PEDAGOGICAL AND PSCHOLOGICAL BENEFITS OF EVOLUATION IN STEM AND STEAM EDUCATION.

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ABSTRACT

The purpose of this article is to give a mapping of teaching art for STEAM education. The community is continuously changing, and education must adapt to allow for the full formation of the subject. STEAM education is becoming more prevalent in schools, with the goal of preparing future professionals for this linked and technology world. To accept this new culture, it is necessary to develop new teaching skills that include the student's whole development. As well as the art which mentions in STEAM education as A letter is essential in primary education.

Introduction

Relevance of the problem and level of study. Studying the STEM and STEAM education is highly developed countries of the world, carried out in schools, we, our independent republic, in the reorganization of national education systems that are outdated in education, the organization of school work, we will also have additional rich resources to quickly get rid of the forms and methods of activity, out of date, update it accordingly. In fact, modern education should reflect the needs and interests of the state and society. The upbringing of members of society who are able to successfully operate in the conditions of scientific and technological development, the new technological revolution, the orientation of the young generation towards a profession, the introduction of a multivariate third stage of secondary education, education - it is advisable to study world experience. such as using the most advanced pedagogical tools in education, opening a wide path for initiative and creativity in education, creating the most optimal systems. This is of great importance for our education, which is currently undergoing large-scale reforms. In subsequent years, many articles, brochures, manuals on world education were published, seminars, conferences, readings and meetings were held dedicated to it. This is a sign of the rapidly growing attention and interest in the establishment of educational and educational work in our system of education. Institutions dealing with the study of the world education system are also being created in state education systems.

PEDAGOGICAL AND PSCHOLOGICAL BENEFITS

Review and analysis of the STEM and STEAM education show the beneficial sides of in their evolution. The book which is called “Successful Steam education: a workshop summary” describes that In 2003, Texas inaugurated a public-private partnership program, the Texas High School Project (THSP[1]), dedicated to helping low-income students prepare for postsecondary study and helping low-performing schools improve. The Texas Science, Technology, Engineering, and Mathematics Initiative (T-STEM) is one element of that initiative, Viki Young [2]explained (see Young, 2011). Since 2006 the state has invested $120 million to open 51 high school academies and 7 technical assistance centers that provide professional development and other services to Texas schools A key goal for these centers is to improve outcomes for all schools, not just the academies, which are designed as demonstration schools. The academies do not have selection requirements students are admitted by lottery if the school is oversubscribed. Because T-STEM is intended to serve high-need students, the academies are located in high-need areas and are required to maintain student populations in which more than 50 percent of the students are economically disadvantaged or members of traditionally disadvantaged ethnic and racial groups.

Young and her colleagues used data from a 4-year longitudinal evaluation of the THSP to analyze the effects of this program on student outcomes (Young, 2011). They used both qualitative and quantitative methods to study the implementation of T-STEM. The variety of outcome measures used to gauge T-STEM's influence included results from the Texas Assessment of Knowledge and Skills (TAKS) in several subjects, passage of Algebra I by 9th grade, grade promotion, and rates of absenteeism. The preliminary results, Young explained, indicate that students who attended the T-STEM academies performed slightly better than their peers at comparable schools® in both mathematics (9th and 10th grades) and science (10th grade; there is no 9th grade science test). The T-STEM students [3]were more likely than their peers to pass all of the required parts of the TAKS, and T-STEM 9th graders have lower rates of absenteeism.Young cited several factors that may have influenced these outcomes.

First, both students and faculty come to the T-STEM academies by choice.

Though families may not have sought out a STEM focus, they have sought an academically rigorous program and are likely to be more academically motivated than other families. Student attrition may also affect the results. The academies report that students who find the workload too great or do not feel that they fit in tend to leave: 22 percent of students leave between 9th and 10th grade and 35 percent leave between 10th and 11th grade.

These "dropouts" are important because TAKS results are reported only for students who had been at their schools since 9th grade. The academies also offer a number of supports for students who may not be well prepared for a rigorous STEM curriculum when they enter. The supports include one-on-one tutoring, extra instruction for small groups, and credit recovery (opportunities to retake a course in which a student was not successful). Although such supports are also found at other schools, Young highlighted the "climate of high expectations"

[1]Young V. M. et al. Inclusive STEM schools: Early promise in Texas and unanswered questions //Highly Successful Schools or Programs for K-12 STEM Education: A Workshop. Washington, DC: National Academies. Retrieved May. – 2011. – Т. 1. – С. 2014.

[2]Means B. et al. Expanding STEM opportunities through inclusive STEM-focused high schools //Science education. – 2017. – Т. 101. – №. 5. – С. 681-715.

[3]Kennedy T. J., Odell M. R. L. Engaging students in STEM education //Science Education International. – 2014. – Т. 25. – №. 3. – С. 246-258.

at the T-STEM [4]academies, the opportunities for close relationships between students and faculty that result from the time set aside for advisory groups and regular check-ins, and the supports for college preparation activities.The academies are small (100 students per grade), and Young pointed out that this allows all students to have teachers who know them as individuals and also allows teachers to track students' progress. However, she noted, the T-STEM academies are not uniformly implementing the blueprint that was intended to guide them. The T-STEM academies strive for other outcomes, such as college readiness, mastery of 21st century skills, and involvement in out-of-school experiences that prepare them for STEM careers. However, these sorts of outcomes have not been consistently measured, in part because the T-STEM program has only been in place for a few years. It will take time before these kinds of outcomes for T-STEM students develop and can be measured, though Young suggested that they may be the most significant.

Over time, she suggested, it will be important to study the math and science literacy of T-STEM students, their readiness for college, and the rate at which they choose to major in STEM fields. In addition, she believes, researchers should study the effects of inclusive STEM schools in other states, and should build the capacity to look longitudinally at high school and postsecondary experiences. She also noted that they should seek ways to control for the selection bias that may have affected the current results and look more closely at the specific features of the approach used at the T-STEM academies to identify those most closely associated with desired outcomes.

Conclusion

Educators across all disciplines are findings ways to develop andstrengthen a cross-curricular foundation in literacy. Whether in fine arts, health, mathematics, physical education, science, or social studies, teachers assist students in gaining knowledge of texts they encounter in accordance with the Australian Department of Education's Literacy Policy (1997[5]), which states:

Literacy includes the cultural knowledge which enables a speaker, writer or reader to recognize and use language appropriate to different social situations. (Students) learn about the power of language to convey explicit and implicit meanings and layers of meaning, and they develop the capacity to discuss and analyze texts and language.

According to Hladczuk and Eller (1992[6]), literacy is "the vehicle of education, the means through which ideas, information, knowledge and wisdom are expressed and exchanged" (p. ix). Literate individuals possess the capacity to function fully in society: to make reasoned choices, to acquire meaningful employment, to participate in civic affairs.

Science and physical education requireoral language skills such as "activelistening, following oral directions, and stating needs and discussing issues" (Ballinger &Deener, 2006[7]). Written skills, such as assessing curricular goals, keeping fitness journals or reviewing tasks completed cooperatively, highlight the role of students in monitoring personal growth. Oliver

[4]Kennedy, Teresa J., and Michael RL Odell. "Engaging students in STEM education." *Science Education International* 25.3 (2014): 246-258.

[5]Street B. The implications of the ‘new literacy studies’ for literacy education //English in education. – 1997. – Т. 31. – №. 3. – С. 45-59.

[6]Hladczuk J., Eller W. (ed.). International handbook of reading education. – Greenwood Publishing Group, 1992.

[7]Hladczuk J., Eller W. (ed.). International handbook of reading education. – Greenwood Publishing Group, 1992.

& Garrison (1996) also noted the importance of speaking and writing in dance classes, as students describe the impact of physical movement on their bodies, thus increasing self-awareness.

References:

1. Rising Above the Gathering Storm Committee et al. National Academy of Sciences, National Academy of Engineering, & Institute of Medicine.(2010) //Rising above the gathering storm, revisited: Rapidly approaching category. – T. 5.
2. Schaefer-Simmern H. The unfolding of artistic activity: Its basis, processes, and implications. – Univ of California Press, 1948.
3. Stone III J. R. Delivering STEM education through career and technical education schools and programs //workshop of committee on Highly Successful Schools or Programs for K-12 STEM Education. National Research Council, Washington, DC. – 2011
4. . Stone E. The voyagers //Nature Astronomy. – 2017. – T. 1. – №. 12. – С. 896-896.
5. Valla J. M., Ceci S. J. Breadth-based models of women's underrepresentation in STEM fields: An integrative commentary on Schmidt (2011) and Nye et al.(2012) //Perspectives on Psychological Science. – 2014. – T. 9. – №. 2. – С. 219-224.
6. Vaughn K., Winner E. SAT scores of students who study the arts: What we can and cannot conclude about the association //Journal of Aesthetic Education. – 2000. – T. 34. – №. 3/4. – С. 77-89.
7. X Xie Y., Fang M., Shauman K. STEM education //Annual review of sociology. – 2015. – T. 41. – С. 331-357.
8. Young V. M. et al. Inclusive STEM schools: Early promise in Texas and unanswered questions //Highly Successful Schools or Programs for K-12 STEM Education: A Workshop. Washington, DC: National Academies. Retrieved May. – 2011. – T. 1. – С. 2014