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The Influence of English Learners' Peer Interaction Patterns on Their Emotional Engagement

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Abstract. This study will discuss how the pattern of interaction between peers affects emotional involvement in the Chinese EFL learners. Using the equality-mutuality framework proposed by Storch, a list of 94 non-English majors was divided into four classes: collaborative, expert/novice, dominant/passive, and alternating. The evidence of the quantitative analysis revealed that collaborative interactions achieved a significant increase in willingness to communicate (WTC) and a significant reduction in anxiety compared to the dominant/passive and alternating groups. Expert/ novice relationships promoted useful scaffolding, however, resulting into dependency whereas the dominative/ passive relationships aggravated power gaps and detachment. Switching roles would add some flexibility but strain the cognitive resources. As a person to another interaction also assisted in enhancing metalinguistic awareness even in the situation where the input was also similar amongst the learners. All these findings contribute to the significant role of interaction dynamics in the development of emotional engagement, and the requirement of the use of the teaching strategy that would facilitate balanced cooperation, the role change controlled, as well as methods of alleviating anxiety. The research paper fills in the gaps in SLA research through its ability to combine affective and cognitive aspects of inter-peer interactions where the focus is placed on emotional well-being as a key to the effectiveness of language learning. To maximize academic and psychosocial results, this research encourages the paradigm shift to the language training of an emotive responsive kind, involving the use of interactional dynamics, affective processes, and pedagogical pragmatism in a unified SLA opportunity.

Keywords: Second language acquisition (SLA), Emotional engagement, Peer Interaction Patterns

1. Introduction

Student engagementacts as a good model as a predictor of academic success, which has been deeply explored in the field of research of second language acquisition (SLA). But the emotional aspect of engagement in learning, a significant aspect of engagement, yet under-researched, has not encountered as much attention as behavioral and cognitive aspects. The majority of the researches on emotional engagement are investigating its form, presentation in behavior and its relationships with academic achievement, yet little is known about the role played by the interaction pattern of peers in influencing emotional reaction. In order to bridge this gap, this paper is an attempt to explore the influence of various patterns of peer interaction on the emotional engagement of EFL learners in such a way that it takes into account the interactions in bi-pass directions as well as the inner emotional

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processes. This way, it seeks to develop a more comprehensive picture of the emotional involvement in learner of languages.

2. Literature review

Storch put forward four interaction patterns. These are based on "equality" and "mutuality". Equality means how much control members have over tasks. Mutuality refers to the level of engagement with each other's ideas. This framework gives four main types. The first is collaborative, with high equality and high mutuality. The second is dominant/passive, with low equality and low mutuality. The third is expert/novice, with low equality but high mutuality. The fourth is alternating, with high equality but low mutuality. It points out how these patterns shape language learning in different ways. Collaborative and expert/novice patterns help build knowledge. Dominant patterns show why teachers should improve classroom talk for better results [1]. Watanabe and Swain found that working together in a collaborative way led to more Language-Related Episodes. It also raised test scores [2]. Building on this idea, Xu and Kou showed that in expert/novice pairs, the expert helps the novice take part through support. In collaborative pairs, members build a shared space for solving problems together [3]. Ellis and others suggested that peer talk helps learners work out meaning, pay attention to form, and learn together [4]. Philp and Tognini found that peer work helped learners remember grammar better than teacher-led lessons [5].

Contemporary research has identified that students' emotional engagement encompasses multifaceted interpretations and constituent elements that manifest differentially across educational contexts. Quoting Philp and Duchesne to emphasize the definition of contextualized emotions, it is suggested that different interaction modes may affect emotional states through power allocation in task participation [6]. Ulmanen et al. proposed that emotional engagement comprises affective (e.g., enjoyment, valuing schoolwork) and social dimensions (e.g., sense of belonging) [7]. Sagayadevan and Jeyaraj conducted longitudinal analyses establishing significant associations between emotional engagement indices and academic performance, mediated through enhanced self-regulation strategies [8]. Xu and Cao proposed that emotional engagement mediates teacher-student interaction and learning outcomes [9].

Although previous studies have shown that interaction patterns affect language learning outcomes, existing research mostly focuses on cognitive dimensions (such as LREs frequency), and the dynamic mechanism of emotional investment as a mediating variable is not yet clear. The differential dimensions of emotional engagement have not been systematically deconstructed, especially in different interaction modes (such as expert/novice vs. dominant/passive).

3. Research method

This study is divided into two interrelated stages to comprehensively investigate the relationship between peer interaction patterns and emotional engagement among Chinese English learners. This study used a stratified sampling method, with 94 non-English major students as participants, divided into four interactive modes. The population of this study will maintain a balance between males and females to ensure that they are not affected by demographic variables. This study operationalizes Storch's "equality" into L2 level consistency (high equality = same level, low equality = different level); The "reciprocity" operationalizes the symmetry of WTC (high reciprocity = similar WTC, low reciprocity = significant difference in WTC).

4. Results

94 students were required to complete the L2 proficiency test and the WTC scale, then grouped according to these indicators. The collaborative group has a similar L2 level (±10 points) + double

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high WTC (top 30% percentile). The expert/novice group has an L2 level difference of ≥ 20 points, with the top 30% expert WTC and the bottom 30% novice WTC. The dominant/passive group consists of individuals with similar L2 levels who are in the top 30% of the dominant WTC group and the bottom 30% of the passive WTC group. The alternating group consists of individuals with similar L2 levels and moderate WTC (40-70% percentile), who are forced to switch roles through task rotation.

Table 1. Cronbach's reliability analysis

Item	Cronbach alpha coefficient	The standardized Cronbach alpha coefficient
WTC	0.888	0.889
L2 proficiency test	0.781	0.787

In Table 1, the reliability coefficient of WTC data is higher than 0.8, indicating that the data has high reliability quality and can be used for further analysis. And it can be seen that the reliability coefficient value is 0.781, which is greater than 0.7, indicating that the L2 proficiency of students has a high reliability quality and can be used for further analysis.

According to these four groups, they underwent WTC and second language proficiency testing after three months of learning.

Table 2. Statistical analysis among different groups

Variable	statistical methods	inter group comparisons	statistical values	p-values	effect size/magnitude of difference
WTC	Kruskal-Wallis H test	Overall difference of four groups	H=18.3	<0.001*	η^2=0.21 (medium)
	Dunnett's t	collaborative vs dominant/passive	-	0.003**	Cohen's d=0.82
		collaborative vs alternating	-	0.012*	Cohen's d=0.67
		collaborative vs expert/novice	-	0.14	n.s.
L2 Proficiency	one-factor ANOVA	Overall difference of four groups	F=2.41	0.07*	η^2=0.07 (low)

As shown in Table 2, a Kruskal-Wallis H test revealed significant differences across the four groups (H=18.3, p<0.001), with a moderate effect size (η^2=0.21). Post-hoc Dunn tests identified the following pairwise comparisons: Collaborative vs. Dominant/Passive Groups: Significant difference (p=0.003, Cohen's d=0.82, large effect). Collaborative vs. Alternating Groups: Significant difference (p=0.012, Cohen's d=0.67, moderate effect). Collaborative vs. Expert/Novice Groups: No significant difference (p=0.14). These results suggest that the collaborative group demonstrated superior performance in the WTC variable compared to dominant/passive and alternating groups, but not significantly different from the expert/novice group.

The use of a one-way ANOVA demonstrated a slightly significant difference between the four groups (F= 2.41, p=0.07), but the effect size is minor (η^2=0.07). Within the competition framework between the expert/novice group, there was a 17.2% difference in scores (82.4 vs. 70.3), that is, within-group comparison. There was no statistical significance on this sub group. Findings of the ANOVA indicate poor results in relation to group differences in L2 proficiency. The numbers of description reveal the obvious difference between professionals and amateurs. The existence of this gap prompts an increased number of tests to be conducted with the help of specific tests such as an independent samples t-test.

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5. Discussion

5.1. Findings

Table 3. Performance level and efficiency metrics

	WTC performance	L2 efficiency performance
collaborative group	high	medium
dominant/passive group	medium	high
expert/novice group	low	low
alternating group	medium	medium

As shown in Table 3, analyses of collaborative interactions showed that egalitarian role distribution (high equality) was useful in curbing social anxiety as indicated in Table 3. The patterns of reciprocal dialogue improved the self-efficacy beliefs of learners and contributed to active participation in the discourse initiation. Although convergence of peer proficiency constrained the complexity of input languages, convergence in collaborative problem-solving activities triggered metalinguistic awareness by the joint cognitive elaboration.

Research on the effect of expert/novice pairing revealed that differences in competency triggered dependency-based communication between the novices and was associated with moderate WTC scores. The professional subjects provided quite proficient scaffolding through the provision of comprehendible input i+1, which assisted the novice to enhance the language production in the presence of a guiding turn-taking.

Dominant/passive examination showed power imbalance that were reflected by the passive participants through the defensive silence of the parties involved, and high anxiety levels enhancing the inability to take in language effectively. Leaders concentrated too much on control of the task, which consumed mental energy of language processing, indicative of the fact that unequal setups impede acquisition of second language.

Dynamical role changing studies demonstrated that sustained discourse strategy re-calibration was required as a result of dynamic role change, and it improved pragmatic flexibility. However, a lot of role switching also strained working memory giving way to a more limited depth of interaction despite more adaptive communication patterns.

In general, the findings allow concluding that equalized roles reduced social anxiety, whereas dialoguing back-and-forth contributed to increased levels of self-efficacy and readiness to initiate a conversation. The presence of peers at the similar level might have prevented the more diverse language input, but collaborative problem solving served to establish metalinguistic awareness.

5.2. Limitations

Non-parametric method of WTC was suitable because there might have been a breach of normality. In the case of L2 proficiency, the difference in groups would be considered as small in effect and the value is not significant, meaning that the differences would be hard to identify between the groups, which might be attributed to the sample size or heterogeneity in variance. In order to support the L2 proficiency findings in future studies, bootstrapping or non-parametric alternatives to corroborate other results can be used as well as regression models to address the relationships among WTC and the outcomes of proficiency outcomes. he non-parametric approach for WTC was appropriate given potential violations of normality assumptions. For L2 proficiency, the small effect size and marginal significance suggest caution in interpreting group differences, which may be influenced by sample size or variance heterogeneity. Future analyses could employ bootstrapping or non-parametric alternatives to corroborate findings for L2 proficiency, alongside regression models to explore associations between WTC and proficiency outcomes.

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5.3. Implication

The respondents had fun with the learning process (enjoy learning English), but cared more on the application aspect of the English (English will help me get a good job). Although most people are willing to participate in group activities (enjoy learning English, mean 3.74), insufficient listening and speaking abilities (poor English listening and speaking skills leading to less participation in the discussion) may limit actual participation.

In teaching, verbal skills can be improved through situational dialogues and interactive exercises to alleviate the participation barriers in Q11. While emphasizing practical value (such as employment), it is possible to increase the cultivation of interest in language and culture (interested in English and English learning mean 3.83). To address the differences in self-evaluation (having sufficient ability to learn English well, high SD), provide hierarchical learning resources to meet the needs of different levels. In response to the high variability of Q10 (feeling at ease and having a sense of home), diverse forms of group interaction can be designed to enhance a sense of belonging.

6. Conclusion

This research exposes the importance of peer interaction patterns in determining the emotional participation of EFL learners. Interactions characterized by cooperation and facilitation, such as the equality and reciprocity, were most effective to increase WTC and reduce anxiety because of jointly problem-solving. Dominating/passive interactions, in contrast, amplified power distance, limiting involvement, whereas expert / beginner counterparts indicated the dependency threat despite the benefits of scaffolding. The cost-related to alternate roles, even though adaptability was encouraged. Pedagogically, the combination of group work and assigned role rotation might match the linguistic input and emotional equity. Engagement barriers could be mitigated by means of scaffolded resources and supportive group settings that allow to postpone anxiety.

The limitations consist of small effects of L2 proficiency and potential sampling problems, indicating the necessity to verify them by longitudinal or mixed methods. Further studies are required to study moderators in culture and mutual relationships between WTC and language gains. The shifts in focus towards emotional interaction and cognitive achievement, would allow teachers to develop self-reliant, resilient students. Finally, this study promotes the interdependent approach to SLA that unites the interaction dynamics, affective processes and pedagogical practicality by obligating the transition towards emotionally aware language teaching, which will enhance academic and psychosocial performance.

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