performance (Hayenga & Corpus, 2010; Vansteenkiste et al., 2009; Wormington, Corpus, & Anderson, 2012). The distinct result may highlight a more objective criterion of L2 learning outcomes for the EFL context – motivation quantity. Earlier person-centered related research usually adopted motivation quality, considering academic motivation a qualitative construct, as a criterion for academic performance in school subjects (Hayenga & Corpus, 2010; Vansteenkiste et al., 2009; Ratelle et al., 2007; Wormington, Corpus, & Anderson, 2012). Academic motivation, however, is not so deeply influenced by the socioeconomic impact of the learning context as L2 motivation. Students' reasons for their studying is more diversified than those for L2 learning and the fertile sources of academic motivation, such as future goal setting, may motivate students to be capable of a variety of subject areas they prefer. The higher the enjoyment of study, the better academic performance they may obtain. Thus, motivation quality may serve as an ideal criterion of academic performance.

On the contrary, Csizér and Dörnyei (2005) reported that the most motivated group with the highest amount of integrativeness and instrumentality performed the best intended efforts on learning the given languages. Although Csizér and Dörnyei's person-centered-related research (2005) did not include the EFL students' intrinsic motivation, which may differently position their most motivated group from the high quantity group (high level of all types of motivation, including intrinsic motivation) of educational studies, students' L2 performance definitely was rated at motivation quantity, regarding L2 motivation as a quantitative construct.

Vansteenkiste and his coworkers (2006) claimed that the ratio of intrinsic to extrinsic motivation is a more appropriate criterion for determining success than the overall amount of motivation when comparing highly

motivated students. Subject to the sterile sources of L2 motivation in the EFL context, the *High Motive Group* was the only group that consisted of the highly multimotivated students. The EFL students of the two specific-focused groups, *Performance-focused* and *Socioculture-focused Group*, were not highly motivated. The comparison of a criterion for L2 learning outcomes between the *High Motive Group* and the *Performance-focused/Socioculture-focused Group* was not on the basis of highly motivated students' learning outcomes. It should be the ratio of intrinsic to extrinsic motivation for the good quality group rather than for the poor quality group that is crucial to successful learning. *Performance-focused* and *Socioculture-focused Group* were both the poor quality groups, whose ratio of intrinsic to extrinsic motivation might not be an objective criterion for good L2 learning outcomes.

Owing to the distinctive characteristic of L2 learning and the influences of economic and social background of the EFL context, the good quality group is absent from the EFL context and the poor quality group is prevailing. Under the specific conditions of the EFL context, the criterion for measuring L2 learning outcomes seems to be on the basis of a quantitative construct (the overall amount of motivation) rather than of a qualitative construction (ratio of intrinsic to extrinsic motivation). In addition to the present study and Csizér and Dörnyei's person-centered-related research (2005), few L2 motivation-related research explores L2 learning outcomes at a quantitative construct on the basis of a person-centered approach. To further verify the quantitative relationship between L2 motivation and its corresponding learning outcomes, it is worthwhile conducting more L2 motivation related research based on a person-centered approach.

4.3.2 Highly multimotivated superior to moderately specific-focused

Motivation quantity has been widely applied to motivation-related studies to explore the relationship between motivation and outcomes from the perspective of a single dimension of motivation on the basis of a variable-centered approach. The higher a certain motivation the learner possesses, the more optimal outcomes the learners may produce, e.g., intrinsic motivation (Deci & Ryan, 1980) and integrative motivation (Cooper & Fishman, 1977; Gardner et al., 1977; Gardner, 2001). However, the positive relationship lies in a single variable rather than in all types of motivation simultaneously. The quantitative construct has hardly been used in person-centered-related studies. In terms of motivation quality, previous person-centered-related studies claimed that the good quality group showed the most optimal performance while the poor quality group displayed the least optimal performance (Hayenga & Corpus, 2010; Vansteenkiste et al., 2009). The result completely and reasonably interprets the qualitative construct; when the good quality group represents the most optimal, the least optimal should be its contrary group, the poor quality group. This study well clarified the quantitative construct that the *High Motive Group* produced the best L2 outcomes, followed by the *Performance-focused* and *Socioculture-focused Group*, while the *Low Motive Group* yielded the worst L2 outcomes among the four groups. Motivation quantity is suitable not only for the variable-centered studies but for the person-centered research as well. The quantitative construct on a basis of a person-centered approach further promotes the concept of a highly motivated variable to highly multimotivated components of a motivational configuration.

4.3.3 The unusual effects of a less self-determined form of extrinsic motivation in the EFL context

Another result challenged the opposite findings of the previous studies was that the EFL students of *Performance-focused Group* had better learning outcomes than those of the *Socioculture-focused Group. Performance-focused Group* was mainly characterized by MF4 *Needs for Good Performance*, classified into introjected regulation, a less self-determined form of extrinsic motivation than identified regulation. Previous studies indicated that the less self-determined form of extrinsic motivation is negatively related to learning outcomes (Ryan & Deci, 2000; Vallerand, 1997). The opposite result can be attributed to three causes. Firstly, the EFL students in the *Performance-focused Group* were more moderately motivated than their peers in the *Socioculture-focused Group*. Although the EFL students of the two poor groups focused on different external needs, the *Performance-focused Group* must produce better L2 learning outcomes than the *Socioculture-focused Group* from a quantitative perspective of motivation.

Second, the exceptional effects of good performance in the EFL context with Confucian values may account. Learning outcomes have been greatly valued in the EFL context and this can trace back to the traditional imperial examinations system of China. Students' outcomes of examinations were the only selection criterion for eligible officials in ancient times and being officials represents successful men admired by the society. As a result, that good outcomes may win a better life is deeply ingrained in the minds of Chinese. Nowadays, senior high school EFL students also attach immense importance on their learning outcomes because of achievement contact in the classroom and the social comparison out of the classroom. The tense atmosphere of the classroom for better learning outcomes impresses them on the desire to outperform others. The oppressive atmosphere of the social comparison between achievers and less achievers even makes their belief in social obligation unshakeable – getting good learning outcomes. Senior high school EFL students in the present study, therefore, put a great emphasis on learning outcomes, eagerly pursue a sense of achievement, and strive to meet the social obligation. The *High Motive* and the *Performance-focused Group*, characterized by needs for good performance, were also the first two higher outcome groups. This result was consistent with Ng's findings

(2003) that the higher achievers will focus on how to outperform others while the lower achiever will struggle to get rid of being labeled the negative social sanction, such as laziness.

Third, the EFL students of the *Performance-focused Group* attached great importance to the future needs of L2 learning while those of *Socioculture-focused Group* paid more attention to the present utilities of English (e.g., overseas travel and English labels of import), which might not be directly related to school monthly English exams. On the contrary, the future needs of English (e.g., having a good job in the future and doing assignments) were much more directly involved in the EFL students' English exams than the present needs of English. For senior high school EFL students, to ensure a better job in the future, they would attempt to achieve good English grades for winning the admission to reputed universities, which is commonly considered a stepping stone to a good job in the future.

5. Conclusions

A 4-group solution, with groups characterized by *High Motive* (high quantity), *Low Motive* (low quantity), *Performance-Focused* (poor quality) and *Socioculture-Focused* (poor quality), clearly displayed senior high school EFL students' L2 motivational configurations in the EFL context, where people traditionally place a high value on academic achievement and social obligations. Due to the socioeconomic background and the distinction of L2 learning, the majority of the EFL learners in the present study were in two poor quality groups (*Performance-Focused* and *Socioculture-Focused*) and there was no good quality group detected in the EFL context. The EFL students' L2 learning is derived from the external influences rather than from the enjoyment of L2 learning itself. Moreover, the socioeconomic influences of the learning context on L2 learning have led to a trend that most EFL students are specific-focused on particular external needs rather than multimotivated by all types of motivation. However, the multimotivated group (*High Motive Group*) produced much more optimal L2 learning outcomes than the other three groups. Since motivation quantity is more significant than motivation quality in the EFL context, diversification of L2 motivation is crucial to successful L2 learning. EFL learners' L2 learning out of the pursuit of academic achievement and social obligation is inevitable. Extrinsic motivation, however, is not always a toxicant especially in the EFL context. It does not seem to be possible for the EFL learners to naturally relish an L2 by discouraging them from pursuing the pragmatic goals for a variety of needs. On the contrary, it is more practical to enhance the EFL learners' extrinsic motivation prior to intrinsic motivation. The 4-group solution of this study also supported this statement; extrinsic motivation is higher than intrinsic motivation across the 4 groups even in the *High Motive Group*. It will be much easier to encourage the EFL learners to engage in the goals they have been familiar with and acknowledged. With the definite goals, the EFL learners may gradually realize the pleasure of L2 learning and then raise the purpose of their L2 learning from extrinsic to intrinsic motivation. Extrinsically motivated L2 learners can still have good L2 outcomes if their extrinsic motivation is strong enough.

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Appendix A
Motivation Questionnaire (Wu & Chang, 2014)

MF1	**Intrinsic Motivation**
M15	Learning English is a burden to me.
M17	I learn English because I am interested in the language.
M21	I am confident that I can learn English well.
M23	It's not necessary to learn too much English.
M26	I have given up learning English because I don't think I can learn it well.
M27	I enjoy learning English.
M30	I don't like learning English because I had bad learning experiences before.
M31	I learn English because I am interested in learning something new.
MF2	**Present Needs**
M1	I learn English because it helps me to communicate with foreigners.
M4	I learn English because it helps me get more knowledge.
M5	Learning English helps me a lot when I travel abroad.
M11	I learn English because it helps me to have a better life.
M20	Learning English helps me to get more about the latest news in the world.
M29	There are many products labeled in English, so it is convenient to learn English well in daily life.
MF3	**Future Needs**
M6	I learn English because it would help me have a good job in the future.
M32	Learning English well helps me a lot when I am doing my assignments or acquiring new information.
M33	I hope that I can speak English fluently.
M34	I learn English because it is useful someday.
MF4	**Needs for Good Performance**
M3	English proficiency is highly valued by the society.
M12	Being a better and capable student, I want to learn English well.
M18	I want to be better than others so I learn English.
M25	Learning English well makes me feel a sense of achievement.
M35	It is important for me to outperform others in my class.
MF5	**Sociocultural Needs**
M7	I learn English because I want to study abroad.
M8	I learn English because I need it when I use computers and the Internet.
M9	I would like to make friends with foreigners, so I want to learn English.
M10	I want to learn English because it helps to read the magazines, novels, and newspapers in English.
M13	Learning English helps me to better understand custom and cultures of foreign countries.

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