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Low PISA Performance Students: Factors, Perceptions, and Improvement Strategies

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Abstract

The PISA assessment serves as a critical tool for evaluating and improving educational systems worldwide. The ethical implications of low performance in PISA are significant, requiring a comprehensive approach to address both immediate educational needs and broader systemic issues. By leveraging insights from PISA and implementing evidence-based interventions, policymakers and educators can work towards creating a more equitable and effective educational environment for all students. This study investigates the underlying factors contributing to the low achievement of Jordanian students in the Program for International Student Assessment (PISA) tests and proposes effective strategies to enhance their performance. PISA, developed by the Organization for Economic Co-operation and Development (OECD), evaluates 15-year-old students' skills in reading, mathematics, and science, focusing on their ability to apply knowledge in real-world contexts. Despite its global significance, Jordanian students have consistently underperformed in these assessments. The study employs a mixed-methods approach, including a comprehensive literature review, analysis of the Jordanian educational context, and surveys with educators and students. The findings reveal several key factors impacting performance: curriculum misalignment with PISA competencies, socio-economic disparities, high teacher turnover, and varying levels of teaching quality. Additionally, perceptions of PISA among educators and students highlight challenges related to unfamiliar test formats and applied knowledge requirements. Based on these insights, the study recommends a series of interventions to improve performance. These include aligning the national curriculum with PISA competencies, enhancing teacher training programs, integrating technology into learning processes, promoting extracurricular activities, and fostering active parental involvement. By addressing these areas, the study aims to provide a roadmap for policymakers, educators, and stakeholders to enhance Jordanian students' performance in future PISA assessments and overall educational outcomes.

Keywords: *PISA Performance, Educational Assessment, Student Achievement, Curriculum Alignment, Educator Perceptions*

INTRODUCTION

The Programme for International Student Assessment (PISA) is a crucial tool for evaluating educational systems worldwide. Developed by the Organisation for Economic Co-operation and Development (OECD) in 1997, PISA aims to measure the performance of 15-year-old students in reading, mathematics, and science. Conducted every three years, this comprehensive assessment provides valuable data that helps countries improve their educational policies and outcomes. Despite its benefits, low performance in PISA raises several ethical concerns that educators, policymakers, and stakeholders must address (OECD, 2015).

PISA is designed to assess not only the knowledge that students have acquired but also their ability to apply that knowledge in real-world contexts. This focus on application makes PISA unique compared to other standardized tests. By evaluating how well students can use their skills to solve problems they might encounter outside the classroom, PISA provides a more holistic view of students' preparedness for future challenges (OECD, 2015; OECD, 2016).

The first PISA competition was launched in 2000, with 43 countries participating. The second competition in 2003 saw participation from 41 countries, and the third in 2006 involved 57 countries, including only three Arab nations: Jordan, Qatar, and Tunisia. The results of the 2022 PISA cycle revealed a significant decline in the performance of Jordanian students. Specifically, their scores dropped by 39 points in mathematics, 77 points in reading, and 54 points in science. These results highlight a substantial educational gap and indicate a state of educational poverty among students in Jordan. The data suggests that a student who attends school for 11 years gains educational benefits equivalent to just 7.5 years of schooling.

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This alarming situation underscores the need for comprehensive educational reform, which must start within the classroom. Effective reform should focus on the foundational stages of education, long before students reach the secondary level. Addressing these issues early on is crucial to ensure that students acquire the necessary skills and knowledge to succeed. It involves improving teaching methods, curriculum development, and resource allocation to create an environment that supports effective learning.

Furthermore, educational reforms should also consider the socio-economic factors that contribute to educational disparities. Providing support for disadvantaged students, implementing targeted interventions, and ensuring equitable access to quality education are essential steps in bridging the educational gap. By focusing on these areas, Jordan can work towards improving its educational outcomes and providing its students with the opportunities they need to thrive in an increasingly competitive global environment.

The results of PISA often reveal significant disparities in educational outcomes between countries, regions, and socio-economic groups. These disparities highlight underlying ethical issues related to equity, access to quality education, and the broader implications of educational inequality. For instance, students from disadvantaged backgrounds or marginalized communities frequently score lower on PISA assessments (Alharbi, 2020; Bozkurt, 2014). This raises questions about the fairness and inclusiveness of educational systems and the societal responsibility to ensure that all students have equal opportunities to succeed.

Several studies have shown that educational inputs, incentives, and complementarities significantly impact student performance. For example, Mbiti et al. (2019) found that various educational interventions in Tanzania improved student outcomes, suggesting that similar strategies could be applied to address disparities revealed by PISA results. Additionally, McEwan (2015) conducted a meta-analysis of randomized experiments in developing countries, demonstrating the effectiveness of targeted educational interventions in improving learning outcomes.

The use of technology in education has also been explored as a means to enhance student performance. Muralidharan, Singh, and Ganimian (2019) provided experimental evidence from India showing that technology-aided instruction can significantly improve learning outcomes. This suggests that incorporating technology into the curriculum could help bridge the gap in educational achievement highlighted by PISA.

The ethical implications of low performance in PISA are multifaceted. On one hand, there is a need to address the immediate educational deficits that these students face. On the other hand, there is a broader societal obligation to create an equitable educational environment that provides all students with the tools they need to succeed. This includes ensuring access to quality education, adequate resources, and effective teaching strategies (Kamens & McNeely, 2009).

Furthermore, the role of teacher quality and turnover cannot be overlooked. Studies have shown that high teacher turnover negatively impacts student achievement (Ronfeldt, Loeb, & Wyckoff, 2013). In countries with high teacher turnover rates, such as Rwanda, the instability in teaching staff can exacerbate educational inequalities (Zeitlin, 2021). Therefore, policies aimed at improving teacher retention and quality could also help address the disparities highlighted by PISA.

In addition to teacher quality, the broader educational environment plays a critical role. For instance, the impact of various educational programs, such as the "Mais Educação" program in Brazil, has been shown to positively influence educational indicators (Oliveira et al., 2016). These findings suggest that comprehensive educational reforms, which include both curricular and extracurricular components, can help improve overall student performance.

Another critical aspect is the integration of Information and Communication Technology (ICT) in education. Fannakhosrow et al. (2022) conducted a comparative study showing that ICT-based instruction can enhance learners' academic enthusiasm and performance, which aligns with the goals of PISA to measure and improve students' ability to apply their knowledge in practical contexts.

The significance of socio-emotional skills and personality traits in academic performance has also been highlighted in various studies. For example, Poropat (2009) conducted a meta-analysis showing that certain personality traits, such as conscientiousness, are strongly correlated with academic performance. Additionally,

Primi et al. (2016) explored the reliability and validity of self-reported social-emotional skills among adolescents, emphasizing the importance of these skills in educational settings.

Moreover, the management of educational institutions and public service delivery plays a vital role in shaping educational outcomes. Studies by Rasul and Rogger (2018) and Rasul, Rogger, and Williams (2021) have shown that effective management practices in public service can significantly improve organizational performance and service delivery, which in turn can positively impact educational outcomes.

The PISA framework also includes comprehensive surveys that collect data on various aspects of students' lives, including their attitudes towards learning, socio-economic backgrounds, and school environments. These surveys help provide a more holistic view of the factors influencing student performance and can inform targeted interventions to address specific challenges (UNESCO, 2020).

In conclusion, the PISA assessment serves as a critical tool for evaluating and improving educational systems worldwide. The ethical implications of low performance in PISA are significant and multifaceted, requiring a comprehensive approach that addresses both immediate educational needs and broader systemic issues. By leveraging the insights provided by PISA and implementing evidence-based interventions, policymakers and educators can work towards creating a more equitable and effective educational environment for all students (World Bank, 2018).

The goal of this paper is to pinpoint the reasons behind the low performance of Jordanian students in the PISA tests and to suggest effective strategies to address and overcome this issue. By examining the factors contributing to poor performance, the study aims to provide insights and recommendations that can help improve educational outcomes for Jordanian students. This involves analyzing the impact of socio-economic factors, teacher quality, educational interventions, and the use of technology in education. The paper also proposes evidence-based strategies to enhance students' skills and performance in the PISA assessments.

Study Purpose

The purpose of the current paper is to identify the reasons behind the low achievement of Jordanian students in the PISA tests and to propose effective strategies to address and overcome this issue. By analyzing the factors contributing to poor performance, the study aims to provide insights and recommendations that can help improve educational outcomes for Jordanian students. This includes examining the role of socio-economic factors, teacher quality, educational interventions, and the use of technology in education, as well as proposing evidence-based strategies to enhance students' skills and performance in the PISA assessments.

Importance of the Study

The significance of this study lies in its potential to impact educational policy and practice in Jordan. By uncovering the reasons behind the low performance of Jordanian students in the PISA tests, this research addresses a critical issue that has implications for the country's educational system and its future development. Here are the key aspects of the study's importance:

Policy Implications

Informed Decision-Making: The findings can provide policymakers with data-driven insights into the specific challenges faced by students. This information is crucial for designing targeted interventions and reforms aimed at improving educational quality and student performance.

Resource Allocation: Understanding the root causes of low achievement can help in the strategic allocation of resources, ensuring that funding and support are directed toward the most impactful areas.

Educational Practice

Teacher Training and Development: The study can highlight areas where teachers may need additional training or support, particularly in implementing effective teaching strategies that can enhance student learning outcomes.

Curriculum Enhancement: Insights from the study can inform curriculum development, ensuring that it is aligned with international standards and addresses the specific needs of Jordanian students.

Student Outcomes

Improved Performance: By addressing the identified issues, educational interventions can be designed to enhance students' skills in critical areas assessed by PISA, such as reading, mathematics, and science.

Equity in Education: The study can shed light on disparities in educational outcomes based on socio-economic factors, helping to promote equity and inclusion within the educational system.

Long-Term Impact

Economic Development: Improved educational outcomes are closely linked to the broader economic development of a country. By enhancing the skills and competencies of students, the study contributes to building a more competent and capable workforce for the future.

Global Competitiveness: Performing well in international assessments like PISA can enhance Jordan's reputation on the global stage, demonstrating its commitment to high educational standards and continuous improvement.

Academic Contribution

Research Advancement: The study adds to the body of knowledge on educational assessments and the factors influencing student performance. It provides a foundation for future research and can inspire further studies in similar contexts or on related topics.

Innovative Solutions: By proposing practical and evidence-based strategies to address low achievement, the study can inspire innovative approaches to teaching and learning that can be adopted by educators and institutions worldwide.

Research Questions

This study seeks to address the following key questions to understand and improve the performance of Jordanian students in the PISA tests:

What are the primary factors contributing to the low achievement of Jordanian students in the PISA tests?

How do curriculum and teaching methodologies in Jordan align with the competencies assessed by the PISA tests?

What are the perceptions of educators and students regarding the PISA tests and their relevance to the Jordanian educational context?

What effective strategies and interventions can be implemented to improve Jordanian students' performance in future PISA assessments?

How do extra-curricular activities and parental involvement impact students' academic performance, particularly in relation to PISA outcomes?

These research questions aim to provide a comprehensive understanding of the various factors influencing PISA performance among Jordanian students and to identify actionable strategies to address these issues effectively.

CONCEPTUAL FRAMEWORK

The conceptual framework for this study is designed to elucidate the multifaceted factors influencing the low performance of Jordanian students in the PISA assessments. This framework integrates various components

that interact to shape students' academic outcomes. It serves as a guide to understanding the relationships between these factors and provides a basis for proposing interventions aimed at improving student performance figure 1.

Educational Inputs and Context:

Curriculum Alignment: The degree to which the national curriculum aligns with the competencies assessed by PISA.

Teacher Quality and Turnover: The impact of teacher qualifications, experience, and stability on student learning outcomes.

Educational Resources: Availability and adequacy of educational materials and infrastructure.

Technology Integration: The use of ICT in teaching and learning processes.

Socio-Economic Factors:

Socio-Economic Status (SES): Influence of students' socio-economic backgrounds on their academic performance.

Parental Involvement: The role of parents in supporting and enhancing their children's education.

Community and Environmental Factors: The broader socio-economic environment affecting student learning.

Student Factors:

Self-Efficacy: Students' belief in their ability to succeed in academic tasks.

Engagement and Motivation: Levels of student interest and participation in learning activities.

Socio-Emotional Skills: Development of non-cognitive skills that support academic success.

Perceptions and Attitudes:

Educator Perceptions: Teachers' views on the relevance and importance of PISA assessments and their approach to preparing students.

Student Perceptions: Students' attitudes towards PISA and their perceived relevance of the test to their future.

Systemic and Policy Factors:

Educational Policies: National and local education policies that influence curriculum, teaching practices, and resource allocation.

Assessment and Accountability: Mechanisms for evaluating student performance and holding schools accountable for educational outcomes.

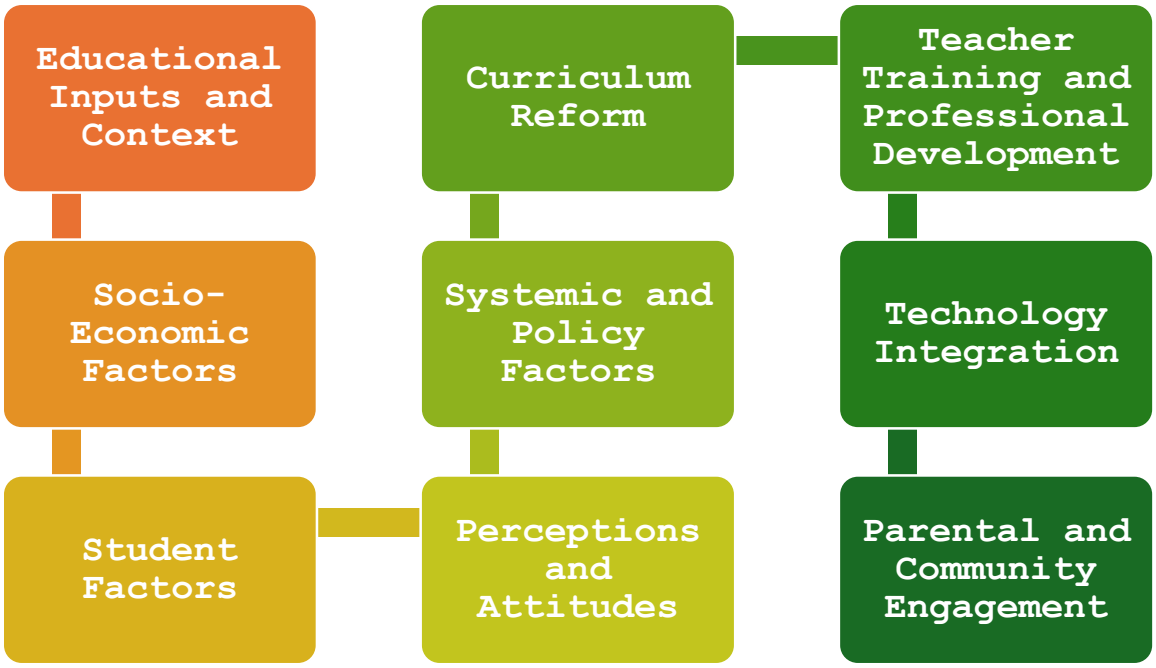

Figure1: *Low PISA Performance Conceptual Framework*

LITERATURE REVIEW

The Program for International Student Assessment (PISA): An Overview of Its Development and Implementation

The Programme for International Student Assessment (PISA) is a research initiative established by the Organisation for Economic Co-operation and Development (OECD) in 1997 (OECD, 2015). The initiative is overseen by the PISA Governing Board under the OECD Directorate for Education. A consortium, supervised by the PISA Governing Board, is responsible for the preparation, development, evaluation, and international reporting of the tests and questionnaires used in the research. The PISA program is implemented globally, with designated national centers in each participating country that administer the tests, analyze the results, and prepare reports. This initiative assesses the academic performance of 15-year-old students and evaluates educational systems accordingly (OECD, 2016).

Conducted every three years, PISA aims to collect comparable data to help countries enhance their educational policies and outcomes. The study has become increasingly significant in educational policy-making at both national and international levels. It complements national monitoring efforts by offering regular assessments within an internationally recognized framework. By examining the relationships between student learning and various influencing factors, PISA provides insights into the sources of performance differences within and between countries. It also evaluates aspects of students' family lives, self-esteem, promotional aspects, and their roles and motivations in their educational and social lives.

PISA tests generally measure the skills of 15-year-old students in science, mathematics, and reading, as well as their ability to apply this knowledge in everyday life. In the context of PISA research, "literacy" is defined as the ability to seek, use, adapt, and evaluate written resources to enhance a student's knowledge and potential, ensuring active participation in society and a more engaged role (OECD, 2015).

The Evolution of PISA Testing: From Paper-Based to Computer-Based Assessments

Since 2015, the PISA test has been administered primarily on computers. Participating students access the electronic test booklet using passwords provided to them. The test is age-based, meaning it is administered to 15-year-old students regardless of their grade level in school. Homeschooled students are excluded from this test. In countries where the infrastructure for computer-based testing is insufficient, the traditional paper-based method is still used. These countries used to have only reading, science, and math questions until 2012, after which new questions were prepared exclusively for digital assessment.

Both the computer-based and paper-based tests consist of assessment units. The test begins with a two-hour cognitive testing session where students answer multiple-choice and open-ended questions. This is followed by a 45-minute survey session. Both sections are completed on the same day.

In the cognitive testing section, students encounter questions involving texts, shapes, tables, graphs, and related queries. They also answer yes/no or agree/disagree questions. This section assesses students' mathematical literacy, scientific literacy, and reading skills (OECD, 2015).

Assessing Mathematical Literacy: Framework and Objectives

This section assesses students' abilities in mathematical reasoning and problem-solving. It focuses on their capability to formulate, apply, and interpret mathematics within real-world contexts. Mathematical literacy involves the proficient use of concepts, facts, methods, and tools to understand, describe, explain, and predict occurrences. The questions in this section address professional, social, and scientific topics, such as calculating project expenses, interpreting national statistics, and modeling natural phenomena, along with everyday situations (OECD, 2015).

Framework for Assessing Scientific Literacy

In this section, students are asked questions that relate scientific knowledge to real-world scenarios. This part of the test assesses students' abilities to explain, investigate, design, and evaluate science-related topics, as well as their skills in interpreting data and results scientifically. Scientific literacy is assessed across three dimensions: competencies, content areas, and types of knowledge. It evaluates not just knowledge mastery, but also the ability to apply this knowledge creatively in real-life situations, encompassing a broader scope than the typical school science curriculum (OECD, 2016).

Framework for Assessing Reading Skills

The reading skills section of PISA evaluates students' ability to understand and use information from texts, as well as their verbal expression skills. This section tests reading skills based on achieving specific goals, understanding, using, and developing knowledge, recognizing relationships between topics, and reflecting on texts. It is divided into three dimensions: different types of texts, cognitive processes involved in interacting with the text, and questions and tasks of varying difficulty levels (OECD, 2015).

Comprehensive Surveys in PISA Research

PISA research is an extensive study designed to uncover different models of educational success. Therefore, the surveys conducted during the study are crucial for data collection. These surveys gather information on various aspects, including students' attitudes toward science, mathematics, and reading; their motivation to learn; learning strategies; socio-economic backgrounds of students and schools; educational policies; and management practices of institutions. Standard school and student surveys are conducted in each participating country, while participation in additional surveys is optional based on the country's preferences. The types of surveys include:

School Survey

Student Survey

Career Education Survey

ICT Survey

Teacher Survey

Parent Survey

Evaluation Process of the PISA Exam

The data gathered from the PISA exam are compiled into national and organizational reports, which are then used to update, develop, and enhance education and training programs, as well as to address any existing deficiencies. For the evaluation of the PISA exam results, all multiple-choice questions and some short-answer open-ended questions are automatically scored by the system. Responses to open-ended questions that do not fall into these categories are reviewed and recorded by three separate committees

composed of subject teachers at the national center. The final results are then sent to the international center (OECD, 2015).Ethical Concerns and Educational Outcomes.

Disparities in Educational Outcomes and Interventions: Insights from PISA Findings

PISA findings often reveal significant disparities in educational outcomes between countries, regions, and socio-economic groups, highlighting ethical issues related to equity and access to quality education. Students from disadvantaged backgrounds or marginalized communities frequently score lower on PISA assessments, raising concerns about the fairness and inclusiveness of educational systems (Alves et al., 2016). Various studies have examined the impact of socio-economic factors on educational performance (Banerjee et al., 2007; Beasley & Huillery, 2017).

Educational interventions are crucial in addressing these disparities. For example, Almeida et al. (2016) assessed the impact of the "Mais Educação" program on educational outcomes in Brazil, finding significant improvements in student performance. Similarly, Banerjee et al. (2017) discussed scalable policies and interventions that can help mitigate educational inequalities.

Teacher quality and turnover significantly impact student outcomes. High teacher turnover negatively affects student achievement (Ronfeldt et al., 2013). Effective management practices and teacher incentives can improve educational outcomes, as demonstrated in research by Banerjee, Chattopadhyay, Duflo, Keniston, and Singh (2021), who examined police performance improvements in India through incentives and managerial autonomy.

The use of technology in education has shown promise in enhancing student performance. Beg et al. (2022) found that engaging teachers with technology significantly increased student achievement, highlighting the potential for technology-aided instruction to bridge educational gaps.

Equity and Access to Quality Education

One of the primary ethical issues is the disparity in educational quality and access. Low performance in PISA often highlights significant inequities within and between countries. Students from disadvantaged socio-economic backgrounds, rural areas, and marginalized communities frequently perform worse than their more privileged peers. This inequity raises ethical questions about the fairness and inclusiveness of educational systems and the societal responsibility to ensure that all students have access to quality education.

Educational Resources and Support

The allocation of educational resources and support services is another ethical concern. Schools in low-income areas often lack adequate funding, experienced teachers, and essential learning materials. This resource gap can contribute to lower student performance on assessments like PISA. Ethical considerations must address how resources are distributed and ensure that all students receive the support they need to succeed.

Teaching Quality and Professional Development

Teaching quality significantly impacts student performance. In many regions, teachers may lack proper training, ongoing professional development, or the support needed to implement effective teaching strategies. This lack of support can result in poor student outcomes, raising ethical questions about the investment in and prioritization of teacher education and professional growth.

Student Well-being and Pressure

The pressure to perform well in international assessments can negatively affect student well-being. High-stakes testing environments can lead to stress, anxiety, and a narrow focus on test preparation at the expense of a well-rounded education. Ethical considerations should include the mental health and overall well-being of students, ensuring that educational policies and practices do not harm them.

Accountability and Blame

Low performance in PISA can lead to blame being placed on students, teachers, or specific schools, without considering the broader systemic issues. Ethical accountability requires a comprehensive approach that examines underlying factors such as socio-economic conditions, educational policies, and resource allocation. It is crucial to avoid scapegoating and instead focus on systemic improvements.

Policy Implications and Interventions

Ethical policy-making should be informed by PISA results to address identified weaknesses. Interventions must be equitable, evidence-based, and aimed at long-term improvements rather than short-term fixes. Ethical considerations should guide the design and implementation of policies to ensure they benefit all students, particularly those most in need.

RESULTS AND DISCUSSION

Primary Factors Contributing To The Low Achievement Of Jordanian Students In The PISA Tests

identify and analyze the various elements that negatively impact the performance of Jordanian students in the PISA assessments. Factors to consider include:

Socio-economic Status: Investigating how the socio-economic backgrounds of students influence their academic performance in PISA tests.

Quality of Education: Evaluating the effectiveness of teaching methods, curriculum design, and availability of educational resources in Jordanian schools.

Teacher Competence: Assessing the qualifications, training, and experience of teachers, as well as their ability to deliver high-quality education.

School Infrastructure: Examining the physical and technological infrastructure of schools, including access to laboratories, libraries, and digital learning tools.

Parental Involvement: Analyzing the role of parental support and involvement in students' education.

Student Motivation and Engagement: Understanding the levels of student motivation, engagement, and attitudes towards learning and assessments.

Educational Policies: Reviewing national educational policies and their implementation to determine their impact on student performance in international assessments.

Curriculum And Teaching Methodologies In Jordan Align With The Competencies Assessed By The PISA Tests

explore the relationship between the Jordanian educational curriculum and teaching methodologies and the competencies measured by the PISA tests. Key aspects to consider include:

Curriculum Content: Analyzing the alignment between the Jordanian curriculum and the PISA framework, which assesses reading, mathematics, and science literacy. This includes evaluating the extent to which the curriculum covers critical thinking, problem-solving, and application of knowledge in real-world contexts.

Teaching Methods: Examining the pedagogical approaches used in Jordanian classrooms. This includes traditional methods versus modern, student-centered approaches that emphasize inquiry-based learning, collaborative projects, and the integration of technology.

Assessment Practices: Comparing the types of assessments used in Jordanian schools with the PISA assessment methods. This involves looking at how students are tested on their ability to apply knowledge, think critically, and solve complex problems, as opposed to rote memorization and recall of facts.

Teacher Training and Professional Development: Investigating the training programs available for teachers in Jordan, particularly those focused on developing skills that align with PISA competencies. This includes ongoing professional development opportunities that help teachers stay updated with best practices in education.

Resource Availability: Assessing the availability and use of educational resources, such as textbooks, digital tools, and supplementary materials that support the development of competencies assessed by PISA.

Student Engagement and Motivation: Understanding how the curriculum and teaching methodologies impact student engagement and motivation, which are critical for effective learning and performance in assessments like PISA.

Policy and Implementation: Reviewing educational policies and their implementation in schools to determine how well they support the development of competencies required by PISA. This includes looking at the support provided to teachers and schools to align their practices with international standards.

Perceptions Of Educators And Students Regarding The PISA Tests And Their Relevance To The Jordanian Educational Context

focuses on understanding the attitudes and beliefs of both educators and students towards the PISA tests and their applicability within the Jordanian educational system. Key aspects to consider include:

Awareness and Understanding: Investigating the level of awareness and understanding among educators and students about the PISA tests, including their purpose, content, and the competencies they assess.

Relevance to Curriculum: Exploring how educators and students perceive the relevance of the PISA test content to the Jordanian curriculum. This includes whether they believe the skills and knowledge assessed by PISA align with what is taught in schools.

Perceived Benefits and Challenges: Identifying the perceived benefits and challenges of participating in the PISA tests from the perspectives of educators and students. This includes examining how they view the potential advantages of international benchmarking and the difficulties they face in preparation and execution.

Impact on Teaching and Learning: Understanding how the PISA tests influence teaching practices and student learning experiences. This involves exploring whether educators adapt their teaching methods to better align with PISA competencies and how students perceive these changes.

Motivation and Engagement: Assessing the impact of PISA tests on student motivation and engagement. This includes understanding whether students feel more motivated to excel in subjects like reading, mathematics, and science due to the international nature of the assessment.

Cultural and Educational Context: Examining how the cultural and educational context of Jordan affects perceptions of the PISA tests. This includes exploring whether educators and students believe that PISA accurately reflects the strengths and needs of Jordanian students.

Support and Resources: Investigating the extent to which educators and students feel supported in their preparation for PISA. This includes looking at the availability of resources, professional development opportunities for teachers, and study materials for students.

Policy Implications: Understanding the perceptions of educators and students regarding the impact of PISA results on educational policy and reforms in Jordan. This includes their views on how PISA data is used to inform policy decisions and improve educational outcomes.

Effective Strategies And Interventions Can Be Implemented To Improve Jordanian Students' Performance In Future PISA Assessments

identify and evaluate strategies and interventions that can enhance the performance of Jordanian students in future PISA assessments. Key areas of focus include:

Curriculum Alignment and Enhancement:

Curriculum Review: Conducting a comprehensive review of the current curriculum to ensure alignment with the competencies assessed by PISA, such as critical thinking, problem-solving, and application of knowledge in real-world contexts.

Curriculum Integration: Integrating PISA-like tasks and activities into the curriculum to familiarize students with the format and expectations of the PISA assessments.

Teaching Methodologies:

Professional Development: Providing ongoing professional development for teachers focused on modern teaching methodologies that promote critical thinking, problem-solving, and active learning.

Interactive and Student-Centered Learning: Encouraging interactive and student-centered learning approaches, such as inquiry-based learning, collaborative projects, and hands-on activities that mirror the skills assessed by PISA.

Assessment Practices:

Formative Assessments: Implementing regular formative assessments that mimic PISA questions to help students practice and develop

the skills needed for success in PISA. These assessments can provide valuable feedback to both students and teachers on areas that need improvement.

Standardized Test Preparation: Offering targeted test preparation sessions that focus on the types of questions and problem-solving strategies used in PISA assessments.

Use of Technology:

Digital Learning Tools: Incorporating digital learning tools and resources that support the development of reading, mathematics, and science skills. Interactive software and online platforms can provide additional practice and instant feedback.

Technology-Aided Instruction: Utilizing technology-aided instruction methods, such as educational apps and online tutorials, to enhance learning experiences and improve student engagement.

Support Systems:

Tutoring and Remediation: Providing tutoring and remediation programs for students who need additional support in developing the competencies assessed by PISA. These programs can offer personalized instruction and practice opportunities.

Parental Involvement: Engaging parents in the educational process by providing them with resources and information on how to support their children's learning at home.

Motivation and Engagement:

Incentive Programs: Developing incentive programs to motivate students to perform well in PISA assessments. Rewards and recognition for high achievers can boost student morale and effort.

Student Engagement Activities: Creating engaging and relevant learning activities that connect classroom learning to real-world applications, thereby increasing student interest and motivation.

Collaborative Learning:

Group Work and Peer Learning: Promoting collaborative learning through group work and peer learning activities. These methods can help students develop communication, teamwork, and problem-solving skills.

Extracurricular Activities: Encouraging participation in extracurricular activities, such as science clubs, math competitions, and reading groups, to provide additional opportunities for skill development.

Policy and Systemic Changes:

Educational Policy Reforms: Advocating for educational policy reforms that prioritize the development of critical thinking and problem-solving skills in the curriculum.

Resource Allocation: Ensuring adequate allocation of resources, such as funding for educational materials, technology, and teacher training, to support the implementation of effective strategies and interventions.

Monitoring and Evaluation:

Continuous Improvement: Establishing a system for continuous monitoring and evaluation of the implemented strategies and interventions. Regular assessments and feedback loops can help identify successful practices and areas for further improvement.

Data-Driven Decision Making: Utilizing data from PISA and other assessments to inform decision-making processes and tailor interventions to address specific weaknesses.

extra-curricular activities and parental involvement impact students' academic performance, particularly in relation to PISA outcomes

explore the influence of extracurricular activities and parental involvement on students' academic performance and how these factors specifically affect outcomes in the PISA assessments. Key areas of focus include:

Impact of Extracurricular Activities:

Skill Development: Investigating how participation in extracurricular activities, such as sports, arts, science clubs, and debate teams, contributes to the development of skills assessed by PISA, including critical thinking, problem-solving, teamwork, and communication.

Academic Performance: Analyzing the correlation between involvement in extracurricular activities and academic performance in subjects such as reading, mathematics, and science.

Student Engagement and Motivation: Exploring how extracurricular activities enhance student engagement and motivation, potentially leading to improved academic outcomes.

Types of Extracurricular Activities:

STEM-Related Activities: Assessing the impact of participation in STEM (Science, Technology, Engineering, and Mathematics) clubs and competitions on students' performance in PISA science and mathematics assessments.

Reading and Literacy Programs: Evaluating the benefits of involvement in reading clubs and literacy programs on students' reading skills and their performance in PISA reading assessments.

Parental Involvement:

Home Environment: Examining how the home environment, influenced by parental involvement, supports students' learning and development. This includes access to books, educational resources, and a quiet place to study.

Parental Support and Encouragement: Analyzing the impact of parental support, encouragement, and engagement in their children's education on academic performance and attitudes towards learning.

Forms of Parental Involvement:

Homework Assistance: Investigating the effects of parents helping with homework and school projects on students' understanding of subjects and performance in assessments.

School Engagement: Assessing the role of parents' participation in school events, parent-teacher conferences, and decision-making processes in enhancing students' educational experiences and outcomes.

Combined Effects:

Synergistic Impact: Exploring the combined effects of extracurricular activities and parental involvement on students' overall academic performance and PISA outcomes. Understanding how these factors together create a supportive learning environment.

Socio-Economic Factors:

Access and Equity: Addressing issues of access and equity in extracurricular activities and parental involvement. Investigating how socio-economic status affects students' participation in extracurricular activities and the level of parental involvement.

Support Programs: Identifying support programs and policies that can help bridge the gap for students from disadvantaged backgrounds, ensuring they have equal opportunities to benefit from extracurricular activities and parental involvement.

Longitudinal Impact:

Long-Term Benefits: Studying the long-term impact of consistent participation in extracurricular activities and sustained parental involvement on students' academic trajectories and life skills.

CONCLUSION

This study aimed to investigate the reasons behind the low achievement of Jordanian students in the PISA tests and propose strategies to address this issue. Through an extensive literature review, analysis of the educational context in Jordan, and examination of relevant factors, several key insights and recommendations emerged.

Primary Factors Contributing to Low Achievement:

Curriculum Misalignment: The current Jordanian curriculum and teaching methodologies do not fully align with the competencies assessed by PISA, particularly in the areas of critical thinking, problem-solving, and real-world application of knowledge.

Socio-Economic Disparities: Students from disadvantaged backgrounds often lack access to quality educational resources and support, contributing to their lower performance in PISA assessments.

Teaching Quality and Turnover: High teacher turnover and varying levels of teacher quality negatively impact student learning outcomes. Effective teacher training and retention strategies are crucial for improving educational performance.

Curriculum and Teaching Methodologies:

The study highlights the need for curriculum reform to incorporate more skills-based and competency-based learning approaches that emphasize critical thinking, problem-solving, and application of knowledge in real-world contexts. Integrating PISA-like questions and scenarios into the curriculum can better prepare students for such assessments.

Perceptions of Educators and Students:

Educators and students generally recognize the importance of PISA but often find the tests challenging due to their focus on applied knowledge and unfamiliar contexts. Increasing awareness and understanding of PISA's objectives and formats can help align educational practices with the assessment's requirements.

Effective Strategies and Interventions:

Professional Development: Providing ongoing professional development for teachers to enhance their instructional strategies and familiarity with PISA-like assessments is essential. Training programs should focus on developing skills in critical thinking, problem-solving, and real-world applications.

Curriculum Enhancements: Introducing curriculum enhancements that emphasize active learning, project-based learning, and interdisciplinary approaches can help students develop the competencies needed for PISA.

Technology Integration: Leveraging technology to support learning, such as using digital tools and platforms to facilitate interactive and personalized learning experiences, can improve student engagement and outcomes.

Impact of Extracurricular Activities and Parental Involvement:

Extracurricular Activities: Participation in extracurricular activities, particularly those related to STEM, reading, and literacy, has a positive impact on students' academic performance. Schools should encourage and facilitate student involvement in such activities.

Parental Involvement: Active parental involvement in students' education, including providing a supportive home environment and engaging in school activities, significantly enhances students' academic performance. Programs that support and encourage parental involvement should be prioritized.

Recommendations

Based on the findings, the following recommendations are proposed to improve the performance of Jordanian students in future PISA assessments:

Curriculum Reform: Align the national curriculum with the competencies assessed by PISA, focusing on critical thinking, problem-solving, and real-world applications of knowledge.

Teacher Training: Implement comprehensive professional development programs for teachers to enhance their instructional strategies and familiarity with PISA-like assessments.

Technology Integration: Utilize technology to create interactive and personalized learning experiences that engage students and support the development of PISA-related skills.

Extracurricular Activities: Encourage and facilitate student participation in extracurricular activities that promote STEM, reading, and literacy skills.

Parental Involvement: Develop programs and policies that support and encourage active parental involvement in students' education.

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