

Teacher Support, Reading Strategy and Reading Literacy: A Two-Level Mediation Model

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Abstract. The purpose of this study was to use the data consisted of 5,115 fifteen-year-old Shanghai students in 152 schools from the PISA 2009, by building cross-level mediation model, to explore how the influence on students' reading literacy from teachers' support through learning strategy. The results revealed that teacher support is positively directly related to students' reading literacy. Students' learning strategy (such as elaboration strategy and control strategy) and metacognition strategy were cross-level mediators between teachers' support and their students' reading literacy. But memory strategy in the learning strategy does not play a cross-level mediation effect.

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Introduction

READING comprehension is the process by which readers obtain meaning from literal symbols and is one of the most unique cognitive activities of human beings. Reading ability has great significance to students' academic success and personal development. Through reading, people can understand, use, reflect on and participate in texts in order to achieve personal goals, develop personal knowledge and potential, and participate effectively in social activities. In the Program for International Student Assessment (PISA), reading ability is also known as reading literacy.

The Program for International Student Assessment is a worldwide study by the Organization for Economic Co-operation and Development in member and non-member nations intended to evaluate educational systems by measuring 15-year-old school pupils' scholastic performance on reading literacy, mathematical literacy, scientific literacy and financial literacy (OECD, 2013).

The test sampling of PISA is scientific, and the sample have a wide coverage and high representativeness; and it has high quality control in questions design, data collection and cleaning process, so PISA has high reliability and reputation. As a result, data and results from PISA have been widely concerned by governments, educational management institutions and academic researchers (Martin, Liem, Mok, & Xu, 2012; Rogers, 2014; Zhang & Xin, 2012).

This study intends to use the data of PISA2009 to explore the influencing factors of students' reading literacy. Reading literacy is influenced by the external factors of students (such as school atmosphere, teacher support, family socioeconomic status, etc.) and internal factors (such as learning strategies, learning motivations, etc.) (Kigel, McElvany, & Becker, 2015; Netten, et al, 2014). This study focuses on the influence of teacher support and learning strategies on students' reading literacy, proposes and verifies a cross-level mediating effect model: teacher support on students' reading learning not only can directly affect students' reading literacy, but also can influence reading literacy indirectly by influencing students' learning strategies. In this hypothesis model (**Figure 1**), teacher support is a level 2 organizational variable, learning strategy and reading literacy are the level 1 individual variables, so this is a cross-level mediation model of 2-1-1 structure.

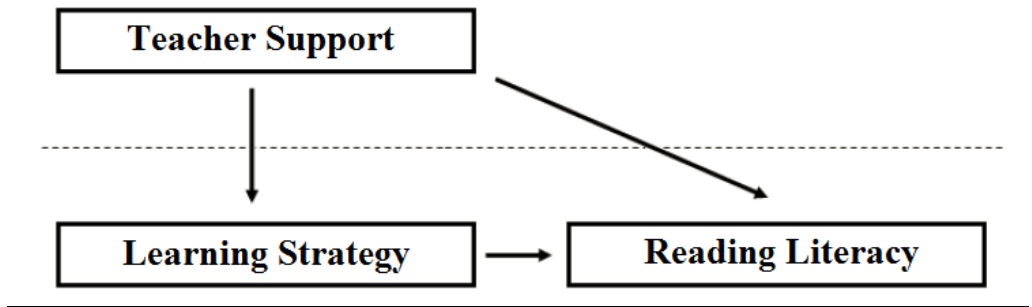
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Figure 1. Hypothesis Model.

The Influence of Teacher Support on Students' Reading Literacy

Reading comprehension includes two aspects: vocabulary recognition and text comprehension, the former refers to the processing of vocabulary sound, font and meaning during reading, which is closely related to the reader's vocabulary knowledge and decoding ability; The latter refers to the process of encoding chapter information into memory to form a coherent representation, influenced by internal factors such as reader's prior knowledge, learning strategies, meta-cognition, and external factors such as the nature of the article and reading scenarios. Alvermann, Unrau, and Ruddell pointed out that if a part of the reading fails to function properly, the reader cannot understand the meaning of the article (Alvermann, et al, 2013). It can be seen that reading tasks have high requirements for students' cognitive processing ability and learning strategies. The improvement of students' cognitive processing ability and the use of learning strategies not only cannot be separated from school education, and also cannot be separated from the teacher support.

School education is an educational activity with a clear purpose and undertaken by professional teachers. The teacher support is considered to be an important factor affecting students' reading ability and reading comprehension (Law, 2011). It has been confirmed by a lot of research on reading teaching and teacher support. The National Reading Panel and the National Institute of Child Health and Human Development (2000) reviewed the empirical research on reading instruction for decades, and summarized 16 reading teaching methods from more than 200 studies. According to reports from various institutes, they found that monitoring comprehension, asking questions, organizing images, analyzing story structures and abstracting can effectively improve readers' reading literacy. A series of studies by Ling-po Shiu and Qishan Chen showed that students' self-regulated reading is not as effective as external feedback and support for students' reading comprehension (Chen & Shiu, 2007, 2008; Shiu & Chen, 2013). According to a survey conducted by Weihua Qian, the extracurricular reading of middle school students is most affected by teachers, because teachers are the people who have the most contact with students except parents and society, and can give students the most support. This is true for extracurricular reading outside the classroom, especially

for the development of reading literacy in the classroom (Qian, 2013). Cong Yu pointed out that language teachers should be the motivators of students' reading interest, the trainer of reading method, the evaluators of reading effects and the creators of reading atmosphere (Yu, 2016). It can be seen that for reading teaching, teacher support is crucial to students' reading literacy, teachers can use systematic, clear and direct methods to train students' basic reading ability and develop their reading literacy.

Therefore, we proposed that the hypothesis H1: Teacher support has a direct positive effect on students' reading literacy

The Influence of Teacher Support on Students' Learning Strategies

Teachers are not only the professors' instructors of students' reading knowledge and reading ability, but also the promoters of their reading learning strategies. In PISA2009, the learning strategy has two aspects of contents investigated. One is the examination of the meta-cognitive strategy of reading, that is, the student's level of awareness to which is an effective reading strategy, it. It is divided into the understanding and remembering information strategies, and the generalizing information strategies; the second is the investigation of the application of three learning strategies: control strategy, memory strategy and accurate processing elaboration strategy. Reading comprehension understanding and remembering information strategies in metacognitive strategies refers to which strategies students consider to be effective in understanding and memorizing chapter content and how effective they are; the summary generalizing information strategy refers to which strategies students consider to be effective of summarizing the content of the chapter and how effective they are. Among the three strategies used in learning strategies, memory strategies and accurate processing elaboration strategies are cognitive strategies, while control strategies which are monitoring their own learning activities and are meta-cognitive strategies.

Teaching research has always emphasized the influence of teacher support on the use of students' reading strategies, emphasizing that teacher support should stimulate students' background knowledge and use various schemas to help understanding. At the same time, they should pay attention to teaching students to use various strategies to monitor their reading process and learn to use strategies accordingly to help understanding (Yuan, et al., 2015). Teacher support is an important factor influencing students' learning strategies. By presenting challenging assignments to students, teachers can motivate student's ability of exploring, interpreting, and sharing ideas and concepts, as well as the use of memory and accurate processing elaboration strategy. Teachers set cognitive cognition confliction in reading teaching, allowing students to experience different ideas, explanations and solutions, to improve their metacognitive strategies such as reading monitoring and reading control regulating. Even the communication and interaction between teach-

ers and students, and the way teachers deal with students' mistakes will affect the use of students' learning strategies (Dietrich, et al., 2015).

Therefore, this study proposes hypothesis H2: Teacher support has a positive effect on students' learning strategies.

Mediating Role of Student's Learning Strategies

The learning strategies of reading can have a direct impact on the production of reading literacy. Readers with high cognitive and metacognitive strategies can link the information they read with existing knowledge, monitor the understanding process, and constantly adjust their cognition to improve reading literacy (De Naeghel, et al, 2012).

The learning strategy of reading has strong plasticity and can be cultivated through effective teaching support. Teaching models such as reciprocal teaching (RT) (Palinscar & Brown, 2012), transactional strategies instruction model (TSI) (Hilden & Pressley, 2007), interactive strategy training for active reading and thinking (iSTART) (Jackson, et al, 2015), concept-oriented reading instruction (CORI) (Guthrie, et al, 2012) emphasize the promoting effect of the teacher support on the students' use of various reading cognitive and metacognitive strategies, which is supported by a large amount of empirical evidence.

Therefore, it can be inferred that teacher support can improve students' reading engagement by helping students adjust their learning strategies, answering students' questions and providing positive feedback, thus affecting reading literacy. Of course, for different dimensions of learning strategies, student's response for the usefulness of teacher support is different. For example, studies have shown that asking students to read aloud and recite are generally considered by students to be incapable of arousing interest, and answering questions and discussing their own opinions on text content is the best way to let the student engage in reading (Finn & Zimmer, 2012). That is to say, teacher support affects reading literacy through learning strategies has different mechanisms. Reading comprehension can be carried out at multiple levels, either as a surface coding of reading materials or as a deep understanding of reading materials by reasoning based on surface coding. In reading teaching, the teacher support mainly focuses on how to better construct the meaning of reading materials. Teachers will use clarification, contact, summary and other methods in teaching to guide students to understand and process reading materials. Students who under teacher support will also monitor their own comprehension and control their reading process in a timely manner. In this process, memory strategies, elaboration strategies, control strategies, understanding and remembering information strategies, and generalizing information strategies may play different roles between teacher support and student reading. The more easily the strategies are influenced by the teacher support, such as elaboration and control strategies, the more obvious the cross-level mediation effect is.

In summary, this study proposes the following assumptions, H3: The student's learning strategy can positively predict reading literacy; H4: Learning strategy is a cross-level mediator between teacher support and student reading literacy.

Application of Cross-Level Mediation Effect Model

Individual attitudes and behaviors are influenced by many factors from individuals, groups, and societies; this has led today's researchers to focus on the function and explanatory power of multi-level variables for dependent variables (Klein & Kozlowski, 2000; Li & Chang, 2013). In this study, students were nested in the school. The student's reading literacy and learning strategies belong to the first level of the data structure, and the teacher's reading support is the second level of the data structure. If we ignore the hierarchical structure of the data, use traditional linear models (such as analysis of variance and regression analysis) to analyze data, it will not only weaken the explanatory power of the theory, but also reduce the externality effect of the research results (Zhang, 2010). At present, there are few research reports that use multi-level perspectives to analyze the factors affecting academic literacy, especially for Chinese students. Chen et al. (2017) pointed out that PISA data has multiple levels, and different levels will affect each other. It is recommended that researchers use advanced statistical methods that are more suitable for PISA data patterns and features, such as Hierarchical Linear Models to perform data analysis and model construction. Therefore, this study uses a multi-level linear model to comprehensively examine the influence of teacher support and learning strategies on reading literacy, and has certain value in both theoretical construction and analysis methods.

Method

Sample

A total of 5,115 students from Shanghai city who participated in the PISA 2009 test were tested and with age between 15 years and 3 months to 16 years and 2 months. Among them, girls were 2,587 (50.6%) and boys were 2,528 (49.4%). 52 were in the 7th grade (1.0%), 208 were in the 8th grade (4.1%), 1,924 were in the 9th grade (37.6%), 2,908 were in the 10th grade (56.9%), 22 were in the 11th grade (0.4%), 1 person was in grade 12. All the students were from 152 schools in Shanghai, among them, there were 2 schools both had 21 participants, 1 school for 3 participants, and the remaining 149 schools had 30-35 participants.

Research Variable

Teacher Support

The teacher support uses the "Inspired Reading Participation Strategy" score in PISA as an indicator, which measures the teacher support on the motivating learning strategies and reading skills of the students. The frequency of the 7 teaching activities (such as "require students to explain the meaning of the text") by the teacher in the language lesson was reported by students, on a 4-point scale, from "no or almost no" to "in all

lessons”, the α coefficient is 0.78. Each item score is combined with a weighted likelihood estimate to synthesize the total score. Teacher support is a variable at the school level.

Learning Strategy

Learning strategies are variables at the student level, including the use of learning strategies and reading metacognitive strategies. There are 13 items in the use of learning strategies. Among them, the memory strategy subscale has 4 items, the α coefficient is 0.74; the elaboration strategy contains 4 items, and the α coefficient is 0.72; the control strategy has 5 items with an α coefficient of 0.72. There are 11 items for reading metacognitive strategies. Among them, understanding and remembering the information strategy contain 6 items, and the α coefficient is 0.83; the generalizing information strategy has 5 items, the α coefficient is 0.80. All of the above items were assessed on a six-point scale, from “not at all useful” to “very useful”.

Reading Literacy

The PISA reading test examines reading literacy by setting up four test scenarios based on personal purpose, public purpose, occupational purpose, and educational purpose, through two kinds of reading materials: continuous reading texts (such as explanatory texts, argumentations) and non-continuous texts (graphs, tables) to investigate the three levels of reading literacy: retrieving and inference, integrating and interpreting, and evaluating and reflecting. The PISA2009 reading test consisted of 13 sets of test questions, the tested students were randomly assigned to a set of questions, and the students’ original scores were transformed and estimated using the item response theory (IRT) technique. The reading literacy test score was the average of five plausible values (α coefficient of 0.92) for the total score of the reading cognitive test. This variable is at the student level.

Data Analyses

Data analyses and model construction were carried out using SPSS 20.0 and HLM 6.08. In this study, the teacher support is a level 2 organizational variables, and the students’ reading literacy and learning strategies belong to level 1 variables, and they have a nested relationship in the data structure. Therefore, this model is a cross-level of low-level mediation model, a 2-1-1 model. According to the recommendations of Fang (2010) and Zhang (2009), in order to separate the between-group mediation effect and within-group mediation effect, and to more accurately estimate the cross-level mediation effect, we centered mediating variables of the level 1 by group mean and at the same time, the group mean is placed in the level 2 intercept equation, then follow the steps below to perform model checking.

In the first step, a zero model (model M_0) is tested to determine if multi-level analysis is required. The M_0 decomposes the equation into intra-class variance caused by individual differences and between-class variance caused by group differences; we

examine the percentage of the variance of the dependent variable explained by the second level of variables, i.e. Intra-class Correlation Coefficient (ICC). A multi-level analysis is necessary if the ICC is greater than 0.06. In the second step, the direct effect c of the level 2 independent variable X_j on the level 1 dependent variable Y_{ij} (model M_1) is examined. In the third step, the direct effect a of the independent variable X_j on the dimensions of the mediator M_{ij} (model M_2) is examined. In the fourth step, the effects c' and b of the independent variable X_j and the mediator M_{ij} are simultaneously applied to the variable Y_{ij} , (model M_3). According to the results of the significance test of each regression coefficient, it can be judged whether or not the hypothesis model is verified.

Result

Descriptive Statistics

The descriptive statistical results are shown in **Table 1**. Since the teacher support is a level 2 variable, there is no correlation coefficient with the variables of t level 1. In level 1 variables, except that the correlation coefficient between the memory strategy and the generalizing information strategy is not significant, the correlation coefficients among the other variables are significant at 0.01 level.

Table 1. Variable Description Statistics.									
	M	SD	1	2	3	4	5	6	7
1 Teacher Support	0.14	0.88	–						
2 Memory Strategy	-0.06	0.8	–	–					
3 Control Strategy	-0.28	0.82	–	0.54**	–				
4 Elaboration Strategy	0.16	0.82	–	0.40**	0.61**	–			
5 Understanding and Remembering Information Strategies	0.14	0.97	–	0.40**	0.15**	0.07**	–		
6 Generalizing Information Strategy	0.06	0.9	–	0.02	0.16**	0.10**	0.39**	–	
7 Reading Literacy	556.2	76.97	–	0.05**	0.29**	0.16**	0.35**	–	–

Note: ** $p < 0.01$; 0 = Female, 1 = Male; Teacher support is level 2 data, so there is no correlation coefficient with level 1 data.

Cross-Level Mediation Effect Model Test

First, a zero model (M_0) test is performed. The M_0 model is as follows:

$$\text{Level-1: } \text{READING}_{ij} = \beta_0 + \varepsilon_{ij}$$

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + \mu_{0j}$$

The results show that $\text{ICC}(1) = \tau_{00}/(\tau_{00} + \sigma^2) = 2,880.19/(2,880.19/3,106.36) = 0.48$, indicating that for the total variance of reading literacy, the school level factor explains 48%, it is necessary to build a multi-level linear model.

The second step is to examine the effect c of teacher support (STIMREAD) on reading literacy, M_1 model is as follows:

$$\text{Level-1: } \text{READING}_{ij} = \beta_{0j} + \varepsilon_{ij}$$

$$\text{Level-2: } \beta_0 = \gamma_{00} + \gamma_{01}^c \times (\text{STIMREAD}) + \mu_{0j}$$

The results showed that teacher support had a positive effect on reading literacy ($\gamma_{01}^c = 107.37, p < 0.001$).

The third step is to test the direct effect *a* of teacher support on the dimensions of the learning strategy (Med_{ij}). The M_2 model is as follows:

$$\text{Level-1: } \text{Med}_{ij} = \beta_{0j} + \varepsilon_{ij}$$

$$\text{Level-2: } \beta_0 = \gamma_{00} + \gamma_{01}^a \times (\text{STIMREAD})_j + \mu_{0j}$$

The results showed that teacher support has a positive effect on them.

The fourth step is to examine the effects *c'* and *b* of teacher support and learning strategies on reading literacy:

$$\text{Level-1: } \text{READING}_{ij} = \beta_{0j} + \varepsilon_{ij} \times (\text{Med}_{ij} - \bar{M} \cdot j) + \varepsilon_{ij}$$

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + \gamma_{01}^{c'} \times (\text{STIMREAD}) + \gamma_{02} \times (\bar{M} \cdot j) + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10}^b$$

The results (**Table 2**) showed that: (1) The within-group effect ($\gamma_{10}^b = 14.00, p < 0.001$) and the between-group effect ($\gamma_{02} = 135.09, p < 0.001$) of the control strategy had significant effects on reading literacy, and the influence of teacher support on reading literacy is not significant ($\gamma_{01}^c = 22.45, p > 0.05$). That is, the control strategy is a cross-level mediator between teacher support and reading literacy, and the mediating effect is 27.88%. (2) Within-group effect ($\gamma_{10}^b = 6.59, p < 0.001$) and between-group effect ($\gamma_{02} = 74.92, p < 0.001$) of elaboration strategies were significant, and the influence of teacher support on reading literacy decreased but remained significant ($\gamma_{01}^c = 65.60, p < 0.01$). The elaboration strategy is a cross-level mediator with a mediating effect of 5.24%. (3) Understanding and remembering the information strategy's within-group effect ($\gamma_{10}^b = 17.01, p < 0.001$) and between-group effect ($\gamma_{10}^b = 128.11, p < 0.001$) were significant, and the influence of teacher support on reading literacy ($\gamma_{01}^c = 62.20, p < 0.001$) was significantly reduced but still significant. Understanding and remembering information strategy was a cross-level mediator with a mediating effect of 8.73%. (4) The generalizing information strategy also belongs to the cross-level mediator because its within-group effect ($\gamma_{10}^b = 19.29, p < 0.001$) and between-group effect ($\gamma_{02} = 140.22, p < 0.001$) were significant, and the influence ($\gamma_{01}^c = 42.53, p < 0.001$) of teacher support on reading literacy is significant but significantly decreased, with a mediating effect of 16.95%. (5) The within-group effect of memory strategy ($\gamma_{10}^b = 2.80, p < 0.05$) and teacher support ($\gamma_{01}^c = 108.31, p < 0.001$) were significant, but between-group effect ($\gamma_{02} = -4.25, p > 0.05$) was not significant, so no cross-level mediation effect was found.

Discussion

The Influence Mechanism of Teacher Support and Learning Strategies on Students' Reading Literacy

Table 2. Test of the Effect of Cross-Level Mediation of Learning Strategies.

	γ_{00}	γ_{01}	γ_{02}	γ_{10}	τ_{00}	σ^2
M0	555.19***					3,106.36
M1	539.43***	107.37***				3,106.27
M2 (Memory)	-0.10***	0.21***				0.63
M2 (Control)	-0.37***	0.62***				0.63
M2 (Elaboration)	0.08***	0.55***				0.63
M2 (Understanding & Remembering)	0.08***	0.35***				0.64
M2 (Generalizing)	-0.10	0.45***				0.89
M3 (Memory)	539.08***	108.31***		-4.25	2.80*	0.75
M3 (Control)	590.24***	22.45		135.09***	14.00***	3,092.76
M3 (Elaboration)	534.12***	65.60**		74.92***	6.59***	2,958.13
M3 (Understanding & Remembering)	529.27***	62.20***		128.11***	17.01***	2,843.42
M3 (Generalizing)	540.86***	42.53***		140.22***	19.29***	2,824.21

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; τ_{00} is the residual of the intercept, and σ^2 is the residual of level 1.

Cross-level Mediation Effects of Control, Elaboration, Understanding and Remembering Information, and Generalizing Information Strategies

Strategies such as control, elaboration, understanding and remembering information, and generalizing information can be improved by teacher support, and as a cross-level mediator affects students' reading literacy. This provides further evidence for the theory of various learning strategies and teaching modes. On the other hand, we have a deeper understanding of the influence and mechanism of the interaction between teacher support and student learning strategies on the improvement of reading comprehension.

Learning strategies are cognitive activities that readers plan to do before, during, and after reading in order to gain a full understanding of the text, avoid and solve various problems encountered in reading (McNamara, 2007). Learning strategy teaching is an important method for students to learn to use learning strategies and improve reading literacy. For the scientific and effective learning strategy teaching, scholars have developed the reciprocal teaching, transactional strategies instruction model, interactive strategy training for active reading and thinking, concept-oriented reading instruction and many other modes. Although the specific operating methods of these teaching models are different, their theoretical and empirical studies have shown that teacher support can promote students to effectively use a variety of cognitive and meta-cognitive learning strategies to improve reading literacy.

The reciprocal teaching mode allows teachers and students to exchange roles, the "teacher" guides the "student" to use the learning strategies such as prediction, questioning, clarification and summarization to conduct teaching dialogues, jointly real-

ize the construction of the meaning of the article, and let the students learn how to use learning strategies in the teacher-student interaction to further improve reading literacy (Rosenshine & Meister, 1994). The transactional strategies instruction model advocates the interaction between students and articles, the interaction between teachers and students, and the interaction between team members to improve students' ability to use prediction, visualization, questioning, clarification, contact and summary strategies and reading literacy. The interactive strategy training for active reading and thinking mode provides interactive and appropriate training for students to flexibly and actively use learning strategies such as comprehension monitoring, interpretation, prediction, and accurate processing to improve their reading literacy through multimedia technology (Graesser, et al, 2005). The learning strategies involved in these teaching models, such as prediction, questioning, clarification and summarization, visualization, connection, comprehension monitoring, interpretation, accurate processing, etc., are all related to the elaboration strategy, understanding and remembering information strategy, generalizing information strategy in PISA evaluation. It is not difficult to understand that these strategies can play a cross-level mediation effect between reading teaching and reading literacy.

The discovery of the cross-level mediation effect of each dimension of the learning strategy in this study make us has a deeper understanding of the role of learning strategies in reading comprehension and reading literacy training.

Learning strategies can effectively promote students' reading comprehension and reading literacy. This role can be explained by a self-regulating comprehension model. When reading, the metacognitive level monitors the activity state and process of the cognitive level, helping the reader to conduct an understanding assessment, and paying attention to whether the cognitive activities of the cognitive level and the metacognitive level are consistent. If it is consistent, it will be judged that the chapter is understood, and reading will continue; if there is a difference, the reader will feel doubts and troubles, and be aware that appropriate strategies should be taken to identify and solve the problem, and to eliminate doubts and problems (Chen, 2009, 2010). The understanding of self-regulation is conditional: the reader's understanding of monitoring should be sufficiently precise. If the reader's learning strategy is based on inaccurate understanding of monitoring, its effectiveness will be greatly compromised. Unfortunately, a large number of studies have shown that the reader's understanding of monitoring is not accurate; the average of monitoring accuracy coefficient is 0.25 approximately; Moreover, such inaccurate monitoring seems to be an inherent part of human cognition inadequate (Xu & Chen, 2013). Therefore, we have to consider "when" learning strategies can effectively affect reading comprehension performance and reading literacy.

If the reader knows the "when to use", "what to use" and "how to use" learning strategies, there is naturally no problem, which can promote reading comprehension. The problem is that readers usually cannot accurately judge "when to use" or "what to use", and the "how to use" learning strategy. Fortunately, we can use the external support form of teacher support to teach students "when to use," "what to use," and "how

to use” learning strategies (Shiu & Chen, 2013). In other words, the reader’s self-regulated reading is an effective way to read; but because the reader’s understanding of monitoring is usually not accurate enough, it is not always effective; and learning strategies based on external feedback, such as teacher-led are more accurate, effective and easy to implement.

Why Does the Memory Strategy Have No Cross-Level Mediating Effect?

The student’s memory strategy will be improved by teacher support, but it is less relevant to reading literacy and does not have a cross-level mediating effect between teacher support and reading literacy. This result may be discussed in terms of the theory of reading processing and the characteristics of PISA evaluation. Reading comprehension is a process of constructing a series of simple or complex psychological representations based on the surface coding, text representation and situational models of reading texts. Understanding can occur at different levels, so the reading test can be either a surface memory based on article information or a deep understanding based on the content of the article. By setting different reading scenarios, PISA examines the reading literacy level of readers’ ability in retrieving and inference, integrating and interpreting, and evaluating and reflecting, which focus on the reader’s deep understanding of the article rather than the surface memory of the article. The memory strategies in the PISA assessment (such as “repeated reading texts”, “remembering details”, etc.) are more focused on the surface memory of the article. Perhaps for this reason, memory strategies are less relevant to reading literacy and do not play a cross-level mediating role between teacher support and reading literacy.

Implications

This study explores the influence of teacher support and various learning strategies on students’ reading literacy, and finds that the various components of learning strategies play different roles. The findings of this study have both theoretical and practical implication.

From a theoretical point of view, we have deepened our understanding of the role of learning strategies between teacher support and reading literacy. Moreover, it tells us that in the empirical study of the influence of learning strategies, different strategies should be examined independently, rather than simply merging and averaging.

From a practical point of view, as Confucius said, “Don’t go to guide him until he tries to figure it out and cannot get it. Don’t inspire him until he understands it but cannot speak it.” Teacher support is not a blind infusion, but a targeted suggestion at the right time. Not all the support can promote students’ reading literacy. Teacher support is the easiest to improve their students reading literacy by promoting the use of student control strategies. It also has a certain effect on the role of elaboration strategies and metacognitive strategies, but not for memory strategies. What could we know is that only leads students to read mechanically will not produce good results, and retelling the

text simply will learn only about the text itself which may not play a great role in students' learning ability?

Conclusion

Teacher support can directly affect students' reading literacy, and can also influence reading literacy through the cross-level mediation effect of learning strategies. The cross-level effects of learning strategies of different dimensions are different. Control strategies, elaboration strategies, understanding and remembering information strategies, generalizing information strategies have cross-level mediating effects, while memory strategies does not have it.

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