

Examining the effects of peer tutoring on learners' English reading achievement in a township middle school of China

Binbin Wu 

School of Education, Shanghai Normal University Tianhua College, Shanghai, China
lorna202307@163.com

Abstract

With this study I examined the effects of a peer tutoring intervention on the English reading achievement of 1st-grade learners in a Chinese township middle school. Many studies show the relationship between self-esteem and peer tutoring interventions. We examined the moderation of self-esteem on the impact of a 12-week intervention. Eighty-five 1st-grade learners in a township middle school participated in this quasi-experimental study. The control group consisted of 42 learners, and the experimental group consisted of 43 learners. The Cambridge Young Learners English tests for Flyers (YLE Flyers) was used to assess learners' English reading achievement. The modified Coopersmith self-esteem inventory – school form (CSEI-SF) was used to measure learners' self-esteem. The results do not show a statistically significant impact of the peer tutoring intervention between the control and experimental groups. Neither learners' initial English reading achievement nor their initial self-esteem moderated the impact of the peer tutoring intervention on their reading. However, an increase in learners' English reading in the peer tutoring group was clear although it was not statistically significant. The findings shed light on the future implementation and research of peer tutoring in China and South Africa. Future peer tutoring studies could focus on the duration of interventions, participants' gender, teacher education and experience, as well as the urban/rural location.

Keywords: English reading; intervention; peer tutoring; self-esteem; teaching

Introduction

In this study I implemented a peer tutoring intervention to examine whether a constructivist-based teaching method was effective in a Chinese township school context. In China, the grammar-translation and audio-lingual methods are two dominant foreign language teaching approaches (Li, JCh 2021). The two methods do not foster a learner-centred learning environment. Learners in the grammar-translation and audio-lingual classrooms have few chances to construct knowledge. However, constructivist learning theories encourage the active participation of learners in the learning process and constructivist teaching approaches develop learner-centred learning contexts. Constructivists believe that learners are active constructors of knowledge instead of passive receivers of knowledge. Teachers are facilitators and helpers who assist learners in obtaining knowledge during the learning process. Many theoretical discussions about constructivism exist, but few practical studies of applying constructivism in the classroom have been done. This study sheds light on the future implementation and research on peer tutoring in China.

With its foundation rooted in Vygotsky's (1978) zone of proximal development (ZPD), peer tutoring is a learner-centred instructional model characterised by learners' specific role-taking as tutor or tutee (Topping, 2005). Vygotsky suggests that independent problem-solving determines the actual development level while problem-solving with the help of an adult or more skilled peer determines the level of potential development (Vygotsky, 1978). Hence, peer tutoring can serve as a complement to traditional teaching methods.

In this study I implemented a peer tutoring intervention to examine whether a constructivist-based teaching method was effective in the Chinese context. The purpose with this study was to examine the effects of a peer tutoring intervention on the English reading of first-grade Chinese middle school learners. First grade in middle school is equivalent to Grade 7 in the South African context. Chinese children typically begin learning English in the third grade in elementary school. They practice listening, speaking, reading, and writing skills simultaneously. First graders in Chinese middle schools have learned English for 4 years. The teaching content in Chinese middle schools is the same. However, pedagogy varies significantly, depending on the school and regional context. In general, the teaching philosophy is more conservative in the Chinese township context. I found that the tutors and the tutees appreciated participating in the peer tutoring programme and valued the time spent with peers (Ghaith, 2003). The findings indicate that peer tutoring can lead to improvements in the self-esteem of both tutees and tutors (Capp, Benbenishty, Astor & Pineda, 2018). Given that studies on peer tutoring programmes claim that the complementary relationship of learner pairs promoted participants' self-esteem level, I also examined whether learners' initial self-esteem moderated the impact of the intervention on their reading. To date, there have been few studies in China examining the relationship between peer mentoring and self-esteem.

Therefore, I examined the effects of a peer tutoring intervention on the English reading achievement of first-grade middle school learners in China by addressing three key research questions. Firstly, I examined whether participation in a peer tutoring intervention led to an increase in the learners' English reading achievement. Furthermore, I investigated whether learners' initial English reading achievement moderated the

impact of the intervention on their reading outcomes. Lastly, I assessed whether initial self-esteem played a moderating role in the effectiveness of the peer tutoring intervention on learners' reading performance.

Review of Literature

Many reports have been made on the positive effect of peer tutoring on academic and non-academic outcomes worldwide. Topping (1995), a British scholar, made significant contributions to studies on peer tutoring. Topping (1995) invented Cued Spelling, a paired learning strategy focusing on spelling. Since then, studies on the effectiveness of peer tutoring have increased. Several Canadian researchers state that children in the peer tutoring programme demonstrated improved reading competency (Jones, Ostojic, Menard, Picard & Miller, 2017). Mackenzie (2020) examined the effect of peer tutoring on English learning while other researchers studied the effect of peer tutoring on mathematics (Moliner & Alegre, 2022; Petancio, Perez & Javier, 2020). Capp et al. (2018) conducted a study on the impact of peer tutoring on academic and social-emotional performance.

However, fewer than expected peer tutoring studies exist in China and South Africa.

Zuo and Huang (2008) are two pioneering researchers who systematically recommended peer tutoring to Chinese educators in 2008. So far, some theoretical studies on peer tutoring have been conducted, but there have been few practical ones. Nevertheless, most experimental studies have shown the positive effects of peer tutoring. Gao, Ren and Wang (2019) indicate the positive effects of peer tutoring on the experimental class of analytical chemistry. LY Li (2021) reports the advantages of peer tutoring in developing learners' electronic learning (e-learning) competence. Yang (2020) and T Zhang (2019) state the effectiveness of peer tutoring in children's peer interaction. Deng (2017), Lai (2018), and Liu (2018) conducted peer tutoring studies to examine the effectiveness thereof on learning English grammar, writing, and speaking among senior middle school learners. However, few studies have been done in China on the relationship between peer mentoring and self-esteem. In South Africa, the number of studies on peer tutoring is even lower. Munyaradzi Muchineripi (2024) reports on a study on peer-assisted learning in a college but indicates that the process was not effectively administered.

Peer tutoring based on social constructivism is supposed to develop active learners in China and may also be one of the solutions to the reading problems in South Africa. Chinese towns are more traditional than cities. Township schools are characterised by score-oriented teaching evaluation, a shortage of teaching resources, poor quality of teaching staff, and traditionality (Guo & Zhou,

2021; Pei & Guo, 2021; Wan, 2018). Peer tutoring may help develop active learners by overcoming these limitations. In South Africa, many school learners experience reading problems (Condy, 2023; Hugo, 2021; Le Roux, 2021; Phala & Hugo, 2022; Scheckle, 2022). South African scholars have launched studies on improving learners' reading performance in recent years. Researchers found that the mature students who participated in the task-based language teaching programme obtained higher post-test scores than the control groups (Adjei-Mensah, Boakye & Masenge, 2023). To alleviate the reading comprehension crisis in South Africa, Olifant and Boakye (2022) proposed a new model, the Critical Reading Interdependent Literacy Model (CRILM), which is suitable to be used from Grade 4 and beyond. Boakye (2021) states that a significant number of first-year students improved their reading proficiency after the use of role play. Castillo and Wagner (2019) developed a 2-year multimedia reading programme for rural South African children in Grade 1 to 3 and found that the programme had a positive impact on children's reading. The study on guided reading revealed a significant improvement in Grade 9 English learners' reading proficiency in the intervention group (Thage, Mokgosi & Mthembu, 2021). Mgijima (2021) found that the reading comprehension of Grade 4 learners had been improved after they used translanguaging techniques to make predictions on how events described in a text might unfold. Translanguaging techniques refer to pedagogical practices in a multilingual context in which learners receive input in one language and give output in a different one (Mgijima, 2021). In conclusion, peer tutoring studies are needed to examine its effectiveness in Chinese township schools. Considering the reading problems experienced by South African learners, peer tutoring studies may provide evidence-based interventions for improved reading outcomes.

Theoretical Framework

This study is based on the theoretical framework of social constructivism and Vygotsky's (1978) zone of proximal development (ZPD). The grammar-translation method increases learners' consciousness of the grammatical rules of the target language primarily through teachers' didactic lectures (Larsen-Freeman, 2000). Thus, the grammar-translation method is teacher-centred. The audio-lingual method emphasises the role of language teachers as models of the target language (Larsen-Freeman, 2000). Teachers' authority in audio-lingual classrooms is indispensable. However, social constructivism emphasises the role of learners in the learning process. Vygotsky's ZPD is an important theory of social constructivism. Vygotsky (1978) defines the ZPD as the distance between the actual development level and the level

of potential development. He encourages cooperative learning activities where more capable peers aid less competent companions. Peer tutoring is a learner-centred instructional approach in which learners are engaged in the learning process through a complementary relationship between learner pairs. Peer tutoring follows a scaffolding sequence. The tutors provide the necessary assistance to the tutees, guiding them from their current developmental level to their potential. Vygotsky's ZPD provides a structured theoretical implication for peer tutoring, which could be an effective complement to teacher-centred teaching methods in Chinese middle schools and may also be one of the solutions for the reading problems in South Africa.

Methodology

Research Design

I used a quasi-experimental design in this study to investigate whether peer tutoring interventions increased the English reading achievement of first-grade middle school learners in China and to determine the impact of their initial English reading skills and self-esteem on reading outcomes. At the

school where this study was conducted, one teacher taught two classes at the same grade level. The two classes taught were randomly assigned as the control group and the peer tutoring group. The participants and their legal guardians signed informed consent forms before the intervention, indicating their understanding and willingness to participate in the study.

Population and Sample

Of the total number of 511 first-grade learners in the relevant Chinese middle school, 85 learners were selected to participate in this study. Forty-two learners were in the control group and 43 in the experimental group. GPower was used to do a power analysis. The recommended sample size was 73, with effect size $f^2 = 0.15$, $\alpha = 0.05$, and Power = 0.90. Hence, the sample of 85 learners in this study was adequate. Table 1 presents the participants' characteristics based on gender and socio-economic status (SES). No statistically significant differences were found between learners in the intervention and control groups regarding gender and SES.

Table 1 Participant characteristics

Variable		Peer tutoring group ($n = 43$)			Control group ($n = 42$)		
		<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Gender	Female	21			19		
	Male	22			23		
SES	Father's education level		9.535	2.004		9.571	1.655
	Annual family income		7.379	3.968		8.852	6.150

Note. For Father's education level, units of *M* and *SD* are in years; for "Annual family income", units of *M* and *SD* are in 10,000 yuan (RMB).

Gender

Table 1 shows a relatively small gender distribution in the two groups. The peer tutoring group included 21 females and 22 males, while the control group included 19 females and 23 males. The slight variation in the number of males and females between the groups was not substantial and I expected that it would not significantly affect the analysis of outcomes related to peer tutoring.

Education level

The average education level of fathers in both groups was quite similar. In the peer tutoring group, the average was 9.535 years ($SD = 2.004$), while in the control group, it was 9.571 years ($SD = 1.655$), thus no significant differences in parental education between the two groups, which helped ensure that any observed effects of peer tutoring were not influenced by significant disparities in parental education levels.

Annual family income

For Annual family income, units of *M* and *SD* are in 10,000 yuan. The average annual family income of families was 73,790 yuan ($SD = 3.968$), while

the control group had a higher average income of 88,520 yuan ($SD = 6.150$). The results show a notable difference between the groups' income levels. However, this difference did not play a role in the study outcomes.

Sampling Method

I employed the convenience sampling method in the study. A middle school principal was willing to enhance the peer tutoring programme in his school to improve learners' English reading. He introduced two teachers, but one of the teachers withdrew midway due to a lack of confidence in implementing the peer tutoring intervention. The teacher who participated in the study taught two classes of 85 learners in total. One class was randomly assigned as the experimental group, while the other class was randomly assigned as the control group.

Setting

The intervention was implemented in a township middle school, located in the south of the Jiangsu province in China. The Jiangsu province is one of the well-developed provinces on the east coast of

China. The school was a medium-sized public school with 1,537 learners and 148 staff. There were 36 classes of 40 learners each across three grade levels, which is approximately equivalent to Grade 7, 8 and 9 in South Africa. The first language of all the learners was Chinese, with English being the foreign language they typically started learning in the third grade of elementary school.

Data Collection

The following discussion outlines the instruments used to collect data in the study.

Cambridge Young Learners English Tests for Flyers (YLE Flyers)

The Cambridge Young Learners English Tests for Flyers (YLE Flyers) was used to assess learners' English reading achievement. The YLE Flyers is the highest level of the Young Learners English Tests provided by the University of Cambridge for English speakers of other language (ESOL) examinations (Cambridge ESOL). The YLE Flyers is for learners aged 9 to 12 years. It includes three sections: 1) listening, 2) speaking, and 3) reading and writing. The reading and writing section was used in this study to assess the learners' reading achievement. This section includes seven passages, each followed by five or 10 multiple-choice or fill-in-the-blank exercises. Learners would get one point if they offered a correct answer to a question. The total raw score for the reading and writing section was 50 points. The raw score was used to analyse the data. Test-retest reliability of the reading and writing section in the YLE Flyers was .90. Both versions of the YLE Flyers, Test A and Test B,

were used to assess learners' English reading achievement. The control and intervention groups both completed Test A for pre-testing and Test B for post-testing. The classroom teacher graded all pre- and post-tests.

Coopersmith self-esteem inventory – school form (CSEI-SF)

The modified CSEI-SF was used to measure learners' self-esteem. The CSEI-SF is one of the most widely used measures of self-esteem (Hills, Francis & Jennings, 2011; Özer & Korkman, 2022; Özer & Odacı, 2020; Savi Çakar & Karataş, 2012; Savi Çakar & Tagay, 2017). The CSEI-SF has 58 items and contains five subscales related to 1) general self, 2) social self-peers, 3) home parents, 4) school academic, and 5) the lie subscale. The full version of CSEI-SF was used but also modified to include eight additional items. Because the focus of the intervention was on learning English as a foreign language, the additional eight items were specifically on English achievement. The items were modifications of the original eight items focusing on the school domain, resulting in a total of 66 items. Table 2 shows an example of how the original item (A) was modified (B). A pilot study was implemented to assess the reliability of the modified CSEI-SF. The alpha reliability of the modified CSEI-SF was .746 – more than the reliability of the original four subscales, which was .685. Hence, the modified CSEI-SF was adopted in the formal study. Before proceeding with the pilot study, the back translation method was used to ensure the authenticity of the original measure.

Table 2 A statement relative to the school domain in the modified CSEI-SF

A.	I find it very hard to talk in front of the class.
B.	I find it very hard to talk in front of an <i>English class</i> .

Paired Reading Programme

The intervention used in this study was a modified version of the paired reading protocol, which is grounded in peer tutoring that fosters learner-centred learning by means of a complementary relationship between learner pairs (Topping, Miller, Thurston, McGavock & Conlin, 2011). For the paired reading intervention, learners participated in 20-minute in-class peer tutoring sessions 36 times in 3 months conducted in their regular classrooms. First-grade middle school learners typically attend six 45-minute English lessons each week, which are scheduled in the mornings. Hence, the three 20-minute peer tutoring sessions for the intervention occurred three times a week during the learners' regular English classes.

Pairing learners

Because the peer tutoring format in this study was cross-ability, a rank-ordered method was used to pair learners as tutor and tutee. The learners

participating in the intervention were ranked according to their scores on the Cambridge YLE Flyers. The ranked-ordered list was divided in half. The highest-performing learner of the top half was paired with the highest-performing learner of the bottom half; the second highest-performing learner of the top half was paired with the second highest-performing learner of the bottom half, and so on. Learner pairs sat together during each session of the intervention.

Monitoring and feedback

After every set of twelve 20-minute sessions, the teacher scheduled a classroom meeting of approximately 30 minutes to reward or to provide learners with feedback according to the five-item multiple-choice quizzes, the observation forms, and their diaries to evaluate the intervention and to motivate learners.

After each 20-minute session, the tutor and tutee of each pair finished a five-item multiple-

choice quiz individually. The teacher graded the quizzes and after every set of twelve 20-minute sessions, praised the pairs in which the tutee made progress, and the tutor did not lag.

During each 20-minute peer tutoring session, I randomly observed two or three pairs to complete the observation form to document how faithfully each pair followed the protocol. In this way, I could monitor the implementation of each peer tutoring session. Additionally, learner pairs were required to complete the diary form after each 20-minute session to reflect on the knowledge the tutor had taught and the knowledge the tutee had learned during the intervention. At the 30-minute classroom meetings, the teacher or I would make suggestions based on the learner pairs' quizzes, observation forms, and learner diaries.

Twenty-minute peer tutoring intervention

In each 20-minute intervention session, the tutors sat on the right-hand side of the tutees to remind the teacher of their roles as tutor. A typical 20-minute session of peer tutoring (after they were trained) included 18 minutes of paired reading and a 2-minute quiz that learners would complete individually. The quiz had five multiple-choice questions related to the pages they had read.

A detailed description of what occurred during each component of the 18-minute paired reading session is presented below. The teacher monitored the entire 18-minute paired reading session and was ready to help the tutors if they were confronted with strange words.

Preparing

The tutor and the tutee sat together and looked at the same page of the book so that both the tutor and the tutee could easily follow the same content.

Reading together

- The tutor first read the text with the tutee in a regular voice. The tutor would adjust his or her reading speed to match the tutee's speed. To avoid excessive noise in the classroom, the learners would read at a level only audible to their partners.
- If the tutee committed a reading error and skipped a word or line, the tutor would point this out and set aside 4 seconds for the tutee to do self-correction. If the tutee self-corrected successfully, the tutor and the tutee would continue reading together. If the tutee hesitated for more than 4 seconds, the tutor would pronounce the word and have the tutee repeat the word three times to ensure that the tutee could read that word correctly. They would then continue reading together.
- If the tutee did not make any reading errors while reading together, the tutor would praise him or her

and discuss any difficult sentences to ensure that the tutee had a complete understanding of the story.

Reading alone

- If, while reading together, the tutee felt that he or she could read the upcoming passage independently, he would use the "stop" signal, and the tutor would stop reading aloud and instead follow along silently as the tutee continued with the oral reading. The tutor would praise the tutee for good reading. They would discuss difficult sentences to ensure that both had a complete understanding of the story.
- If the tutee made a reading error while reading alone, the tutor would follow the same procedure as for during reading together. However, if the tutee succeeded in self-correcting the reading error, the tutee could continue reading independently, instead of reading together with the tutor.

During an 18-minute paired reading session, the tutor mostly read together with the tutee. Only if the tutee gave the "stop" signal, the tutor would stop to let the tutee read alone. Once the tutee made a reading error and was unable to self-correct it, the tutor again read together with the tutee. Learner pairs would continue the cycle until the text for the day was completed.

Training

The training consisted of two components, one for the classroom teacher who did the intervention and the other for the learners in the intervention group. The classroom teacher who taught the intervention class received training in a single 60-minute session. This session aimed to familiarise him or her with the 20-minute peer tutoring session, provide guidance on arranging the intervention, and create a 10-minute peer tutoring video highlighting key aspects of the full 20-minute session. The teacher was instructed not to provide any information on the experiment to the intervention or control groups. The training assisted learners in the intervention group to become more skilled in cooperative learning and the paired reading involved three 45-minute sessions.

Data Analysis

Table 3 lists all the variables for this study, including control, outcome, and predictor variables. The scores from the YLE Flyers were used to assess the learners' reading achievement. The scores from the modified CSEI-SF were used to assess learners' self-esteem. The fathers' educational level and the annual income of his family were used to determine an indicator of the participant's SES. Pre-tests and post-tests were used to assess the impact of the intervention. The sequential multiple regression analysis was used to address the research questions.

Table 3 Variables used in analyses, their descriptions, and coding categories

Variable	Description	Coding
Control variables:		
Gender	Gender	0 = Female 1 = Male
Father's education	Father's educational level	Years
Annual family income	Annual family income	10,000 yuan (RMB)
Outcome variable:		
MCSEI-SF	The modified Coopersmith self-esteem inventory – school form	Raw number
YLE Flyers	Young learners English Test for Flyers	Raw number
Predictor variable:		
PT	Peer tutoring	0 = Control group 1 = Peer tutoring intervention group

As is shown in Table 3, the data was coded based on the demographic variables. For gender, female was coded as 0, and male as 1 in SPSS. The control group was coded 0, and the intervention group 1 in SPSS. Fathers' educational level was recorded in years of education completed. The family's annual income was recorded in units of 10,000 yuan. The raw numbers of both the self-esteem inventory and the learners' English reading performance were used in the statistical calculation.

Results

The focus of the research questions (RQs) was whether a peer tutoring intervention affected learners' English reading achievement. Independent sample *t*-tests were used to conduct a comparative analysis of learners' YLE Flyers. Multiple regression can be used to explain variation in a dependent variable due to multiple independent or control variables. Hence, the sequential multiple regression analysis was used to address RQs.

Table 4 Comparative analysis of learners' YLE Flyers

Table 1. Comparison analysis of learners' TAEs by gender						
Variable	Peer tutoring group (<i>n</i> = 43)		Control group (<i>n</i> = 42)		Sig.	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Pre-test						
Female	22.19	8.974	22.55	7.865	0.844	
	<i>n</i> = 21		<i>n</i> = 19			
Male	25.52	8.292	26.26	6.090		
	<i>n</i> = 22		<i>n</i> = 23			
	19.00	8.591	19.48	7.948		
Post-test						
Female	26.33	8.742	25.00	9.467	0.504	
	<i>n</i> = 21		<i>n</i> = 19			
Male	29.71	7.205	29.21	7.779		
	<i>n</i> = 22		<i>n</i> = 23			
	23.09	8.997	21.52	9.462		

Pre- and Post-tests of Learners' YLE Flyers

Table 4 presents the pre-test and post-test YLE Flyers scores of the peer tutoring group (*n* = 43) and the control group (*n* = 42), along with gender-specific results. In the pre-test, the peer tutoring group achieved a mean score of 22.19 (*SD* = 8.974), while the control group scored slightly higher with a mean of 22.55 (*SD* = 7.865); the difference was not statistically significant (*p* = 0.844). When broken down by gender, female learners in both groups performed similarly, with mean scores of 25.52 and 26.26 respectively. Male learners in both groups scored lower, with means of 19.00 (peer tutoring) and 19.48 (control). In the post-test, both groups showed improvement. The peer tutoring group achieved a mean score of 26.33 (*SD* = 8.742), while the control group scored 25.00 (*SD* = 9.467); again, the difference was not statistically significant (*p* = 0.504). In both groups

the females showed consistently higher performances compared to their male counterparts, with post-test scores of 29.71 (peer tutoring) and 29.21 (control). The findings show that female learners outperformed male learners in both the pre-test and post-test YLE Flyers scores in both groups.

Effects on Learners' English Reading Achievement

The focus of the first RQ was on whether the peer tutoring intervention had increased the learner's English reading achievement, controlled for their father's educational level, the families' annual income, gender, and learners' initial English reading achievement. The independent variable for this question was whether learners attended the peer tutoring intervention. The independent variable was dummy coded: 0 = no participation (control), 1 = participation (treatment). The four control variables were entered into the multiple regression

equation first, and then the independent variable was entered (see Table 5).

Table 5 Effects on learners' reading achievement

Step	Variables	B	SE B	ΔR^2	R^2
1				.572***	.572
	Father's educational level	-.044	-.009		
	Annual family income	.000	.000		
	Female	2.159	.119		
	Initial English reading achievement	.759	.702***		
2				.007	.580
	Father's educational level	-.064	-.013		
	Annual family income	.026	.015		
	Female	2.013	.111		
	Initial English reading achievement	.762	.705***		
	Peer tutoring	1.565	.087		

Note. * $p < .05$, ** $p < .01$, *** $p \leq .001$.

The overall regression, which contained the linear combination of both control and independent variables, with a multiple correlation of $R = .761$, was statistically significant, $F(5, 79) = 21.780$, $p < .001$. Whether learners participated in the peer tutoring intervention individually explained an additional but statistically insignificant 0.7% of the variance in English reading achievement, $\beta = .087$, $t = 1.172$, $p = .245$. Statistical significance was not shown for learners' SES and gender but was shown for learners' initial English achievement. The lower the learners' initial English achievement scores, the lower their English achievement scores were after the intervention. Similarly, the higher the learners' initial English achievement scores were, the better their post-test English achievement scores were.

Moderating Effects of Initial English Reading Achievement on English Reading

Whether learners' initial English reading achievement moderated the impact of the intervention on their reading was the focus of the second RQ. Before the regression was conducted, the continuous variable, learners' initial English reading achievement, was centred first, and then a cross-product term was created by multiplying the centred variable with peer tutoring. Learners' SES and gender were entered into the regression equation in the first step, followed by the centred initial English achievement and peer tutoring, and then the interaction term of the centred achievement and peer tutoring.

Table 6 Moderating effects of initial reading achievement

Step	Variables	B	SE B	ΔR^2	R^2
1				.159**	.159
	Father's educational level	.148	.013		
	Annual family income	.030	.013		
	Female	7.105	.393***		
2				.420***	.580
	Father's educational level	-.064	-.013		
	Annual family income	.026	.015		
	Female	2.013	.111		
	Peer tutoring	1.565	.087		
	Initial English reading achievement (centred)	.762	.705***		
3				.005	.585
	Father's educational level	-.054	-.011		
	Annual family income	.006	.003		
	Female	1.968	.109		
	Peer tutoring	1.543	.085		
	Initial English reading achievement (centred)	.858	.794***		
	Peer tutoring by initial English reading	-.164	-.115		

Note. * $p < .05$, ** $p < .01$, *** $p \leq .001$.

As shown in Table 6, the interaction term did not make a statistically significant contribution to the overall model, including the moderator and control variables, $F(1, 78) = 1.030$, $p = .313$. The learners' initial reading achievement, together with peer tutoring, accounted for 42% of the variance in reading achievement. The interaction term

accounted for only 0.5% of the variance. As with the first RQ, only learners' initial English reading achievement was significant, $p < .001$. Hence, learners' initial English reading achievement did not moderate the impact of the peer tutoring intervention on their reading.

Moderating Effects of Initial Self-esteem on English Reading

Whether the learners' initial self-esteem moderated the impact of the intervention on their reading was the focus of the third RQ. Before the regression was conducted, the learners' initial self-esteem was centred first, and then a cross-product term was

created by multiplying the centred variable with peer tutoring. The learners' SES and gender were entered into the regression equation in the first step, followed by the centred initial self-esteem and peer tutoring and the interaction term of the centred self-esteem and peer tutoring.

Table 7 Moderating effects of initial self-esteem

Step	Variables	B	SE B	ΔR^2	R^2
1				.159**	.159
	Father's educational level	.148	.013		
	Annual family income	.030	.013		
	Female	7.105	.393***		
2				.135***	.294
	Father's educational level	-.022	-.005		
	Annual family income	.000	.000		
	Female	7.228	.400***		
	Peer tutoring	1.796	.100		
	Initial self-esteem (centred)	.460	.367***		
3				.000	.294
	Father's educational level	-.021	-.004		
	Annual family income	-.002	.000		
	Female	7.241	.401***		
	Peer tutoring	1.796	.100		
	Initial self-esteem (centred)	.473	.378**		
	Peer tutoring by initial self-esteem	-.025	-.015		

Note. * $p < .05$, ** $p < .01$, *** $p \leq .001$.

As shown in Table 7, the interaction term did not make a statistically significant contribution to the overall model, with the moderator and control variables, $F(1, 78) = .011$, $p = .918$. The learners' initial self-esteem, together with the peer tutoring, accounted for 13.5% of the variance in reading achievement. The interaction term contributed almost nothing to the variance in learners' reading achievement. Gender and learners' initial self-esteem were significant among the predictors. Hence, learners' initial self-esteem did not moderate the impact of the peer tutoring intervention on their reading.

Discussion

The purpose of this study was to examine the effects of a peer tutoring intervention on the English reading of first-grade Chinese township middle school learners. The peer tutoring intervention did not significantly increase middle-school learners' English reading achievement, and neither their initial English reading nor their initial self-esteem moderated this impact. An increment in learners' English reading was shown in the peer tutoring group, although it was not statistically significant. The mean of the learners' English reading in the intervention group ($M = 26.33$) was higher than the mean in the control group ($M = 25.00$), although their initial reading ($M = 22.19$) was lower than that in the control group ($M = 22.55$). The higher mean scores of the intervention group correspond with the findings of studies on peer tutoring interventions

(Mackenzie, 2020; Moliner & Alegre, 2022; Petancio et al., 2020). However, in this study, peer tutoring increased learners' English reading scores, but not to statistically significant levels that were reported in the literature.

The insignificant differences between the intervention and control groups may be due to the characteristics of Chinese township schools. In this study, the population was from a township middle school in China. Firstly, the test score was the only standard for evaluating the teaching process (Wan, 2018). Learners usually sit for six or seven tests each semester. Among those tests, four or five are monthly; one is in the middle of a semester, and another is at the end of a semester. The scores of those tests determine a teacher's opportunities for promotion as well as their salary. Secondly, the overemphasis on test scores led most teachers to avoid using teaching resources that are not relevant to the textbooks. In this study, one English teacher withdrew midway because she felt anxious about the time spent reading English storybooks instead of textbooks. Thirdly, the initial educational level of English teachers working in small towns is relatively low (Pei & Guo, 2021). Some began to work after high school. Others received their secondary education after middle school. Only a small percentage of English teachers in township middle schools obtained bachelor's degrees (Wan, 2018). In the fourth instance, teachers' educational background may make them hesitant to implement innovative practices in their classrooms. Most

teachers lack confidence using anything but traditional foreign language teaching methods that they have relied on for many years. In this study, the teacher of the peer tutoring group felt confused about only being a facilitator during the initial intervention process. She argued that the complementary relationship between the tutor and the tutee might be helpful, but not as helpful as reported in the foreign literature.

We suggest that the educational investment in Chinese township schools is increased to avoid learners pursuing higher test scores. More educational resources can alleviate the burden on teachers and learners, allowing them the time and energy to innovate. The State Council of the People's Republic of China (2001) issued the Decision on Reform and Development of Basic Education that highlights the education for all-round development, i.e., to promote ideological and moral education and develop learners' spirit of innovation and practical abilities to fulfil their development in morality, intelligence, and physique. The policy of "Double Reduction" (The State Council of the People's Republic of China, 2021:para. 20) issued in 2021 emphasises the roles of schools in learners' all-around development. Therefore, the administration of schools should acknowledge that higher test scores do not necessarily predict future career success and should help learners develop in an all-around way. The teaching staff should be offered more chances to receive in-service training in constructivism and other new teaching concepts. With the support of the government and the administration of schools, teachers, after training, must be confident to implement new teaching concepts into their classes.

In South Africa, researchers have conducted studies on reading problems, yielding similar findings on the learning environment. Hugo (2021) states that teachers need to learn how to change and adapt reading methods. The author appeals for more studies on the problems with teaching reading in the classroom, specifically. Phala and Hugo (2022) examined the reading problems experienced by Grade 3 learners. These authors found that a lack of reading material, parental support, large classes, and unprepared teaching staff led to reading problems. South African scholars also dedicate themselves to solving the problems. Scheckle (2022) suggests that classroom reading clubs should be set up in historically disadvantaged schools to create a reading-friendly environment. The South African government will undoubtedly be indispensable in solving the reading problems.

As the impact of the intervention on learners' English reading was examined, statistical significance was shown for learners' initial English achievement. The lower the learners' initial English achievement scores were, the lower their English achievement scores were after the intervention.

Similarly, the higher the learners' initial English achievement scores were, the better their post-test English achievement scores were. The significant positive correlation between learners' initial English reading and their post-test English reading reveals that learners' English reading was predicted by their initial English reading instead of the intervention. A 3-month peer tutoring intervention might be so transitory that there were no significant effects after the intervention. A peer tutoring intervention of 6 months or even 1 year, could be done in future to evaluate the effects of peer tutoring, especially in conservative township middle schools.

As the moderating effects of learners' initial self-esteem were examined, gender was significant among the predictors. Gender had a large effect on learners' English reading achievement (female learners achieved at a higher level than male learners) ($\beta = .40$). Female learners' superior achievement in foreign language learning can be explained in terms of their physiological features and characteristics as learners. Above all, as for the visual ability to recognise words, females are superior to males because their left hemisphere develops earlier than that of males during their adolescence (Zhu, 1990). In terms of their linguistic intelligence, female learners outperformed male learners. Ma (2021) studied the English scores of all eighth-grade learners in the Jiangsu province. The author found that females were significantly superior to males in their linguistic intelligence. J Zhang (2022) states that female college learners had higher English reading scores than males. Females' positive learning attitudes, lower foreign language learning anxiety, and introspection personality also lead to superior English performance (Shen, 2022). Hence, peer tutoring as a learning strategy to improve learners' English reading can benefit males more because they perform worse in foreign language learning in many studies.

Conclusion

Many studies worldwide have shown the effectiveness of peer tutoring. However, limited research was done in South Africa and China. This peer tutoring study on English reading was implemented in a Chinese township school. It may help develop the social constructivist learning environment in China and provide one solution for South Africa's reading problems.

In this study, the peer tutoring intervention did not significantly increase middle-school learners' English reading achievement, and neither their initial English reading nor their initial self-esteem moderated this impact. However, an increment of learners' English reading in the peer tutoring condition was clear, although it was not statistically significant. In addition, the significant positive correlation of learners' initial English reading with

their post-test English reading reveals that learners' English reading was predicted by their initial English reading. The influence of gender on learner outcomes was also significant among the predictors. Female learners' superior achievement in foreign language learning can be explained by their physiological features and characteristics as learners.

This study sheds light on the future implementation and research on peer tutoring in South Africa and China. Firstly, the peer tutoring intervention of 3 months in this study was too short to produce significant effects, as observed in other studies. A peer tutoring intervention of 6 months to 1 year should be more suitable for evaluating the effects on learner outcomes. Future studies on peer tutoring can be designed to compare the effects of peer tutoring on males and females. In this study, females outperformed males in English reading. Peer tutoring may benefit males' English reading skills because their English reading achievement was lower than that of females. Future studies may be designed to compare the effectiveness of peer tutoring in cities and towns. The conservative township context in this study may have led to statistically insignificant results on the effects of peer tutoring. A peer tutoring study conducted in a modern city may have different findings. This study was conducted in a traditional township school and revealed statistically insignificant results between the intervention and control groups.

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Notes

- i. RMB stands for renminbi, which is the official currency of the People's Republic of China, and its basic unit is the yuan (¥).
- ii. Published under a Creative Commons Attribution Licence.
- iii. DATES: Received: 3 August 2023; Revised: 7 October 2025; Accepted: 24 November 2025; Published: 31 May 2026.

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