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MOTIVATION PROFILES AND ASSOCIATIONS WITH PERFORMANCE AMONG CHINESE RURAL SENIOR HIGH SCHOOL STUDENTS

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Abstract:

Adopting a person-centered latent profile analysis (LPA) approach, the study drew on the L2 Motivational Self System (L2MSS) to explore the motivation profiles of senior high school 12th graders in an impoverished hinterland region and examined their associations with foreign language (FL) performance. A total of 153 students across three classes completed a paper-based questionnaire measuring their motivational constructs, and their achievement was assessed through the English grades they achieved in a unified regional exam issued by the prefecture-level city education bureaus. Latent profile analysis identified three groups, labeled the high, moderate, and low-motivation clusters, respectively. The three groups presented distinct motivation profiles and FL performance outcomes. The high-motivation group achieved the highest scores in the English exam, followed by the moderate and low-motivation groups. The results provide new insights for pedagogical practices in FL teaching in rural regions.

Keywords:

Language Learning; Latent Profile Analysis; L2MSS; Motivation; Rural High School Education

Introduction

Motivation is a crucial component in foreign language (FL) learning (Al-Hoorie, 2017; Dörnyei & Ushioda, 2021), and numerous studies have found that motivation is closely linked to FL performance (Hu & McGeown, 2020; Li et al., 2024; Wang, 2024; Xu et al., 2025). Recent studies on motivation and performance have explored the fluid and dynamic nature of motivation (Kruk, 2022; Liu & Thompson, 2018; Papi & Hiver, 2020), the heterogeneity within target groups (Dunn & Iwaniec, 2022; Liu & Oga-Baldwin, 2022; Ma et al., 2023), and the importance of the context in which FL learners are situated (Lamb, 2007; Liu & Thompson, 2018). These studies have found that direct learning experiences, shaped by different sociocultural contexts, can greatly influence learners' motivational orientations (Lamb, 2012; Ma et al., 2021), the effort they are willing to invest (Li & Zhang, 2021; Liu & Thompson, 2018), and their ultimate FL achievement (Dörnyei & Chan, 2013; Wong et al., 2024). Despite these findings, there remains a significant gap in exploring the motivation profiles of senior high school students in impoverished, hinterland rural regions and their associations with performance.

Although there are some previous studies which explored the relationship between motivation and performance in rural regions (Lamb, 2012; Ma et al., 2023; Ma et al., 2021), most research adopted a variable-centered approach and employed correlation analysis to examine the link between variables (Lamb, 2012; Ma et al., 2021). The current study, in contrast, uses a person-centered approach aiming to detect latent heterogeneity among group of learners. Additionally, previous studies tended to focus on junior middle school and tertiary-level learners in Chinese urban areas (e.g., Liu & Thompson, 2018; Ma et al., 2023; Li et al., 2024). Few studies have explored FL motivation among senior high school learners in rural settings. Since high school education is an important bridge to higher education, and approximately 28.25 million ordinary high school students are enrolled annually in China (China Statistical Yearbook, 2024), it is necessary to identify the motivation profiles of this group of learners in impoverished rural regions. Moreover, although Dörnyei's L2MSS model has been tested in Korea (Joe et al., 2017), Canada (McEown et al., 2014), Indonesia (Lamb, 2012), the subconstructs operating in the Chinese rural educational context have yet to be investigated.

Literature Review

L2MSS

The L2MSS model proposed by Dörnyei (2009), which emphasizes the elements of "selves" and "context," has been widely used to study foreign/second language motivation in recent years. The "selves" aspect includes the ideal L2 self (IS), which reflects what the individual wants to achieve in relation to the target language in the future. It consists of both an integrative motive (the intention to integrate with native speakers) and a promotion-focused instrumental motive (efforts made toward striving for success) (Wong, 2018). In contrast, the ought-to L2 self (OS) emphasizes the individual's belief about what they should aspire to do to meet social expectations and avoid negative consequences (Dörnyei, 2009). It essentially represents a prevention-focused instrumental motive, focusing on an individual's submissive nature when facing external pressure during the foreign language learning process. However, some researchers argue that individuals may display a dominant or resistant nature when external pressure is imposed on them, they may act contrary to external expectations and obligations. This emerging force, known as the "anti-ought-to self," has been explored in recent studies

(Liu & Thompson, 2018; Thompson & Vásquez, 2015). Due to its highly contextual nature and the confirmed impact of the anti-ought-to self on foreign language achievement, it is necessary to take this component into consideration. Regarding the context, the language learning experience (LLE), one of the subconstructs of L2MSS, emphasizes the direct and immediate experiences that learners are exposed to during the foreign language learning process, such as classroom environments, teachers, class activities, and group interactions.

The L2MSS model has been widely adopted to study motivation and proficiency relationship worldwide (eg. Dornyei & Chan, 2013 ; Li & Zhang, 2021 ; Dunn & Iwaniec, 2022). However, the results regarding the three subconstructs and their relationship with FL performance/achievement are varied, inconsistent, and not conclusively supported (Li & Zhang, 2021; Wong, 2018). Additionally, adopting person-centered approach rather than variable-centered to distinguish senior high school learners' motivation profile in impoverished rural region and identify its relationship and predictive power of FL performance has to be further investigated.

L2MSS and FL Performance

The study of the relationship between motivation and FL performance/achievement has a long history, rooted in Gardner's social psychological model. This model emphasizes the effects of learners' attitudes and orientations (integrative and instrumental orientation) toward L2 learning, which, in turn, influence their motivation and ultimately affect their achievement (Wong, 2018).

In recent years, the L2MSS was developed based on its psychological aspects of the earlier models and widely used to explore the L2 self-guides, possible mediators (eg. Intended learning efforts) on L2/FL achievement (Li & Zhang, 2021; Tan et al., 2017; Zhou & Papi, 2023). The results regarding to the subconstructs and its predictive power on L2 performance are rather inconsistent. A handful of research has confirmed the IS has the salient relationship to the success of L2 learning (Dörnyei & Chan, 2013; Li & Zhang, 2021; Liu & Thompson, 2018; Thompson & Erdil-Moody, 2016), while results regarding the OS are not as clear-cut (Lamb, 2007), some studies even exclude the element of OS as a motivational construct due to its lower reliability of the respective measure (Lamb, 2012), and some studies which include this construct even showed a negative influence it placed on FL achievement (Li & Zhang, 2021; Liu & Thompson, 2018). Overall, studies employed the model confirmed the predictive power of IS on L2 performance, and it also gives us a hint that the impact of external factors across different social cultural context needs to be further scrutiny investigated. In terms of predictive power of LLE, studies confirmed the influence of positive learning experience (PLE) on FL learners and their success of language learning (Li & Zhang, 2021; Liu & Thompson, 2018), while other studies, eg., Moskovsky et al. (2016) indicated that PLE had no direct effect on L2 performance.

In light of the above literature, the IS has established its role in predicting the success of L2 learning. However, the external influences, such as the construct of the OS, the language learning experience (LLE), and the anti-ought-to self in different sociocultural contexts, particularly in impoverished rural regions, where senior high school FL learners face both internal psychological pressures to cope with the upcoming Gaokao exams and external social expectations from parents, schools, and society, have not yet been fully explored.

Motivation of Rural FL Learners

Motivation is crucial for FL learning, as it is a key component that can determine the success of FL acquisition (Hu & McGeown, 2020; Tsang et al., 2024). Many recent studies have explored the influence of motivation in different social contexts on language learners (e.g., Liu & Thompson, 2018) and FL motivation in rural areas (e.g., Lamb, 2012; Ma et al., 2023). For example, Ma et al. (2023) investigated the motivational beliefs of rural junior middle school learners and found that rural FL learners with different motivation profiles demonstrated distinct strategies use and achievement levels. Previous studies also suggested that students in rural areas tend to show lower motivation and poorer language achievement than their urban counterparts (Lamb, 2012; Ma et al., 2021). It is widely believed that students in a Confucian context tend to study and learn to fulfill their social obligations and undertake social responsibilities (Li, 2012). Thus, their motivation profiles, shaped in different social contexts, may differ from those of urban students. However, limited research to date has been conducted on the relationship between motivation and performance within different sociocultural contexts, especially in impoverished rural regions in China. Furthermore, studies that have been implemented often employed a variable-centered approach and did not account for the potential heterogeneity among learners. Given the lack of relevant research, the current study aims to address this gap by examining the motivation profiles of rural senior high school learners. It is hoped that this study will contribute to narrowing the educational gap and promoting educational equity in China and other countries with similar cultural contexts.

Person-centered Approach

A variable-centered approach aims to summarize general trends by examining the correlations between independent and dependent variables, under the assumption that the participants are representative of a larger population or region (Wang et al., 2021). However, this approach fails to account for the heterogeneity within groups. In contrast, the current study employs a person-centered approach aiming to identify the unobserved heterogeneity of motivation constructs within groups and compare the differences between groups in their relationship with FL performance.

Many previous studies have also adopted a person-centered approach in the field of motivation and FL learning (Dunn & Iwaniec, 2022; Liu & Oga-Baldwin, 2022; Ma et al., 2023; Wang et al., 2021). For example, Ma et al. (2023) employed latent profile analysis (LPA) and identified four latent profiles of junior middle school students' motivation. They found that the four groups showed significant differences in strategy use and FL achievement. Wang et al. (2021) identified three groups of FL learners with distinct self-efficacy levels, and these groups demonstrated different academic emotions and performance on the overall language test. Dunn and Iwaniec (2022) investigated the relationship between motivation and proficiency among 1,773 English learners in Spain. LPA revealed five distinct groups of students, each demonstrating distinct motivation-proficiency profiles. Liu and Oga-Baldwin (2022) explored the motivation profiles of tertiary-level multi-language learners and identified four groups based on English motivation and three groups based on motivation for languages other than English (LOTEs).

Of the four studies discussed above, only one, conducted by Dunn and Iwaniec (2022) adopted the L2MSS model, while the others used either Self-Determination Theory (SDT) (Liu & Oga-Baldwin, 2022) or Expectancy-Value Theory (EVT) (Ma et al., 2023) to group participants' motivation profiles. Additionally, only one study, conducted by Ma et al. (2023), was

implemented in Chinese rural regions. However, their target group consisted of junior middle school learners who are not under enrollment pressure. The motivation profiles of senior high school 12th graders may present a different picture. Therefore, research into the motivation profiles of these target groups requires further investigation.

Rationale and Research Questions

The rationale for the current study is threefold. First, although numerous previous studies adopted L2MSS model and explored the subcomponents and their association with L2 performance, limited studies were really conducted in rural regions and aimed at senior high school students. Second, studies that did employ this model and examined the nexus in rural regions (eg., Ma et al., 2024; Ma et al., 2021), however, they adopted a variable-centred approach and ignored the heterogeneity of group differences. Lastly, the studies added a fourth factor (anti-ought-to-self) into consideration, as the element is shaped largely by the environment that language learners are immersed (Liu & Thompson, 2018). Considering that the target group are in local rural regions, we combined it into our framework. To fill these gaps, the study aims to address the following research questions :

1. What motivation profiles and FL performance do rural high school FL learners report?
2. How do these profiles differ with regard to FL performance among rural high school learners?

Methods

Participants

A total of 153 12th graders from an impoverished rural high school in Nanzhang County, Xiangyang City, Hubei Province, located in the central part of China, participated in the study. All participants enrolled in the school come from nearby towns. It is important to clarify that the target school is not the best high school in the local region, and the students' English proficiency is considerably lower compared to their urban counterparts. On average, the participants are 18 years old and are about to take the Gaokao exam one month later.

Procedures and Ethical Considerations

Prior to collecting data, the researcher first emailed and then phoned the local school principal to ask for permission of data collection. After receiving the principal's agreement, the researcher obtained a formal, sealed request. This sealed permission, along with other necessary forms, was then uploaded to the university ethics committee for approval. Once consent was granted from both parties, the researcher visited the local school. The questionnaire was administered during the participants' evening self-study time. After coordinating with the principal, who worked with the homeroom teachers responsible for the evening class, the researcher entered the classroom and began the data collection process.

To ensure fair subject selection, participants were informed that their participation was entirely voluntary, and the paper-based questionnaires were distributed only to those who were willing to participate, while those who did not wish to take part could engage in self-study during this time. To minimize coercion, participants were informed about confidentiality and assured that their responses would remain unknown to teachers and school authorities. They were also clearly told that their participation will not affect their scores in any way. To ensure independence from school authorities and teachers, the questionnaire was conducted in the

participants' classroom, where only the researcher was present. Students were also reassured that participation was voluntary, and that teachers or school authorities would have no knowledge of their involvement.

Measures

FL motivation questionnaire: The motivation questionnaire consists of four constructs: Ideal L2 Self (IS), Ought-to L2 Self (OS), Language Learning Experience (LLE), and Anti-Ought-to Self. The first three constructs were developed from Dornyei's (2009) model, with five questions for each scale. The Anti-Ought-to-Self construct was adapted from Liu and Thompson (2018), from which six items which may reflect and be suitable for local context were selected. In total, 21 questions were included, and responses were measured on a 6-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (6), with higher scores indicating greater motivation.

Reliability of the measure in the questionnaire was tested using Cronbach's alpha. The overall score for the 21 items was $\alpha=0.905$, with the following alpha values for each motivation scale: IS $\alpha= 0.868$, OS $\alpha = 0.750$, LLE $\alpha= 0.902$, and Anti-Ought-to Self $\alpha= 0.805$, indicating excellent internal consistency. Confirmatory Factor Analysis (CFA) for the 21 questionnaire items model showed that the model had a good structural validity with $\chi^2=375.38$ ($p<.001$), degrees of freedom=182, $\chi^2/df=2.063$, CFI=0.880, IFI=0.882, RMSEA = 0.084. Standard regression weights for these items loading were from 0.488 to 0.871.

FL Achievement : Students' FL performance was assessed based on their English grades from a unified regional examination administered by the prefecture-level city education bureau. Originally, we planned to organize a separate English test ; however, due to the heavy workload of senior high school 12th graders (who were about to take the Gaokao exam in one month), the local educational policy of "double reduction," and the fact that students approaching the Gaokao typically undergo numerous internal school exams and regional assessments, we decided to use the most recent official examination instead. The test paper included the same question types and maintained a difficulty level equivalent to that of the Gaokao English exam. It was administered across all local schools and covered listening, reading, and writing sections (speaking was not included), with a total score of 150.

Statistical Analysis

To answer the first research question: "What motivation profiles and FL performance do rural high school FL learners report?" Two calculation steps were taken. First, descriptive analysis and Pearson correlation analysis were performed using SPSS version 27 to report participants' motivation levels, their FL performance, and the interrelationships among the scales of IS, OS, LLE, and anti-ought-to-self. Second, LPA was conducted using Mplus 8.3 to classify participants into different subgroups based on their responses to the motivation questionnaire. After running the software six times, five models were selected, and model fit indices for 2 to 5 class solutions were compared. The optimal motivation profile was chosen based on "Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), sample size-adjusted BIC (aBIC), the p-value of the Lo-Mendell-Rubin Likelihood Ratio Test (LMR), Bootstrap Likelihood Ratio Test (BLRT), and entropy" (Ma et al., 2023; Wang et al., 2021). "Lower AIC, BIC, and aBIC values indicate better model fit. A significant p-value ($p < 0.05$) in the LMR test suggests that a k-class model improves the fit over the k-1 class model. Higher entropy values indicate better classification accuracy, with a value above 0.70 representing acceptable

delineation of clusters" (Wang et al., 2021). To answer the second research question: "How do these profiles differ with regard to FL performance among rural high school learners?" The categorized motivational profile groups were compared with FL performance through analysis of variance (ANOVA) and post hoc tests. The results of the two research questions are expected to reveal the motivation patterns of senior high school 12th graders and offer new insights into EFL pedagogical practices in the local area.

Results

Descriptive Statistics and Correlation Coefficients

Before proceeding to LPA, basic descriptive statistics and correlation coefficients were presented to confirm that the data were normally distributed, ensuring the robustness of LPA. These analyses also confirmed that multicollinearity was not a concern, as none of the variables were highly interrelated ($r > 0.9$), and all values were within the acceptable tolerance range for LPA. The relevant results were shown in Table 1 and Table 2. Among the four motivation variables, IS had the highest mean score ($M = 4.62$), followed by LLE ($M = 3.88$). The scores for OS and Anti-Ought-to Self were relatively close, with means of 3.37 and 3.59, respectively. As shown in Table 1, the average English grade was 49.59 (150 in total ; $N=153$), and the lowest student only achieved 15.5 in test, which reflected a very low level of FL performance among students in the targeted rural school. Regarding the correlation coefficients in Table 2, IS, which received the highest mean score, was not significantly related to FL performance. However, OS ($r = 0.24$), LLE ($r = 0.22$), and Anti-Ought-to Self ($r = 0.29$) all showed significant positive correlations with English grades ($p < .01$).

Table 1: Descriptive Information

	Minimum	Maximum	Mean (SD)	Skewness (SE)	Kurtosis (SE)
IS	1	6	4.62 (1.13)	-1.04 (0.2)	0.76 (0.39)
OS	1	6	3.37 (1.02)	0.04 (0.2)	-0.11 (0.39)
LLE	1	6	3.88 (1.20)	-0.47 (0.2)	-0.26 (0.39)
Anti	1	6	3.59 (1.00)	-0.38 (0.2)	0.19 (0.39)
Grade	15.5	105	49.59(16.49)	0.64 (0.2)	1.03 (0.39)

Note: IS = ideal L2 self, OS = ought-to L2 self, LLE = language learning experience, Anti = anti-ought-to self

Table 2: Correlation Coefficients

	IS	OS	LLE	Anti	Grade
IS	-				
OS	.26**	-			
LLE	.45**	.41**	-		
Anti	.43**	.51**	.63**	-	
Grade	0.12	.24**	.22**	.29**	-

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Latent Profile Analysis

The motivation profile indices and the optimal number of clusters are presented in Table 3. After comparing the fit indices across the five model profiles, the three-profile solution was selected as optimal. This model yielded lower AIC (1694.035), BIC (1748.583), and aBIC

(1691.612) values compared to the one-profile and two-profile models. Additionally, the three-profile model demonstrated a significant Lo-Mendell-Rubin Test (LMRT) result ($p < .05$), acceptable entropy (0.775), and well-balanced class proportions (40%, 8%, and 52%). Although the AIC, BIC, and aBIC values for the four- and five-profile models were slightly lower than those of the three-profile model, these models included extremely small classes (both with proportions below 5%). Furthermore, the LMRT values for the four- and five-profile models were not statistically significant. Therefore, the three-profile solution was considered the most appropriate and optimal choice.

Figure 1 illustrates the scores of the four motivation scales across the three identified profile groups. The first group, labelled the high motivation group, included 61 students (40%) and reported the highest overall motivation scores ($M = 4.62$, $SD = 0.72$). The second group, consisting of 13 students (8%), exhibited the lowest motivation levels among the three groups and was labelled the low motivation group ($M = 2.09$, $SD = 0.72$). The third group, labelled the moderate motivation group, included the largest number of students ($N = 79$), accounting for 52% of the total sample, and showed a moderate level of motivation ($M = 3.57$, $SD = 0.83$).

Table 3: Model Fit Indices for One to Five Latent Profile Patterns (N=153)

Profiles	AIC	BIC	aBIC	LMRT	BLRT	Entropy	K	Class size per profile
1	1845.547	1869.791	1844.47				8	1
2	1737.329	1776.725	1735.579	0.214	<0.001	0.765	13	0.27/0.73
3	1694.035	1748.583	1691.612	0.029	<0.001	0.775	18	0.40/ 0.08/0.52
4	1670.384	1740.084	1667.287	0.143	<0.001	0.841	23	0.52/0.09/0.01/0.38
5	1654.572	1739.425	1650.803	0.198	0.25	0.842	28	0.11/ 0.09/ 0.01/0.44/0.35

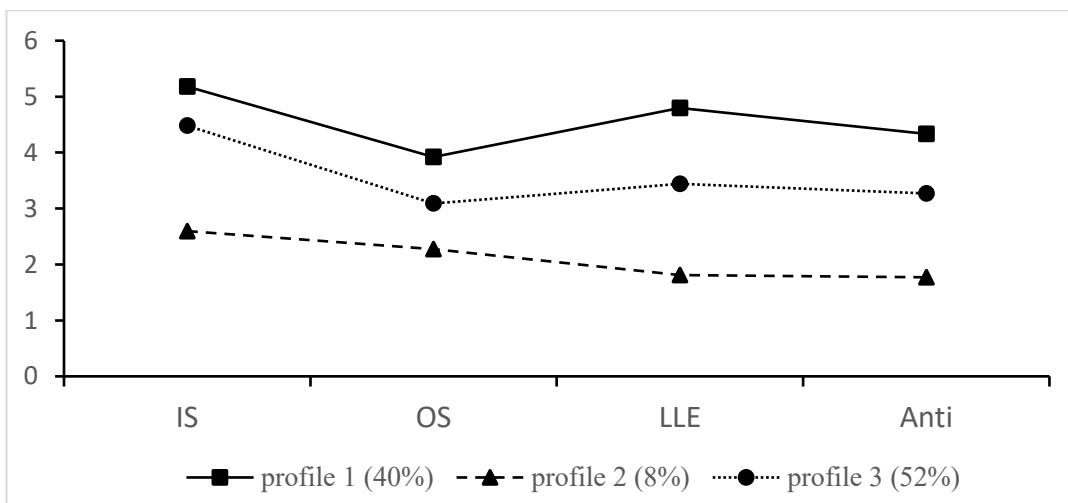


Figure 1. The Three Motivation Profile Patterns Identified by Latent Profile Analysis

Differences in Motivation Levels and English Performance Across All Motivation Profiles
As shown in Table 4, the ANOVA results indicated significant differences among the three profile groups across all motivational variables and FL performance. For motivation levels, Profile 1 (the high motivation group) demonstrated the highest levels, with notably high means in IS ($M = 5.24$), OS ($M = 3.95$), LLE ($M = 4.88$), and anti-ought-to self ($M = 4.41$). In contrast, Profile 2 (the low motivation group) showed the lowest motivation, with particularly low scores

in LLE ($M = 1.80$) and anti-ought-to self ($M = 1.80$), as well as the weakest IS and OS overall. Profile 3 (the moderate motivation group) fell between the other two groups. Significant differences across the three profiles were also observed for the four motivation constructs. For IS, the group difference was substantial ($F = 55.50$, $p < .001$, $\eta^2 = .43$), suggesting a large between-group variance. Similarly, significant differences were found in OS, LLE, and anti-ought-to self, with particularly strong effects for LLE ($F = 114.52$, $p < .001$, $\eta^2 = .60$) and anti-ought-to self ($F = 116.97$, $p < .001$, $\eta^2 = .61$). Regarding FL performance, the mean grade also differed across profiles ($F = 5.07$, $p = .007$, $\eta^2 = .06$), although the effect size was relatively small. The high motivation group showed the highest FL performance ($M = 54.64$), compared with the low motivation and moderate motivation clusters ($M = 44.47$ and $M = 46.49$, respectively). Surprisingly, the moderate motivation group demonstrated almost the same level of FL performance with the low motivation group. Furthermore, a clearer comparison of IS, OS, LLE, anti-ought-to self, and FL performance among the three groups can be observed in Figure 2.

Table 4: Differences of Motivation Levels and English Performance Across All Motivation Profiles

	Profile 1 (n=61)	Profile 2 (n=13)	Profile 3 (n=79)	ANOVA results		
	M (SD)	M (SD)	M (SD)	F	P	Partial η^2
IS	5.24 (0.79)	2.52 (0.62)	4.48 (0.93)	55.50	<0.001	0.43
OS	3.95 (0.86)	2.25 (0.78)	3.11 (0.90)	27.54	<0.001	0.27
LLE	4.88 (0.64)	1.80 (0.80)	3.44 (0.83)	114.52	<0.001	0.60
Anti	4.41 (0.59)	1.80 (0.68)	3.25 (0.65)	116.97	<0.001	0.61
		44.77	46.49			
Grade	54.64 (16.26)	(12.25)	(16.42)	5.07	0.007	0.06

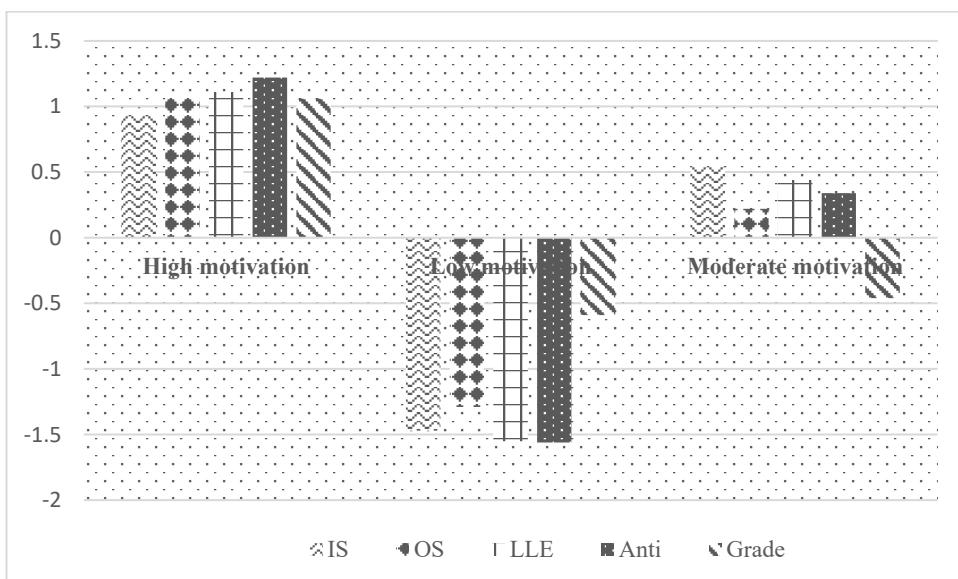


Figure 2: Differences of Motivation Levels and English Performance Across All Motivation Profiles

Discussion

The study advanced the previously variable-centered approach and adopted a person-centered approach to explore different motivation profiles and the differences of their FL performance among rural senior high school 12th graders. LPA identified three clusters : high motivation group (40%), moderate motivation group (52%), and low motivation group (8%), and each group demonstrated a distinct motivation profile and different level of FL performance.

Motivation Profiles of Rural High School Students

The three profiled solution aligned with two previous studies that used control-value theory to explore participants' self-efficacy levels (Kim et al., 2015; Wang et al., 2021). However, a difference was that the group distribution in Kim et al.'s (2015) study was more evenly spread (low self-efficacy : 34% ; medium self-efficacy : 35% ; high self-efficacy : 31%), whereas the group distribution in the current study was relatively disproportionate.

Among the groups, the largest proportion was observed in the moderate motivation group, which constituted 52% of the total sample. Learners in this group are typically being characterized as diligent, persistent, and striving to adhere to daily schedules, however, their self-efficacy and intended learning outcomes remain relatively low (Nie et al., 2024). When they cannot perceive the tangible attainment gained through their efforts, their confidence may diminish and the concealed anxiety may heighten, and they are susceptible to be affected by surrounding annoying voice. It is imperative for teachers to think about the task that can accommodate their needs and able to boost their confidence. Additionally, task-orientated rather than performance-oriented class activities should be implemented to help them overcome the psychological setbacks.

The low motivation group, who exhibit the lowest motivation levels in all measured dimensions, accounting for only 8% of the samples, this type has been observed and reported by numerous previous studies as amotivation group (Li et al., 2022; Nie et al., 2024). Demotivated learners are a group who are relatively hard for managing in practice for language educator to kindle their motivation as they lack concern for their performance. Interventions by parents and teachers are needed as this stage to design case-by-case plans tailoring each individual needs to spark interests and build resilience.

For the high-motivation group, comprising 40% of the students and serving as a positive sign for rural schools where many learners are fully motivated, it is advisable for educators to nurture an environment that continuously stimulates their interests and provides adequate educational resources that meet their needs, enabling them to progress to higher levels of learning.

Differences in English Performance Across All Motivation Profiles

The results of the ANOVA indicated different levels of FL performance across distinct motivation profiles. Specifically, the high motivation group achieved significantly higher average grades compared to both the moderate and low motivation groups, while the low motivation group recorded the lowest scores, averaging almost 10 points lower than the high motivation group. These findings corroborated with antecedent research demonstrating a positive association between high motivation and higher language achievement (Hu & McGeown, 2020; Li & Zhang, 2021; Liu & Thompson, 2018; Ma et al., 2023; Tahmouresi & Papi, 2021). It is worth noting that the FL performance of the moderate motivation group,

which accounted for the largest proportion of participants, showed almost no difference compared to the low motivation group (46.49 versus 44.77). This result echoes the findings of Wang et al. (2021) who similarly reported that the self-efficacy levels of the "average" group yielded CET-4 scores comparable to those of the low self-efficacy group.

Possible explanation may attribute to the limited access to educational resources in rural high schools and the scarcity of high-quality learning materials. The primary source of exposure to authentic and reliable learning resources is through teachers. However, due to a high teacher-student ratio, students' individual requests and needs are often overlooked, as teachers' working hours are limited and they cannot adequately address every student's learning needs. As a result, even though many students are eager to learn, they are unable to receive sufficient support either from teachers or from accessible authentic resources, both of which are critical factors influencing academic performance.

Another important observation is that the overall FL performance in the target rural high school was very low, with even the high motivation group achieving an average score of only 54.64. Although this was not the best-performing school in the local area, it remains representative of a group of language learners who were motivated in FL learning but failed to achieve the expected outcomes. This issue merits further exploration, particularly focusing on the factors contributing to the performance gap among motivated FL learners in rural contexts, and more longitudinal motivation-performance study should be launched in the future.

Practical Implications

The findings carry practical implications for EFL teaching and learning in Chinese rural regions and similar contexts in other countries. Firstly, it is important to note that motivation levels are closely associated with FL performance: the higher the students' motivation, the better their FL performance tends to be. Therefore, teachers should raise awareness of the importance of FL learning motivation, particularly the roles of the Ideal L2 Self when trying to design semester syllabi and planning lessons. They should strive to make English classes more engaging and motivating, while also assisting students in developing and implementing future FL learning plans, encouraging them to turn their ideal visions into real actions. Additionally, due to the low performance observed in the moderate motivation group, FL teachers should pay special attention to these groups of students. If their motivation does not lead to the expected learning outcomes, it may gradually diminish over time, and it will be difficult to rebuild their motivation and improve their final grades later in the learning process. Lastly, considering the overall low FL performance in rural high schools, education bureaus and administrators should consider investing more in learning resources and adopting effective strategies to attract more capable teachers to rural areas. These efforts could help create a more supportive environment for rural students and enhance their opportunities for success in FL learning.

Limitations and Future Direction

There are several limitations that should be noted. First, the target high school is neither the best school in the local area nor is the target student group large with many participants, which may limit the generalizability of the results. It is necessary to conduct further research with a larger sample size to investigate the issue more deeply and to make the findings more robust and stable. Additionally, as FL learning is a long-term process and motivation is highly dynamic, the cross-sectional design of the current study may not fully capture the changing

dynamics of participants' motivation profiles or their association with learning outcomes. Therefore, longitudinal studies are needed to examine the robustness and stability of motivation profiles over time. Moreover, the results indicated that the moderate motivation group showed almost the same level of FL performance as the low motivation group. This suggests that motivation is not the sole determinant of success among this group of participants, and that other important factors (e.g., a supportive learning environment and access to learning resources) also need to be considered. However, due to the limited research applying the LPA approach to the study of motivation and FL learning among senior high school learners in hinterland rural regions, future studies should adopt longitudinal research with larger sample sizes and involve more local high schools. This would help determine whether distinct motivation profiles change over time, and whether factors beyond motivation also significantly influence FL performance.

Conclusion

By adopting a person-centered approach, this study classified rural senior high school FL learners into three distinct groups and explored the associations between motivation profiles and FL performance. The results further confirmed the validity of the L2MSS model in the context of senior high school learners in impoverished hinterland rural regions of China and reaffirmed the association between motivation and FL performance among different learner profiles. Additionally, the study confirmed the role of the Ideal L2 Self as a leading motivational factor, which is consistent with the findings of many previous studies. However, differing from earlier research, the current study emphasized the notable influence of Language Learning Experience and Anti-Ought-to Self on senior FL learners. To further advance the L2MSS model, more studies examining the relationship between motivation and performance are needed in rural contexts and in countries with similar socio-economic backgrounds. Finally, it is hoped that more research will be conducted in rural contexts to explore why a large group of FL learners, despite having relatively high motivation, still lag behind in their performance. Furthermore, local teachers and education authorities are encouraged to pay special attention to students' motivation, particularly the development of their Ideal L2 Selves, throughout the learning process.

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