



How Youth Connect Sports with Technology

Adia Wallace

adiawallace2021@u.northwestern.edu

Northwestern University
Evanston, IL USA

Ashley Quiterio

ashleyquiterio2027@u.northwestern.edu

Northwestern University
Evanston, IL USA

Vishesh Kumar

vishesh.kumar@u.northwestern.edu

Northwestern University
Evanston, IL USA

Marcelo Worsley

marcelo.worsley@u.northwestern.edu

Northwestern University
Evanston, IL USA

ABSTRACT

Here, we present findings from our research study conducted on a series of STEM workshops we developed and implemented in a local summer program for young Black boys. Data were collected and analyzed from surveys, student work, and field observations. Our preliminary findings suggest that youth began to acknowledge benefits in having both tech and sports within the same learning space. Specifically, they began to connect digital technologies with sports and consider them as mediating tools for acquiring and refining athletics skills.

1 INTRODUCTION

Research on sports technologies in expansive learning sites [2][3] highlights ways to motivate STEM learning through passion for sports. We ask: How do youth recognize and conceptualize ways technology connects to sport? We present findings from a workshop about sports and STEM wearables implemented within an existing summer camp for Black male youth in grades 3-8.

There are unique affordances to using inclusive learning contexts to support interests and identities in cross-disciplinary ways. Building disciplinary knowledge by incorporating STEM into non-STEM learning contexts can enable minoritized youth to perceive STEM within activities they already identify with, including sport [2][3]. Achieving this requires that youth have access to the disciplinary domain or field; opportunities to take on integral roles; and, especially for minoritized youth, opportunities for self-expression. It is equally important in STEM learning to enact pedagogies that prioritize cultural responsiveness and sustainability, multidimensionality, and care [1][4].

2 METHODS

The summer camp divided youth into two sessions –for grades 3 to 5 and for grades 6-8. Our workshop engaged youth for the allotted 45-minute period. For 3 days, the middle school students completed activities on track and field (pedometers and smart watches), soccer (microcontrollers), and basketball (embedded-sensor game balls, training wearables, and training apps). For 2

days, the elementary school students engaged in track activities and non-sport play with embedded-sensor game balls and activities with microcontrollers. We also asked them to ideate and draw their “dream sports technologies”. We include these drawings in our data analysis.

Pre and post surveys were administered to youth across both camp sessions. The surveys contained a combination of Likert items and 1 free-response question on participants’ perspectives on the relationship between sports and technologies. Approximately 100 survey responses were analyzed and qualitatively coded to highlight youth’s perceptions of technology, athletic and academic identities, and interest in future opportunities. Codes for the free-response question included enriching consumption of sports, improving learning experiences and skills acquisition in sports, and alternative ways of engaging with the sports (e.g., playing video games versus building them).

3 FINDINGS & IMPLICATIONS

The youth previously used digital technologies as mediating tools for learning-about sports separately. By the end, they increasingly recognized their affordances within the same learning space, as 80% agreed that technology could help them do better in sports. They primarily described these connections as learning-with tech to improve athleticism. Elementary school youth indicated a high interest in learning more about building tech and coding, suggesting that the opportunity to ideate had a stronger effect than program duration. We will consider this in future workshops on sports and STEM learning with middle school youth.

REFERENCES

- [1] Julius Davis and Keisha McIntosh Allen. 2020. Culturally responsive mentoring and instruction for middle school black boys in STEM programs. *Journal of African American males in education* 11, 2 (2020).
- [2] John Drazan, Amy Loya, Benjamin Horne, and Ron Eglash. 2017. From sports to science: Using basketball analytics to broaden the appeal of math and science among youth. *MIT Sloan Sports Analytics Conference* (2017).
- [3] Stephanie T Jones, JaCoya Thompson, and Marcelo Worsley. 2020. Data in Motion: Sports as a site for expansive learning. *Computer Science Education* 30, 3 (2020), 279–312.
- [4] Na’ilah Suad Nasir and Victoria Hand. 2008. From the court to the classroom: Opportunities for engagement, learning, and identity in basketball and classroom mathematics. *The Journal of the Learning Sciences*, 17, 2 (2008), 143–179.

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