

THE LINK BETWEEN SCIENCE LITERACY AND CRITICAL THINKING

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In an era dominated by an overwhelming amount of information and constant technological advancements, the ability to think critically has become an essential skill. Critical thinking enables individuals to analyze, evaluate, and interpret information in a thoughtful and logical manner, leading to well-informed decision-making and problem-solving. One domain that plays a pivotal role in nurturing critical thinking skills is science literacy. Science literacy encompasses not only the knowledge of scientific concepts but also the understanding of scientific methods, principles, and their applications.

Science literacy goes beyond memorizing scientific facts; it involves developing a mindset rooted in curiosity, skepticism, and the pursuit of evidence-based reasoning. It encourages individuals to question assumptions, challenge misconceptions, and engage in systematic observation and experimentation. The close relationship between science literacy and critical thinking is evident as both involve employing analytical skills to scrutinize and evaluate information, theories, and claims.

Furthermore, science literacy equips individuals with the tools to navigate the ever-evolving technological landscape and its impact on various aspects of life, such as health, environment, and policy. It fosters an appreciation for evidence-based reasoning, promoting sound judgment in matters ranging from personal choices to societal challenges. In the study conducted by (Listiani, Susilo, & Sueb, 2022), it is evidently that there is a relationship or link between scientific literacy and critical thinking which indicates that understanding science thoroughly requires good thinking skills.

In connection with the role of science education in cultivating critical thinking skills, it provides learners with opportunities to engage in inquiry-based learning, develops scientific reasoning, and applies evidence-based thinking. Science education encourages students to ask questions, explore phenomena, and design investigations. Through hands-on experiments, data collection, and analysis, students learn to formulate hypotheses, make predictions, and draw conclusions based on evidence. Science education also emphasizes the development of scientific reasoning skills, such as observation, inference, and deduction. Students learn to carefully observe natural phenomena, identify patterns, and draw logical conclusions. They are encouraged to analyze cause-and-effect relationships, evaluate evidence, and construct logical arguments based on scientific principles. These processes strengthen critical thinking abilities by training students to think logically, make connections, and critically evaluate information.

Science literacy has also a profound impact on personal, professional, and societal levels. It empowers individuals to make informed decisions, enhances career opportunities, and contributes to the progress and well-being of society. Some of the personal impacts of science literacy are equipping individuals with the knowledge and critical thinking skills to make informed decisions in various aspects of life, such as healthcare choices, environmental sustainability, and technological advancements. It enables individuals to evaluate evidence, weigh risks and benefits, and make rational choices that align with their values and well-being. Science literacy also fosters the ability to critically evaluate health-related claims and avoid misinformation, and raising awareness of environmental issues, such as climate change, pollution, and conservation. It empowers individuals to understand the impact of human activities on the environment and make sustainable choices in their daily lives.

As to professional impact, science literacy opens doors to a wide range of career opportunities in STEM (science, technology, engineering, and mathematics) fields. It

provides individuals with the necessary knowledge and skills to pursue careers in research, medicine, engineering, technology, environmental science, and many other sectors. Science-literate professionals are better prepared to navigate rapidly evolving industries and contribute to technological advancements and innovation.

When it comes to societal impact, first and foremost, it is essential for active and informed citizenship. It enables individuals to engage in public debates, evaluate scientific claims made by policymakers, and contribute to evidence-based decision-making. Science-literate citizens can critically evaluate scientific information presented in the media, assess the impact of policies on health and the environment, and advocate for evidence-based approaches. Another is it plays a crucial role in driving economic development and competitiveness. It enables countries to foster a skilled workforce, attract investment in scientific research and technological innovation, and create knowledge-based economies. Science-literate societies are better equipped to address societal challenges, develop sustainable solutions, and promote economic growth.

Ultimately, the link between science literacy and critical thinking is undeniable and powerful. Science literacy serves as a catalyst for the development of critical thinking skills, nurturing a mindset grounded in evidence-based reasoning, skepticism, and logical analysis. Through science education and engagement in scientific inquiry, individuals learn to question assumptions, evaluate information objectively, and draw logical conclusions based on evidence.

Science literacy not only equips individuals with a strong foundation of scientific knowledge but also empowers them to think critically in various personal, professional, and societal contexts. It enhances personal decision-making by enabling individuals to make informed choices about their health, environment, and daily lives. Professionally, science literacy opens doors to diverse career opportunities and equips individuals with the adaptability and innovation necessary to thrive in an evolving world. Societally,

science literacy promotes informed citizenship, evidence-based policymaking, and the ability to address global challenges effectively.

The profound impact of science literacy on critical thinking extends beyond the realm of science itself. It fosters a rational thought process that values objective analysis, data evaluation, and logical reasoning. It enables individuals to navigate the complexities of an information-rich world, distinguish reliable sources of information from misinformation, and make sound judgments based on evidence.

As we continue to advance in a rapidly changing world, the cultivation of science literacy and critical thinking skills becomes increasingly crucial. By recognizing and nurturing the link between science literacy and critical thinking, we can empower individuals to become active participants in the pursuit of knowledge, innovation, and the betterment of society. With a solid foundation in science literacy, individuals are equipped to critically analyze, evaluate, and contribute to the ever-growing body of knowledge, ultimately shaping a more informed, rational, and progressive world.

The Official Website of DepED Division of Bataan

References:

Listiani, I., Susilo, H., & Sueb. (2022, April). Relationship between Scientific Literacy and Critical Thinking of Prospective Teachers. *Al-Ishlah: Jurnal Pendidikan*, 14(1), 721-730.