

Analysis of Reading Literacy in the PISA Examination and Its Enlightenment to Chinese Reading Education

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Abstract. The Programme for International Student Assessment Test (PISA) is a particular research organized by OECD to assess students' extensive knowledge and skills from different areas of the world. The excellent performance of Chinese students in PISA has attracted wide attention from the world. Maths subjects of Chinese students in PISA are particularly strong, followed by science, and reading scores are also relatively good, but are the weakest. At the same time, compared with other subjects like Maths, Chinese language education has always been criticized for taking too much time and being inefficient in China mainland teaching field for a long time. World learn from China. China also learns from the world. By focusing on the reading content of the PISA test, the paper reflects on the content brought by the PISA reading assessment framework and evaluation criteria, aiming to find the international elements of reading education and giving some enlightenment to Chinese language reading strategies.

Keywords: PISA; Reading Literacy; China Education.

1. Introduction

The Programme for International Student Assessment Test (PISA) is a special research conducted by the International Organization for Economic Cooperation and Development (OECD) since 2000 to assess 15-year-old students around the world who use the knowledge and skills they have learned to solve the problem in work and social life. Seven tests have been performed so far. Different from domestic selective examinations, the PISA examination does not assess the proficiency of class-delivered knowledge, but assesses students' ability to use knowledge and skills to deal with practical problems in real life. In addition to the test questions to evaluate students' abilities, questionnaires are also used to understand the factors that may affect the test results, such as the student's individual, family, and school. In 2000, 2009, and 2018, the PISA test used reading literacy as the main test content, mathematics literacy as the main test in 2003 and 2012, and science as the main test area in 2006 and 2015. This article focuses on the PISA reading test. Reading ability is an important manifestation of language literacy, and the evaluation of reading ability is an important indicator of students' language ability evaluation. Based on this understanding, the PISA test is specially designed for the connotation of reading literacy and its assessment framework [1].

2. "Literacy" and "Reading Literacy"

"Literacy" is an important premise concept of PISA testing. "Literacy" refers to the ability of individuals to use the knowledge and skills they have learned to analyze and solve problems, as well as to make correct judgments and decisions in daily life situations [2]. The concept of "reading literacy" is in PISA constantly evolving definition (see Table 1).

Table 1. The evolution of the concept of reading literacy in PISA [3]

Years 2000, 2003, and 2006	Understanding, utilising, and reflecting on written texts to realise and attain one's own goals, develop knowledge and potential, and participate in society is known as reading literacy.
Years 2009, 2012, and 2015	Reading literacy is the understanding, use, reflection, and engagement of written texts to realize and achieve one's own goals, develop knowledge, potential, and participate in society.
Year 2018	Reading literacy is the understanding, use, reflection, and engagement of texts to realize and achieve one's own goals, develop knowledge, potential, and participate in society.

It can be seen from Table 1 that in 2009, PISA added "Engagement", which means that readers are not only absorbing the content of the text during the reading process, but also constructing and thinking about the content based on their own reading accumulation, such as the reader's emotional link generated in the reading process and the extension of other text content and life practice.

PISA deleted the word "written" in reading literacy until 2018, and the literal change broadened the extension of the text. For example, different parts of the text or between texts can be read with hyperlinks, and electronic reading forms such as static text and dynamic text have a lot of new explorations, which are reflected in the PISA sample questions. The PISA sample questions present many texts in the form of web pages, and also set up many related links for students to retrieve target information.

3. Main Content of PISA Reading Literacy Assessment Framework

3.1. PISA Reading Text Forms

A text reflects the scope and content of the reading. PISA reading text forms are divided into two categories: continuous text and non-sequential text. Continuous text is generally composed of sentences, and sentences form larger structures such as paragraphs, chapters, and even books. The organizational structure of the non-continuous text is different from the continuous text. It does not use sentences as the smallest unit, but mainly consists of forms. The forms of questions include charts, lists, illustrations, maps, tables, advertisements, etc., which require different reading methods from continuous texts. "Text" includes in 2018 not only handwritten and printed written materials, but also include written materials and picture materials in electronic media.

3.2. Types of Tasks

Types of tasks that reflect cognition in the reading process, mainly referring to measuring readers' understanding of texts, including retrieving relevant information, summarizing, understanding and interpreting texts, reflecting and evaluating text content, and reflecting and evaluating text forms. These task types are interconnected and reflect different competency requirements in reading tests. Among them, the tasks of retrieval, generalization, comprehension and interpretation require candidates to use information from the text, while the latter two types, reflection and evaluation of the form and content of the text, mainly use knowledge outside the text.

3.3. The Main Context

The context reflecting the purpose of reading mainly refers to the context related to the content of the text and related to the reading goal. The four contexts are: 1. Personal context - refers to reading to satisfy personal interests, such as reading novels, biographies, etc.; 2. Public context - refers to reading for the purpose of obtaining public information or participating in large-scale social activities, such as reading official documents, announcements, etc.; 3. Occupational context - refers to reading to complete work or a certain task, such as reading instruction manuals, job advertisements, etc.; 4.

Educational context - refers to reading to learn new knowledge, such as reading subject textbooks, etc.

3.4. PISA 2012 Reading Proficiency Scale

As an example from *PISA 2018 reading literacy framework*, PISA 2012 reading proficiency levels divide reading literacy into the following 7 levels (see Table 2).

Table 2. An overview of reading proficiency levels [4]

Level 6 (698 and above)	Capable of drawing a variety of accurate and extensive comparisons, contrasts, and inferences. They exhibit a thorough and in-depth comprehension of one or more texts, and they may combine ideas from other texts. With the use of advanced understandings from outside the text and different criteria or perspectives, students can make hypotheses about or critically analyse a complicated text on an uncharted subject.
Level 5 (626-697):	Competent for intensive reading tasks. For example, grasp hidden information in unfamiliar texts, have a detailed understanding of the task and can infer task-related information, can accurately evaluate and establish hypotheses, can use specialized knowledge, and can provide counterexamples.
Level 4 (553-625 points)	Competent for difficult reading tasks. For example, spotting hidden messages, grasping nuances of language, and accurately evaluating a text.
Level 3 (481-552 points)	Able to complete moderately difficult reading tasks. For example, discovering multiple pieces of information, making connections between different parts of an article, and making connections with everyday knowledge.
Level 2 (408-480 points)	Can complete basic reading tasks, such as finding the most obvious information, making low-level connections between different parts of the text, knowing the meaning of specific parts of the text, and using relevant knowledge to help understand.
Below level 1 (below 335 points)	Unable to demonstrate the most basic knowledge and skills to be assessed by PISA on a stable basis. Students at this level may experience a range of difficulties using reading literacy as a means of deepening and expanding knowledge and skills in other areas.

People can find every level's minimum scores, percentage, and level differences clearly in Table 2. In the PISA reading assessment, being at a certain level not only means that a student has mastered the knowledge and skills of the corresponding level, but also meets the requirements of the following other levels; failing to reach level 1 does not mean that the student does not have any reading literacy skills, simply indicates that the student has not demonstrated the ability to apply reading literacy skills in areas other than the school curriculum.

In addition, it should be noted that the assessment of reading literacy consists of two parts: the test and the questionnaire. The reading test mainly evaluates students' cognitive ability in different situations and different forms of texts, and the questionnaire mainly understands reading participation and learning strategies. The ability to read electronic media texts is assessed through the "Electronic Reading Proficiency Assessment" option.

4. New PISA Reading Literacy Assessment Methodology Highlights for 2018

After the PISA reading assessment framework has undergone three adjustments in PISA 2000, PISA 2009 and PISA 2018, the 2018 PISA once again takes reading assessment as an important assessment area. Some supplements and adjustments have been made to the reading literacy assessment framework. The specific changes are shown in Table 3.

Table 3. Changes in the PISA reading literacy assessment framework in different assessment cycles [5]

PISA2000		PISA2009		PISA2018	
Cognitive Process Information Orientation	grasp the general idea	Access and Search		Browse and grasp information location	
	grasp the general idea	Integration and Interpretation		Text processing and task management	
	inferential understanding				
	Reflection and evaluation of the content	reflection and evaluation			
Text	Reflection and evaluation on form				
	Prose	Media	Print, electronic edition	Materials	
	Narrative, description, illustration, argument, instruction	Environment	Author Center, Information Center	Organization and Navigation	
		Genre	Continuous text, non-continuous text, mixed text, multiple text	Genre	
Context	Non-prose	Type	Descriptive, Narrative, Expository, Argumentative, Directive, Interactive Text	Type	
	Schema, advertisements, diagrams, maps, etc.				
		personal, public, professional, educational			

The integration of reading in the conventional and modern senses, which have emerged in recent decades and will continue to be updated as a result of electronic devices and digital text transmission, is completely taken into account by this framework.

In addition, the framework includes the structures needed for the fundamental reading process. For learning to deal with complex or many texts for specific goals, certain structures—such as fluent reading, literal interpretation, intersentential integration, extraction of major ideas, and reasoning—are essential. If pupils struggle with these essential skills and are unable to perform higher-level text-processing operations, choose whether to give them the necessary support.

Moreover, the framework re-examines how domains are organized to incorporate reading processes such as assessing the authenticity of a text, finding information, reading from multiple sources and integrate/synthesize information sources. The revision re-balanced the importance of different reading processes to reflect the global importance of different constructs, while ensuring links to previous frameworks so that achievement trends can be measured.

The revision takes into account new technical options and usage scenarios. Content involving printed and digital texts can be utilized to achieve a more realistic reading assessment, consistent with texts currently in use around the world.

5. PISA Reading Results over the Years in China's Mainland

Table 4 shows the scores of students in mainland China in the PISA reading test over the years.

Table 4. PISA Reading results over the years [6-9]

	Country	Mean Score	Ranking
2009	Shanghai-China	556	Top one
2012	Shanghai-China	570	Top one
2015	B-S-J-G (China)	494	Top half
2018	B-S-J-Z(China)	555	Top one

In 2009, 2012, and 2018, China ranked first, while in 2015, the Chinese mainland only ranked in the top half among other nations. Chinese students' reading ability is not as far ahead as their math ability. Therefore, studying the assessment framework of the PISA reading assessment is helpful for the improvement of reading levels for Chinese students, as well as the high score on the following PISA test in the future.

6. Enlightenment to China's Reading Education

6.1. Continue to Improve Digital Reading and Navigation Capabilities

In the 21st century, the continuous change of electronic equipment has changed people's lifestyles and reading methods. In the current reading environment where print media and electronic media coexist, the online reading environment that appears in PISA reading has gradually become a part of people's reading style. The ability to retrieve information such as web pages and hyperlinks involved in PISA 2018 has gradually become a habit of people. During the reading process, how to access, retrieve, and filter target information without being swallowed by massive irrelevant information is one of the necessary reading "navigation" skills for contemporary students [10].

6.2. Improve Critical Reading Skills

PISA2018 further emphasizes readers' "critical reading" and "critical thinking" abilities. Specifically reflected in: the new element of "evaluation" in the definition of reading literacy, which regards reading literacy as "the comprehension, application, assessment, reflection, and engagement with texts in order to advance one's knowledge and potential personally and take part in social activities." As an important element newly added to the concept of reading literacy in PISA 2018, "evaluation" further reflects the interactive and constructive nature of reading—readers actively construct texts with the help of existing background knowledge and a series of clues obtained in social and cultural situations process of meaning. The process of finding information, monitoring and maintaining their comprehension of texts, and assessing the applicability and reliability of textual information are all carried out by adept readers using a number of abilities and tactics. It can be seen that "evaluation" emphasizes the reader's ability to discriminate and select text information, prompting readers to think about the authenticity of text arguments, the author's position, and the degree of relevance between the text and their own reading purposes, etc., which also reflects the goal of reading activities. The "Data Integration" sample questions of "Space Exploration" listed above require students to compare and contrast the arguments of three different articles, grasp the similarities and conflicts among them, and form their own positions and opinions on this basis and assess readers' critical reading ability, evaluation and reflection ability.

6.3. Intention to Set Test Reading Materials from Real Life Situations

Traditional Chinese reading assessments provide students with more scattered single texts and questions, and the purpose of reading is usually scattered reading comprehension questions, which are not evenly distributed in each stage of the text processing process. In PISA, the content selection of reading texts is close to the reality of life and allows students to try to use relevant knowledge and reading skills in various specific life situations to analyze and solve practical problems. Assessment based on real situations provides students with real needs and goals to collect relevant information and complete sequential reading tasks one after another. For example, the reading situation in PISA2018 is "Everyone is going to make a group report on the theme of space exploration in the science class. In order to prepare for the report, you are searching for relevant information on the Internet with the group members." Based on the information prompting students coming in the scene for the following questions. Each situation is composed of several questions, including traditional reading ability assessments such as information positioning, understanding text meaning and inferences, as well as more complex tasks that require students to integrate text information and make suggestions based on Internet search results or evaluate or verify multiple text messages. The situation-based assessment presents tasks in specific scenarios and decomposes them into a series of questions one by one, providing students with the scaffolding and motivation to solve problems, and also helping students in real-life scenarios in the future.

7. Conclusion

With the continuous development of the 21st century, the concept of reading is constantly updated and extended, which must require new reading skills and reading strategies in line with the development of the new era. Through the analysis of PISA reading content and assessment framework, it can be found that PISA tends to the recognition of reading electronic texts more, stress the improvement of students' reading navigation ability and critical reading ability, and Testing problem-solving skills in real situations. Chinese teachers can try to set the real task-based situation to help students solve a series of problems in real-life scenarios. It is hoped that the PISA test can bring inspiration and space for Chinese reading teaching.

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