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**| RESEARCH ARTICLE**

## **Bridging the PISA Gap: Assessing Teacher Perceptions and Developing a Mathematics Action Plan**

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**| ABSTRACT**

This research aimed to determine the state's secondary school teachers' readiness for the PISA (Program for International Student Assessment) to address the mathematics-related "PISA gap." A quantitative descriptive-comparative research design was used to evaluate teachers' perceptions on three different dimensions: instructional leadership, collaborative practice and resource availability, and administrative readiness; as well as how actively involved they are in implementing PISA. More than 100 teachers completed the survey, with 60% having 10 or more years of experience and 60% holding master's or doctoral degrees. The results indicated that while nearly all teachers have high levels of collaborative and data-driven practices, they reported significant barriers with respect to the provision of resources, specifically in terms of the availability of internet-based connectivity (at both the school and local government levels) that would prevent or minimize the use of digital assessments promptly. In addition, the teachers indicated that they have not established standardized strategies to involve parents or guardians in attaining PISA goals; therefore, the level of parental involvement in the PISA-related process was the lowest of the four dimensions. Additionally, while there were no significant differences in perceived PISA readiness by rank or highest level of education attained, the number of years of teaching experience was statistically significant in influencing teachers' perceptions of stakeholder involvement. As a result, the authors developed a multi-faceted Mathematics Action Plan (MAP) called VIBA (Vitalizing Instruction, Building Alliances) that they plan to implement to address these areas of concern through collaborative professional development/training on the use of PISA and stronger partnerships with the community.

**| KEYWORDS**

PISA Readiness (Program for International Student Assessment), Mathematics Action Plan (MAP), Teacher Perceptions, Pedagogical Readiness, VIBA Framework (or Stakeholder Engagement)

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### **1. Introduction**

The Programme for International Student Assessment (PISA) is a worldwide assessment conducted by the Organization for Economic Co-operation and Development (OECD) that assesses the academic abilities of 15-year-old students worldwide. More specifically, PISA assesses students' Reading, Mathematics, and Science abilities to provide a representative picture of their readiness to address real-world problems and to engage in further education and training. As of now, there have been multiple PISA assessment cycles since PISA first launched in 2000, but more importantly, PISA assessments are conducted every three years, facilitating longitudinal studies on multiple student learning trajectories and educational systems across different cultural contexts ("PISA 2022 Technical Report"; 2024). PISA's importance does not rest solely on the educational measurements. However, the ability can affect international educational policy by providing countries with benchmarks to measure their academic performance and identify areas for improvement (Zieger et al., 2022).

PISA results significantly impact national education systems, as countries use these data to inform reforms, develop education policies, and allocate resources more efficiently. Furthermore, countries frequently look to PISA scores to gauge their achievement

level on an international scale, which may extend beyond education, perhaps into politics or the economy. Higher-performing countries are under pressure to reform their system and increase their competitiveness (Santos & Centeno, 2021). Therefore, discussing the analysis and use of PISA has been an integral part of educational policy-making. How we use PISA is no longer a consideration in discussions of information that influences decision-making on curriculum and teacher training (Sahlberg, 2018). Furthermore, subsequent measures can heavily influence the national level and structure in addressing equity and quality in the face of sociocultural positioning in national education (Avvisati, 2020).

In the case of the Philippines, PISA offers an opportunity to see how the country performs internationally in its education system and how it compares with other countries. The Philippines has had difficulties with educational quality, as issues persist due to limited resources and significant disparities in student performance compared to developed countries (AlAli & Wardat, 2024). PISA provides another opportunity to confront these issues and to embrace skills that will matter to these students upon entering the competitive global workforce. Having the most recent PISA data will allow education institutions, such as the Department of Education, to reassess reform priorities, identify key changes in educational pedagogy, and confront systemic issues (OECD, 2021). The PISA results should prompt these actors to reexamine instructional practices, update and modernize the curriculum with an eye toward international competencies, and help create a better overall learning environment (Musyarofah et al., 2023).

Santiago City, located in the northeastern part of Luzon, presents a unique educational dynamic shaped by its demographics and economic conditions. The Division of Santiago City comprises various secondary schools, both public and private. As a division, the study participants reflect the national educational landscape, providing a diverse context for the study of PISA readiness (Demir, 2018). In light of national educational reforms, educational authorities within the Santiago City Division increasingly recognize PISA data as an indicator of local school performance and student outcomes. Importantly, understanding the distinct conditions, challenges, and responses in the local context for participating in PISA assessments is an important area of analysis to help formulate purposeful strategies to improve the overall educational experience in secondary schools in this Division (Aldabayeva et al., 2023).

Conducting the study on PISA preparedness in Santiago City serves many purposes. Primarily, it looks to identify any gap present with currently available nationally reported assessment tools that do not allow for contextually relevant information that school leaders and other decision makers can use to contextualize PISA's results to meet local specificities regarding the Santiago education delivery model and the educational practices, school resources, and teacher training that influence student achievements (Ashqar & Haddad, 2020). Additionally, the study focused on PISA preparedness, which highlights the importance of taking prospective actions emphasizes the need to be contextually focused about the shared educational tendency towards a situation impacted by COVID-19; it promotes a need to be mindful of educational frames focused towards mathematical and scientific literacy to afford students some measure of alternative possibilities in an ever-changing world (even though it remains a dynamic context) (Rutkowski & Rutkowski, 2021). Lastly, the study may serve as an exemplar of context-sensitive, evidence-based policy implementation in the locality, designed to facilitate sustainable improvements in students' academic achievement and subsequent preparedness for future work (Nortvedt, 2018).

In summary, consolidating results from the worldwide PISA assessments with the specific educational circumstances of Santiago City provides a basis for developing action plans and strategies. Understanding how PISA shapes local educational practices is important for informing stakeholders about the need to build an educational system that prepares students well for their futures and aligns with the evolving demands of the global knowledge economy (Landahl, 2020). This research can therefore be seen as a timely review aimed at developing sustainable change in educational outcomes that have meaning for both local and global educational dimensions (Frade-Martínez et al., 2024).

### **Theoretical Framework**

When developing a theoretical framework for the research entitled "PISA Readiness of Selected Secondary Schools in the Division of Santiago City: Basis for Action Plan", it is essential to ground the discussion with relevant theories of student assessment, curriculum development, and quality in education. In this section, the emphasis would be on the Programme for International Student Assessment (PISA) as a tool for evaluating students' educational outcomes in reading, mathematics, and science literacy. An extensive literature base connects inputs, quality of educational inputs, and outcomes. Cohen and Ball argue that the reciprocal relationship among teacher, student, and staff quality serves as the basis for evaluating quality programs and educational effectiveness (Ashraf & Ahmed, 2022). These representations are supported by evidence that quality assessment frameworks lead to new curricula, curricular development, and curriculum assessments that are consistent with the implied educational expectancy. Ashraf and Ahmed also emphasize the quality of inputs, positing that a systematic, theoretically grounded approach to educational quality will improve student learning outcomes and advocating for frameworks that integrate assessment and curriculum (Ashraf & Ahmed, 2022).

Moreover, educational quality is even more related to classroom pedagogical practices. The notion of assessment as a formative tool could enhance curricular efficacy by adapting pedagogical processes to learners' diverse pathways, while ensuring that curriculum content remains active and engaging. This ability to respond to different learners is even more crucial when considering the implications of preparing learners for an international assessment like PISA, where the curriculum's effectiveness significantly affects how learners perform (Taĝa, 2023).

PISA's conceptual literacy framework involves multidimensional reading, mathematics, and science skills. Important components include the ability to apply knowledge in real-world situations and to perform tasks that reflect society's demands (Taĝa, 2023). In this respect, Kabaal and Baran • emphasize the importance of contextualized learning within mathematics, as mathematically-related problem-solving is a key component of developing literacy skills that can be used to solve everyday problems (Kabaal & Baran, 2023). Similarly, PISA included elements of scientific literacy, specifically that students can use scientific processes to reason and assess socio-scientific issues, which is important in today's unique education climate (Sadler & Zeidler, 2009).

Scherer and Beckmann's (2014) work illustrates the multidimensionality of PISA assessments by showing that they assess retention and thus measure problem-solving skills and competencies for applying knowledge of mathematics and science. Other studies comparing boys and girls in literacy, for instance, Torppa et al.'s (2023) study of reading, illustrate factors that contribute to their reading capabilities, including motivation and engagement with the task. Understanding these factors is important for developing action plans and identifying the needs of different student populations in secondary schools.

When reflecting on the implications of PISA results, using them as diagnostic tools helps innovators and policy decision-makers rethink curricular approaches so that schools develop the necessary competencies for success in an increasingly complex global society. This dual aspect of literacy development and educational quality supports international education standards. It reinforces the importance of continual curricula assessment and improvement processes (Taĝa, 2023).

The theoretical framework presented here provides a basis for examining the PISA-readiness of secondary school indicators in Santiago City. The framework draws on theories and applications to understand PISA, its relationship to student assessment and curricular practices, and its role in educational quality. An action plan based on this theoretical framework will address the gaps identified in the study, improve the overall educational environment, and assist an educational institution in pursuing the common good of educational quality.

### **Research Questions:**

1. What is the profile of the secondary school teachers in the Division of Santiago City in terms of:
  - 1.1. Position/Rank
  - 1.2. Highest Educational Attainment; and
  - 1.3. Years in the Service?
2. What is the perceived level of PISA readiness among the respondents across the following domains:
  - 2.1. Instructional Leadership and Competence;
  - 2.2. Data-Driven and Collaborative Practices;
  - 2.3. Resource Availability and Infrastructure;
  - 2.4. Pedagogical Readiness and Classroom Practice;
  - 2.5. Stakeholder Engagement?
3. Is there a significant difference in teachers' perceived PISA readiness when grouped by demographic profile?
4. Based on the study's findings, what action plan can be developed to enhance the PISA readiness of selected secondary schools in the Division of Santiago City?

### **Research Hypothesis**

H<sub>0</sub>. There is no significant in the perceived PISA readiness of teachers when grouped according to their demographic profile.

## **2. Review of Related Studies**

### REVIEW OF LITERATURE AND STUDIES

This review highlights teachers' local and global perspectives on the conduct of PISA. It also highlights the factors that influence teachers' perceptions of readiness.

### **Global and Local Perspectives on PISA**

According to Taguba (2025), as well as Almarashdi & Jarrah (2022) the PISA framework indicates a transition from rote memory to mathematical literacy and problem-solving in the "real world" - stressing the ability to utilize mathematics in new and challenging situations, as well as the ability to help with the comprehension, reasoning, and delivery of quantitative data, instead of simply replicating the process involved in producing the answer.

The globalization of PISA at both national and regional levels has produced a global reform agenda; for instance, many of the DepEd initiatives being developed in the Philippines aim to enhance the system's curricula to meet international standards (Cabural, 2024; Currie & Vogl, 2013). The issue of a "PISA gap" has been consistently identified with the divergence of national curricula and assessment from international standards, and the lack of alignment between the intended curriculum and practice in the classroom and the limited capacity and resources at both the school and system level (Cabural, 2024; Abendaño et al., 2023; Currie & Vogl, 2013).

A comprehensive examination of students' performance on the mathematics portion of PISA in the Philippines reveals both emerging and persistent challenges for students, teachers, programs, and the education system. In response to the consistent

identification of poor national performance, the Department of Education (DepED) has prioritized improving instructional capacity, assessment practices, and teachers' capabilities, as predicted by PISA based on these data. Initiatives to address such issues have included the Sulong Edukalidad program, which aims to improve curricular quality across the entire education system by developing new curricula, aligning instruction with the curriculum, improving program implementation, and closing observed gaps with international benchmarks of student achievement. A multitude of studies have identified misalignment as an issue, not just within the national curriculum but also in teachers' instructional practices, beliefs, and available resources, all of which impact how PISA-related competencies, such as interpretation, evaluation, and higher-order reasoning skills, are taught in the classroom.

The literature has consistently demonstrated the need for a diagnostic assessment to be conducted to link National Competencies with PISA's mathematical literacy standards, which could then be used to guide the development of a feasible and actionable mathematics plan for the Philippines that utilizes classroom assessment, professional development for teachers, and intentional intervention to address chronic gaps in student mathematics achievement (Cabural, 2024). As such, a case study of the Philippines can serve to illustrate the translation of the PISA framework into a culturally responsive, contextually appropriate, and feasible framework that is grounded in the practices and perspectives of teachers to support students in achieving higher-level mathematical thinking as defined by PISA in the context of the current DepEd environment.

According to studies on discrepancies between the intended and delivered curricula, an effective strategy would involve diagnostic cycles, ongoing monitoring, and the recruitment of key stakeholders to connect policy and practice. Capitalizing on all available resources will mitigate the risk of a disconnect between policy and practice, thereby reducing the likelihood of negatively impacting students' success in becoming mathematically literate (Currie & Vogl, 2013; Bacus & Alda, 2022; Saldivar, 2025). Additionally, the literature suggests that it is essential to locate international standards within their respective cultural, linguistic, and contextual profiles, so that the expected action plans are ultimately sustainable and responsive to the realities of education in the Philippines (Cabural, 2024; Saldivar, 2025).

### ***Domains of PISA Readiness***

According to several studies, teachers are important facilitators and have a significant influence on the development of higher-order thinking skills (HOTS) and students' ability to reason mathematically. Classroom-level experiences for students in fostering HOTS, developing interpretive reasoning, and connecting mathematics to real-world applications are heavily dependent on the school and teacher environment (Tahamid, 2024; Blair & McKinnon, 2016; Ho & Lam, 2016). Teacher readiness, professional development, and leadership practice directly impacts teachers' beliefs about how and when to use HOTS and develop their instructional practices; therefore, teachers' beliefs and practices regarding task design, critique, and analysis directly affect the extent to which students are provided opportunities to use HOTS within the context of PISA mathematics literacy (Tahamid, 2024; Blair & McKinnon, 2016; Ho & Lam, 2016). The disparity in findings across research studies largely depends on the context of each teacher's readiness, and many studies of teachers' readiness identify that teachers need additional support, especially collaborative planning opportunities.

Robust support for the use of collaborative structures and data-driven instructional practices exists in the literature. The use of national or school assessments (e.g. NAT and quarterly exams) in diagnostic cycles to inform changes made to instruction has been cited many times as an important strategy for closing the gap between the outcomes established by nations and those needed to develop the competencies identified by an international program such as PISA (Cabural, 2024; Currie & Vogl, 2013; Bacus & Alda, 2022).

Professional learning communities (PLCs) such as Learning Action Cells (LAC) have been identified as meaningful forums for teachers to review and analyze data and to collaborate to identify and develop mathematics interventions that address the interpretation, evaluation, and problem solving that form the foundation of PISA's mathematical literacy framework (Cabural, 2024; Currie & Vogl, 2013; Bacus & Alda, 2022), Lim et al., 2022). Schools that engage in data use within a collaborative framework are better positioned to develop and execute cohesive, comprehensive action plans that integrate teaching practices and assessment with the PISA program as an international standard (Cabural, 2024; Currie & Vogl, 2013; Bacus & Alda, 2022).

The use of technological resources, as well as library resources and modern math tools, has been shown to lead to better academic performance of students in the mathematics literacy area. The literature has noted that infrastructure, such as having a reliable and up-to-date ICT network, access to current and suitable math software, and well-stocked libraries, encourages inquiry-based and problem-centered instruction by allowing teachers to design tasks that allow for some degree of interpretation and real-life application instead of just teaching students how to follow a procedure and complete that procedure incorrectly. When schools have limited funds to equip teachers with the resources they need to implement reform-oriented pedagogical practices or to provide their students with authentic problems they would encounter in a PISA context, resource limitations increase the PISA gap. In the Philippines, where curricular reform meets limited school resources, the availability of good infrastructure plays a significant role in aligning local practice with PISA expectations and DepEd's reform agendas.

Teaching for understanding is an ongoing discussion in the literature about whether or not we should teach differently based on what type of assessment is given: either using a method based on inquiry (an approach) or using some combination of teaching through traditional means (which may or may not produce good results). To establish this idea, there has been a shift away from memorizing facts toward learning to model, reason, and problem-solve in math, which is what is being assessed by PISA. This new

way of doing things means the approach in classroom settings now needs to focus on the exploration and justification of ideas rather than simply recalling procedures for completing specific tasks. Several studies show that if reliance is solely on teaching based on standardized assessments (tests), then the development of higher-order thinking will be stifled, and the ability of students to apply learning to experiences outside their normal realm will be severely limited.

Most of the performance types measured by the PISA assessment would be considered examples of this. In most instances, researchers recommend that teachers implement contextualized (real-life, in the student's world) instruction that is compatible with the constructs measured through PISA and that has been professionally developed so that it is a major part of the teacher's tool kit, to help narrow the gap between PISA and how well students do at math generally. In addition researchers emphasize that in order for the use of inquiry-based practices to be effective after getting the required support/training/mentoring, the teacher must consider how their students and the way they learn will be affected by the language used, the cultural backgrounds of the students and what is happening in their individual classrooms (Cabural, 2024; Saldivar, 2025).

Research shows the effects of parental engagement and community collaboration on school readiness and international standardized test preparation, including the influence of parental support and preparation, as well as home-based learning, on students' mathematics school readiness and their confidence in handling complex tasks. Parental engagement, therefore, has the potential to facilitate connection between school reforms and students' learning outside of school (Pérez et al., 2025; Barajas-Gonzalez et al., 2024), Chen et al., 2020) As noted above, the effectiveness of parental engagement can be modulated by variations in engagement levels, language barriers, and social inequities, and therefore the engagement of diverse families must include targeted, equitable strategies to prevent the further reinforcement of these inequities (Munnik & Smith, 2019; Douglass et al., 2019; Barajas-Gonzalez et al., 2024). When coupled with all of these factors, family, school, and community engagement are essential for developing optimal PISA ecosystems and promoting mathematics learning beyond traditional classroom settings (Munnik & Smith, 2019; Douglass et al., 2019; Barajas-Gonzalez et al., 2024).

### **Factors Influencing Perceptions of Readiness**

The available evidence shows that teachers' confidence and readiness to use PISA-aligned mathematics strategies, once again, demonstrate that teachers' demographic characteristics, including age, gender, and school setting, play an important role in shaping these outcomes. Research suggests that teachers' sense of self-efficacy and readiness to implement reform-oriented practices vary according to both teacher characteristics and the school context in which they are employed. For example, data suggests that teachers in urban settings may have different levels of available resources, support structures, and opportunities for professional development than those in rural settings. Urban teachers may have the added benefit of being able to access these resources more readily than those in rural contexts (Tahamid, 2024; Blair & McKinnon, 2016; Ho & Lam, 2016). Additionally, research has shown that aspects of instructional leadership and teacher competence, such as experience, age, and professional trajectory, can also influence the way that teachers view their ability to create tasks that encourage higher-order thinking skills (HOTS) and mathematical reasoning, which meet PISA standards (Tahamid, 2024; Ho & Lam, 2016). In the Philippines, for example, a common theme in the literature is the lack of equitable resources between urban and rural schools, which will likely lead to differences in the readiness of teachers and students in those contexts to implement PISA-aligned instruction and develop a consistent starting point for policy development and planning (Cabural, 2024; Currie & Vogl, 2013).

Psychological readiness is pivotal in determining the level of teacher engagement with large-scale assessments such as PISA. Burnout, perceived self-efficacy, and attitudes towards international assessments affect teachers' willingness to implement inquiry-based, problem-solving approaches that support mathematical literacy, rather than teaching to the test as the primary means of preparing for an assessment (Lim et al., 2022; Guerzon & Busbus, 2023; Douglass et al., 2019). Several studies have found that greater teacher self-efficacy and positive attitudes towards reform-oriented pedagogy are associated with greater teacher engagement in collaborative, data-informed practice, which contributes to the success of implementing a Mathematics Action Plan aligned with the constructs of PISA (Lim et al., 2022; Guerzon & Busbus, 2023; Cabural, 2024). On the other hand, teacher burnout and apprehension towards LSAs can act as barriers to sustained implementation, demonstrating that any action plan must include teacher well-being, support from administrators, and realistic expectations in order to be able to provide continued support for reform efforts (Guerzon & Busbus, 2023; Lim et al., 2022; Cabural, 2024).

Context and Factors That Moderate Readiness Perceptions: Readiness perceptions depend on contextual variables (e.g., language, culture, and local policy environments) that shape how readiness is perceived and carried out (i.e., DepEd MELCs and Sulong EduKalidad initiatives). An example is research focusing on policy-practice alignment between what teachers perceive as high levels of readiness in some areas, yet there may be considerable misalignment between national curricula, assessment activities, and actual instructional practices; thus, staff development opportunities must be provided in conjunction with collaborative structures (i.e., Learning Action Cells [LACs]) to facilitate this alignment and assist with implementing it through periodic diagnostic cycles (Cabural, 2024; Currie & Vogl, 2013; Bacus & Alda, 2022). Additionally, demographic and psychological factors can modify institutional supports as well; i.e., teachers working in resource-constrained environments may report a lower level of readiness due to limited infrastructure, and clear instructional leadership can partially mitigate this by providing direction and opportunities for collaborative problem solving (Cabural, 2024; Currie & Vogl, 2013; Ho & Lam, 2016). Finally, while some studies demonstrate strong relationships between demographic characteristics and readiness, others show relatively weak or context-specific

relationships, thereby reinforcing the need for situational analyses when tailoring the Mathematics Action Plan to Philippine schools (e.g., Tahamid, 2024; Ho & Lam, 2016).

Synthesizing all of this information reveals that a solid foundation for bridging the PISA gap would include four interconnected components: 1) Professional development opportunities that are responsive to the demographic & contextual cultural make-up of the community; 2) Teacher psychological readiness for teaching, including strategies to mitigate burnout and improve self-efficacy; 3) Improve data-informed collaboration among teachers through structures such as Local Area Collaboratives to create an action plan based on data collected from assessments; and 4) Provide necessary resources and infrastructure that supports the delivery of high-quality mathematics instruction focusing on understanding the concept rather than testing solely on rote knowledge.

The findings indicate that within The Philippines, as it pertains to PISA, there is a strong need for specific interventions for teachers to reduce the gap between urban and rural areas and provide leadership development to school leaders; support collaboration among teachers for using data; and align departmental goals towards meeting initiatives in the classroom to promote sustainable mathematics literacy and meet PISA's expectations (Cabural, 2024; Lim et al., 2022). Future research should follow a longitudinal design to capture a cohort of schools' readiness in the Philippines as DepEd reforms continue and schools work with LACs and the MELC-aligned curriculum (Cabural, 2024). The literature suggests ongoing tension between demographic and psychological influences on readiness, with many authors indicating that these factors are highly interdependent. It also highlights the importance of providing appropriate organisational support to help teachers apply their readiness for teaching in the classroom (Tahamid, 2024; Cabural, 2024).

### **3. Methodology**

This chapter presents the research design, the study locale, the sampling and sampling techniques, the research instruments, the data-gathering procedure, the data analysis plan, and the ethical considerations strictly followed in this study.

#### **Research Design**

This study utilizes a quantitative research design, specifically employing the descriptive-comparative approach. The descriptive component is used to determine the profile of secondary school teachers and their perceived PISA readiness across five domains: instructional leadership, collaborative practices, resource availability, pedagogical readiness, and stakeholder engagement. Meanwhile, the comparative approach is used to analyze whether significant differences exist in these perceptions across teacher groups defined by position, educational attainment, and years of service. This design is most appropriate, as it allows for a systematic description of the current state of readiness while identifying variations across demographic groups, providing a basis for a targeted action plan.

#### **Sampling and Sampling Techniques**

The respondents in this study are secondary school teachers within the Division of Santiago City. To ensure a representative sample from the various schools in the division, the researcher employs stratified random sampling. In this technique, the schools are treated as strata, and a proportional number of teachers are randomly selected from each school to ensure that Teacher I-III and Master Teacher positions are adequately represented. The sample size is determined using Slovin's Formula or a similar power analysis tool to maintain a 95% confidence level, ensuring that the findings can be generalized to the entire secondary teaching population of the division.

#### **Locale of the Study**

The study is conducted within the Division of Santiago City, a component city in the Cagayan Valley region of the Philippines. This locale is chosen because it comprises a diverse mix of small and large secondary schools, providing a comprehensive landscape for assessing PISA readiness. The division's performance in national and regional assessments also makes it a strategic site for developing an action plan that could potentially serve as a model for other divisions in the region.

#### **Instruments**

The primary data collection tool is a researcher-made survey questionnaire, which underwent content validation by a panel of experts in educational management and PISA standards. The instrument is divided into two main parts: the first part captures the demographic profile of the respondents – position, education, and tenure – while the second part is a Likert-scale assessment of perceived PISA readiness. This second part is categorized into five themes: instructional leadership and competence; data-driven and collaborative practices; resource availability and infrastructure; pedagogical readiness and classroom practice; and stakeholder engagement. To ensure the instrument's reliability, a pilot test was conducted, and the results were analyzed using Cronbach's Alpha, with a required threshold of 0.70.

#### **Data Analysis**

The data gathered are processed and analyzed using various statistical tools. For Research Question 1 (Profile), frequency counts and percentages are used. For Research Question 2 (Readiness Level), the weighted mean is used to interpret teachers' perceptions across domains. For Research Question 3 (Differences), the researcher uses the Independent Samples T-test (for variables with two groups) and the One-Way Analysis of Variance (ANOVA) for variables with three or more groups to determine if significant differences exist. If significant differences are found in the ANOVA, a Post Hoc test is applied. All statistical computations are performed at a 0.05 level of significance.

Ethical Considerations

The researcher strictly adheres to the ethical standards of research. Informed consent is obtained from all participants prior to data collection, ensuring they are fully aware of the study's purpose and their right to withdraw at any time without penalty. Anonymity and confidentiality are maintained by using codes instead of names and ensuring that individual responses cannot be traced back to specific teachers or schools. Furthermore, data privacy is upheld in accordance with the Data Privacy Act of 2012, with all digital files password-protected and physical copies shredded upon finalization of the study. No coercion or deception is used, and the findings are reported honestly and transparently.

3. Results and Discussion

A. **Table 1.** Demographic Profile of the Respondents

Frequencies of Position		
Position	Counts	% of Total
Master Teacher I	3	10.0%
Teacher I	7	23.3%
Teacher II	2	6.7%
Teacher III	18	60.0%

Frequencies of Highest Educational Attainment		
Highest Educational Attainment	Counts	% of Total
BSED	12	40.0%
MASTERS DEGREE	14	46.7%
PhD	4	13.3%

Frequencies of YEARS IN THE SERVICE		
YEARS IN THE SERVICE	Counts	% of Total
1-5 YEARS	10	33.3%
11-15 YEARS	6	20.0%
15 YEARS AND ABOVE	12	40.0%
6-10 YEARS	2	6.7%

Table 1 presents the demographic profile of the respondents, providing a foundational context for understanding the expertise and experience available within the Division of Santiago City to address the PISA mathematics gap. Below is the interpretation of the data in response to the specific research questions.

Regarding the Position and Rank of the respondents, the data reveals that a significant majority of the teachers hold the rank of Teacher III, accounting for 60% (n=18) of the total population. This is followed by Teacher I at 23.3%, Master Teacher I at 10%, and Teacher II at 6.7%. The high concentration of Teacher III personnel suggests a workforce that has moved past the entry-level stage and possesses substantial professional experience, which is critical when developing and implementing a specialized Mathematics Action Plan.

In terms of Highest Educational Attainment, the profile indicates a highly qualified cohort. While 40.0% (n=12) of the teachers have completed their Bachelor of Secondary Education (BSED), a substantial 46.7% (n=14) have already obtained a Master’s Degree. Additionally, 13.3% (n=4) hold a PhD. This high level of academic achievement implies that the teachers possess the theoretical depth necessary to address complex pedagogical challenges, as highlighted by international assessments such as PISA.

Finally, the data on Years in the Service underscores a seasoned teaching force. The largest group consists of veterans with 15 or more years of service, representing 40% (n=12) of the respondents. This is followed by those with 1–5 years (33.3%), 11–15 years (20%), and 6–10 years (6.7%). The blend of early-career teachers and seasoned veterans—with over 60% having more than a

decade of experience—provides a balanced perspective for the research. These teachers likely possess a "long-view" of the curriculum's evolution, making them well-positioned to identify systemic gaps in mathematics instruction.

**Table 2.** Instructional Leadership and Competence

	Mean	SD
1. Provide instructional leadership that enhances PISA-type learning in classrooms	2.40	0.968
2. Competence in supervising lesson planning and delivery aligned with critical thinking and problem-solving skills	2.83	0.834
3. Effectiveness in observing and giving constructive feedback to teachers	2.83	0.834
4. Skills in organizing professional development activities for teachers on PISA-related instructional strategies	2.63	0.850
<b>Overall Mean</b>	<b>2.67</b>	<b>0.763</b>

The data in Table 2 indicate that respondents perceive their Instructional Leadership and Competence at a moderate level, as reflected in an overall mean of 2.67 (SD = 0.763). When examining specific indicators, teachers feel most confident in their supervision of lesson planning and their effectiveness in providing constructive feedback, both tied with a mean of 2.83. This suggests a solid foundation in traditional pedagogical oversight. However, a critical gap emerges in the direct application of PISA standards: the lowest-scoring indicator is the ability to enhance PISA-type learning in classrooms (Mean = 2.40). This discrepancy indicates that while instructional leaders possess general supervisory skills, they struggle with the specific nuances of the PISA framework. To bridge this gap and fulfill the goals of a Mathematics Action Plan, professional development must pivot from general supervision toward specialized strategies that integrate PISA-aligned critical thinking and problem-solving into daily classroom instruction.

The pattern suggests a solid foundation in conventional supervisory tasks, feedback, and lesson planning, but limited capacity to operationalize PISA-specific higher-order demands in daily classroom practice. This aligns with the broader observation in leadership literature that general instructional supervision does not automatically translate into targeted, standards-aligned pedagogy without deliberate, domain-specific professional development (PD) (Holzberger et al., 2013; García-Martínez et al., 2018; Kim, 2012). The discrepancy between general supervisory competence and PISA-oriented practice underscores a needs gap: PD must translate generic leadership skills into PISA-aligned instructional strategies, particularly those that cultivate critical thinking and problem-solving in line with PISA expectations (Mystakidis et al., 2021; García-Martínez et al., 2018).

Studies show that self-efficacy and instructional quality are interconnected in complex ways; improvements in instructional leadership do not uniformly produce higher instructional quality unless PD explicitly targets the domain (e.g., PISA cognitive demands) and enables teachers to implement those demands in classroom routines (Holzberger et al., 2013; Kim, 2012). Moreover, the European and international leadership literature emphasizes the necessity of linking leadership practices to data-informed, domain-specific instructional transformation rather than relying on generic supervisory competencies alone (García-Martínez et al., 2018; Kim, 2012; Bickmore & Dowell, 2014)

**Table 3.** Data-Driven and Collaborative Practices

	Mean	SD
5. Knowledge and use of data to improve teaching and learning practices	3.00	0.695
6. Ability to engage teachers in collaborative discussions about student performance and learning outcomes	3.07	0.691
7. Overall leadership in fostering a school culture that promotes high standards in literacy, numeracy, and scientific literacy.	2.93	0.868
<b>Overall Mean</b>	<b>3.00</b>	<b>0.695</b>

The data in Table 3 indicate that respondents perceive their Data-Driven and Collaborative Practices as highly ready, as evidenced by an overall mean of 3.00 (SD = 0.695). Among the specific indicators, the highest score was observed in the ability to engage teachers in collaborative discussions about student performance (Mean = 3.07), suggesting a strong existing culture of professional dialogue and teamwork within the schools. Furthermore, respondents demonstrated solid competence in using data to improve instructional practices (Mean = 3.00). While still scoring well, the relatively lower mean (2.93) in fostering a school culture that promotes high standards in literacy, numeracy, and scientific literacy points to a potential area for refinement. In the context of

bridging the PISA gap, these results suggest that while teachers are collaborative and data-literate, the "Mathematics Action Plan" should pivot existing collaborative discussions to more specifically target the high-level cognitive demands and performance standards required by the PISA framework.

A robust, collaborative, and data-literate culture exists, which is a favorable platform for implementing MAP. The gap in literacy/numeracy/scientific literacy standards corresponds with a literature consensus that data teams and professional dialogues must be purposefully oriented toward the cognitive demands of the target assessment framework (PISA in this case) to achieve alignment with the standards-based performance goals (Suyatno et al., 2022; Kim, 2012; Extremera et al., 2023).

Prior work on data-driven decision making emphasizes that data teams are most effective when they connect data discussions to instructional decisions and PD that enhance teachers' ability to interpret data in the context of the target standards (e.g., PISA). When collaboration and data use are not explicitly tethered to domain-specific performance standards, outcomes may improve generally but not necessarily in the domain of interest (PISA-like tasks) (Bickmore & Dowell, 2014; Extremera et al., 2023).

**Table 4.** Resource Availability and Infrastructure

	Mean	SD
8. LGU supports for PISA readiness?	2.00	1.083
9. Availability of at least 30 laptops/computers	2.20	1.243
10. Availability of internet connection (wifi)	2.00	1.174
<b>Overall Mean</b>	<b>2.07</b>	<b>0.965</b>

The data in Table 4 reveal a significantly low perceived level of PISA readiness regarding Resource Availability and Infrastructure, as evidenced by an overall mean of 2.07 (SD = 0.965). Respondents identified critical deficiencies across all indicators, with both LGU support for PISA readiness and the availability of internet connection (wifi) receiving the lowest rating of 2.00. While the availability of at least 30 laptops/computers scored slightly higher at 2.20, the high standard deviation (1.243) suggests a notable disparity in resource access among different respondents or school sites. Within the framework of the research title "Bridging the PISA Gap," these findings underscore a systemic barrier; the development of a "Mathematics Action Plan" cannot rely solely on pedagogical shifts if the fundamental technological infrastructure and external support systems remain inadequate. For PISA readiness to move from perception to practice, the plan must prioritize securing reliable internet connectivity and strengthening local government partnerships to ensure students and teachers have the digital tools necessary to engage with PISA-style assessments.

These results reveal a systemic bottleneck that undermines the feasibility of implementing MAP, particularly for PISA-type assessments that require stable connectivity and adequate digital resources. The literature consistently identifies infrastructure and external support as critical constraints on ICT-enabled reforms and data-driven initiatives in education, especially in contexts with uneven distribution of digital tools and internet access (Avedzi, 2025; Godlove & Kongnyuy, 2024; Meyer & Richter, 2024). Without reliable internet, hardware, and government partnerships, PD and classroom practice cannot scale to PISA-style tasks.

While some references emphasize that infrastructure is a prerequisite, others acknowledge that innovative PD models can intermittently compensate for gaps by prioritizing portable, low-bandwidth, or offline PISA-like activities. However, the current data indicate pronounced disparity, making equity-focused actions essential (Avedzi, 2025; Godlove & Kongnyuy, 2024; Nnorom et al., 2023; Meyer & Richter, 2024).

**Table 5.** Pedagogical Readiness and Classroom Practice

	Mean	SD
11. Teachers awareness on PISA like questions	2.80	0.887
12. Use of problem-based learning in teaching	2.93	0.828
13. Provide PISA-style practice exams	2.60	0.855
14. Training and workshops for teachers on PISA methodologies	2.13	1.074
15. Peer-learning and collaborative problem-solving exercises	2.47	0.900
<b>Overall Mean</b>	<b>2.59</b>	<b>0.798</b>

The data in Table 5 reveal that the respondents perceive their Pedagogical Readiness and Classroom Practice as moderately developed, evidenced by an overall mean of 2.59. While teachers show the highest level of engagement in the "Use of problem-

based learning in teaching" (M=2.93), there is a notable deficit in "Training and workshops for teachers on PISA methodologies," which yielded the lowest score (M=2.13) and the highest variability (SD=1.074). This suggests that while educators are attempting to integrate modern instructional strategies, they lack the formal, standardized professional development necessary to align their classroom practices specifically with PISA standards. Furthermore, the moderate scores for providing PISA-style practice exams (M=2.60) and peer-learning exercises (M=2.47) indicate a foundational awareness that has yet to be fully operationalized into consistent classroom routines. Within the context of "Bridging the PISA Gap," these results highlight a critical need for the proposed Mathematics Action Plan to prioritize structured teacher training and collaborative methodologies to transition from general pedagogical intent to specific PISA-aligned competence.

There is a readiness to adopt problem-based learning. However, a clear deficit in formal PD focused on PISA methodologies, which aligns with the literature that domain-specific PD is essential to translate problem-based approaches into PISA-aligned performance (e.g., reliance on targeted PD rather than generic PD boosts domain-specific instructional quality) (Holzberger et al., 2013; Kim, 2012; Okiri & Hercz, 2024). Some sources stress that distributed pedagogical leadership and collaborative professional development can help overcome PD gaps, but only when PD content is explicitly tied to practice and outcomes (Okiri & Hercz, 2024; Extremera et al., 2023). The high SD in PISA methodologies training suggests variability across schools, potentially reflecting uneven access to PD and mentoring.

**Table 6.** Stakeholder Engagement

	Mean	SD
16. Regular parent-teacher meetings focused on PISA goals	1.93	1.015
17. Workshops and seminars for parents on how to support their children's learning	1.87	1.074
18. Community outreach programs that promote education	2.00	1.017
19. Collaboration with community stakeholders for literacy and numeracy support.	2.17	0.834
20. Involvement of parents in school-based activities	2.40	1.037
<b>Overall Mean</b>	<b>2.07</b>	<b>0.751</b>

The results presented in Table 6 indicate that Stakeholder Engagement is the lowest-performing domain in terms of PISA readiness, yielding an overall mean of 2.07. While "Involvement of parents in school-based activities" received the highest rating (M=2.40), more targeted interventions such as "Workshops and seminars for parents on how to support their children's learning" (M=1.87) and "Regular parent-teacher meetings focused on PISA goals" (M=1.93) fell significantly below the average. These low scores, coupled with standard deviations consistently above 1.0 for most items, suggest a lack of a standardized strategy for involving the broader community in academic performance goals. This data highlights a systemic gap where the school's PISA objectives remain isolated from the home environment. Consequently, the development of the Mathematics Action Plan must include robust outreach components and parent education modules to ensure that stakeholders are not merely present at school activities but are actively aligned with the specific literacy and numeracy standards required to bridge the PISA gap.

The low engagement levels indicate an environment in which the home-school partnership is underdeveloped for PISA preparation. The literature highlights that district- or school-level efforts must be complemented by active community and family engagement to sustain systemic reforms and ensure that PISA-related expectations are reinforced beyond the school day (e.g., parent education, family literacy/numeracy support, and shared goal setting) (Leung, n.d.; Geleta, 2015; Shula, 2023). Some studies emphasize that parental engagement is heterogeneous and influenced by local context, suggesting that interventions should be tailored, culturally sensitive, and resource-aware to be effective (Leung, n.d.; Geleta, 2015; Shula, 2023).

**Table 7.** Significant difference in the perceived PISA readiness of teachers when grouped according to their Position/Rank

	F	df1	df2	p
Instructional Leadership and Competence	0.259	3	26	0.854
Data-Driven and Collaborative Practices	0.138	3	26	0.936
Resource Availability and Infrastructure	0.565	3	26	0.643
Pedagogical Readiness and Classroom Practice	0.129	3	26	0.942
Stakeholder Engagement	1.018	3	26	0.401

Based on the data presented in Table 6, the analysis reveals no significant differences in teachers' perceived PISA readiness across all five domains when grouped by position or rank. The calculated p-values for Instructional Leadership and Competence ( $p=0.854$ ), Data-Driven and Collaborative Practices ( $p=0.936$ ), Resource Availability and Infrastructure ( $p=0.643$ ), Pedagogical Readiness and Classroom Practice ( $p=0.942$ ), and Stakeholder Engagement ( $p=0.401$ ) all consistently exceed the standard alpha level of 0.05. These results indicate that a teacher's professional rank does not statistically influence their self-assessment of readiness for PISA-related challenges. Consequently, for "Bridging the PISA Gap," this suggests that perceived strengths and weaknesses in mathematics action planning are relatively uniform across the hierarchy, implying that readiness interventions or professional development programs can be applied broadly rather than being tiered specifically by rank.

**Table 8.** Significant difference in the perceived PISA readiness of teachers when grouped according to their Highest Educational Attainment

	F	df1	df2	p
Instructional Leadership and Competence	0.200	2	27	0.820
Data-Driven and Collaborative Practices	0.139	2	27	0.871
Resource Availability and Infrastructure	0.236	2	27	0.792
Pedagogical Readiness and Classroom Practice	0.252	2	27	0.779
Stakeholder Engagement	1.115	2	27	0.343

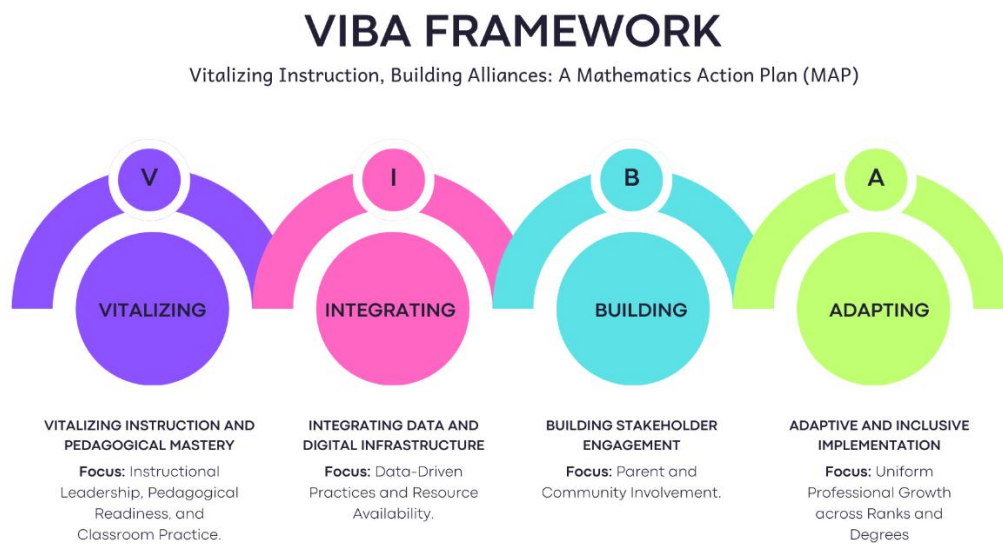
Based on the results presented in Table 7, there is no significant difference in the teachers' perceived PISA readiness across all five domains—Instructional Leadership and Competence, Data-Driven and Collaborative Practices, Resource Availability and Infrastructure, Pedagogical Readiness and Classroom Practice, and Stakeholder Engagement—when they are grouped according to their Highest Educational Attainment. The statistical analysis yielded p-values ranging from 0.343 to 0.871, all of which are substantially higher than the standard alpha level of 0.05. These high p-values indicate that educational background does not uniquely influence teachers' perceptions of their preparedness for the PISA assessment. Consequently, in the context of "Bridging the PISA Gap," this suggests that challenges or strengths in Mathematics readiness are felt uniformly across the teaching staff, regardless of whether a teacher holds a baccalaureate, master's, or doctoral degree. This finding supports the development of a Mathematics Action Plan that is inclusive and standardized, rather than one differentiated solely by the teachers' formal academic credentials.

**Table 9.** Significant difference in the perceived PISA readiness of teachers when grouped according to their Years in the Service

	F	df1	df2	p
Instructional Leadership and Competence	0.783	3	6.35	0.544
Data-Driven and Collaborative Practices	0.333	3	5.24	0.803
Resource Availability and Infrastructure	2.224	3	9.45	0.152
Pedagogical Readiness and Classroom Practice	0.472	3	6.96	0.712
Stakeholder Engagement	9.034	3	10.26	0.003

Based on the statistical analysis presented in Table 8, there is no significant difference in teachers' perceived PISA readiness across most dimensions when grouped by years of service, with one notable exception. For the dimensions of Instructional Leadership and Competence ( $p=0.544$ ), Data-Driven and Collaborative Practices ( $p=0.803$ ), Resource Availability and Infrastructure ( $p=0.152$ ), and Pedagogical Readiness ( $p=0.712$ ), the p-values exceed the standard 0.05 alpha level, indicating that teachers' length of service does not fundamentally alter their self-assessment in these areas. However, a statistically significant difference was found in Stakeholder Engagement ( $F=9.034, p=0.003$ ), suggesting that a teacher's experience level does play a critical role in how they perceive and manage external partnerships and community involvement for PISA preparation. Consequently, while the "Mathematics Action Plan" can largely adopt a uniform approach to pedagogical training, it must include specialized, experience-stratified strategies to improve stakeholder engagement and effectively bridge the PISA gap.

*B. VIBA Framework: Vitalizing Instruction, Building Alliances: A Mathematics Action Plan (MAP)*



**Figure 1. VIBA Framework**

The VIBA (Vitalizing Instruction, Building Alliances) framework is a strategic intervention plan designed to address the specific PISA readiness gaps identified within the Division of Santiago City. This Mathematics Action Plan (MAP) is built upon the research finding that, while the teaching force is highly experienced and academically qualified, there remains a critical discrepancy between general instructional supervision and the ability to operationalize PISA-specific higher-order demands. By focusing on the transition from conventional pedagogy to PISA-aligned methodologies, the framework simultaneously addresses systemic bottlenecks in digital infrastructure and the notable lack of standardized stakeholder engagement. Furthermore, VIBA adopts an inclusive approach to professional development, recognizing that, since perceived readiness does not significantly differ by teacher rank or educational attainment, specialized and unified training can effectively bridge the PISA gap across the entire academic hierarchy.

The first component of the VIBA intervention program, Vitalizing Instruction and Pedagogical Mastery (V), focuses on strengthening instructional leadership, pedagogical readiness, and classroom practice to bridge the identified performance gaps. This component facilitates a strategic shift from general instructional supervision toward specialized professional development that emphasizes PISA-type learning and high-level cognitive demands. To address the critical deficit in formal PISA training—which currently yields the lowest score in pedagogical readiness ( $M=2.13$ )—the program implements structured training on problem-based learning and PISA-aligned critical thinking methodologies. By integrating PISA-style practice exams and peer-learning exercises into daily classroom routines, the plan aims to transition teachers from a moderate level of pedagogical intent to full operational competence, ensuring that classroom instruction is directly aligned with international assessment standards.

The second component of the VIBA framework, Integrating Data and Digital Infrastructure, prioritizes modernizing school systems by leveraging existing professional strengths to overcome physical resource deficits. While educators in Santiago City already demonstrate a high capacity for collaborative performance discussions, this plan pivots those dialogues to specifically target PISA-aligned gaps in literacy, numeracy, and scientific literacy. Simultaneously, the program addresses the "systemic bottleneck" of poor infrastructure by establishing a Digital Readiness Task Force designed to improve the critically low levels of internet connectivity and LGU support (Mean = 2.00). By standardizing access to digital tools such as laptops and computers across all sites, the initiative seeks to eliminate current disparities and provide a stable technological foundation for students to engage with PISA-style assessments effectively.

The third component of the VIBA framework, Building Stakeholder Engagement, focuses on bridging the systemic gap between school objectives and the home environment. To address the lowest-scoring area of PISA readiness—parental workshops (Mean = 1.87)—the plan mandates specialized seminars to empower parents with the tools to support literacy and numeracy at home. This is complemented by institutionalizing regular parent-teacher meetings specifically dedicated to PISA goals, ensuring that community expectations are reinforced beyond the school day. Recognizing that a teacher's years of service significantly shape their perception of external partnerships, the program relies on seasoned veterans with 15 or more years of experience to lead these outreach initiatives, leveraging their unique expertise to foster a more robust, data-informed school-home partnership.

The Adaptive and Inclusive Implementation (Component A) ensures that the Mathematics Action Plan remains accessible and equitable by providing uniform professional growth opportunities regardless of a teacher's formal background. Because the research indicates that there are no significant differences in PISA readiness across professional ranks or highest educational attainment, pedagogical and data-driven training modules will be applied broadly to all staff members—from Teacher I to Master Teacher, and from those with a Bachelor's degree to those with a PhD. However, while the core instructional training remains non-

tiered, the program strategically uses experience-based specialization by tailoring stakeholder engagement leadership roles based on years of service. This approach leverages the unique "long-view" perspective and statistically significant strengths of veteran teachers in managing community partnerships, ensuring that the PISA gap is bridged through a balanced and inclusive workforce.

### Conclusions

In the Santiago City Division, the teaching workforce has a solid foundation of both professional experience and academic qualifications, with a high number of Teacher III personnel and a significant number of teachers holding postgraduate credentials. Because of this profile, the personnel have the theoretical depth and "long-view" of the curriculum to help close systemic gaps. However, there exists a critical disconnect between this general professional competence and the specific, PISA-type mastery of instruction. Although teachers are capable of providing effective traditional supervision and lesson planning, they lack the specialized training to meet higher-order cognitive demands and implement PISA-aligned methodologies in their everyday teaching.

As indicated by the study's conclusions, technological infrastructure and support systems from external sources are the primary systemic bottleneck. The extremely low number of available, reliable internet connections and LGUs creates an environment that is prohibitively difficult for PISA-type digital assessments to be transitioned into use. Additionally, one of the other areas of readiness that is weakest is Stakeholder Engagement, indicating that the PISA objectives remain isolated within the school and are not being successfully transferred to the home through standardized parent/teacher collaboration at this time.

In summary, PISA readiness perceptions differ only marginally among professional hierarchies or levels of educational completion; therefore, all teachers and administrators face similar challenges regarding readiness across the spectrum of educational levels. Because there is uniformity among readiness conditions, there must be a single, standard, un-tiered approach to preparing teachers for the pedagogical profession. There is, however, a significant difference in years of service impacted for teachers and their respective levels of engagement with relevant stakeholders; hence, through their position as experienced teachers, they can effectively lead coalition efforts within their communities. Thus, to resolve the PISA gap, a multi-faceted approach—through the embodiment of the three-part VIBA model of training, digital technology advancement, and years of experience-based engagement within the community—should be prioritized.

### Recommendations

#### 1. *Specialized Professional Development*

- Transition from General to Domain-Specific Training: The Department of Education needs to move from providing generic instructional supervision to providing PD focused on the specific skills of critical thinking and problem-solving, aligned with PISA.
- Operationalize PISA Methodologies: Implement structured workshops for problem-based learning using a structured methodology, and utilize PISA-style practice assessments within classroom routines to move from a moderate level of intention in the classroom to an operational level of competence.
- Uniformity in Training Approach: PD modules should be used across all levels, as there is no significant difference in perceived readiness between ranks or education levels.

#### 2. *Infrastructure and Digital Modernization*

- Formation of a Digital Readiness Task Force: To improve the efficiency of digital readiness delivery, a Digital Readiness Task Force must be established to address systemic bottlenecks caused by unreliable internet access and to develop strategies to ensure predictable access to digital tools, such as laptops or computers.
- Enhance Technological Partnerships with LGUs: School leaders must create opportunities to engage LGUs and provide technical and financial assistance to develop digital infrastructure to support the administration of PISA-style assessments.
- Promote the Use of Adaptive Resource Strategies: Until a complete upgrading of all digital infrastructure is completed, schools can implement PISA-like interactive learning activities offline or with very low-bandwidth resources for PD delivery.

#### 3. *Engaging Key Stakeholders Strategically*

- Make it Mandatory for Schools to Perform Outreach Activities that promote PISA. Instead of the typical outreach performed as part of the normal school schedule, it is important to establish a requirement that outreach be made to parents through a variety of venues (parent-teacher conferences and/or separate parent-teacher seminar-type meetings) to explain what PISA is all about and how to assist their child(ren) with literacy and numeracy skills at home.
- Using Veteran Teachers to Provide Leadership for Community and Stakeholder Engagement Initiatives. Veteran teachers (those with 15 or more years of experience working with children) have significant advantages over less experienced teachers when establishing/forming partnerships with the community and other stakeholders, thanks to their extensive knowledge/experience in the educational profession.

#### 4. *Instructional Transformation through Data-Driven Decision Making*

- Change the Focus of Existing Collaboration to Target PISA Framework's High-Level Cognitive Demands and Performance Standards. Redirect existing professional collaboration to focus on the high-level cognitive demands and high-level

performance standards described in the PISA framework of assessment, as opposed to the overall performance of students in general.

- Establish Rigorous Literacy and Numeracy Standards. Modify school culture to establish high-quality literacy, numeracy, and scientific literacy standards, and ensure that data teams connect their work to these target standards throughout the school culture.

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