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Editorial

Storytelling in STEM Disciplines: At the Crossroads of Science and Humanities

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1. Introduction

The collected papers in this Special Issue make significant contributions to educational research by demonstrating the multifaceted benefits of integrating storytelling and narrative techniques into teaching practices across various disciplines. Each paper highlights a unique aspect of narrative's impact on learning, providing a comprehensive overview of its potential to transform education.

2. Special Issue Review

The papers in this Special Issue collectively emphasize the transformative power of narrative and storytelling in enhancing educational experiences across various disciplines ranging from natural science and mathematics. The overarching theme is the integration of narrative techniques to foster deeper understanding and engagement among students, particularly in complex subjects like protein biosynthesis, geometry, recursive thinking, and optics.

One of the studies explores how narratives can be effectively used to explain the intricate process of protein biosynthesis within the context of viral infections [1]. The authors, Zabel and Averdunk, argue that storytelling can demystify complex biochemical processes, making them more accessible and memorable for students. By framing the biological mechanisms within a narrative, they show how students can better grasp the dynamics of viral infections and the body's response at a molecular level.

Complementing this approach, Tortorelli and Tortoriello [2] examine the role of storytelling and game-based learning (GBL) activities in developing definitional and classificatory thinking in geometry. Their research highlights how narrative elements, when combined with interactive learning activities, can help students build a solid foundation in geometric concepts. This method not only makes learning more engaging but also aids in the retention and application of geometric principles.

Expanding on the historical and semiotic dimensions of mathematics, Bianco, Donatiello, and Nicchiotti delve into the Fibonacci sequence [3]. They present the Fibonacci numbers through a narrative that intertwines history, semiotics, and storytelling to cultivate recursive thinking. This paper underscores how historical context and narrative can illuminate the conceptual underpinnings of recursive sequences, thereby enhancing students' cognitive skills and appreciation of mathematical beauty.

Building on the theme of recursive thinking, another paper by Nicchiotti, Donatiello, and Bianco employs a narrative approach to foster this cognitive process among high school students [4]. Through carefully crafted stories, they guide students in understanding and applying recursive thinking in problem-solving, demonstrating that narrative techniques can effectively bridge abstract mathematical concepts and practical applications.

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In the realm of science education, Aquilina and colleagues tackle the challenge of misconceptions and modeling competencies using the timeless story of "Romeo and Juliet" [5]. By embedding scientific concepts within a well-known narrative, they show how storytelling can correct students' misunderstandings and enhance their ability to model scientific phenomena. This approach not only clarifies complex ideas but also makes science more relatable and engaging.

Boscolo, Lippiello, and Pierri further illustrate the versatility of storytelling in education by designing a learning unit for teaching optics [6]. Their work exemplifies how a narrative framework can serve as a scaffold for educational content, making abstract optical concepts more tangible and comprehensible. Through stories, students can visualize and understand the behavior of light and optical phenomena in a more intuitive and meaningful way.

Finally, a reflective piece brings together diverse perspectives on the use of storytelling in education, centered on the theme "What's in Your River?". This narrative-based inquiry explores environmental and scientific topics through the personal and communal lenses of various participants [7]. The reflections gathered demonstrate how storytelling can facilitate interdisciplinary learning and foster a deeper connection between students and their environment.

Collectively, these seven papers make a compelling case for the integration of storytelling in education. They highlight how narratives can transform the teaching and learning of complex subjects, making them more accessible, engaging, and meaningful for students. By weaving storytelling into the fabric of education, these studies demonstrate that educators can enhance students' understanding, retention, and enthusiasm, ultimately leading to richer and more effective learning experiences across various disciplines.

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