

Reading Cooperatively or Independently? Study on ELL Student Reading Development

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ABSTRACT

This study examines the effectiveness of cooperative reading teaching activities and independent reading activities for English language learner (ELL) students at 4th grade level. Based on simple linear regression and correlational analyses of data collected from two large data bases, PIRLS and NAEP, the study found that cooperative reading activities such as small group intervention and pair work were not effective for intermediate grade level ELL students as assumed. Instead, independent reading such as silent reading and reading books of students' own choice improved ELL students' English reading proficiency. The study lends empirical support to the assumption that ELL students may use their first language reading experience and skills in their second language reading.

INTRODUCTION

In the United States, public schools always face a challenge of how to develop ELL students' reading proficiency. ELL students, that is, students whose first language is different from English, consistently show poor reading performance (Nation's Report Card, 2009). To help ELL students develop essential reading skills, policymakers recommended guidelines to teachers involved in teaching ELL students (Gersten et al., 2007). Because the reading activities recommended in the guideline were developed theoretically based on research on English-as-a-first-language reading (Bernhardt, 1991), it is questionable whether they are effective for ELL students to develop English-as-a-second-language reading skills. This study explores how the recommended cooperative reading activities such as small group intervention and pair work influence ELL students' reading comprehension. It is assumed that ELL students can hardly process high order reading comprehension in cooperative reading activities because their first language reading experience may be ignored when teachers use these activities as remedial treatment for low-achieving students and teach ELL students as kids without any literacy experience (Gerber et al., 2004). Different from cooperative reading activities, independent reading activities such as silent reading and reading books of one's own choice are assumed to allow students to select their own books and read silently without the pressure of being challenged with teachers' intervention or peers' questions (Krashen, 2011). Thus, such reading activities may help ELL readers transfer their first language reading experiences to second language reading (Adams, 1994).

Following the above assumptions, it is necessary to examine whether it is cooperative reading or independent reading that is more effective for ELL students, especially ELL students

at intermediate grade level, a level at which ELL students are beginning to shift from “learning to reading to reading to learn” (Chall, 1996, p. 37) and have also developed some reading and cultural experience in their first language environments (Wallace, 1992).

Research Questions

This study is developed to explore the above theoretical and empirical issues central to the reading development of ELL students at intermediate level by developing answers to the following research questions:

1. How can small-group reading influence fourth grade ELL students’ reading proficiency?
2. How can pair work reading activity influence fourth grade ELL students’ reading proficiency?
3. How can independent reading influence fourth grade ELL students’ reading proficiency?

Answers to the above questions will offer empirical bases to compare the effects of cooperative and independent reading activities on ELL student reading development. The results examined will be significant for researchers in second language reading for further qualitative studies.

Theoretical Framework

This study is directly motivated by the following theoretical assumptions about reading development emerging from the literature of first language reading development and the challenges from the theoretical perspectives of second language reading development. The research questions are nested in these theoretical contentions and are designed to examine directly each of the reading activities based on these theoretical assumptions and also to examine indirectly each of the assumptions themselves.

Small group and pair work reading teaching activities are recommended to develop ELL student reading comprehension based on several assumptions. First, the recommended teacher-led small group reading intervention and pair work are seen as being effective in developing children’s English phonological knowledge and vocabulary size both of which are crucial for ELL student reading development (Saenz, Fuchs, & Fuchs, 2005). The two reading activities rest on the assumption that carefully structured interactions between two or more students around reading comprehension in second language can engage students in learning to read cooperatively, which is presumably necessary to help ELL students develop reading in English (Calderon, Hertz-Lazarowitz, & Slavin, 1998).

However, limitations are also identified in developing ELL reading comprehension because they fail to take ELL students’ first language literacy experience into consideration while banking on their reading development on the weakest experience that ELL students are developing in second language literacy (Bernhardt, 2005). First, effective readers flexibly manipulate different schemas in their comprehension such as content schema or their background knowledge, formal schema or their knowledge of language structures, vocabulary and grammar, and cultural schema (Nassaji, 2007). The recommended small group and pair work reading activities may press ELL students to use their weakest schemas, e.g., their content, formal, and cultural knowledge in their second language as their English monolingual peers do without taking substantial advantage of the schemas developed in their first language reading, which may

lead to problematic consequences for their reading comprehension (Alptekin, 2006).

Second, reading comprehension is developed through readers' active extraction and construction of text meaning (Mullis, Kennedy, Martin, & Sainsbury, 2006). To successfully extract and construct text meaning, readers need to bring their own understanding as well as the author's intention into the reading process based on their prior knowledge (Nassaji, 2007). ELL students with some first language literacy experience may comprehend text meaning from their own cultural perspectives (Krashen, 1980). While engaged in small groups and pair work, they may be forced "to hide in an instructional setting" and often have "no choice but to comply with the meanings the teacher and group intend them to demonstrate" (Bernhardt, 1991, p. 185). In this sense, independent reading may be more beneficial for ELL children at intermediate or higher grade levels because they can use their knowledge framework and transfer it to the context of their second language reading comprehension (Carrell, 1989). Thus, it is necessary to examine the effectiveness of each of the reading activities and find out which one is most suitable for ELL students' reading development.

LITERATURE REVIEW

Our review of the relevant empirical literature addressing this study's research questions finds that the majority of the empirical research on reading development focused on first language reading, and research on second language reading often imitated research on first language reading (Estrada, 2005). Despite the deficiency of relevant empirical research, our review still identifies a few empirical studies that addressed the effects of each of the reading activities.

Small Group Instruction

Our review confirmed the effectiveness of small group reading instruction for kindergarten or lower grade ELL students. However, with only four studies available, the relationship between small group instruction and intermediate grade level ELL students' reading comprehension was not empirically developed.

Two studies examined the effect of small group intervention on the reading development of lower grade level students. The first study by Kamps et al. (2007) divided half of 318 first and second grade ELL students into experimental group receiving small group instruction and another half into control group receiving regular reading instruction. Based on pre- and post-test measurements, they found that the experimental group outperformed the control group. The second study by Calderon, Hertz-Lazarowitz, and Slavin (1998) placed 222 second and third grade ELL Hispanic children in small group instruction for one and a half hours each day that last one to two years. ANCOVA analysis indicated that the ELL children who were exposed to the small-group invention gained in English reading performance.

Two other studies investigated the effects of small-group reading instruction for ELL children at kindergarten level. One study by Gerber et al. (2004) selected 43 low-performing kindergarten children, who practiced phonological awareness in small groups. The authors noticed that the earlier the kindergarten children received intervention the better they developed basic reading skills. The other study by O'Connor, Bocian, Beebe-Frankenberger, and Linklate (2010) focused on 35 low-achieving ELL kindergarten children, who were treated in a 15-minute pull-out small-group intervention three times per week to reinforce phonological knowledge.

Their findings indicated that the small-group intervention was effective to develop such knowledge.

Although the empirical studies reviewed found the evidence of positive result for small group reading instruction on the development of basic reading skills, the samples selected were lower grade level ELL students who might not develop sufficient first language reading experience. The question of how small group intervention influences reading comprehension for intermediate grade level ELL students is still left unanswered.

Pair Work Reading Instruction

Four empirical studies reviewed in this section examined the influences of pair work on ELL student reading development. McMaster, Kung, Han, and Cao (2008) placed 20 ELL children in the experimental group and 20 ELL and 20 non-ELL children in the control group. In the experimental group, lower-achieving ELL children were paired with higher-achieving ELL children to practice phonological awareness while in the control group, phonological knowledge was taught in whole class format. The analysis of ANCOVA on post-test measures revealed that the experimental group significantly outperformed the control group in phonological knowledge. Saenz, Fuchs, and Fuchs (2005) came to a similar result in a study with fourth to sixth grade Hispanic ELL students. The study divided 12 teachers and their 132 native Spanish-speaking students randomly into the experimental group that implemented pair format reading instruction and the control groups that practiced reading skills in whole class instruction. Findings based on ANOVA indicated that the experimental group exceeded the control group by one standard deviation on the measurement on oral reading fluency. Calhoun, Al Otaiba, Cihak, King, and Avalos (2007) also confirmed this result in their study. They placed 76 second and third grade ELL students either into the experimental group in which a higher-achieving student paired with a lower-achieving one for 30 to 35 minute reading three times a week or into the control group where teachers implemented reading activities in whole group format. After 20 weeks of treatment, the analysis of ANOVA demonstrated experimental groups performed significantly better than the control group in phonological knowledge and oral reading fluency.

Although the studies reviewed showed that pair work reading format could be useful for improving the phonological knowledge of ELL students, their influence on the development of reading comprehension is yet to be verified. These studies were also limited to a particular method and their findings were hardly generalizable due to small sample size (Shanahan & Beck, 2006).

Independent Reading Activity

Our search for empirical studies on the relationship between independent reading and ELL student reading development came with no empirical studies addressing intermediate grade level ELL students. Therefore, we reviewed empirical studies addressing older and adult ELL learners, who are assumed to share similarity with intermediate grade ELL students in terms of first language literacy experience. Our review supported the theoretical assumption that independent reading helped improve ELL students' reading comprehension (Wallace, 1992).

Based on the answers to a survey question collected from 43 international undergraduates studying in the United States, Constantino, Lee, Cho, and Krashen (1997) found that the amount of independent reading significantly differentiated second language learners' performance on TOEFL. Another study by Kweon and Kim (2008) investigated the effect of independent reading

on word acquisition rate and retention percentage. After five weeks, the 12 second language undergraduates under study increased their pure word acquisition by 40%. The third study by Al-Homoud and Schmitt (2009) compared the effects of independent extensive reading and explicitly taught intensive reading on reading comprehension of seventeen 13- to 18-years-old ELL students. After four 50-minute treatments each week for 10 weeks, the extensive group outperformed the intensive group in reading comprehension. A subsequent questionnaire showed that the extensive group also held a more positive attitude towards their learning experience than the intensive group.

The positive relationship between independent reading and English-as-a-second-language reading comprehension may indicate that older ELL students are able to take the advantage of their first language experience and knowledge in their second language reading development. However, because none of the studies addressed ELL students at intermediate grade level, it is necessary to verify the assumption that independent reading such as silent reading and reading books of readers' own choice helps this age group of ELL students develop vocabulary size and eventually reading comprehension. Our study presents one effort to achieve this goal.

RESEARCH METHODS

Research Design

In this study we use quantitative research methods to test how positive relationships between small group, pair work, and independent reading and the fourth grade ELL students' reading comprehension performance can be statistically established. In these relationships, the frequency of teachers' use of each of these reading activities for ELL students is seen as independent variables. The dependent variable is fourth grade ELL students' reading performance on standardized tests that measure their competences in reading comprehension. Because each of our research questions addresses one independent variable, we use simple linear regression, which is suitable to analyze one independent variable each time (Pedhazur, 1997). Simple linear regression determines the statistical significance of each of the predictor variables of the reading activities on the dependent variable of ELL student reading performance in the equation. The following regression equation is used to address the research questions and the null hypotheses: $Y' = \alpha + \beta X_i$, where Y' is the predicted value of ELL students' reading achievement, α is the Y intercept, β is the unstandardized coefficient for the predictor variable calculated from the regression analysis, and X_i is the raw value for a predictor variable. Besides simple linear regression, we also use correlational analyses and we explore how each of the independent variables is correlated to dependent variables (Hinkle, Wiersma, & Jurs, 1988).

Data Source

We draw the fourth grade ELL student data from two large-scale data sets for our study. One is international—the Progress in International Reading Literacy Study (PIRLS)—and the other is national—the National Assessment of Educational Progress (NAEP). We select the two databases based on their similarities.

First, both PIRLS and NAEP are large-scale assessment studies designed to provide information about fourth grade students' reading performance to teachers and policymakers by linking reading achievement to the contexts in which learning takes place (Binkley & Kelly,

2003). Their samples are both large and more representational for ELL populations at fourth grade level in the United States.

PIRLS used a sampling strategy known as probability-proportional-to-size sampling, a technique that guarantees the chances of selecting a member from a smaller subgroup is more than from a large subgroup (Rutkowski, Gonzalez, Joncas, & von Davier, 2010). With this sampling strategy, PIRLS secured an average sample size of 5,190 fourth grade students all over the United States in its 2006 administration, the most recent available data (Baer, Baldi, Ayotte, & Green, 2007). Along with the reading test, PIRLS also asked participant students to answer survey questions, which helped us identify participants' ELL status with earlier literacy experience (Joncas, 2007). Altogether we identified 351 ELL students and used them as representative sample in our study.

NAEP also used probability-proportional-to-size sampling method for random sampling based on percentage of minority students. One of the survey questions attached to NAEP is for the principal of the selected students to identify ELL student status and to decide whether they have formal schooling at home country. According to the participating school principals' response to the questions, about 8% of the selected students are identified as sample for our study (Nation's Report Card, 2009).

Second, in both PIRLS and NAEP the selected students are asked to answer the survey questions regarding their teachers' reading teaching activities. The participants' answers to these questions are used to construct the independent variables for our study.

Third, both PIRLS and NEAP define and assess reading comprehension similarly. For example, both assess reading performance for two purposes, i.e., reading for literary experience and reading for information (Rutkowski, Gonzalez, Joncas, & von Davier, 2010).

Finally, both data sets employ plausible value methods, which are used as intermediate values to estimate population reading proficiency instead of participating students' reading proficiency (Mislevy, 1991; Mazzeo, Johnson, & Olson, 1994). Such an approach is seen as "a viable technique for generating population-level proficiency estimates from test designs where only a small number of items from the total item pool are administered to any given student" (Rutkowski, Gonzalez, Joncas, & von Davier, 2010, p. 145).

PIRLS and NAEP are also different from each other in several ways that are useful in helping examine the research questions. First, PIRLS is designed to exclusively measure fourth grade student reading attainment in an international context and provides the information for comparative estimates of students' reading attainment at the country level. The advantage of using PIRLS is that its data are based on an explicitly defined population of fourth grade students, who participate in PIRLS only for the assessment of their reading proficiency. Different from PIRLS, NAEP is for national assessment of diverse subjects. With the largest sample size, NAEP is recognized as "a congressionally mandated survey designed to measure what U.S. students know and can do" (Johnson, 1992, p. 95). Also because of the availability of data over many years, we use NAEP data for the advantage of long-term trend analysis to find out whether or not the results are consistent.

Another difference is the availability of data for analysis, which is one of the important reasons for us to include both PIRLS and NAEP. PIRLS data are open to public for various levels of analyses including regression but the sample size of ELL students is not big compared with NAEP. As a national assessment, NAEP addresses the differences of student ethnical and racial subgroups based on U.S. students' composition (NABG, 2008). Thus it includes a large ELL student sample size. But NAEP restricts personal access to its data within basic analysis.

Due to this restriction, we can only analyze correlational relationship between selected variables and student reading achievement. The use of both data sets provides wider representative samples and compensate for the constraints that each of the data sets may incur.

Construction of Independent Variables

Our study constructs the independent variables in three categories, that is, small-group instruction, pair work, and independent reading. We analyze the independent variables separately. Tables 1 and 2 show how variables of PIRLS and NEAP are constructed.

Table 1. Student Level Variables of Reading Activities and Relevant Items (PIRLS)

Variables	Items	Item Coding
Small group instruction	Students reading in small groups	1=Never or almost never; 2=Once or twice a month; 3=Once or twice a week; 4=Every day or almost every day
Pair work	Ask students to talk with other about what they have read	
Independent reading	Ask students to read silently on their own Give students time to read books of their own choosing	

Table 2. Student Level of Reading Activities and Relevant Items (NAEP)

Variables	Items	Item Responses
Small-group intervention	Divide class into the following instructional groups.	Whole class activity; Flexible grouping; 2, 3,4 or 5 groups
Pair work	Ask students to talk with each other about what they have read.	Almost every day; 1-2 times a week; 1-2 times a month; Never or hardly ever.
Independent reading	Ask students to read silently. Ask students to read books of own choice	Almost every day; 1-2 times a week; 1-2 times a month; Never or hardly ever.

RESULTS

Based on the analysis described above, we came up with several results. In this section, we will present each of these results one by one.

Effects of Small Group Reading Instruction

Our analysis showed significantly negative relationship between small group instruction and ELL student reading performance. The regression coefficient output on Table 3, $b = -15.744$, $t(344) = -4.651$, $p < .001$, means that the more frequently teachers taught reading in small group format, the lower the participants' reading score was in PIRLS data. For example, the participants' reading score decreased by 15.744 points per unit, e.g. from once or twice a week to every day or almost every day.

Table 3. Small Group Reading Instruction and ELL Student Reading Achievement in PIRLS Data ($N = 345$).

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
	<i>B</i>	Std. Error	Beta		
1 (Constant)	470.994	10.613	-	44.378	.000
SCH/READ IN GROUP	-15.744	3.385	-.244	-4.651	.000*

* $p < .05$

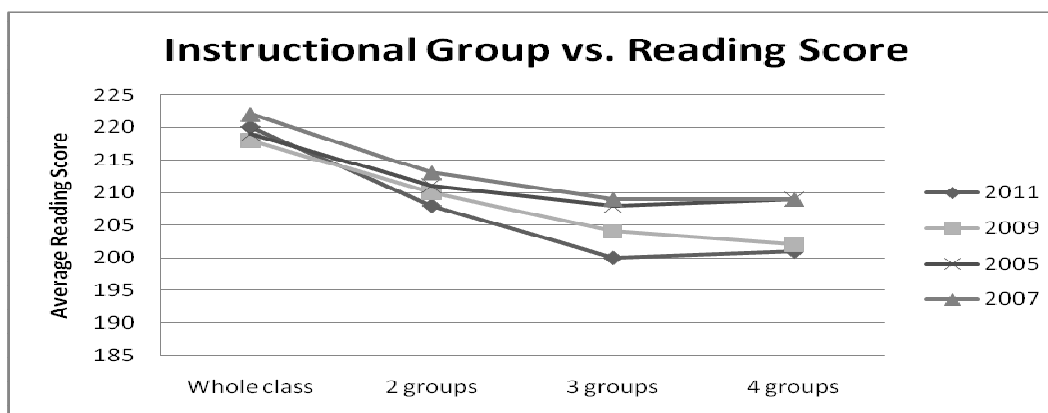
Second, according to Table 4, over the four continuous NAEP tests (2011, 2009, 2007, and 2005), participants whose teachers taught reading in whole class had significantly the highest average score (220 points) compared with those whose teachers taught in two, three and four group format (10, 15 and 15 points respectively).

Table 4. Mean Score Differences between Variables for Small Group Reading Instruction in NAEP Data

2011				
	Whole class (220)	2 groups (208)	3 groups (200)	4 groups (201)
Whole class (220)			> Diff = 20***	> Diff = 19**
2 groups (208)				
3 groups (200)				
4 groups (201)				
2009				
	Whole class (218)	2 groups (210)	3 groups (204)	4 groups (202)
Whole class (218)			> Diff = 14*	> Diff = 16**
2 groups (206)				
3 groups (204)				
4 groups (212)				
2007				
	Whole class (222)	2 groups (213)	3 groups (209)	4 groups (209)
Whole class (222)			> Diff = 13**	> Diff = 13***
2 groups (213)				
3 groups (209)				
4 groups (209)				
2005				
	Whole class (219)	2 groups (212)	3 groups (208)	4 groups (209)
Whole class (219)			> Diff = 11*	> Diff = 10*
2 groups (212)				
3 groups (208)				
4 groups (209)				

* $p < .05$ ** $p < .01$ *** $p < .001$

In addition, Figure 1 also demonstrated the same trend; that is, ELL students receiving whole class format had higher mean score than smaller group format over the four years.

Figure 1. The NAEP Trend in Mean Scores between Variables for Group Reading Instruction

Effects of Pair-work Instruction

The regression coefficient output on Table 5, $b = -10.271$, $t(344) = -3.169$, $p < .01$, indicated that the more frequently teachers used pair work, the lower the participants' score was in PIRLS data. The participants' reading score decreased by 10.271 points per unit, e.g. from once to twice a week to almost every day.

Table 5. Pair Reading Instruction and ELL Student Reading Achievement in PIRLS Data ($N = 345$)

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
	<i>B</i>	Std. Error	Beta		
1 (Constant)	488.910	9.780	-	49.992	.000
CLS/TALK WITH STD	-10.271	3.241	-.167	-3.169	.002*

* $p < .05$

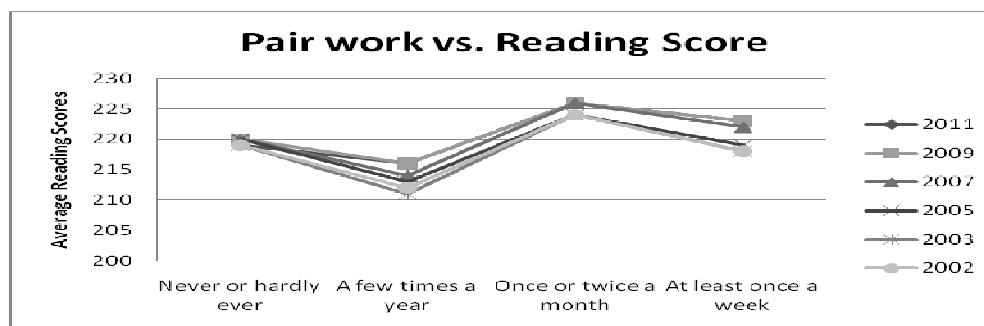
Second, Table 6 showed that over the six continuous NAEP years (2011, 2009, 2007, 2005, 2003 and 2002) ELL students who discussed reading with peers more often (at least once a week in class) had an average score of 220 points, which was significantly lower than those who did it less often (225 points on average for once or twice a month).

In addition, based on the same NAEP data from 2002 to 2011, Figure 2 demonstrated that ELL students' reading scores were significantly higher when their teachers less often used pair work reading activity (once or twice a month) than when they more often used it (once or twice a week). However, the figure also showed that using pair work reading activity once or twice a month was higher than a few times a year or never or hardly ever.

Table 6. Mean Score Differences between Variables for Pair Reading Instruction in NAEP Data

2011				
	Never or hardly ever (219)	Once or twice a year (216)	Once or twice a month (226)	At least once a week (223)
Never or hardly ever (219)		> Diff = 3***		
Once or twice a year (216)				
Once or twice a month (226)	> Diff = 7***	> Diff = 10***		> Diff = 3***
At least once a week (223)	> Diff = 4***	> Diff = 7***		
2009				
	Never or hardly ever (220)	Once or twice a year (216)	Once or twice a month (226)	At least once a week (223)
Never or hardly ever (220)		> Diff = 4***		
Once or twice a year (216)				
Once or twice a month (226)	> Diff = 5***	> Diff = 10***		> Diff = 3***
At least once a week (223)	> Diff = 2***	> Diff = 6***		
2007				
	Never or hardly ever (220)	Once or twice a year (214)	Once or twice a month (226)	At least once a week (222)
Never or hardly ever (220)		> Diff = 6***		
Once or twice a year (214)				
Once or twice a month (226)	> Diff = 6***	> Diff = 12***		> Diff = 5***
At least once a week (222)	> Diff = 2***	> Diff = 8***		
2005				
	Never or hardly ever (220)	Once or twice a year (213)	Once or twice a month (224)	At least once a week (219)
Never or hardly ever (220)		> Diff = 7***		
Once or twice a year (213)				
Once or twice a month (224)	> Diff = 4***	> Diff = 11***		> Diff = 5***
At least once a week (219)		> Diff = 6***		
2003				
	Never or hardly ever (219)	Once or twice a year (211)	Once or twice a month (224)	At least once a week (218)
Never or hardly ever (219)		> Diff = 8***		
Once or twice a year (211)				
Once or twice a month (224)	> Diff = 5***	> Diff = 13***		> Diff = 6***
At least once a week (218)		> Diff = 7***		
2002				
	Never or hardly ever (219)	Once or twice a year (212)	Once or twice a month (224)	At least once a week (218)
Never or hardly ever (219)		> Diff = 7***		
Once or twice a year (212)				
Once or twice a month (224)	> Diff = 5***	> Diff = 12***		> Diff = 6***
At least once a week (218)		> Diff = 6***		

* p<.05 ** p<.01 *** p<.001

Figure 2. The NAEP Trend in Mean Scores between Variables for Pair Reading Instruction

Effects of Independent Reading

Our analysis led to two highly consistent findings regarding independent reading. On Table 7, the regression coefficient output, $b = 28.423$, $t(344) = 4.334$, $p < .001$, indicated that the more frequently ELL students read silently, the higher their reading score was. Their reading score increased by 28.423 points per unit, e.g. from once to twice a week to almost every day. In a similar vein, the regression coefficient output, $b = 14.778$, $t(344) = 3.129$, $p < .001$, indicated that the more frequently ELL students read books of their own choice, the higher their predicated reading score. Their reading score increased by 14.778 points per unit, e.g. from once to twice a week to almost every day.

Table 7. Independent Reading Instruction and ELL Student Reading Achievement in PIRLS Data ($N = 345$).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	551.719	8.889	-	62.065	.000
SCH/READ SILENTLY ALONE	28.423	6.558	.228	4.334	.000*
1 (Constant)	538.472	7.780		62.215	.000
SCH/READ BOOKS	14.778	4.722	.165	3.129	.002**

* $p < .001$; ** $p < .01$

Second, based on the data over the NAEP years¹, the more frequently the participants were engaged in independent reading, the more likely they had higher reading performance. For example, participants who read silently almost every day had the highest reading score compared with those who read silently less often. Table 8 showed that those who read silently almost every day had an average of 221 points for the 1994, 1998, and 2000 NAEP years. The average score differences between reading silently almost every day and three lower frequencies were 5, 27 and 27 points respectively.

Similarly, ELL students who read books of their own choice almost every day had the highest reading score compared with those who did less often over the four continuous NAEP years (2005, 2007, 2009 and 2011). Table 9 showed that ELL students who read books of their own choice almost every day had a significantly higher average score (222 points) than the

average scores of those who read books of their own choice less often. The statistically significant differences in average score between almost every day and lower frequencies were 5, 10 and 15 respectively.

In addition, Figures 3 and 4 based on the NAEP data over the years demonstrated that participants' reading scores were the highest when they read silently and read books of their own choice almost every day.

Table 8. Mean Score Differences between Variables for Silent Reading Instruction in NAEP Data

2000				
	Never or hardly ever (194)	1-2 times a month (191)	1-2 times a week (215)	Almost every day (220)
Never or hardly ever (194)		> Diff = 5*	> Diff = 29***	> Diff = 26***
1-2 times a month (191)			> Diff = 25***	> Diff = 22***
1-2 times a week (215)				
Almost every day (220)				
2000¹				
	Never or hardly ever (194)	1-2 times a month (191)	1-2 times a week (215)	Almost every day (220)
Never or hardly ever (194)		> Diff = 7***	> Diff = 27***	> Diff = 23***
1-2 times a month (191)			> Diff = 21***	> Diff = 17***
1-2 times a week (215)				
Almost every day (220)				
1998				
	Never or hardly ever (196)	1-2 times a month (196)	1-2 times a week (216)	Almost every day (221)
Never or hardly ever (194)		> Diff = 7***	> Diff = 27***	> Diff = 23***
1-2 times a month (191)			> Diff = 21***	> Diff = 17***
1-2 times a week (215)				
Almost every day (220)				
1998¹				
	Never or hardly ever (197)	1-2 times a month (201)	1-2 times a week (218)	Almost every day (223)
Never or hardly ever (197)		> Diff = 5***	> Diff = 23***	> Diff = 27***
1-2 times a month (201)			> Diff = 18***	> Diff = 22***
1-2 times a week (218)				
Almost every day (223)				
1994¹				
	Never or hardly ever (190)	1-2 times a month (191)	1-2 times a week (216)	Almost every day (222)
Never or hardly ever (190)		> Diff = 6***	> Diff = 30***	> Diff = 32***
1-2 times a month (191)			> Diff = 24***	> Diff = 26***
1-2 times a week (216)				
Almost every day (222)				

* p<.05 ** p<.01 *** p<.001

¹ Accommodations were not permitted for this assessment.

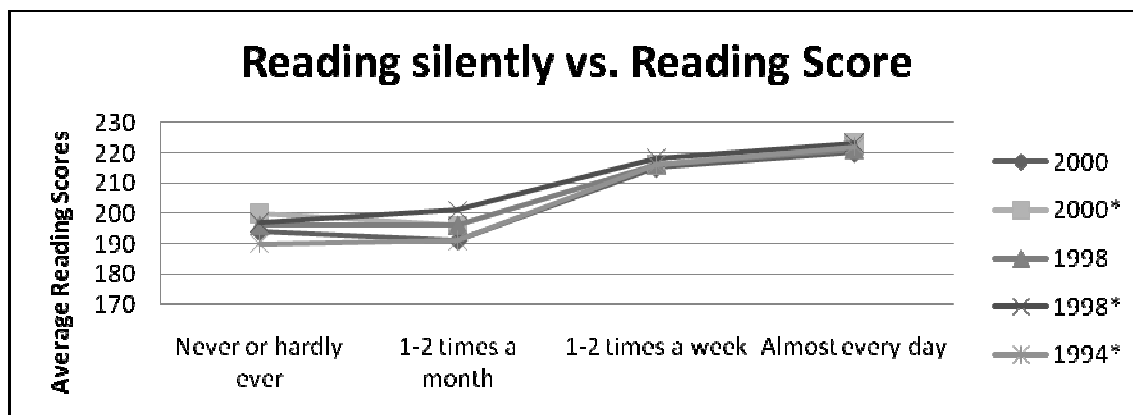
In summary, the analyses of the two large scale data sets in our study indicated a general pattern that the more frequently teachers used the recommended cooperative reading activities, the poorer the fourth grade ELL students tended to perform in their reading proficiency. In contrast, the more frequently teachers used the independent reading activities, their ELL students tended to perform better in reading comprehension.

Table 9. Mean Score Differences between Variables for Independent Reading with Own Choice in NAEP Data

2011				
	Never or hardly ever (205)	1-2 times a month (211)	1-2 times a week (217)	Almost every day (223)
Never or hardly ever (205)				
1-2 times a month (211)				
1-2 times a week (217)	> Diff = 12***	> Diff = 5*		
Almost every day (223)	> Diff = 18***	> Diff = 12***	> Diff = 6***	
2009				
	Never or hardly ever (208)	1-2 times a month (210)	1-2 times a week (218)	Almost every day (223)
Never or hardly ever (208)				
1-2 times a month (210)				
1-2 times a week (218)	> Diff = 10***	> Diff = 8***		
Almost every day (223)	> Diff = 15***	> Diff = 12***	> Diff = 5***	
2007				
	Never or hardly ever (210)	1-2 times a month (215)	1-2 times a week (217)	Almost every day (220)
Never or hardly ever (210)				
1-2 times a month (215)				
1-2 times a week (217)				
Almost every day (220)	> Diff = 10***	> Diff = 5***	> Diff = 3***	
2005				
	Never or hardly ever (207)	1-2 times a month (214)	1-2 times a week (217)	Almost every day (223)
Never or hardly ever (207)				
1-2 times a month (214)	> Diff = 7***			
1-2 times a week (217)	> Diff = 10***			
Almost every day (223)	> Diff = 16***	> Diff = 8***	> Diff = 5***	

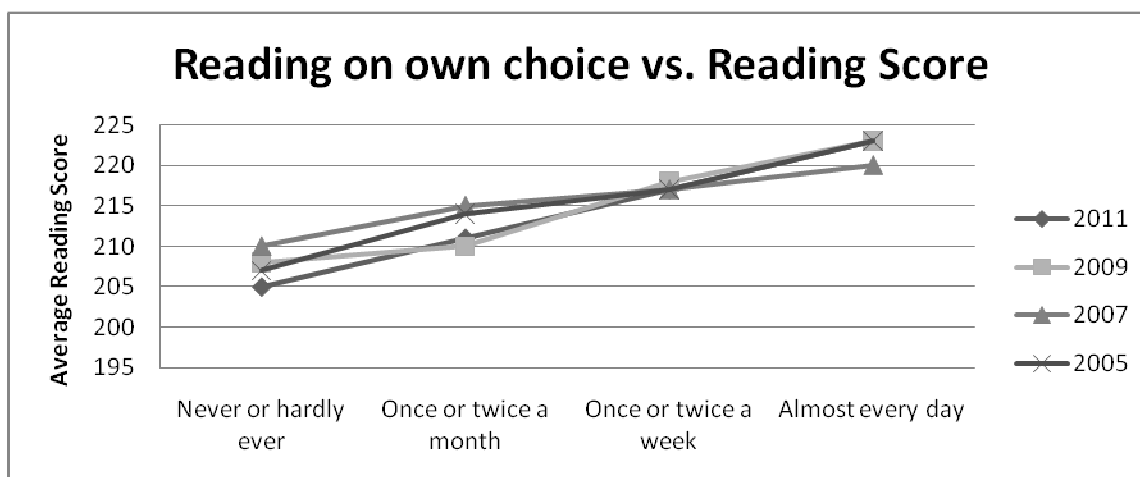
* p<.05 ** p<.01 *** p<.001

Figure 3. The Trend in Mean Scores between Variables for Silent Reading Activity



* Accommodations were not permitted for this assessment.

Figure 4. The Trend in Mean Scores between Variables for Independent Reading with One's Own Choice.



DISCUSSION

The analyses of the two large-scale data sets help develop the following understanding about the research questions of our study. First, they indicate that small group and pair work reading instructional activities are no longer helpful in reinforcing fourth grade ELL students' reading development as assumed. Instead, the continued use of these reading activities may hinder ELL students' reading development. It challenges the assumption about the role of group and pair work in developing intermediate grade level ELL learners' reading proficiency. Part of this assumption is that ELL students can improve basic reading skills such as phonological awareness and new vocabulary more effectively through small group intervention and pair work. Our study shows that fourth grade ELL students may be able to develop their reading skills in English using other experience, skills, and knowledge developed both in first and second

languages to compensate for English phonological and lexical weakness and become more mature and independent readers than assumed the otherwise (Stanovich, 1980).

The second part of the assumption is that small group is often characterized as a remedial activity to develop at-risk students' essential reading skills because they need intensive instruction different from mainstream teaching approach (Foorman & Torgesen, 2001). Because of lower-reading performance in English, ELL students are commonly assumed as at-risk students who are usually placed in small-group interventions (Estrada, 2005). The finding of our study challenges this part of the assumption by showing that it is not proper to equate the fourth grade ELL students as "at-risk" readers who may have less English phonological and vocabulary knowledge. Thus, small group intervention and pair work are no longer effective. Instead, whole class context allows ELL students to read voluntarily and use their prior knowledge and reading strategies (Carrell, 1989).

The third part of the assumption is that student-to-student interactions provide a social context where students construct meanings effectively based on the Vygotskian views of learning in social interaction (Bloome & Green, 1984). Through interaction with peers, ELL children are believed to gradually learn essential reading skills and finally internalize the skills like first language learners (Wilkinson & Anderson, 1995). However, by fourth grade ELL students may have already developed some essential reading skills (Carrell, 1988a), and thus they no longer benefit maximally in learning reading through socially constructed interaction (Vygotsky, 1978). The findings of limited effectiveness of pair work activity on ELL students' reading comprehension indicates that fourth grade ELL students are moving from other regulation to self-regulation, which means that they are better at controlling their own reading process.

Finally, our study helps understand that by the fourth grade the independent reading activities can help improve the fourth grade ELL students' reading performance positively and consistently. Our finding is consistent with a number of empirical studies mentioned above and also extends the existing literature to intermediate grade level ELL students. Our study further supports indirectly the theoretical assumption of the reciprocity between independent reading experience and the automaticity of basic skills. Following this assumption, independent reading helps automate ELL students' lower-order mental operations within the limited phonological awareness, which means they do not need to process simultaneously all the amount of information and interactions in their working memory during reading (Bryant, MacLean, Bradley, & Crossland, 1990). Once the limited phonological awareness is automated, more attentional capacity is available. Thus, it is likely for ELL students to activate their reading experience and skills developed in their first languages and facilitate comprehensible input (Wallace, 1992; Krashen, 2004). When their first language reading experience and reading skills are activated and when the text is at the appropriate level or in their own interest due to their own choice of books, the intermediate grade level ELL students are more likely to use top-down approach to focus on the text meaning with less attention to linguistic and phonological information. Through sustained independent reading, ELL students are more highly motivated to read, which creates a spiral effect of *rich-get-richer* (Loh, 2009). The result is the overall development of ELL students' reading comprehension and more competent readers who are ready for reading to learn at higher grade level (Chall, 1987).

CONCLUSION AND IMPLICATIONS

Our study first indicates that the reading development for English-as-first-language learners, younger ELL learners, and older ELL learners may follow different patterns and the resources for their reading development can be different. Thus, it is necessary for policy makers to pay attention to these differences when making policy recommendations for different groups of learners. Our study also offers several pedagogical suggestions for practitioners. It is important for teachers to differentiate ELL students according to their age. Special reading curricula should be developed to address ELL students at lower, intermediate, and higher grades. Older ELL students may be capable of reading to learn by using various resources that support their reading development in a unique manner. Finally, teachers involved in teaching older ELL students should assign more independent reading both at school and at home and encourage them to read books of their own interest.

Because of the constraints of the data in PIRLS and NAEP, our study is not able to directly sustain the assumptions discussed above. To empirically verify these assumptions, our study raises questions for further research such as the exact reasons for the negative relationships between the cooperative reading activities and ELL student reading comprehension and the positive relationship between independent reading and ELL student reading comprehension.

ENDNOTES

¹NAEP data after 2000 was not available for this variable.

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