

EXPLORING THE POTENTIAL OF TECHNICAL AND VOCATIONAL EDUCATION IN STRENGTHENING SKILLS IN READING, MATHEMATICS, SCIENCE, AND CREATIVE THINKING

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The educational system in the country grapples with several enduring issues despite several changes over time. Among the most prevalent problems are overcrowded classrooms, high numbers of students dropping out, poor facilities, and disparate access to education. Furthermore, the concerning poor performance of students on standardized examinations underscores more serious systemic issues.

A recent report by the OECD's Programme for International Student Assessment (PISA) has raised particular concern among legislators and stakeholders. PISA evaluates the ability of 15-year-old students to apply their knowledge and skills in Reading, Mathematics, and Science to real-life situations (PISA: Programme for International Student Assessment, n.d.). Unfortunately, Filipino students have consistently lagged behind their international peers in these assessments. Despite efforts to improve since the concerning results of PISA 2018, no significant progress has been made. In the 2022 assessment, a quarter of the students demonstrated only minimal proficiency in Math, Reading, and Science, with the country's average scores falling well below the OECD average. For instance, while the OECD average in Mathematics is 472, the Philippines scored a much lower 355 (Chi, 2023). Similar disparities are evident in Reading and Science, underscoring the ongoing struggle to enhance the quality of education in the country.

The benchmarking test recently revealed that Filipino students rank among the lowest in the world for creative thinking skills. Unlike other assessments by the same

organization, this test focuses on measuring students' ability to use imagination and creativity to generate ideas. According to the OECD, creative thinking is defined as the capacity to generate, evaluate, and refine ideas, leading to original and effective solutions. It also involves the knowledge and expressive power of students' imagination. In the test, which assessed written expression, visual expression, social problem-solving, and scientific problem-solving, Filipino students scored an average of 14 points. This score is significantly lower than the OECD average of 33, mirroring the troubling results of previous PISA assessments (Chi, 2024). While various interpretations can be made of these outcomes, the pressing challenge lies in how to respond to and address these results effectively.

Recognizing that the country's educational system is lagging five to six years behind, there is an urgent need for comprehensive reforms and coordinated efforts to drive meaningful improvement (Ines, 2023). While initiatives such as learning recovery camps, targeted programs, and the introduction of the MATATAG curriculum are positive steps, they may be insufficient on their own. A more holistic approach is required—one that addresses every facet of the educational system to achieve substantial and lasting progress.

To truly cultivate skills and creative thinking, it's essential to move beyond simply focusing on academic subjects. This calls for greater integration and application, where Technical Vocational Education (TVE) emerges as a powerful, yet often underutilized tool. TVE's emphasis on hands-on learning experiences offers a unique opportunity to enhance skills in Science, Math, and Reading, while also fostering innovation and creativity. For instance, students specializing in Shielded Metal Arc Welding (SMAW) can be challenged to devise solutions for issues like corrosion, rust damage, or the need for customized furniture in small spaces. Tackling these problems would require them to engage in experiments, trials, and brainstorming sessions, providing real-world experience in addressing challenges they're likely to encounter in their field. Similarly,

students in garment technology can be tasked with addressing the environmental impact of fast fashion and the improper disposal of clothing. This could lead to the development of innovative projects and products that not only revolutionize the industry but also make significant contributions toward sustainable fashion. By leveraging the practical, problem-solving nature of TVE, students gain invaluable experience that not only sharpens their technical skills but also nurtures their ability to think creatively and innovate within their respective fields.

To improve reading, science, and mathematics skills, adopting an interdisciplinary approach can be highly effective. Engaging students with manuals and instructional materials promotes various levels of cognitive activity, from basic word recognition to real-life application. Analyzing business plans, proposals, and projects provides additional opportunities to refine reading and comprehension skills. To engage students in higher-order thinking skills such as evaluation and creation, they can be assigned tasks that require them to generate ideas, assess their feasibility for specific situations, and develop proposals based on their findings. This approach encourages them to critically analyze options, make informed judgments, and construct well-supported solutions. Furthermore, involving students in activities such as cost estimation, problem-solving, blueprint creation, technical drawing, simulations, and data analysis can greatly enhance their mathematical and analytical abilities. For instance, fundamental mathematical operations are crucial for unit conversions, angle and dimension calculations, and budgeting. Integrating these practical applications into the learning process not only strengthens students' mathematical skills but also demonstrates their relevance in real-world scenarios.

The integration of Reading, Math, Science, and creative thinking within Technical and Vocational Education (TVE) courses can vary greatly, depending on the instructor and the curriculum. TVE's versatility not only enhances learning but also makes it more relevant and meaningful to students by imparting practical technical and vocational skills

used in everyday life. This approach ensures that students acquire essential skills for life, employment, or business while also meeting academic requirements. Rather than concentrating solely on language, mathematics, or science courses, TVE provides an additional avenue for students to continuously practice and develop necessary skills. This approach challenges the common misconception that TVE is separate from academic learning. In reality, skills in Reading, Math, and Science are integrated into every learning opportunity, demonstrating that knowledge is adaptable to various situations and needs.

Addressing low PISA performance requires more than just academic interventions. It necessitates a collective effort incorporating all learning modalities to guarantee a thorough approach to education that yields significant and long-lasting outcomes.

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