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## Centering the Arts in STEM

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## Centering the Arts in STEM

### Abstract

A reflection on a STEAM initiative: NC State University Alumni and their children attended free STEAM (Science, Technology, Engineering, Arts, and Math) family workshops at D.H. Hill Library. This program was a collaboration between Dr. Fay Cobb Payton, professor of Information Systems/Technology and University Faculty Scholar at NC State, the NCSU Libraries, and Arts NC State

### Keywords

STEM, Arts, STEAM

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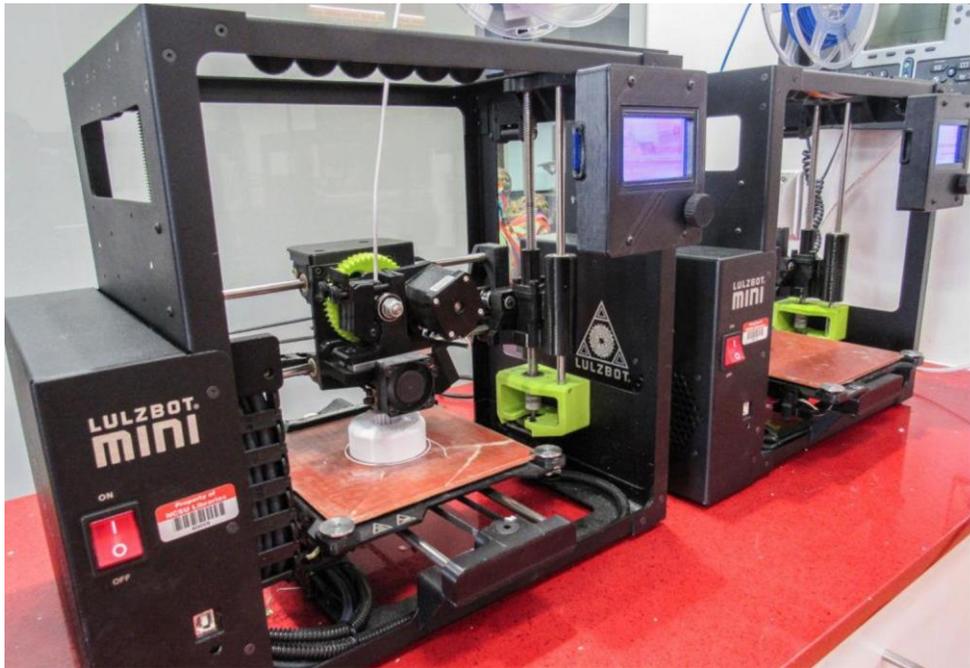


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## Centering the Arts in STEM

*Fay Cobb Payton*

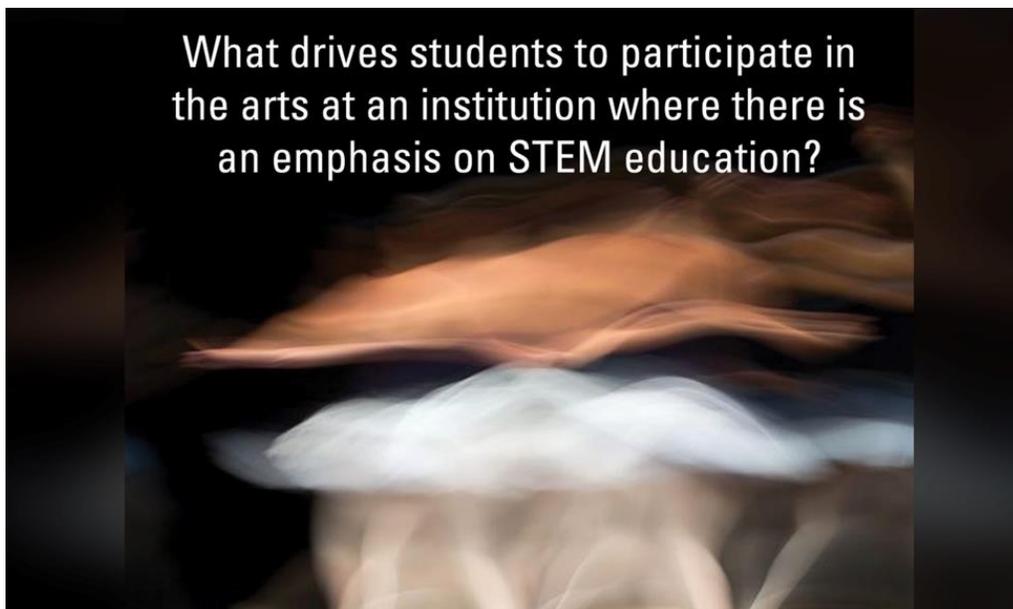
The STEAM Initiative ([Arts NC State & NCSU Libraries Partner for STEAM Family Workshops](#) | [Arts NC State](#)) was launched in 2017 after my collaboration with dance faculty. The initiative involved a convergence collaboration with colleagues from the North Carolina State University Library, University Alumni Association, Arts NC State and a number of campus living learning villages. While each of my colleagues and I are from different disciplines (dance, computing, music, social sciences, engineering, library sciences), we share an affinity of and for the arts. The initiative encompassed a workshop series centering the arts on equal footing with STEM disciplines, and had an intentional goal to showcase problem-solving and creativity through coding, music, performance-based voice, theatre and makerspace hands-on activities. Each workshop session involved youth from grades six to ten and a participating parent or guardian. The



parent/child activities provided an opportunity to engage in team problem solving, mutual learning and creativity.

The STEAM initiative was part of my effort to understand what the National Academies of Sciences, Engineering, and Medicine (2018) called branches from the same tree. From this report, the National Academies concluded:

- There are positive learning outcomes associated with arts and STEM integration, such as increased critical thinking abilities, higher order thinking and deeper learning, content mastery, creative problem solving, teamwork and communication skills, improved visuospatial reasoning, and general engagement and enjoyment of learning;
- The integration of STEM curricula into students pursuing arts and humanities may improve science and technology literacy and can provide new tools and perspectives for artistic and humanistic scholarship and practice.





Similarly, one of my prior publications confirms the above findings relative to dance college students who were STEM majors. As noted in Payton, et al (2017), *the college students consistently indicated that the arts and STEM serve as complements, and both are best served when there is flexibility in curricula to facilitate arts participation. Extreme rigor is characteristic among dance and STEM curricula – given the research-driven choreography and studio time of the former and the data-driven laboratory time of the later. Admittedly, the students indicated that dance provides spaces and places for self-expression where their creativity is valued **and** accepted. There is, however, a duality of rigor that exists. This duality is often met with a pivotal point for students when dance and STEM are coupled as dual majors. In these instances, students are forced to select one curriculum over the other. While STEM is often based in a lab setting for practice and hypotheses testing, dance requires studio time for the same reasons. Both are data-driven and characterized by extensive hours, data-driven continuous improvement and teamwork.*

I am fortunate to have collaborated with great colleagues to create and uncover these findings. More importantly, I am grateful to embrace the arts and provide mechanisms to help students foster their STEM and arts talents. In many ways, I hope that we in academe can implement more integrative models of STEM and the arts – as often limited “select one” frameworks of education can restrict creativity while limiting untapped talent to entrepreneurship and employment.

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