

The Relationship Between Chinese High School English Learners' Classroom Engagement and English Academic Achievement: A Case Study of English Learners in a High School in Henan China

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Abstract. Classroom engagement is often referred to as a crucial factor for students' academic achievement. However, within the realm of second language acquisition, only a limited number of scholars made empirical investigations into the association between engagement in the English classroom and English academic achievement. In particular, research on second language learners at the basic education stage is lacking. Therefore, this study examines the current state of English classroom engagement among high school students and its relationship with English academic achievement through a case study of students in Henan China. This study found that high school students' overall English classroom engagement was high, but individual-based agentic behavior engagement was low. Furthermore, male students exhibited significantly lower levels of various dimensions of English classroom engagement compared to female students. Moreover, interaction-based emotional engagement, individual-based cognitive engagement, individual-based behavioral engagement, and interaction-based conventional behavioral engagement were found to significantly predict students' English academic achievement. Furthermore, gender is found to exert a significant moderating influence on the association between individual-based cognitive engagement and English academic achievement among students. Implications of these findings for English instruction are discussed.

Keywords: High school English teaching, Classroom engagement, English academic achievement.

1. Introduction

Classroom Learning is the primary approach for Chinese students to learn foreign languages, which plays a crucial role in the development of language proficiency [1]. Moreover, English learning at the basic education stage is of vital importance to students' language development and it also serves as an important component in cultivating high-level talents in China's higher education. Existing studies indicate that higher classroom engagement has an enduring positive impact on students' academic achievement. Nevertheless, the context of second language acquisition has long been overlooked in related studies until recent times. Empirical studies are needed to examine the relationship between English classroom engagement and English achievement. Given that few scholars have focused on the impact of classroom engagement in English learning at the basic education stage on students' English academic achievement, this paper takes students in a high school in Henan province as an example to investigate the current state of English classroom engagement among Chinese high school students and its relationship with their English academic achievement.

2. Literature Review

Classroom engagement, often referred to as learner engagement and student engagement in the field of educational psychology along with concepts such as task engagement, is used to describe student participation in classroom learning activities [2]. The significance of classroom engagement in relation to academic performance has been widely recognized and extensively studied by researchers in the field of education. Some scholars have investigated it as a one-dimensional concept in second language acquisition as well as other areas of teaching [3]. However, most scholars believe

that engagement is a multidimensional concept that contains three distinct but interrelated parts: cognitive engagement, behavioral engagement, and emotional engagement [4, 5]. Many empirical studies have also been carried out based on this three-dimensional concept, exploring classroom environment factors and learner factors that affect learner engagement, and the impact of learner engagement on students' academic achievement. The research on classroom environmental factors mainly focuses on comparing the impact of different teaching methods, teacher feedback, classroom competition, and technical support on students' classroom engagement [3, 6-8]. In addition, studies of learner factors have found that learners' self-efficacy, self-management, motivation, anxiety, etc. can all have an impact on their classroom engagement [3]. Importantly, numerous empirical studies have consistently demonstrated the positive influence of classroom engagement on students' academic accomplishment [9-11].

However, classroom engagement has long been overlooked in second language acquisition studies until very recent times. Empirical research is needed to verify the possible positive influence of classroom engagement on students' academic achievement [12]. Recently, Al-Obaydi et al. explored the impact of teachers' structural feedback on students' cognitive engagement, emotional engagement, and behavioral engagement in an online English course context [8]. It is found that structural feedback has a significant correlation with all three aspects of engagement. Besides, some scholars have proposed domain-specific learner engagement models applicable to foreign language learning contexts. Drawing upon the significant role of interaction in language learning and instruction, Svalberg introduced the notion of "Engagement with the Language" as a theoretical framework that is comprised of cognitive engagement, social engagement and emotional engagement [13]. After that, Philp and Duchesne further expanded the concept by arguing that learner engagement encompasses four distinct dimensions, namely cognitive engagement, behavioral engagement, social engagement, and emotional engagement [14]. Based on this model, Guo Yan, Xu Jinfen and Chen Cong integrated it with learner initiative and developed a foreign language classroom engagement scale to measure eight dimensions of classroom engagement: individual-based emotional engagement, individual-based cognitive engagement, individual-based behavioral engagement, interaction-based emotional engagement, interaction-based agentic behavioral engagement, interaction-based conventional behavioral engagement, teacher-student interaction-based cognitive engagement, and peer-peer interaction-based cognitive engagement [15]. In their study, the scale is applied to explore the English classroom engagement of Chinese college students and its impact on their English learning achievement. The results of the analysis showed that solely individual-based cognitive engagement emerged as a significant predictor for the English academic performance of Chinese college students. However, related research is so rare that further empirical investigations are needed to substantiate the role of classroom engagement in facilitating students' English development, especially those with learners at the basic education stage as the subject. Therefore, this study is initiated to empirically investigate the influence of English classroom engagement among high school students on their English academic achievement, thereby substantiating the correlation between learner engagement and academic achievement within the realm of second language acquisition. This study is conducted mainly to answer the following three research questions:

- 1) What is the current status of high school students' English classroom engagement? Is there any relationship between the dimensions of their classroom engagement?
- 2) What is the relationship between high school students' English class engagement and their English achievement? Does gender play a regulating role in it?
- 3) Are there differences in English class engagement among high school students of different genders?

3. Research Design

3.1. Participants

A total of 144 seniors from a senior high school in Henan Province were included in the study. This school divides the third-grade students into 36 classes at random, with each consisting of approximately 70 students. Therefore, there exists no statistically significant disparity in the academic performance between different classes. For the purpose of a questionnaire survey, two classes were randomly selected and questionnaires were distributed to the students, resulting in a collection of 122 questionnaires. After removing 7 questionnaires of students who did not answer the quality test questions correctly, data from a total of 115 students (recovery rate of 94.26%) remained for statistical analysis, among whom 66 are boys (57%) and 49 are girls (43%).

3.2. Instruments

Foreign Language Classroom Engagement Scale This scale applied in this study is the modified version of the foreign language classroom engagement scale originally developed by Guo et al. [15]. They made this scale based on the learner engagement model proposed by Philp and Duchesne to assess students' multidimensional English classroom engagement. The scale measures eight dimensions of engagement, which are referred to as D1, D2, D3, D4, D5, D6, D7 and D8 in this study, as is put in Table 1, with each measured by 6, 5, 4, 7, 5, 3, 4, 4 items respectively. In order to obtain good validity, this study adds an item to the original items assessing interaction-based conventional behavioral engagement. In this study, a 6-point Likert scale was employed, with 6 options varying from "seldom or almost never applicable to me" to "frequently or almost always applicable to me". The questionnaire is comprised of a total of 40 questions, of which 1 trap question. Questionnaires that fail the trap question would be eliminated. All items will be assigned a score of 1 to 6 to measure students' English classroom engagement, and 2 reverse questions will be inversely coded. To ensure that all participants have a clear and accurate understanding of the items, the questionnaire is written in Chinese. The internal consistency coefficient of the whole scale was 0.954, and the reliability of each engagement dimension was 0.738, 0.887, 0.905, 0.833, 0.842, 0.766, 0.805, 0.808, and the validity of each engagement dimension was 0.757, 0.829, 0.890, 0.800, 0.753, 0.648, 0.780, 0.726. The results indicated that the scale demonstrated a high level of reliability and validity.

English Achievement English achievement was measured by the English score of the 2022-2023 Henan Province Senior Three Mock Exam (1) (launched and cored by the school to evaluate teaching effects). This English exam is comprised of five sections: listening, reading, cloze, proofreading and writing, which conforms to the formation of the English test in the college entrance examination. This exam serves as an accurate measure of students' English achievement and functions as a significant indicator for the school to adapt teaching strategies and evaluate teaching effects. Therefore, this study employed the English scores obtained from this exam as a representation of students' English achievement.

3.3. Procedure and Data Analysis

All participants attended the 2022-2023 Henan Province Senior Three Mock Exam (1) in mid-February and the questionnaires were distributed to the 144 seniors the next day. After removing the invalid questionnaires, data from 115 questionnaires were analyzed via SPSS 26.0. Firstly, means and standard deviations for overall English classroom engagement and its different dimensions were calculated. Then, one-way repeated measure ANOVA was employed to examine whether there is a significant difference among different dimensions of English classroom engagement. After that, Pearson correlation analysis was employed to investigate the associations among different dimensions of English classroom engagement. Subsequently, an independent-sample T-test was utilized to explore potential gender disparities in the dimensions of English classroom engagement. Lastly, Pearson correlation analysis and linear regression analysis were utilized to identify factors that predict students' English academic performance.

4. Results and Discussion

4.1. Dimensions of English Classroom Engagement, Correlation and Gender Difference

With reference to Guo et al.’s classification of 6-point Likert scale scores, this study calculated that average scores of 4.2 or higher indicate high engagement, average scores ranging from 3.0 to 4.2 denote a moderate level of engagement and average scores of 2.8 or lower signify a low level of engagement [15].

As shown in Table 1, students’ English classroom engagement as a whole is at a high level (M=4.5721; SD=0.67486), and with the exception of interaction-based agentic behavioral engagement, which falls within the moderate range, all other dimensions of classroom engagement are high, which indicates that students are actively participating in classroom learning. Besides, it also shows that high school students also take the initiative to learn and memorize the English knowledge imparted by the teacher. Among the eight dimensions of English classroom engagement, interaction-based agentic behavioral engagement was the lowest (M=3.9791; SD=1.15542), while interaction-based conventional behavioral engagement was at a high level (M=4.6870; SD=0.89089). The results suggest a lower tendency among high school students to actively engage in interactive behaviors during English classes, with teachers typically taking the lead in initiating such behaviors while students merely demonstrate active cooperation. This may be attributed to the teaching model commonly adopted in elementary, junior high, and high school English classrooms within the region. The English classes predominantly adhere to a traditional “teacher-centered” approach, characterized by the dominance of teachers and the passive role of students as recipients of knowledge [16]. Consequently, students lose the identity of the subjects of learning activity. Furthermore, results also indicate that in English learning, students exhibit a greater inclination to rely on teachers, conform to classroom activities based on teacher directives, and display limited initiative in participating in classroom construction.

Table 1. Means and Std. Deviations for the English classroom engagement (N = 115)

	Mean	SD
Overall engagement	4.5721	0.67486
D1 Interaction-based emotional engagement	5.1513	.49246
D2 Interaction-based agentic behavioral engagement	3.9791	1.15542
D3: Individual-based emotional engagement	4.5391	.78246
D4: Individual-based cognitive engagement	4.5930	.91342
D5: Teacher-student interaction-based cognitive engagement	4.1500	1.04755
D6: Individual-based behavioral engagement	4.8232	.75487
D7: Peer-peer interaction-based cognitive engagement	4.6543	.82888
D8: Interaction-based conventional behavioral engagement	4.6870	.89089

To investigate the dissimilarities in the various dimensions of students’ English classroom engagement, the author performed one-way repeated measurement ANOVA on the data. The findings from the Mauchly sphericity test provided evidence to reject the null hypothesis ($W = 0.369$; $p < 0.001$), indicating the presence of statistically significant variations among the dimensions of English classroom engagement. The Bonferroni post-hoc analysis was conducted to identify distinct variations among different dimensions of engagement. The findings revealed that interaction-based emotional engagement exhibited significantly higher levels compared to the other six dimensions, with the exception of individual-based behavioral engagement. This indicates that high school students have a high emotional engagement in classroom interaction activities, which means they have positive and happy emotions in classroom interactive activities.

To further investigate the difference between interactive engagement and individual engagement, the authors reclassified the eight dimensions of English classroom engagement into two dimensions: “interactive engagement” and “individual engagement”. After that, independent sample T-tests were conducted. The results showed that individual engagement was significantly higher than interaction

engagement ($p = 0.037$), indicating that high school students were more accustomed to learning alone in English classes and less socially engaged in English learning. This contradicts its high interaction-based emotional engagement, indicating that although students enjoy interactive activities in the classroom, they are still accustomed to individual learning in the process of English learning, and the functions of interaction have been underestimated and overlooked in their study.

Pearson correlation analysis of these eight dimensions of English classroom engagement (see Table 2) reveals a significant correlation existing among all eight dimensions of English classroom engagement. This suggests that the dimensions of English classroom engagement are not independent of each other, but closely related [17]. This result further validates the findings of other empirical studies on classroom engagement [1, 14].

Table 2. Correlations among the eight sub-scales of English classroom engagement

	D1	D2	D3	D4	D5	D6	D7	D8
D1	1	-	-	-	-	-	-	-
D2	.398**	1	-	-	-	-	-	-
D3	.428**	.618**	1	-	-	-	-	-
D4	.257**	.572**	.553**	1	-	-	-	-
D5	.327**	.811**	.570**	.640**	1	-	-	-
D6	.309**	.411**	.579**	.611**	.473**	1	-	-
D7	.270**	.639**	.603**	.570**	.682**	.507**	1	-
D8	.340**	.606**	.585**	.564**	.666**	.509**	.711**	1

To explore whether there are significant differences in English classroom engagement among students of different genders, an independent sample T-test was conducted. The results revealed a statistically significant disparity in classroom engagement between genders ($p=0.09$). The English classroom engagement exhibited by female students was significantly greater in comparison to their male counterparts. The results of the independent sample T-test on each dimension of English classroom engagement showed that the difference is significant in individual-based behavioral engagement, peer-peer interaction-based cognitive engagement, and interaction-based conventional behavioral engagement, and girls were significantly higher than boys in these three sub-dimensions ($p=0.002$; $p=0.007$; $p=0.013$). This indicates that girls are more active in English learning. This is consistent with previous studies on learning engagement, in which girls were found to be more motivated and hardworking than boys in second language learning [18]. It is noteworthy that two out of the three dimensions of classroom engagement are interaction-based classroom engagement. This finding suggests that girls demonstrate a greater tendency to acquire foreign languages through participating in interactive English classroom activities.

4.2. English Classroom Engagement Predictors for English Achievement and the Regulating Effects of Gender

To examine the predictive influence of English classroom engagement on students' English achievement, the Pearson correlation test was employed first to verify the correlation between English achievement and English classroom engagement. The results revealed that interaction-based emotional engagement, individual-based cognitive engagement, individual-based behavioral engagement, and interaction-based conventional behavioral engagement were significantly correlated with students' English achievement. Based on these results, linear regression analyses of English classroom engagement and English achievement are performed, and the results are shown in Table 3. It is found that interactive-based emotional engagement, individual-based cognitive engagement, individual-based behavioral engagement, and interaction-based conventional behavioral engagement significantly predict students' English achievement. These findings suggest that students' English learning can be enhanced by a favorable emotional disposition toward classroom interaction, engagement in the memorization of English knowledge during English classes, and active participation in classroom activities.

Table 3. Parameter estimates for the predictors in the English achievement model

Predictors	Outcome	β	B	t	p
D1	Test score	0.190	5.841	2.054	0.042
D2	Test score	0.154	2.023	1.659	0.100
D3	Test score	0.174	3.377	1.881	0.063
D4	Test score	0.199	3.301	2.157	0.033
D5	Test score	0.136	1.968	1.459	0.147
D6	Test score	0.252	5.062	2.768	0.007
D7	Test score	0.136	2.493	1.463	0.146
D8	Test score	0.236	4.023	2.586	0.011

To examine whether gender played a moderating role, the data were tested by Process-v4.1 developed by Andrew F. Hayes. The results revealed a significant moderating influence of gender on the relationship between individual-based cognitive engagement and English academic achievement ($p=0.027$). However, no such moderating effect was observed in the relationships between interaction-based emotional engagement, individual-based behavioral engagement, and interaction-based conventional behavioral engagement and English achievement. This means that individual-based cognitive engagement is more pronounced in facilitating the English learning of male students.

5. Conclusion

This study investigated the association between the English classroom engagement of high school students and their English academic performance. The results showed that the overall English classroom engagement of high school students was at a high level, reflecting the enthusiasm of high school students for English learning. Among the eight dimensions of English classroom engagement, interaction-based emotional engagement demonstrated significantly higher levels compared to the other six dimensions, with the exception of individual-based behavioral engagement, which reflects the positive attitude of high school students toward classroom interactive activities. However, among the eight dimensions of English classroom engagement, students' interaction-based agentic behavior engagement was the lowest, while the interaction-based conventional behavioral engagement was at a high level. This indicates that students were influenced by the "teacher-centered" teaching model. Students rely on the teacher as the leader of classroom learning activities and fail to exert their subjectivity and initiative. At the same time, students' overall individual-based engagement was significantly higher than interaction-based engagement, indicating that students still maintained individual learning habits in English classes and interaction in English class has not been utilized as a facilitative tool of English classroom learning. In addition, a significant correlation exists among all dimensions of English classroom engagement, which once again verifies that classroom engagement is a multi-dimensional concept integrating behavior, cognition, emotion, and socialization. Female students were significantly higher than male students in individual-based behavioral engagement, peer-peer interaction-based cognitive engagement, and interaction-based conventional behavioral engagement. In addition, the study also found that interaction-based emotional engagement, individual-based cognitive engagement, individual-based behavioral engagement, and interaction-based conventional behavioral engagement significantly predicted students' English academic achievement, and the predictive influence of individual-based cognitive engagement on achievement was more obvious in the male student group.

The findings of this study hold considerable implications for the pedagogy of English in secondary schools, which emphasizes the importance of prioritizing students' subjectivity and initiative. It is recommended that high school English teaching should find ways to develop students' agency within the classroom, thereby facilitating their English learning in the English classroom context.

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