

# Exploration of the Non-Cognitive Ability Assessment

## The Scientific Value of the Survey on Social and Emotional Skills

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*“The cognitive development of the players is enormously important, as well as social competence and character values such as discipline and teamwork.”*

*–Joachim Low*

COMPARED with cognitive skills, non-cognitive skills cannot be accomplished through simple academic level tests. It is more through self-reported research and observation reports of others. These two methods are relatively easy to be proposed and tested, but they are easily affected by social expectations, response style and familiarity, resulting in deviations from the real results (Braun et al., 2001; He & Van de Vijver, 2015). Therefore, non-cognitive ability assessment is more challenging.

The PISA test coordinated by the Organization for Economic Cooperation and Development (OECD) has become a teaching evaluation test system recognized by countries. The test measures the cognitive skills of 15-year-old adolescents around the world by testing and comparing students' reading, mathematics, and science every three years. Since most of the content of the test is the cognitive category of the students, it is considered that “too much emphasis on standardized testing, narrowing the content of students' learning, ..., paying too much attention to the cognitive ability of young people while ignoring the development of non-cognitive ability” (Huang, 2019).

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In recent years, the OECD has also begun to focus on the research and development of non-cognitive capability. It tried to introduce international evaluation standards to test students' creativity to test the "soft skills" of students from various countries, that is, social and emotional skills such as creativity, teamwork, communication and negotiation, and named it Social and Emotional Skills.

Based on related research, the evaluation framework for students' social and emotional skills has been constructed, and the evaluation project of "Social and Emotional Skills" for adolescents were launched in 2018. This aims to evaluate the social and emotional skills of young people in participating countries and cities, and how to improve these skills through education, so as to promote the balanced development of cognitive skills and social emotions. At the end of 2019, the first round of official evaluation was completed in 10 cities in 9 countries around the world. On September 7, 2021, the OECD officially released the global report on the Survey on Social and Emotional Skills at its headquarters in Paris, France.

The evaluation of the SSES project is based on complex measurement methods designed to capture characteristics that are difficult to quantify. It uses the "Big Five" personality characteristics as the fundamental test system. It measures 19 specific social and emotional skills produced by the "five" personality factors of psychology. Furthermore, through a tripartite questionnaire of parents, teachers, and schools, collect information about the learning environment of students' homes, schools, and communities, and finally obtain information about the conditions or practices that cultivate or hinder the development of these key skills.

In terms of measurement methods, unlike other large-scale international assessments PISA conducted before, the OECD measures social and emotional skills based on the student-parent-teacher "triangulation" model (Kankaraš et al., 2019). That is, in addition to the traditional student self-evaluation, the indirect evaluation of the students' social and emotional skills by parents and teachers has improved the reliability of the evaluation. In order to achieve mutual verification between the collected information, the primary guardian is responsible for filling out the student-related information in the parent questionnaire. The teacher questionnaire is completed by the teacher who knows the student best, and each teacher is responsible for no more than 10 students. The school questionnaire is completed by the school principal or person in charge.

In terms of measurement tools, in order to solve the validity problem and correct the methodological limitations of self-reporting and observer reporting, the SSES test combines quantitative and qualitative methods. After many rounds of empirical inspection and testing, the evaluation rubric for each skill is finally developed. The rubric is not composed of simple, straightforward, and simple items of a certain reading level, but contains a series of overall items that share the same orientation and measure the same structure. Multiple rounds of inspection and testing include cognitive inter-

view, online survey, topic experimental test, trial test and final formal test (OECD, 2021, September 7).

As for the test subjects, the SSES evaluation comprehensively considers the age of the students and the sample size when selecting the samples to ensure that the samples are highly effective and representative. Compared with PISA, the SSES test object has been expanded, not only for 15-year-old students, but also for 10-year-old students. Each country participating in the project has no less than 6,000 test subjects. In addition to students, the objects also involve parents of students, teachers who are most familiar with students, and school principals or principals (OECD, 2021). Prior to this, other social and emotional competence tests have been carried out internationally, such as the Program for the International Assessment of Adult Competencies (PIAAC), the International Early Learning Study (IELS) and the Teaching and Learning International Survey (TALIS). TALIS is aimed at teachers, PIAAC and IELS are skills tests for adults and 5-year-old children respectively. Therefore, in addition to more diverse testers, the SSES test also fills in the gap in the experience data of 10 to 15-year-old teenagers in the relevant international tests.

Compared with the existing research on social and emotional ability in the world (such as the social emotional learning project organized by “Academic, Social and Emotional Learning” in the United States, the “Teacher Emotional Intelligence” training project developed by the Yale Center for Emotional Intelligence at Yale University and the United Nations The UNICEF “Social Emotional Learning” project, etc.), the SSES project achieved a breakthrough in sample size and region. SSES is based on a representative sample of students and is the first large-scale international study on the social and emotional skills of 10-year-old and 15-year-old adolescents and their impact on learning outcomes. Even though many of the indicators and measurement dimensions it uses are derived from existing research, its greatest value lies in allowing these indicators and measurement dimensions to be measured and comparable on a large scale in different countries and cultural backgrounds. This not only promotes peer learning between countries, but also provides an international model for global non-cognitive ability testing.

At the same time, we are also worried about some problems that may exist in the SSES test. For example, did they pay attention to cultural and language differences in the preparation of the test questionnaire and interpretation of the results? Will using the same questionnaire or scale between people of different languages and cultures affect the accuracy of the data? Will it cause people to distrust the questionnaire translation? From the previous PISA test, although a series of measures have been taken to improve the reliability and validity of the test tool during the test, the limitations of geopolitics, linguistics and cultural background cannot be completely eliminated (Forestier, & Adamson, 2017). In addition, in terms of the representativeness of sample selection, the first round of testing was conducted in 10 cities in 9 countries around the world. Then there were obvious differences in economy,

politics, culture and education among these 10 cities, which will inevitably affect the performance of students in social and emotional skills. How to define the relationship between the social and emotional skills of students and the factors mentioned above is also a question that needs to be explored (Zhou, 2021).

Based on the above considerations, how to enhance the effectiveness of cross-regional non-cognitive ability assessment is of great significance. For example, in the evaluation method, the use of intelligent information technology (facial expression, action posture, eye movement, infrared brain imaging, etc.) can be used to explore diversified evaluation methods. In the evaluation tools, more contextual evaluation tasks are created. Using real problem situations as the carrier, examine students' creativity, perseverance, emotional regulation ability and social interaction and other advanced and complex constructions (Zhang & Liu, 2021). In addition, in terms of evaluation indicators, relying on the general indicators in the SSES project to help build localized evaluation indicators for each country, and conduct multi-level and dynamic monitoring and measurement of social and emotional ability indicators, thereby forming a scientific localized evaluation system (Zu & Kyllonen, 2019).

Finally, we should know that non-cognitive ability is different from cognitive ability. It's not about highlighting specific characteristics to the maximum, but about achieving balance. Therefore, the idea of the SSES project is not to create rankings, but to provide teachers, educators and policy makers with a "balanced" image in more dimensions. The final result of SSES is not a simple international competition, but aims to find out the effectiveness and blind spots of each country's education policy through evaluation, further analyze the problems existing in the education development of each country, and show their respective achievements and advantages to provide countries with experiences from other countries that can be used for reference.

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