2023

Understanding 5th Grade Students Perspective of STEAM through Sketches

Maria Pignatelli
Binghamton University--SUNY

Michael Payne
Binghamton University--SUNY

Kayla Casazza
Binghamton University--SUNY

Faith Orzeck
Binghamton University--SUNY

Understanding 5th Grade Students Perspective of STEAM through Sketches

Authors: Casazza, Orzeck, Payne, Pignatelli

BACKGROUND:

- STEAM is an ever-growing field of our society and has provided our world with the infrastructure to craft the modern society as it is today.
- With a society, it begins with education. The researchers connected with fifth grade classrooms in a local school district to explore the following question:
    - **What are local fifth grade students' perspectives of STEAM?**

METHODS:

- Data was collected from 84 students through a task administered to four fifth grade classes at both of the elementary schools in the local district.
- The task contained 5 separate sections, with room both for students to illustrate their image of each element of STEAM, as well as to answer two questions as to what they illustrated and why they illustrated it. Also included were three questions relating to demographics.
- The data collected from the illustrations and questions was then coded, allowing for further analysis. Once each of the tasks were coded using the form, the researchers looked at the frequencies of each code for the elements of STEAM.

BINGHAMTON UNIVERSITY
STATE UNIVERSITY OF NEW YORK

Student's perspectives of STEAM in a nearby school district is represented by their **relationship** with each element of S.T.E.A.M.

S

Science Drawings were centered around physical objects used in experiments (e.g. test tubes, explosions, and people experimenting) because students feel these items are related to science.

T

Technology: Drawings were centered around technological objects or devices because technology is related to electronic devices and having fun.

E

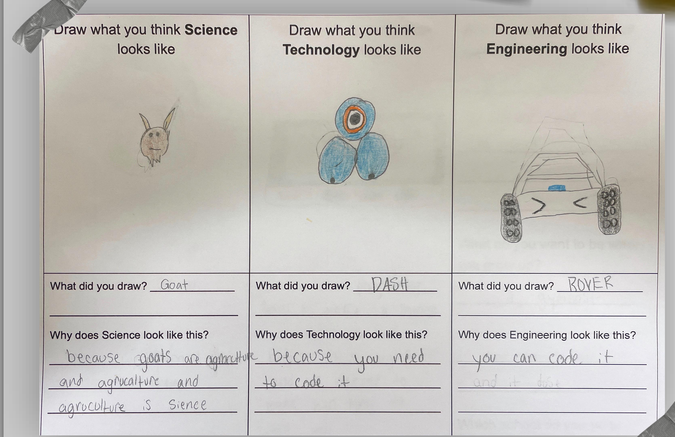
Engineering- Drawings centered around building and fixing of vehicles or structures because engineers and their jobs are related to fixing and building (e.g. mechanics, architects, working on mars rover).

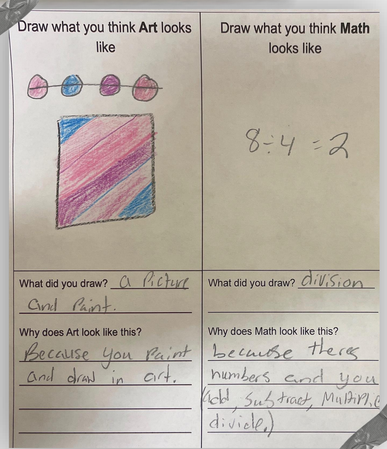
A

Art- Drawings centered around materials used for art because art is related to creativity.

M

Mathematics- Drawings centered around school - based math concepts or problems (e.g. addition, subtraction, multiplication, or division) because math is composed of the concepts within it.





Scan QR to observe the rest of the drawings

DISCUSSION:

- Local fifth grade students' perspectives of STEAM are instead their relationships with each element and what they associate with it and less of a perception of STEAM as a whole.
- Science, art, and mathematics which are classes within the schools were shown in a more school-oriented way.
- The elements of technology and engineering which were less based on school subjects and contained drawings that were much more diverse.

FURTHER RESEARCH:

- Some limitations of our research was the need for a larger and more diverse sample size to allow closer examination of the findings and exploration of differences.
- A larger and more diverse sample would help to consider the impact of different backgrounds and lifestyles of students.
- Additionally, future research can expand upon the concept of artistic expression to view students' perspectives in the areas of STEAM.
- With it being such a large part of modern society, researching how the youth are growing into this society may be incredibly helpful to the further development of our world.