



Research article

Peer versus teacher corrections through electronic learning communities and face-to-face classroom interactions and EFL learners' passion for learning, speaking fluency, and accuracy

Xiaomin Li ^a, Wenyan Hu ^{b,*}

^a Department of Foreign Languages, Jinzhong University, Jinzhong, 030619, China

^b Department of Mathematics, Jinzhong University, Jinzhong, 030619, China

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ABSTRACT

This study investigated how different feedback sources, such as teacher and peer correction, affect students learning English as a foreign language (EFL) regarding speaking accuracy, fluency, and academic passion. The effects of online and face-to-face instruction and peer and teacher corrections were investigated in this study using a factorial design. Convenience sampling was used to choose six intact classes from Jinzhong University's Department of Foreign Languages. Academic passion and speaking tests were used before and after the treatment. The data were analyzed using ANOVA tests. The findings showed that peer correction outperformed teacher correction in improving speaking accuracy, fluency, and academic passion.

Additionally, peer correction was more beneficial than receiving no correction at all. Furthermore, teacher correction positively influenced speaking accuracy compared to the non-correction group. The findings also demonstrated that feedback mechanisms have a significant overall impact on speaking accuracy and fluency independent of particular training and correction circumstances. The interaction between instruction and correction was not statistically significant. These findings highlight the crucial role that correction mechanisms play in enhancing speaking accuracy and naturalness, which has important ramifications for language teachers and curriculum designers.

1. Introduction

Numerous academic investigations have compared teacher and peer feedback to assess their utility and differentiate their potential applications within educational assessment. A prevalent trend in the body of research suggests that teacher feedback generally exerts a more pronounced influence than peer feedback, albeit with some degree of variability, while concurrently acknowledging that peer feedback can enhance the learning process [1].

One notable investigation scrutinized the impact of peer and teacher feedback on a cohort of 8 English as a Second Language (ESL) learners from diverse national backgrounds enrolled at a university in the United States. The findings from this study revealed that teacher feedback wielded a substantially more significant influence than peer feedback [2]. Similarly, another study focusing on 11 ESL learners examined the effects of peer and teacher feedback. The outcomes of this study further underscored the favorability of

* Corresponding author.

E-mail addresses: coastmin@163.com (X. Li), hwyjzxy@outlook.com (W. Hu).

teacher feedback, as evidenced by a notable statistic: 87% of feedback provided by teachers resulted in observable changes in the learners' production, while only 51% of peer feedback was found to have a comparable impact [3].

Villamil and De Guerrero investigated Puerto Rico, the results of which posited that "peer feedback had a contributory impact on the quality of writing and also resulted in greater learner autonomy" [4]. This outcome suggests that peer feedback, though less influential than teacher feedback, still holds a valuable role in the educational process by enhancing the quality of written work and fostering learner autonomy.

A subset of studies has drawn attention to the significance of peer feedback, positioning it as a potential solution to mitigate the challenges posed by the constraints of teacher feedback, mainly due to time limitations [5]. These investigations collectively assert that teacher feedback is more likely to exert a discernible impact on students when compared to peer feedback.

In a specific research endeavor conducted by Miao et al. [1], a comprehensive comparison of peer and teacher feedback in the context of written production was undertaken. The findings from this study revealed a distinct preference among learners for instructor feedback, with 90% of instructor feedback being incorporated into their work as opposed to 67% of peer feedback. This disparity can be attributed to the learners' perception of teachers as possessing more excellent professionalism, experience, and trustworthiness than their peers. Additionally, it was noted that peer feedback could have been more consistently well-received by the writers, as it was often perceived as inaccurate or less reliable.

Zhao's work [6] aligns with the prevailing discourse on the comparative analysis of peer and instructor feedback. In this context, Zhao's research explored the likelihood of peer or instructor feedback being incorporated into learners' revisions and delved into which type of feedback was better comprehended. The results unveiled a noteworthy pattern where instructor feedback prompted more revisions than peer feedback. However, it was observed that only 58% of instances involving instructor feedback were discerned to be employed with a genuine perception of their necessity. The investigation further illuminated the disparities in learners' beliefs concerning instructor and peer feedback, with the former being perceived as a requirement and the latter as a suggestion. Learners consistently regarded instructor feedback as more significant and reliable than peer feedback.

Consequently, the study's conclusion reinforced that students incorporated a more significant proportion of instructor feedback, although only sometimes with complete comprehension. This again underlines the predominance of instructor feedback. Nevertheless, it implies that if an equivalent quantity of instructor and peer feedback were integrated, learners would benefit more from peer feedback than teacher feedback.

A study conducted with adult learners examined their responses to peer review and instructor feedback within an English as a Foreign Language (EFL) composition class. Notably, this investigation yielded comparable outcomes for peer and instructor feedback regarding their impact on learners' writing production [7]. The author highlighted that "teacher comments did not seem to influence students' revisions. Due to the students' level (low-intermediate), they might have had a hard time making positive revisions even if they understood teacher feedback" (p. 135). The study attributed the challenge in drawing unequivocal conclusions to the combined factors of the subject matter (writing) and the learners' proficiency level (low-intermediate), suggesting that the students needed to be sufficiently prepared to provide or effectively utilize feedback for meaningful revisions. This study underscores the importance of considering the specific educational context and student proficiency levels when comparing the effectiveness of peer and teacher feedback.

While teacher feedback has demonstrated its efficacy in numerous scenarios, peer feedback possesses distinct advantages over teacher feedback in specific contexts. As Yang et al. [5] noted, peer feedback, despite its comparatively reduced impact, facilitates improvements and fosters student autonomy, rendering it a valuable complement to teacher feedback.

Gibbs [8] argues that one of the merits of peer feedback lies in the quantity and speed of feedback students can receive from their peers, a benefit not typically associated with academic feedback. Moreover, learners can gain valuable insights from both providing and receiving feedback. Another potential advantage of peer feedback over teacher feedback is its capacity to transform the learning process from a private and individual endeavor into a more public and collaborative domain [9]. This transition is particularly potent when considering that the participants in the study are teenagers who place considerable value on their peers' opinions, thus elevating the potential impact of peer feedback.

In general, peer feedback is deemed effective in teaching and learning writing skills, with the added benefit of reducing the workload of EFL teachers while enhancing students' writing proficiency [10]. Oshima and Hogue [11] define peer feedback, or peer editing, as a peer evaluates a classmate's work to enhance its content and organization. Topping, as cited in Ref. [12], adds that peer feedback often occurs when students collaboratively evaluate each other's work using rubrics rather than relying on personal and subjective judgment.

Despite extensive scholarly inquiries into the comparative effectiveness of peer and teacher feedback, particularly in the context of written production, a significant research gap persists regarding the potential impact of these feedback types on English as a Foreign Language (EFL) learners' speaking fluency and accuracy, as well as their passion for learning. Existing studies have primarily focused on written language skills, leaving unexplored terrain in understanding how peer and teacher corrections may shape the development of speaking abilities among EFL learners. Moreover, the literature needs adequate exploration of how the mode of instruction, encompassing electronic learning communities and face-to-face classroom interactions, may intersect with the efficacy of peer and teacher corrections about learners' speaking fluency, accuracy, and overall enthusiasm for language learning. This identified gap underscores the necessity for a comprehensive investigation to unravel the intricate dynamics between instructional settings, feedback types, and their collective influence on EFL learners' speaking proficiency and passion for language acquisition. Closing this gap is imperative for developing targeted language education strategies that accommodate diverse learner needs and preferences.

2. Research objectives

In light of these gaps, this study investigates the nuanced dynamics between peer and teacher corrections, the mode of instruction, and their combined impact on EFL learners' speaking proficiency and their passion for language learning. This research can provide valuable insights into designing and implementing effective language education strategies that cater to diverse learner needs and preferences. Accordingly, the following research questions are raised.

1. Do online and face-to-face peer and teacher corrections statistically impact EFL learners' speaking fluency?
2. Do online and face-to-face peer and teacher corrections statistically impact EFL learners' speaking accuracy?
3. Do online and face-to-face peer and teacher corrections statistically impact EFL learners' passion for learning?

3. Literature review

3.1. E-learning and assessment

E-learning has been a strategic innovation in many higher education institutions [13]. E-learning has also become a significant part of education and has been widely adopted [14,15]. Therefore, using e-learning continuously is crucial to ensuring effective use and positively impacting students. Despite this, various studies [16–18] have highlighted that continued usage by the learner indicates success in e-learning.

The acceptance and continued use of e-learning are critical to the success of e-learning. Although e-learning has been promoted to many consumers, it is frequently phased out of use [19]. The implementation of e-learning is part of a complex change process. A higher education provider may need help incorporating new teaching techniques such as e-learning. Implementing technical technologies in education can often fail because of the new learning habits required [20]. Users' intentions of adopting and using e-learning applications persistently become a new challenge as the number of different e-learning applications increases [21]. Despite the widespread recognition of the value of e-learning over the past decade, many learners discontinue e-learning after initial acceptance [22]. Understanding the factors influencing learners' willingness to continue using e-learning will help system developers and vendors develop the most effective strategies for increasing use [23]. Therefore, the main challenge in e-learning is to increase efforts to achieve continuance use [24].

Online assessments have emerged as a critical concern for educational institutions worldwide, primarily driven by campus closures and the shift away from face-to-face instruction. This transition has necessitated the migration of exams and evaluations to online platforms [25]. Noteworthy advantages associated with online assessment include providing immediate, personalized feedback to aid students in enhancing their understanding and performance. Moreover, it offers the flexibility to access assessments from diverse geographical locations, depending on students' convenience, and allows for multiple attempts, facilitating the evaluation and refinement of their knowledge [26]. Students can effectively undertake take-home exams from the comfort of their homes, enabled by platforms such as Blackboard Learn and Lockdown Browser. Importantly, these solutions incorporate safeguards against third-party software use for cheating, ensuring the integrity and fairness of examinations [27].

A study by Gaftandzhieva [28] delved into the relationship between student attendance and academic performance. The findings revealed a strong correlation between attendance rates and academic achievement. Students with attendance rates exceeding 60% predominantly secured academic grades falling within the "Good" (37.7%), "Very Good" (32.1%), and "Excellent" (18.9%) categories. Additionally, the study identified that assignments and exercises significantly influenced undergraduates' overall grades, as indicated by a logistic regression model. Correlation analysis of survey data unveiled several issues detrimental to online engineering education, including technical challenges, privacy and security concerns, and a deficiency in technological proficiency [29].

Amidst the COVID-19 outbreak, the rapid shift from traditional to online examinations was scrutinized by Bashithalshaaer et al. [30] to explore the challenges and impediments associated with the successful implementation of online exams within distance education. The findings underscored the difficulties confronted by undergraduates and university lecturers alike, encompassing issues related to electricity, internet access, time constraints, skills, and financial resources in conducting online exams during the pandemic. A regression model demonstrated a significant consensus between undergraduates and university lecturers regarding these challenges.

Guangul et al. [31] have identified online presentations as an effective strategy for mitigating academic dishonesty during various online assessments. They mainly serve the purpose of discerning the authenticity of submitted online assessments as students' work. Furthermore, the findings from Choi et al. [32] indicated that the success of online presentations hinges on incorporating blended education to complement learning, thereby enhancing satisfaction, success, and overall quality. Akimov and Malin [33] highlighted the potential of oral examinations in addressing challenges associated with the online learning environment. However, effectively implementing such assessments necessitates meticulous planning to ensure alignment with fundamental principles, including accuracy, quality, and integrity. In addition, Crecelius et al. [34] underscored the value of oral examinations as a robust assessment form for evaluating students' learning and enhancing their communication skills in physiology. This approach also contributes to a reduction in exam grading time. In a related context, Cohen and Sasson [35] analyzed students' behavior and learning outcomes in the context of online quizzes. Their findings, utilizing Linear Regression, demonstrated a significant improvement in student scores and reduced performance time during the final attempts of online quizzes compared to their initial efforts.

3.2. Peer correction and speaking fluency and accuracy

In the realm of L2 and FL language learning, particularly in speaking skills, a body of research is dedicated to exploring Corrective Feedback (CF), with a particular emphasis on its role in fostering grammatical accuracy [36–38]. These studies suggest that CF significantly improves learners' oral accuracy, a trend substantiated by the higher post-test scores observed within experimental groups. Moreover, CF has been identified as a valuable tool for enhancing spoken accuracy, as demonstrated in studies by Chu [39] and Chehr Azad et al. [40]. Despite variations in the contexts of these studies, a common thread emerges: CF exerts a positive influence on enhancing learners' spoken accuracy.

In a complementary vein, Tesnim's research [41] delves into the impact of oral CF on learners' speaking skills. Notably, immediate and explicit oral CF is found to have a positive effect on the grammatical development of EFL learners. However, it has a limited impact on other dimensions of verbal English skills, such as vocabulary, phonological proficiency, and fluency. A notable finding within this landscape is the effectiveness of recasts, which significantly contribute to phonological acquisition and mastery [42]. Similarly, Zakian's work [43] underscores the substantial impact of recasts on speaking accuracy and the willingness to communicate among Iranian EFL students. In summary, an extensive body of research strongly supports the pivotal role of CF in L2 acquisition and linguistic accuracy, particularly within a focus-on-form instructional context, by directing learners' attention to linguistic gaps [44]. CF is a cornerstone of the L2 and FL acquisition process.

Peer feedback is another influential element in enhancing oral production and promoting accurate and contextually appropriate speech [45,46]. For instance, in Japan, Sato and Ballinger's investigation [47] encompassed high school classes stratified by proficiency levels. Their study included groups exposed to feedback training and communicative tasks, a group solely assigned to communicative tasks, and a control group. Significantly, the feedback group excelled in both accuracy and fluency. Additionally, students in the lowest proficiency class engaged in more collaborative interactions, suggesting peer feedback enhances learning opportunities for students with lower proficiency levels.

In Iraq, Khoram et al. [45] conducted an experimental study involving high school students with intermediate-level proficiency in English as a foreign language. In this context, peers provided feedback on their classmates' errors, resulting in noticeable improvements in speech accuracy across various linguistic structures, including past tense, subject-verb agreement, articles, and prepositions.

Further afield, in Ecuador, Valdiviezo's investigation [46] revolved around implementing peer feedback and its impact on oral production. The study involved students in the seventh semester of the National and Foreign Languages Pedagogy Career at the Technical University of Ambato, with a proficiency level of B1 according to the Common European Framework of Reference for Languages (CEFR). Pre- and post-tests assessed participants based on an oral evaluation rubric, ultimately revealing an enhancement in English language oral production.

Lastly, in New Zealand, Harris and Brown [48] shed light on the nuances of peer feedback, highlighting how its accuracy is influenced by factors such as friendship, peer hate, or the level of experience. The researchers also underscored the necessity of tailored scaffolding for different levels of achievers; higher-achieving students effectively employed more abstract criteria, whereas lower-achieving students, often referred to as "naughtier," benefited from highly structured support, such as checklists. The study participants comprised middle-school students with proficiency levels ranging from A2 to B1.

3.3. Learners' passion

Passion for learning is a pivotal educational factor, significantly influencing the learning process. Academic passion, in particular, is intricately linked with academic self-regulation, constituting a fundamental driver of educational success. Intellectual passion can be defined as the degree of enthusiasm and dedication a student channels into their academic pursuits and the resulting effectiveness and productivity [49,50]. It represents a psychological facet of learners, encompassing their proactive efforts to acquire new skills and their inclination to elevate their level of achievement. Such hunger can lead to active engagement in educational activities, effective adaptation to the learning environment, and constructive interactions with instructors and fellow learners [51].

Research indicates that individuals are more likely to excel in acquiring a second language when they approach the task with passion and enthusiasm [52]. The study of the passion construct has predominantly occurred within the Dualistic Model of Passion (DMP) [52–55]. The DMP posits the existence of two distinct forms of passion: Harmonious Passion (HP) and Obsessive Passion (OP), each contributing to different pathways that yield both positive and negative outcomes. While the DMP has been previously applied to various life domains such as sports, social activities, teaching, and leisure, its application in language learning has received relatively limited attention [52]. For instance, Chen et al. [56] investigated the roles of HP and OP in the Chinese EFL context and found that compared to OP, HP more effectively predicts learning goals and the flow of L2. Furthermore, the flow experience in L2 learning mediated the impact of both HP and OP on learners' willingness to communicate.

In summary, the DMP conceptually frames passion as a profound inclination toward a specific concept, object, individual, or activity, prompting individuals to invest regular time and energy into that pursuit [52]. Passion is not solely activity-focused, encompassing other dimensions related to the activity, such as individuals (e.g., a native speaker) or specific goals (e.g., language acquisition). It is inherently motivational, reflecting aspirations, goals, inclinations, impulses, and orientations toward a perceived favorable purpose. However, it should be noted that passion can also lead to adverse consequences, including loss of individual control, relentless persistence, emotional challenges, and a decline in well-being. Therefore, the DMP comprises the two previously discussed forms of passion, HP and OP, with the primary distinction being the internalization of the passionate activity. As proposed by Vallerand [52], the difference is chiefly rooted in the internalization process of the intense activity.

HP emanates from an autonomously internalized connection with activities integrated into an individual's identity. Drawing

insights from self-determination theory [57], autonomous internalization characterizes people who perceive a task as meaningful and valuable. This internalization arises from the self and aligns with an individual's identity, fostering motivational efforts related to engagement in the activity. HP further boosts feelings of autonomy and encourages the pursuit of meaningful tasks [58]. Those exhibiting high levels of HP tend to be deeply immersed in the activity, maintaining a non-defensive attitude [58]. Consequently, individuals with substantial HP can fully engage in the task and experience positive outcomes during and after task execution.

In contrast, as posited by Vallerand et al. [59], OP is rooted in a controlled internalization of an activity, implying that the activity is not entirely internalized within the self. As Brown and Ryan [60] and Ryan and Deci [61] explain, associated contingencies, such as social pressure or uncontrollable excitement stemming from task engagement, may be linked to the task. Thus, while OP encompasses passion for a specific task, individuals with high OP may grapple with conflicting motivations and risk losing the state of flow [55,62].

4. Research method

4.1. Participants

A total of six intact classes were involved in this research, with each class comprising 26 undergraduate students. Participants were selected deliberately to ensure the study had an adequate sample size for robust analysis. The classes were chosen from the Department of Foreign Languages, Jinzhong University in China. It is important to note that this study focused on 156 undergraduate students, with an equal distribution of 26 students in each of the six classes. The participants were all taking speaking courses, and based on their scores on speaking tests administered at the onset of the study, they were homogenous. The participants' passion for learning was also at a different level. All participants knew the study's purpose and signed the informed consent form.

4.2. Instrumentation

A speaking module from the IELTS test was adopted to assess the speaking accuracy and fluency of the students. This module consisted of a structured set of questions and prompts to evaluate the student's language proficiency—two independent raters who carefully considered the students' responses and assessed their speaking accuracy and fluency. The inter-rater reliability for speaking fluency and accuracy, both at the beginning and the end of the treatment, exceeded acceptable levels, with a reliability coefficient exceeding 0.83.

A standard questionnaire on academic passion, originally designed and developed by Fredricks et al., in 2004, was used to measure the passion for learning. This questionnaire included 15 items and employed a five-point Likert scale, ranging from "never" to "forever." The questionnaire covered a range of questions related to academic passion, including behavioral passion (questions 1, 2, 3, and 4), emotional desire (questions 5, 6, 7, 8, 9, and 10), and cognitive passion (questions 11, 12, 13, 14, and 15). The questionnaire's validity and reliability had been previously examined and confirmed by Bagheri et al., in 2019.

5. Method and procedure

This study employed a quasi-experimental research design to investigate the influence of peer and teacher corrections on speaking fluency, accuracy, and passion for learning among English as a Foreign Language (EFL) learners. The design facilitated comparisons among five groups: online peer correction, face-to-face peer correction, online teacher correction, face-to-face correction, and online/face-to-face classes with no correction, serving as the control group. This approach enabled an exploration of correction impacts on the specified variables while maintaining control over potential confounding factors. A total of six intact classes, each comprising 26 undergraduate students, participated in the research, deliberately chosen to represent a diverse cross-section of undergraduate students, ensuring homogeneity in their initial speaking test scores. All participants, totaling 156 undergraduate students, were informed of the study's purpose and consented. Speaking accuracy and fluency were assessed using a speaking module from the IELTS test, rated independently by two assessors with high inter-rater reliability (reliability coefficient >0.83). A standard academic passion questionnaire with 15 items, utilizing a five-point Likert scale, was employed to gauge passion for learning. This questionnaire covered

Table 1
Descriptive statistics of the groups' scores on speaking fluency and accuracy.

Instruction	correction	Mean	SD	N
Online	peer	20.84	2.78	26
	teacher	19.80	1.47	26
	no correction	17.69	1.54	26
	Total	19.44	2.40	78
Face-to-face	peer	20.46	1.50	26
	teacher	18.50	1.20	26
	no correction	15.8846	1.14	26
	Total	20.65	2.2	52
Total	peer	19.13	1.48	52
	teacher	16.78	1.62	52
	no correction	18.85	2.405	52
	Total			156

behavioral, emotional, and cognitive passion aspects with established validity and reliability. Statistical analyses, including descriptive statistics (Mean, SD), ANOVA, and a post-hoc test (Bonferroni), were applied to examine correction effects on speaking fluency, accuracy, and passion for learning across different groups. All assumptions of the ANOVA test, such as homogeneity of variances and normality assumptions, were checked before conducting ANOVA tests. The study adhered to ethical considerations, ensuring informed consent, privacy, and confidentiality. This comprehensive research procedure facilitated a systematic investigation into the impact of peer and teacher corrections on EFL learners.

6. Results

6.1. Research question 1

The first research question sought to examine how online and face-to-face corrections by teachers and peers affect the speaking fluency of EFL learners. The scores of these groups were analyzed through an ANOVA test, and the outcomes, including descriptive statistics, ANOVA results, and the Bonferroni test for post hoc analysis, have been documented in [Tables 1–3](#).

As seen in [Table 1](#), EFL learners who received online instruction and peer correction had the highest mean speaking fluency score of 20.84 (SD = 2.78). Those who received online instruction and teacher correction scored slightly lower, with a mean of 19.80 (SD = 1.47). In contrast, the group that received online instruction with no correction had the lowest mean of 17.69 (SD = 1.54). EFL learners in the face-to-face instruction group also showed variations in speaking fluency scores. The group that received peer correction had a higher mean of 20.46 (SD = 1.50), while the teacher correction group had a mean of 18.50 (SD = 1.20). The group with face-to-face instruction and no correction had the lowest mean of 15.88 (SD = 1.14). When considering the total impact of instruction and correction across both online and face-to-face settings, the group with online instruction and peer correction had the highest overall mean speaking fluency score of 20.65 (SD = 2.20). The group with online instruction and teacher correction had a combined mean of 19.13 (SD = 1.48). The group with online instruction and no correction had a combined mean of 16.78 (SD = 1.62).

[Table 2](#) shows a significant main effect for the overall model, $F(5, 149) = 31.863, p < .001, \eta^2 = 0.517$. This indicates that the combination of instruction and correction significantly affected the dependent variable (speaking fluency). The main effect of teaching was also significant, $F(1, 149) = 18.169, p < .001, \eta^2 = 0.109$. It indicates that different instruction methods had a substantial impact on speaking fluency. Similarly, the main effect of correction was highly significant, $F(2, 149) = 68.309, p < .001, \eta^2 = 0.478$. This suggests that the type of correction applied significantly influenced speaking fluency. However, the interaction between instruction and correction was not statistically significant, $F(2, 149) = 2.339, p = .100, \eta^2 = 0.030$. This implies that the combined effect of instruction and correction did not reach statistical significance.

The Bonferroni test evaluated the differences in speaking fluency scores between different correction methods. Specifically, it compared the means of the three correction groups: peer correction, teacher correction, and no correction; results are presented in [Table 3](#).

As seen in [Table 3](#), the mean difference between peer and teacher correction was statistically significant ($p < .001$). On average, participants who received peer correction had speaking fluency scores that were approximately higher than those who received teacher correction (Mean difference = 1.51). Similarly, the mean difference between peer and no correction was statistically significant ($p < .001$). The peer correction group participants had significantly higher speaking fluency scores (Mean difference = 3.86) compared to those in the no-correction group. Finally, the mean difference between teacher correction and no correction was also statistically significant ($p < .001$). On average, participants who received teacher correction had speaking fluency scores higher than those who received no correction (Mean difference = 2.34).

6.2. Research question 2

The second research question sought to examine how online and face-to-face corrections by teachers and peers affect the speaking accuracy of EFL learners. The scores of these groups were analyzed through an ANOVA test, and the outcomes, including descriptive statistics, ANOVA results, and the Bonferroni test for post hoc analysis, have been documented in [Tables 4–6](#).

As seen in [Table 4](#), EFL learners who received online instruction with peer correction had the highest mean speaking fluency score of 22.26 (SD = 1.77); Those who received online instruction with teacher correction had a slightly lower mean of 20.28 (SD = 1.17);

Table 2

Results of the ANOVA test for comparing the groups' scores on the speaking fluency test.

Source	Type III Sum of Squares	Df	MS	F	Sig.	Partial Eta Squared
Corrected Model	460.339 ^a	5	92.068	31.863	.000	.517
Intercept	55145.643	1	55145.6	19084.708	.000	.992
Instruction	52.500	1	52.500	18.169	.000	.109
Correction	394.763	2	197.38	68.309	.000	.478
instruction * correction	13.519	2	6.759	2.339	.100	.030
Error	430.538	149	2.890			
Total	56013.000	155				
Corrected Total	890.877	154				

^a R Squared = .517 (Adjusted R Squared = .501).

Table 3

Bonferroni test for comparing the groups' scores.

(I) correction	(J) correction	Mean Difference (I-J)	Std. Error	Sig.
Peer	Teacher	1.516	.33	.001
	no correction	3.86	.33	.001
Teacher	no correction	2.34	.33	.001

Table 4

Descriptive statistics of the groups' scores on speaking accuracy.

Instruction	Correction	Mean	SD	N
Online	Peer	22.26	1.77	26
	Teacher	20.28	1.17	26
	no correction	17.88	1.36	26
	Total	20.14	2.32	78
Face to face	Peer	20.84	1.59	26
	Teacher	18.76	1.36	26
	no correction	16.11	1.47	26
	Total	18.57	2.43	78
Total	Peer	21.55	1.81	52
	Teacher	19.50	1.47	52
	no correction	17.0	1.66	52
	Total	19.35	2.49	156

Table 5

Results of the ANOVA test for comparing the groups' scores on the speaking fluency test.

Source	Type III SS	df	MS	F	Sig.	Partial Eta Squared
Corrected Model	638	5	127.6	58.780	.001	.664
Intercept	58087.6	1	58087.6	26757.5	.001	.994
Instruction	95.214	1	95.21	43.859	.001	.227
Correction	542.153	2	271.076	124.869	.001	.626
instruction * correction	.841	2	.421	.194	.824	.003
Error	323.463	149	2.171			
Total	59026	155				
Corrected Total	961.484	154				

^a. R Squared = 0.664 (Adjusted R Squared = 0.652).

Table 6

Bonferroni test for comparing the groups' scores.

(I) correction	(J) correction	Mean Difference (I-J)	Std. Error	Sig.
Peer	Teacher	2.04	.29037	.000
	no correction	4.55	.28896	.000
teacher	no correction	2.50	.29037	.000

The group that received online instruction with no correction had the lowest mean of 17.88 (SD = 1.36); and the overall mean for online instruction was 20.14 (SD = 2.32). However, EFL learners in the face-to-face instruction group who received peer correction had a mean speaking fluency score of 20.84 (SD = 1.59); those who received teacher correction in the face-to-face setting had a mean of 18.76 (SD = 1.36); the group with face-to-face instruction and no correction had the lowest mean of 16.11 (SD = 1.47), and the overall mean for face-to-face instruction was 18.57 (SD = 2.43).

As seen in Table 5, a highly significant main effect was observed for the overall model, [$F(5, 149) = 58.780, p < .001, \eta^2 = 0.66$] indicating that the combined influence of instruction and correction significantly affects the dependent variable, speaking fluency. The effect size, as measured by η^2 , is substantial, accounting for 66.4% of the variance in the dependent variable. The main effect of instruction was also significant, [$F(1, 149) = 43.859, p < .001, \eta^2 = 0.22$] with a moderate effect size. This implies that different instruction methods significantly influence speaking fluency. The main effect of correction was highly significant, [$F(2, 149) = 124.869, p < .001, \eta^2 = 0.626$] with a substantial effect size indicating that the type of correction applied significantly affects speaking fluency. However, the interaction between instruction and correction was not statistically significant, [$F(2, 149) = 0.194, p = .824, \eta^2 = 0.003$] with a tiny effect size, suggesting that the combined effect of instruction and correction did not reach statistical significance. A post hoc test (Bonferroni) was run to locate the sources of the difference. Results are presented in Table 6.

As seen in Table 6, the difference between the peer correction group and the teacher group was statistically significant ($p < .001$), favoring the peer group. The difference between the teacher group and no correction was significant, favoring the teacher group ($p < .001$).

.001).

6.3. Research question 3

The third research question sought to examine how online and face-to-face corrections by teachers and peers affect the academic passion of EFL learners. The scores of these groups were analyzed through an ANOVA test, and the outcomes, including descriptive statistics, ANOVA results, and the Bonferroni test for post hoc analysis, have been documented in Tables 7–9.

As seen in Table 7, EFL learners who received online instruction with peer correction had the highest mean speaking fluency score of 4.51(SD = 0.41); those who received online instruction with teacher correction had a slightly lower mean of 3.76 (SD = .057). The group that received online instruction with no correction had the lowest mean of 3.10(SD = 0.69). The overall mean for online instruction was 3.82(SD = 0.79). Results also show that EFL learners in the face-to-face instruction group who received peer correction had a mean speaking fluency score of 4.22(SD = 0.72). Those who received teacher correction in the face-to-face setting had a mean of 3.71 (SD = 0.56). Also, the group with face-to-face instruction and no correction recorded a mean of 3.34(SD = 0.74); the overall mean for face-to-face instruction was 3.76, with a moderate SD of 0.76. When considering the total impact across both online and face-to-face settings, the group with peer correction had the highest overall mean speaking fluency score of 4.37(SD = 0.60); the group with teacher correction had a mean of 3.7 (SD = 0.56); the group with no correction had the lowest mean of 3.2692(SD = 0.71). The overall mean across all groups was 3.7930 (SD = 0.77).

Results of ANOVA, as shown in Table 8, indicate a highly significant main effect for the overall model [(F (5, 149) = 16.6, $p < .001$, partial $\eta^2 = 0.35$)]. This suggests that the combined impact of instruction and correction significantly affects academic passion, which, in this context, is of utmost interest. The effect size is considerable, accounting for 35.9% of the variance in the dependent variable. Although the main effect of instruction is present, it is not statistically significant [(F (1, 149) = 0.376, $p = .541$, partial $\eta^2 = 0.003$)], and the effect size, as indicated by Partial Eta Squared, is minimal. This suggests that different instruction methods do not significantly impact the dependent variable. In contrast, the main effect of correction is significant [(F (2, 149) = 39.9, $p < .001$), with a substantial effect size (partial $\eta^2 = 0.349$). This demonstrates that the type of correction employed significantly influences the dependent variable. Moreover, the interaction between instruction and correction is not statistically significant (F (2, 149) = 1.621, $p = .201$, partial $\eta^2 = 0.021$), and the effect size is small. This implies that the combined effect of instruction and correction does not yield statistically significant differences.

A post hoc test (Bonferroni) was run to locate the sources of the difference. Results are presented in Table 9.

As seen in Table 9, the difference between the peer correction and teacher groups was statistically significant ($p < .001$), favoring the peer group. The difference between the teacher group and no correction was significant, favoring the teacher group ($p < .001$).

7. Discussion

The findings of this study provide valuable insights into the effects of various feedback sources on speaking fluency and accuracy among EFL learners. While the statistical analysis revealed the impact of instruction and correction, the discussion will refrain from reiterating these statistical findings and, instead, focus on interpreting these results and grounding them in existing literature. The significant main effect observed in the statistical analysis indicates that the combination of instruction and correction strategies significantly influences speaking fluency. This aligns with several studies in second language acquisition that have explored the impact of feedback mechanisms on language learning. For instance, Miao et al. [1], Connor and Asenavage [2], and Paulus [3] have examined the efficacy of peer and teacher feedback in improving various aspects of language skills. These studies have highlighted the role of feedback in enhancing language acquisition. The present study’s findings corroborate the importance of correction strategies and instruction methods in the EFL learning context.

Furthermore, the high significance of the intercept underscores the substantial overall effect on speaking fluency, irrespective of specific instruction or correction conditions. This outcome resonates with research by Villamil and De Guerrero [4] and Yang et al. [5], which has explored the role of peer and teacher feedback in language learning. The combined impact of peer and teacher feedback on

Table 7
Descriptive statistics of the groups’ scores on academic passion.

Instruction	Correction	Mean	SD	N
Online	peer	4.51	.41	26
	teacher	3.76	.57	26
	no correction	3.1	.69	26
	Total	3.82	.79	78
Face to Face	peer	4.22	.72	26
	Teacher	3.71	.56	26
	no correction	3.34	.74	26
	Total	3.76	.76	78
Total	peer	4.37	.60	52
	Teacher	3.73	.56	51
	no correction	3.26	.717	52
	Total	3.79	.77	156

Table 8

Results of the ANOVA test for comparing the groups' scores on academic passion.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	33.4	5	6.681	16.6	.000	.359
Intercept	2229	1	2229	5571	.000	.974
Instruction	.150	1	.150	.376	.541	.003
Correction	31.9	2	15.9	39.9	.000	.349
instruction * correction	1.298	2	.649	1.621	.201	.021
Error	59.616	149	.400			
Total	2323.019	155				
Corrected Total	93.020	154				

a. R Squared = 0.359 (Adjusted R Squared = 0.338).

Table 9

Bonferroni test for comparing the groups' scores on academic passion.

(I) correction	(J) correction	Mean Difference (I-J)	Std. Error	Sig.
Peer	Teacher	.63	.124	.000
	no correction	1.10	.124	.000
Teacher	no correction	.46	.124	.001

language acquisition has been examined extensively, and these studies have contributed to our understanding of the overall influence of feedback sources on language learning. Moreover, second language acquisition and the role of corrective feedback have been studied extensively. Research by Ellis [44] has explored the effects of implicit and explicit corrective feedback on language accuracy. Studies have demonstrated that corrective feedback, whether provided by teachers or peers, contributes to learners' language accuracy and fluency [38–40].

The results of the third research question, which focused on the impact of instruction and correction type on academic passion, reveal important insights into the role of feedback sources in cultivating passion for academic pursuits. This discussion will interpret these findings and place them in the context of existing literature. The significant main effect observed in the ANOVA indicates that the combination of instruction and correction strategies significantly influences academic passion. These findings resonate with previous research on academic motivation and passion [52,56]. The substantial effect size (35.9%), as indicated by Partial Eta Squared, emphasizes the importance of feedback mechanisms in nurturing academic passion among students.

The findings of this study strongly validate Schmidt's (2001) proposition that corrective feedback (CF), especially in the form of negative feedback, plays a crucial role in helping learners recognize distinctions between their inter-language forms and the target language forms. This recognition, as per Schmidt (2001, p.13), contributes to facilitating the process of second language acquisition. However, Schmidt also emphasized that mere noticing is insufficient for acquisition; learners must actively and consciously attend to and notice input for it to become intake in the context of L2 learning. This underscores the significance of providing CF as a pivotal strategy for directing learners' attention to their errors, promoting self-awareness, and thereby fostering the development of inter-language. Nevertheless, the effectiveness of this process is contingent upon the learners' varying levels of consciousness.

The intercept, representing the baseline condition, is highly significant, with an almost complete effect on academic passion. This outcome underscores the overarching influence of academic passion, irrespective of specific instruction or correction conditions. Such a strong overall impact aligns with the dualistic model of passion proposed by Vallerand and colleagues [52–55]. This model suggests that academic passion is a fundamental driver of student engagement and motivation, with the potential to transcend the effects of instructional variations. However, the main effect of instruction was not statistically significant, and the effect size was minimal. This implies that different instruction methods, in this particular context, do not exert a substantial influence on academic passion. This finding may seem counterintuitive, as various instructional strategies are known to impact students' motivation [61]. It is essential to consider the specificity of the context and the intricacies of academic passion when interpreting this result.

In contrast, the main effect of correction was highly significant, with a substantial effect size. This suggests that the type of correction employed significantly influences academic passion. This finding aligns with studies that have examined the role of correction mechanisms and feedback in motivating and engaging students [25,57]. These studies highlight the potential of feedback, including correction, in enhancing students' enthusiasm for their academic endeavors. Despite the individual impacts of instruction and correction, the interaction between these two factors was not statistically significant. This indicates that, in the context of this study, the combined effect of instruction and correction did not yield statistically significant differences in academic passion. This result may be due to the complexity of these two factors and the specific conditions under which they were applied.

This study has yielded valuable insights into the influence of feedback sources on speaking fluency and accuracy among EFL learners. The findings emphasize the substantial impact of instruction and correction strategies on speaking fluency, highlighting their significance in language learning contexts. The study underscores the overarching effect of these feedback sources on the students' language skills and the vital role they play in the language acquisition process. The results suggest that instruction and correction are potent determinants of speaking fluency and accuracy. They are aligned with prior research examining the influence of feedback mechanisms in language learning [1–3]. These findings underscore the importance of feedback sources, both from instructors and peers, in fostering language development among EFL learners.

While instruction and correction had individual impacts, their interaction was not statistically significant. Although only partially expected, this result is consistent with previous work, such as Zhao's [6] investigation of the combined effect of peer and teacher feedback in a Chinese EFL writing classroom. The joint influence of instruction and correction may not always yield significant differences, highlighting the nuanced nature of feedback mechanisms in language learning. Feedback from either teachers or peers was influential in fostering the EFL/ESL learners' language skills, autonomy, and self-efficacy [63,64]. By reducing the language learners' text anxiety, feedback contributes to the language learners' performance on different tasks [65].

The cultivation of academic passion among learners is a multifaceted process influenced by various factors. Cultural elements play a significant role in shaping individuals' attitudes towards education and language learning. Learners' personal backgrounds, including their prior exposure to languages and diverse linguistic influences, can impact their enthusiasm for acquiring a new language. Additionally, the teaching environment and instructional methods employed in EFL courses contribute significantly to the development of academic passion. Engaging, student-centered teaching approaches that connect language learning to real-world contexts and students' interests can foster a sense of relevance and excitement. Beyond the classroom, external motivational factors, such as extracurricular activities, supportive peer relationships, and encouragement from educators, play pivotal roles in shaping learners' passion for academic pursuits. Understanding and addressing these multifaceted influences can guide educators and curriculum designers in creating environments that not only facilitate language acquisition but also ignite and sustain learners' genuine enthusiasm for the educational journey.

Specifically, the results emphasize the substantial impact of both peer and teacher correction on speaking fluency, accuracy, and academic passion among EFL learners. Language educators can incorporate peer correction sessions into classroom activities, fostering a collaborative learning environment that encourages students to engage with each other's language production actively. Moreover, teachers should consider providing timely and constructive feedback that addresses both accuracy and fluency aspects, aligning with the study's indication of the positive influence of correction strategies on these language skills. By tailoring correction methods to the specific needs of learners and leveraging the insights from this study, educators can create a more effective and dynamic language learning experience for their students.

8. Implications

The study's findings offer valuable insights with practical implications for language educators and curriculum designers in the realm of EFL-speaking courses. Language instructors can enhance their teaching methodologies by incorporating a combination of instruction and correction strategies, leveraging targeted corrective feedback—both implicit and explicit—to improve speaking fluency and accuracy. By tailoring instructional approaches to integrate effective correction methods, educators can design activities that provide a comprehensive learning experience, encouraging peer feedback and self-correction. This diversified approach to feedback not only promotes learner autonomy and self-awareness but also contributes to a more enriched language development process. Curriculum designers are encouraged to create passion-driven learning environments by integrating elements that nurture students' enthusiasm for the language and aligning courses with motivational theories like the dualistic model of passion. Professional development opportunities for educators focused on effective correction strategies can further enhance the overall quality of language instruction. Recognizing the specificity of the context, educators should tailor instruction to the unique characteristics and needs of learners, encouraging reflective practices and self-assessment. In summary, the study underscores the importance of a balanced, diversified, and context-specific approach to correction and instruction in EFL speaking courses, ultimately leading to a more effective and engaging language learning experience for students.

9. Limitations and suggestions for further studies

While this study provides valuable insights into the comparative impact of peer and teacher corrections on EFL learners' passion for learning, speaking fluency, and accuracy, it is crucial to acknowledge and address several limitations. Firstly, the study's focus on undergraduate students within a specific university in China raises concerns about the generalizability of the findings to more diverse learner populations or educational settings. Recognizing this limitation adds transparency and prompts caution in applying the results universally. Moreover, the reliance on self-reported measures for passion for learning introduces the potential for response bias, highlighting a need for caution when interpreting the results related to learners' emotional engagement. Additionally, the study, while exploring passion in the context of correction modes, did not delve into the broader motivational factors influencing language learning, representing a gap that future research could address. To enhance the study's robustness, future research endeavors may benefit from longitudinal designs to assess the sustainability of passion development over time and explore the intricate interplay between correction modes and various motivational aspects. Furthermore, investigating the influence of cultural and contextual factors on EFL learners' responses to different correction approaches could contribute to a more comprehensive understanding of effective language teaching strategies.

Ethical approval consent

The ethical approval committee of Jinzhong University approved the study (No: 2023.1611), indicating that the study was conducted in line with the guidelines and ethical considerations of the institute. All subjects gave their informed consent for inclusion before participating in the study.

Data availability

The author declares that the data will be available upon the request from the corresponding author.

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CRediT authorship contribution statement

Xiaomin Li: Supervision, Methodology, Conceptualization. **Wenyan Hu:** Writing – original draft, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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