

A HISTORICAL–CONCEPTUAL ANALYSIS OF INTEGRATING INTERNATIONAL ASSESSMENT STUDIES INTO NATIONAL EDUCATION POLICY

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Abstract

This article examines the conceptual underpinnings of the Programme for International Student Assessment (PISA) and traces how international large-scale assessments have been formed, evolved, and aligned with education policy. It outlines the historical stages in the emergence of assessment concepts; the coherence between assessment frameworks and national policy agendas; the role of the Organisation for Economic Co-operation and Development (OECD) as the developer and steward of the PISA concept; and the critical perspectives surrounding these frameworks. The analysis highlights implications for national education systems, including the use of international methodologies and indicators to inform measurement tools, curricular materials, and strategic directions. [5, 266]

Keywords: PISA international assessment program; conceptual framework; national education system; student literacy; education quality.

Introduction

In an era of global change, the development trends of quality-assurance systems across levels of education, Uzbekistan’s participation in international comparative assessments, opportunities to enhance system capacity, comprehensive analyses of international study results, the assessment of students’ literacy in reading, the natural sciences, mathematical reasoning, and positive thinking, the methodologies of international programs, and the use of assessment criteria in creating national instructional and measurement materials—together with strategic directions in quality assurance—constitute some of the most pressing tasks in education today. Below is a historical–conceptual analysis of how international assessment studies, using PISA as a prime example, can be applied to a national education system.

Literature Review

According to the PISA concept, the core purpose of the assessment program is framed as seeking answers to questions such as: To what extent do 15-year-old students meet the

demands of science and society? The principal goal is to determine how well students can apply what they learn in school to real-life situations [5, 266]. Beyond analyzing school education, PISA provides essential information for other stages of education. In a system of lifelong learning, such information is of great significance. In 2000, a total of 250,000 students from 32 countries participated in PISA [1, 10].

Politically, PISA is governed internationally by the PISA Governing Board (PGB). Initiated by the Organisation for Economic Co-operation and Development (OECD) in 1997, PISA has been implemented since 2000 and is administered every three years [4, 9]. Seventy-eight countries/economies took part in PISA 2018, and participation by 88 countries/economies was planned for 2022. The cycle scheduled for 2021 was postponed to 2022 due to the pandemic. This expansion indicates PISA's growing global reach. Of the 88 intending participants, 83 planned to administer computer-based assessments.

The history of international assessment in education effectively began in 1958, when several European countries and the United States founded the International Association for the Evaluation of Educational Achievement (IEA) in Hamburg. The association, a non-governmental scholarly organization, counted among its members leading scholars of international programs such as the educator B. Bloom and the psychometrician R. L. Thorndike [4, 11]. The goal was to complement understandings of educational quality and historical development, and changing traditions in education, with empirical findings. Another key aim was to enable cross-national comparisons of education based on common metrics [4, 12]. Before the association's establishment, eminent scholars had already been studying instructional processes in various countries from socio-cultural perspectives. In 1960, the IEA began its first international comparative programs. In 1964, the first international mathematics assessment—the First International Mathematics Study (FIMS)—was conducted. A principal organizer was the German Institute for International Educational Research (DIPF). This assessment targeted Grade 7 students [4, 8].

From 1966 to 1973, with the participation of 21 countries and at the initiative of scholars including J. B. Carroll, the “Six Subjects Survey” was conducted. It assessed six areas: science, literature, reading, English, French as a foreign language, and civics/political education. In the early 1990s the IEA launched the Reading Literacy Study for students aged 9–14 [2, 20], which later inspired PIRLS/IGLU. Starting in 1991, the International Adult Literacy Survey (IALS) assessed literacy among adults aged 16–65 across 21 countries [3, 16]. Since 2010, the OECD has administered the Programme for the International Assessment of Adult Competencies (PIAAC), in which 35 industrialized countries currently participate. Conducted since 1995, the Third International Mathematics and Science Study—now known as TIMSS (Trends in International Mathematics and Science Study)—is administered every four years by the IEA. TIMSS continues the sequence of earlier assessments mentioned above: FIMS (1964; 12 countries), the Second International Mathematics Study (SIMS, 1980–1982; 20 countries), and the First and Second International Science Studies (1968–1972; 1982–1986).

Beginning in the 1950s, the OECD (Iqtisodiy hamkorlik va taraqqiyot tashkiloti, IHTT) initiated comparative analyses of education statistics across member countries. The aim was to study needs for skilled labor by planning education within industrialized economies. Comparative statistics were valuable not only economically but also socio-politically, enabling analyses of equity in access to education. Initial OECD approaches emphasized statistics comparing public expenditure on education and financing sources. Since 1992 these statistical reports have been published under the title Education at a Glance. The OECD's assessment indicators have been widely used beyond education, including in economics, the socio-political sphere, and education programming [3, 17].

By the late 1990s, the OECD broadened its indicators to include the measurement of competencies attained in education. The goal shifted from merely comparing financial inputs and resources to measuring student learning outcomes. The IEA's accumulated experience contributed to the practical implementation of PISA. PISA results inform national education policy, guide reform directions, and serve as a data source for research. PISA enables systematic study of the key competencies of 15-year-olds in reading, mathematics, and science [1, 13].

The OECD is an organization established to support the economies and social life of industrialized countries through policy coordination. Its principal aims include: creating new jobs; providing funds to drive economic growth and raise living standards; shaping fiscal and economic policies; managing international competitiveness—especially as borders open for global production and trade—by helping governments improve economic efficiency and quality systems; and fostering human capital growth through education [1, 14].

Methodology

Over the last decade, OECD education indicators have continued to evolve and are disseminated to the public in Education at a Glance. Within the Indicators of Educational Systems (INES) project, the OECD develops indicators covering human and financial resources invested in education, system functions, development, and returns on investment.

Results / Findings

PISA is one of the OECD's education projects, designed to assess and compare students' foundational competencies internationally. Conceptually, PISA targets competencies linked to real life and places less emphasis on narrowly defined subject knowledge. It examines how the foundational competencies formed by the end of compulsory schooling relate to the knowledge and concepts outlined in school curricula [1, 17]. An international panel of experts continuously refines the general concept to ensure it measures key competencies. Notably, the program's aims, methods, principles, criteria, and the interpretation of results have been the subject of extensive debate. Since its launch, PISA

has been improved iteratively, integrating salient aspects of contemporary development into its content, which has contributed to the growing number of participating countries. In addition to assessing core competencies, PISA uses questionnaires to evaluate conditions for teaching and learning. These instruments identify factors that influence the development of key competencies—for example, students' interest in learning, the perceived relevance of reading to their lives, and the conditions created at home and school for learning. The study explores how school instruction and activities, as well as students' social background, relate to the formation and development of competencies. Such data help organize instruction effectively, nurture positive attitudes toward learning, and analyze the strengths and weaknesses of standards. The questionnaires also cover out-of-school and independent learning, and the “academic capital” available in the home.

Discussion

PISA gathers information not only from students, but also—through optional instruments—from parents, teachers, and school administrators to identify factors that influence competency development. School and out-of-school learning environments are examined. The parent questionnaire (optional for participating countries) focuses on conditions for learning at home and parental support for children's competency development. The school questionnaire examines the links between teaching and learning conditions and the development of competencies, including school structures, resources, and subject-specific provisions.

Over the course of life, students develop the ability to solve diverse real-world problems and navigate complex situations; their social experience accumulates. By expressing ideas, positions, and attitudes in different problem contexts, students' key competencies grow. These competencies are shaped by influences from school education, independent study, the family environment, the broader environment, and out-of-school settings. Their formation is critical for successful preparation for professional life. Consequently, personal competencies integral to professional activity—such as responsibility, accountability, teamwork, presenting one's results, and self-regulation under challenging conditions—develop in parallel with foundational competencies.

Conclusion

The objective of PISA is to determine the extent to which 15-year-olds meet the demands of science and society and to study how they apply school-learned knowledge in everyday life. Methods have been developed to measure literacy in reading, mathematics, and science. On this basis, participating countries are ranked. Students' key competencies develop not solely within individual subjects, but through cross-curricular integration, personal observation, social experience, and independent learning.

References

1. Bildungsmonitoring Schweiz. Für das Leben gerüstet? Die Grundkompetenzen der Jugendlichen – Nationaler Bericht der Erhebung // PISA 2000, p. 91.
2. Elley, W. The IEA Study of Reading Literacy: Reading and Instruction in Thirty-Two School Systems. Oxford: Pergamon Press, 1994, p. 20.
3. Lehmann, P. Aspekte der Lernausgangslage und der Lernentwicklung, 1999, p. 17. Available at: <https://bildungserver.hamburg.de/contentblob/2815702/3b66049d4257501a0d44dce9b7ca449c/data/pdf-schulleistungstest-lau-5.pdf;jsessionid=41BC7B89339EDDFA1C84B4F5DA60AEE8.liveWorker2>
4. PISA 2009 // <https://www.oecd.org/pisa/pisaproducts/46619755.pdf>. – p. 9.
5. Reiss K., Weis M., Klieme E., Köller O. Grundbildung im internationalen Vergleich // Waxmann 2019 Münster, New York. – p. 266.