
What Can Be Attributed To Professional Literature

Professional Literature Review

The article I chose to review was the Sept. 2015, Vol. 53, Issue 1, of the Science & Children Journal. The title of the article was GIMMIE AN “E”! The abstract for the article was, “The article focuses on strategies used by teachers to support children’s learning in physical science and engineering with the development of science, technology, engineering and mathematics (STEM Education). It mentions the statement of National Science Teachers Association (NSTA) on early childhood science. It adds instructors, coaches and teachers engaged in the professional development program Cultivating Young Scientists (CYS) to implement a unit on the topic of Building structures.”

This article provides seven strategies that early childhood educators can utilize, in order to engage and promote pre-school children in the mindset of the engineering. Why should educators introduce science and engineering to preschoolers? Science Professionals and Early Childhood Educators believe when children are exposed to, explore and engage in constructive and dramatic play, they are building a natural contextual foundation for identifying, addressing, and solving engineering design problems. Does that seem like a farfetched idea? Actually, if you think about it, the professionals and educators have a very valid point. The children are exploring what type, size, shape, and material work best for specific structural functions. For example, the child is building a barn for his play animals he/she has to explore and discover which blocks work best for the walls, roof, doors, and windows. They are naturally thinking about ideas such as, “How do I keep my roof from (Stability) falling in? Which blocks are better for holding up (Strength) the roof?”

The CYS professional developers conducted research on this idea. They worked with teachers to train them on how to implement a unit on the topic of Building Structures with 3, 4, and 5 year old preschoolers. The CYS group provided the teachers with seven strategies which overlapped, mutually reinforced, and supported the children’s learning in the field of physical science and engineering. The teachers followed the very specific, planned, and detailed instructions on how to implement the unit. The teachers had to arrange the “block areas” to accommodate three to four children building at the same time. Teachers also purposely provided the students with various materials of different sizes, shapes, and textures such as wood, foam, cardboard, and plastic for the students to use to create structural buildings. The children were allotted 20 to 40 minutes, three to four times a week for constructive play in the block area. They were encouraged to explore in constructive and dramatic play. The teachers observed, recorded, and documented the children constructively and actively building structures with the provided materials for several weeks. The teachers extended the unit by posting inspirational pictures, drawings, photos, and descriptions of various buildings such as neighborhood structures, schools, skyscrapers, homes, and bridges all at the children’s eye level on several surfaces within the classroom. The children were also provided materials such as paper, pencils, crayons, construction paper, clipboards, and collage materials for the creation of 2-D and 3-D models of building representations.

When the unit was complete the teachers compiled, reflected, documented, and used the data

from the Building Structures unit. Each teacher created a documentation panel which illustrated the compiled data. They also collaboratively reflected on what the teacher viewed as the most prominent aspects of the unit which provided the children with the foundational contextual ideas for structural building. The reflection revealed that the children did gain structural building foundational skills during the unit, in which they intentionally explored using different materials for specific structural functions such as discovering the material needed for a hard base, strong walls, light roofs, balance, and/or sturdiness etc. The unit proved to be successful in promoting STEM learning. Maybe the ideal of promoting the introduction of STEM education during early childhood will “catch on” in the future, if so the potential reward will be more architects, engineers, mathematicians, and scientists.

I actually learned a lot reviewing the article, GIMMIE AN “E”! I had never actually thought about children benefiting from constructive and dramatic play with building blocks. I did not realize this type of active constructive play was providing children with contextual foundational skills of how to build structures and what type of materials work best for specific structural functions. I learned that this type of constructive play does in fact promote STEM education. I learned that if preschool teachers purposely plan, schedule, and provide these young children with various building materials, they are not just providing children with social play time they are providing them with educational contextual foundational skills for a future in STEM education and a rewarding life to come. I agreed with the presentation of this article. I found the article to be interesting and educational. The article also justified my many purchases and time spent with my own children. I wanted my sons to have the type of wooden blocks that I played with as a child. I bought them every type of building and construction toys when they were small. I spent many hours in the floor playing with tool sets, wooden building kits, wooden blocks, abstract shape puzzles, Lincoln Logs, Legos, Marble Runs, Geometric Connecting Shapes, Magformers, and Melissa and Doug products etc. My son is ten now and is intrigued with building Colbi Army vehicles. He says he wants to be a mechanical engineer for the armed forces designing vehicular warfare. I agree that our educational system should place more emphasis on the introduction of STEM education at an early age.

Bibliography

1. Hoisington, C., & Winokur, J. (2015). GIMMIE AN "E". *Science & Children* , 44 - 51.