

The Mediating Effect of English Learning Motivation among Student Autonomy, Student Engagement and English Language Performance of Chinese Vocational College EFL Students in Shandong Province

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Abstract: This study aimed to investigate the interrelationships among English learning motivation, student autonomy, student engagement and English language performance among vocational college EFL students in Shandong Province in China. Furthermore, it sought to examine whether English learning motivation serves as a mediating factor in the relationships among student autonomy, student engagement and English language performance. This study adopts a quantitative research methodology. To ensure the validity and reliability of the research instruments prior to the main data collection, a pilot study was conducted in the previous semester. Three validated instruments were employed in the pilot phase: the Learner Autonomy Scale (LAS), the Utrecht Work Engagement Scale –Student Version (UWES-S), and the English Learning Motivation Scale (ELMS). The field study data were collected from March to May 2024, involving the EFL students from the 15 “Double High Pla” higher vocational colleges in Shandong Province, China. A total of 562 valid questionnaires were obtained for analysis. The collected data were analyzed using SPSS and AMOS. The analyses included descriptive statistics for participants’ demographic characteristics, confirmatory factor analysis (CFA) to validate the measurement model, correlation analysis to examine the relationships among variables, and structural equation modeling (SEM) to test the hypothesized mediation model. Through SEM and direct-indirect analysis, the result revealed that English learning motivation partially mediates the relationship between student autonomy and English language performance; as well as between student engagement and English language performance. The findings of this study offer important theoretical and practical implications for English language teaching and learning in vocational colleges, particularly within China. The confirmation of English learning motivation as a partial mediator highlights its crucial role in improving vocational EFL students’ English language performance. This indicates that enhancing student autonomy and engagement is more effective when paired with strategies that boost motivation. Educators and curriculum designers should therefore place greater emphasis on cultivating both intrinsic and extrinsic motivation through learner-centered pedagogical approaches, goal-setting activities, and relevance-enhancing instruction that connects English learning to students’ future careers and real-life applications.

Keywords: English Learning Motivation; Student Autonomy; Student Engagement; English Language Performance.

1. Introduction

As the economy evolves and technology advances, the demand for vocational and technical professionals in society continues to grow, along with rising expectations for their skills and qualifications.(Zhu & Li, 2020). The expansion of enrollment in higher vocational colleges has resulted in a more diverse student body with varying backgrounds, leading to significant disparities in student quality. This diversity has contributed to a decline in the overall academic performance of students, with the academic challenges faced by higher vocational students becoming increasingly apparent. Among these challenges, difficulties in English language learning stand out as a particularly prominent issue. (Wang, 2020; Xiao, 2024). Shandong Province, hosting 83 higher vocational institutions—including “15 Double High Plan” colleges—ranks fourth nationally in terms of the number of vocational colleges. Despite the region's large-scale student recruitment, the English performance of students remains unsatisfactory (Wang, 2020; Yang, 2024). The students come from various regions across the country, with many having a weak foundation in English and varying levels of proficiency. Additionally, the overall ability for autonomous learning

among these students tends to be relatively low (Ren, 2023; Xiao, 2024). The main reasons for these behaviors among vocational college students are a lack of autonomy, engagement, and motivation in their learning. These factors contribute significantly to their struggles in improving their language performance, especially in English (Hou, 2020; Sun, 2023; Zheng. Et al, 2024). Therefore, this study aims to investigate the relationships among student autonomy, student engagement, and English language performance in the context of higher vocational colleges. Specifically, it explores the mediating role of English learning motivation in these relationships to better understand how internal psychological factors influence language learning outcomes. By identifying these relationships, the study seeks to provide practical insights into effective methods and pathways for improving vocational EFL students’ English language performance.

2. Literature Review

2.1. Relationships among Autonomy, Engagement, Motivation, and Performance

Previous studies have extensively examined the

interconnections among students' autonomy, learning engagement, motivation, and academic performance, particularly in English language learning. Learners with higher levels of autonomy tend to take greater initiative in their learning process, resulting in increased engagement and improved academic outcomes (Hou, 2020; Sun, 2023). Motivation and engagement are often cited as strong predictors of English language performance, where students who are highly engaged and motivated are more likely to exhibit better learning outcomes (Zhang, 2024). Additionally, Dong (2024) reported a high correlation between learning engagement and performance, indicating that these factors are key to understanding success in English learning.

2.2. Mediating Role of English Learning Motivation

Recent studies have increasingly investigated the mediating role of English learning motivation in the relationships among student autonomy, student engagement, and English language performance. Findings suggest that English learning motivation not only has a direct effect on students' language performance but also serves as a bridge through which other psychological and behavioral factors exert influence (Pan & Zhang, 2020; Liu et al., 2021). In the EFL context in China, motivation has been shown to significantly mediate the relationship between learner autonomy and academic outcomes, indicating that enhancing learners' motivation can lead to higher engagement and improved English proficiency (Lei & Qin, 2021; Zhang & Hu, 2023). Furthermore, recent empirical research confirms that motivated students are more likely to engage in learning activities and persist in the face of challenges, resulting in better overall language achievement (Chen et al., 2022; Wang & Li, 2024). These findings emphasize the critical role of English learning motivation as a mediating variable, particularly for students in vocational education settings.

2.3. Research Gaps in the Context of Vocational Colleges

Despite the abundance of research on student autonomy, engagement, motivation, and English language performance in general higher education contexts, studies focusing on higher vocational colleges—particularly in Shandong Province—remain scarce (Wang, 2024; Dong et al., 2023). Most existing literature centers on undergraduate and postgraduate students, while the unique challenges faced by vocational students, such as limited language exposure, weak foundational skills, low learning motivation, and insufficient engagement, have not received adequate scholarly attention (Hou, 2020; Li & Liu, 2022; Ren, 2023; Chen, 2024; Huang, 2024). Although research on the relationships among these constructs is relatively rich (Wang, 2020; Li, 2020; Hou, 2020; Ren, 2023; Sun, 2023; Xiao, 2024; Zheng et al., 2024; Zhang, 2024), few studies have explored how these factors interact specifically within the vocational education context. In particular, there is a lack of research investigating the mediating role of English learning motivation in the relationships among student autonomy, engagement, and language performance among vocational colleges. To address this gap, the present study aims to examine the mediating effect of English learning motivation on the relationships between student autonomy, student engagement, and English language performance among vocational college students in Shandong Province.

3. Research Questions

This study aims to investigate whether English learning motivation plays a mediating role between student autonomy, student engagement, and English language performance.

RQ1: To what extent English learning motivation mediates the relationship between student autonomy and English language performance?

RQ2: To what extent English learning motivation mediates the relationship between student engagement and English language performance?

4. Research Method

4.1. Respondents and Procedure

Data for the field study was collected with the permission of the university authorities and the respondents. The data collection phase followed the completion of the pilot study, which involved the preliminary gathering and analysis of data. The primary data collection was conducted from July to September 2024, focusing on students enrolled in the 15 "Double-High Plan" higher vocational colleges in Shandong Province, China. Based on the research objectives and analytical methods employed in this study, the required sample size for the field investigation was determined using the Table for Determining Sample Size from a Given Population developed by Krejcie and Morgan (1970). Given that the target population exceeds 75,000 individuals, the minimum recommended sample size is 384. However, it is a common practice in survey research to distribute more questionnaires than the minimum required sample size to account for potential non-responses and invalid responses. As Fowler (2013) emphasized, researchers often oversample to mitigate data loss and enhance the reliability and stability of statistical analyses. A typical approach is to increase the minimum sample size by approximately 50%. Accordingly, this study increased the number of distributed questionnaires to 576 (i.e., 384×1.5) to ensure an adequate number of valid responses for robust statistical analysis. After obtaining approval from the administrative authorities of the participating higher vocational colleges, the researcher acquired the student rosters from the 15 "Double High Plan" institutions in Shandong Province. Each student was assigned a sequential identification number. A total of 576 respondents were then selected using proportionate stratified random sampling, with the assistance of a random number generator. This sampling method ensured that the distribution of participants reflected the relative population sizes of the respective colleges, thereby enhancing the representativeness and generalizability of the sample.

4.2. Research Instruments

4.2.1. Learner Autonomy Scale (LAS)

Xu Jinfen's (2004) Learner Autonomy Scale was deemed highly consistent with the objectives of the present study. Therefore, this instrument was adopted to assess the independent learning ability of vocational college students within the context of this research.

The Learner Autonomy Scale (Xu, 2004) is composed of two main sections. The first section includes students' basic demographic information along with an explanation of the questionnaire. The second section comprises 22 items designed to assess learner autonomy across five dimensions: Awareness of Teaching Objectives and Requirements (ATOR),

4 items), Establishing Learning Objectives and Plans (ELOP, 4 items), Effective Use of Learning Strategies (EULS, 5 items), Monitoring of Strategy Use (MSU, 4 items), and Evaluation of the Learning Process (MELP, 5 items). The scale employs a 5-point Likert response format, with scores ranging from 1 to 5, where higher scores indicate higher levels of learner autonomy.

4.2.2. English Learning Motivation Scale (ELMS)

This study adopted the English Learning Motivation Scale (ELMS) developed by Li (2020), which has demonstrated strong reliability and validity and was further validated by Sun (2023). The ELMS consists of 18 items distributed across two dimensions: extrinsic motivation and intrinsic motivation. The scale has shown high internal consistency and construct validity among Chinese students, with a Cronbach's alpha coefficient of 0.832 and a Kaiser-Meyer-Olkin (KMO) value of 0.931. It adopts a 5-point Likert scale format, ranging from 1 (totally disagree) to 5 (totally agree), where higher scores reflect stronger English learning motivation.

4.2.3. Work Engagement Scale-student (UWES-S)

This study utilized the Utrecht Work Engagement Scale – Student Version (UWES-S), originally developed by Schaufeli et al. (2002) and subsequently revised by Fang et al. The UWES-S has been widely applied in educational research and has demonstrated strong reliability and validity. The scale measures student engagement across three dimensions: vigor, dedication, and absorption, comprising a total of 17 items.

4.2.4. Grade Point Average (GPA)

In this study, English language performance was assessed using students' Grade Point Average (GPA) in English courses from the first academic semester of the 2023–2024 academic year.

4.3. Data Analysis

Data were collated and analyzed using SPSS 26.0 and AMOS 26.0. Prior to conducting the main analyses, a comprehensive data screening and cleaning procedure was undertaken. This included the examination of missing values, identification of outliers, assessment of normality and multicollinearity, evaluation of common method variance, and tests for the reliability and validity of the instruments. Then it was conducted the descriptive analyses of demographic characteristics, descriptive analyses of English language performance (measured by GPA), and all three scales: student autonomy (LAS), student engagement (UWES-S), and English learning motivation (ELMS) to determine the mean, standard deviation, and range of each measure, as well as CFA analysis. Afterward, correlation analysis and SEM analysis were performed to test hypotheses and provide answers to the research questions. A structural equation model (SEM) was employed to assess the fit of the proposed model using indices such as RMSEA, SRMR, CFI, TLI, and χ^2/df . SEM was utilized to examine the mediating role of English learning motivation within the model.

5. Research Result

The data set of the field study comprising 576 received questionnaires was subjected to several data screening and cleaning processes to ensure its suitability for analysis. Outlier analysis identified a few extreme values, resulting in removing 14 extreme outliers identified by box-plots and the remaining 562 cases without multivariate outliers. Normality tests indicated that the data (N=562) approximated a normal

distribution, satisfying the assumptions required for subsequent analyses. Before conducting the CFA, reliability was examined, with the results of Cronbach's alpha of student autonomy, student engagement, and English learning motivation, and total questionnaire (57 items, N=562) were 0.951, 0.953, 0.953, and 0.958. Therefore, the data-set (n=562) was considered clean and appropriate for further statistical evaluation.

5.1. Mediating Effect Analyses

Structural equation modeling (SEM) was utilized to investigate the mediating role of English learning motivation in the relationships between student autonomy and English language performance, as well as between student engagement and English language performance. This analysis aimed to assess the extent to which English learning motivation mediates these associations. The model fit of the structural model was first examined, as shown in Figure 1. The specific indicators were as follows: RESEA = 0.027 < 0.08, NNFI/TLI = 0.970 > 0.90, CFI = 0.971 > 0.90, IFI = 0.972 > 0.90, and Chisq/df = 1.412 < 3.0. These results indicate that the model offers a satisfactory representation of the underlying structure and serves as a robust basis for further analysis.

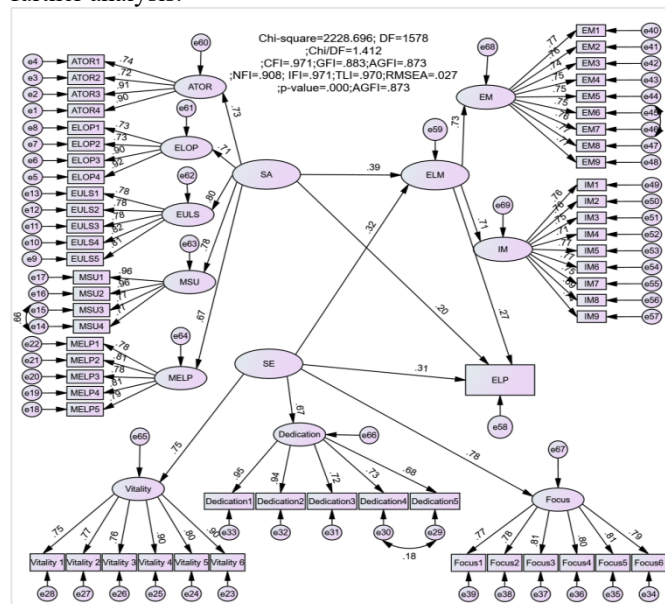


Figure 1. English language performance Model Mediated by English learning motivation

The mediation analysis was conducted to test Hypothesis 6 (Figure 2) and Hypothesis 7 (Figure 3). According to the fitness indices of the structural results, the proposed structural models of English learning motivation (ELM) as a mediator between student autonomy (SA) and English language performance (GPA); and between student engagement (SE) and English language performance (GPA), demonstrated adequate goodness-of-fit. Specifically, for Figure 2, the fit indices were Chisq/df = 2.944 < 3.0, RMSEA = 0.059 < 0.08, GFI = 0.977 > 0.90, CFI = 0.975 > 0.90, NNFI = 0.961 > 0.90, and AGFI = 0.955 > 0.90.

The mediation analysis in Table 1 showed the relationship among student autonomy, English learning motivation, and English language performance. Firstly, the effect of SA on ELM was statistically significant and positive ($\beta = 0.446$, S.E. = 0.064, C.R. = 6.874, $p < 0.01$) (path a), indicating that higher levels of student autonomy are associated with higher English learning motivation; secondly, the effect of ELM on

GPA was statistically significant and positive ($\beta = 0.376$, S.E. = 0.068, C.R. = 6.417, $p < 0.01$) (path b), suggesting that higher English learning motivation leads to greater English language performance; thirdly, the effect of SA on GPA was statistically significant and positive ($\beta = 0.219$, S.E. = 0.057, C.R. = 4.252, $p < 0.01$) (path c), indicating that student autonomy improves English language performance. Since the value of $a \times b < c$ ($0.446 \times 0.376 = 0.168 < 0.219$), the indirect path from SA to ELP through ELM is statistically significant. These results suggested that English learning motivation partially mediates the relationship between student autonomy and English language performance.

In the relationship between student engagement (SE), English learning motivation (ELM), and English language performance, as depicted in Figure 3, the fit indices were as follows: $\chi^2/df = 1.620$ (< 3.0), RMSEA = 0.033 (< 0.08), GFI = 0.993 (> 0.90), CFI = 0.994 (> 0.90), NNFI = 0.988 (> 0.90), and AGFI = 0.980 (> 0.90). These indices demonstrate a good model fit.

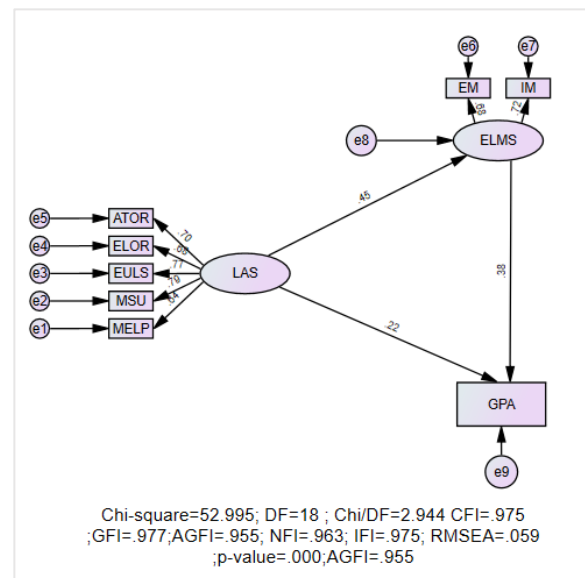


Figure 2. English Learning Motivation as a Mediator between Student Autonomy and English Language Performance

Table 1. Mediation Analysis Result of English Learning Motivation between Student Autonomy and English Language Performance

Construct	Path	Construct	β Estimate	S.E.	C.R.	P	Result
ELM	<---	SA	0.446	0.064	6.874	***	Significant
GPA	<---	ELM	0.376	0.068	6.147	***	Significant
GPA	<---	SA	0.219	0.057	4.252	***	Significant

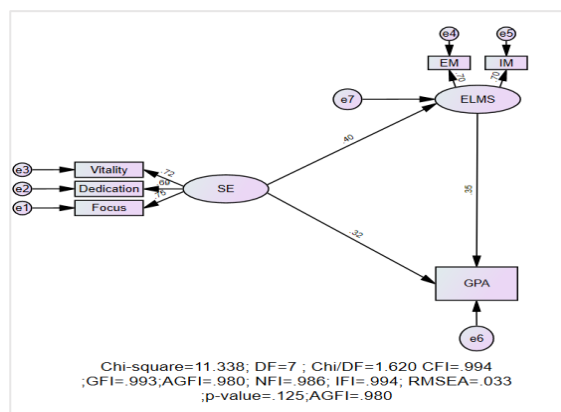


Figure 3. English Learning Motivation as a Mediator between Student Engagement and English Language Performance

The mediation analysis in Table 2 showed the relationship among student engagement, English learning motivation, and English language performance. English learning motivation partially mediates between student engagement and English language performance. The value of $0.402 \times 0.345 = 0.139 < 0.321$, that is, the value of $a \times b < c$. Both the hypotheses testing for the indirect effect between student engagement and English learning motivation, and between English learning motivation and English language performance are significant. The direct effect of student engagement on English language performance was also found to be significant. Therefore, the type of mediation is partial mediation. Based on the mediation analysis results, it can be concluded that English learning motivation mediates the relationship between student engagement and English language performance.

Table 2. Mediation Analysis Result of English Learning Motivation between Student Engagement and English Language Performance

Construct	Path	Construct	B Estimate	S.E.	C.R.	P	Result
ELM	<---	SE	0.402	0.056	6.204	***	Significant
GPA	<---	ELM	0.345	0.063	5.892	***	Significant
GPA	<---	SE	0.321	0.048	6.22	***	Significant

6. Conclusion

Based on the field data, a total of 562 completed questionnaires were analyzed. Through SEM and direct-indirect analyses, English learning motivation was confirmed as a mediator in the relationships between student autonomy and English language performance, as well as between student engagement and English language performance. Consequently, the study's objectives were successfully achieved.

These insights provide important theoretical foundations and practical guidance for educational practices. Specifically, in the context of vocational education, enhancing student autonomy and engagement can effectively promote English learning motivation, thereby improving English language performance. Based on these findings, the study offers the following recommendations: First, vocational colleges should emphasize the development of students' autonomous learning abilities by designing flexible learning plans and strategies that encourage independent thinking and self-directed

learning. Second, schools can enhance student engagement by providing diverse learning activities and interactive opportunities, which will, in turn, strengthen their English learning motivation and language performance. Lastly, educators should pay attention to students' learning motivation by offering personalized support to foster intrinsic motivation, helping students overcome challenges in learning English. Through these measures, educational practices can effectively enhance students' English learning outcomes and improve their overall competence and vocational competitiveness.

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