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STEAMing ahead with teamwork:
Transferring administrative support to a virtual setting due to COVID-19

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Abstract

Due to the COVID-19 pandemic, many educational classes and extra curriculums have suddenly moved to a virtual setting. This study seeks to provide the lived experiences (Seidman, 2019) of administrators as they transition a summer STEAM program to a virtual setting. The summer STEAM program consisted of approximately 100 students from various schools in a large northeastern US city. Through interviews, participant-as-observer observations (Billups, 2020), and document analysis of weekly updates, call logs, and administrative documents, this research details the shift in support mechanisms that administrators found to be valuable to instructors.

Aim

The purpose of this qualitative study is to understand how a STEAM program's administrative team transitioned instructor supports to a virtual setting for their summer program.

Issue

Out-of-school programs have become a way to incorporate meaningful science, technology, engineering and mathematics (STEM) integration for students outside the confines of a school day. However, it is difficult for some instructors to authentically blend the four disciplines together and researchers are still exploring best practices (Kelley & Knowles, 2016). Furthermore, instructors in out-of-school programs are not necessarily certified teachers or individuals who hold a STEAM-related degree. Instructors can be supported by ensuring they have solid STEM content knowledge, creating STEM partnerships, and prioritizing STEM within the program so that instructors have higher levels of comfort with STEM programming and content (Cohen, 2018). Supporting instructors is important because of the academic and behavioral benefits for students in out-of-school STEM programs (OSSPs) that utilize an inquiry-based approach (Gates, 2017). While effectively supporting instructors in OSSPs is possible while programs can meet face-to-face, the fallout from the COVID-19 pandemic is uncharted territory. Yet, supporting instructors in providing effective OSSP is more important than ever due to the academic repercussions of COVID-19 school closures. Effective summer programs has helped reduce the impact of summer slide (Smith, 2012). This study provides an understanding of how a summer STEAM program supported instructors as in-person programming was transitioned to a virtual setting. The study is guided by the following questions:

1. *How did the summer program's administrative team transition support systems (i.e., professional development, meetings, instructor support) to a virtual space for instructors?*
2. *To what extent does Summer STEAM change the way they provide support to instructors?*

Initial Findings

Three themes emerged from participant interviews, observations, and document analysis. Those themes were (a) supporting instructors to focus on teaching, (b) everyone pitching in during a time of need, and (c) creating new support structures.

To support instructors' ability to focus on teaching, administrators attempted to reduce teacher burnout, removed new layers of student challenges, and decided on the direction of technology for the overarching program. These supports allowed instructors to shed some of the "extras" that are involved in teaching and focus on their craft. One administrator shared that "[teachers] would text me and be like, 'Hey, we're working on this digital activity...Can you go with him into a breakout room?' And I would do that." Jumping in and out of classrooms became commonplace for administrators throughout the summer. Additionally, administrators were ready to help out in new and unexpected ways such as:

The number of staff available to call kids, run computers to kids, just troubleshoot the problems that will come up...it's just one teacher without the flexibility of a nonprofit to have these unconventional roles.

As the summer evolved, administrators focused on simplifying teachers' instructional time and ability to teach in their classrooms. Simplifying teachers' instructional time was accomplished by providing direct instructor support but also by solving unforeseen and foreseen problems that students would encounter while in class such as laptops breaking or connectivity issues.

The theme of everyone pitching in during a time of need was evident by: (a) how planning began early for the summer, (b) the overall structure of the program, and (c) the flexibility and team mentality of administrators. These different strategies translated to a shared decision making process in which multiple teammembers, rather than a single one, made a decision based on prior experiences. In developing a schedule, administrators sought the advice of educators who already were operating their programming in a virtual space. "We talked to those teachers to see what their schools were doing and what they liked and didn't like and that's kind of how [we] built the schedule we made in the summer program." Furthermore, issues like schedule and programming were a shared responsibility across the administrative team. One administrator shared "we had a couple of people on the team that were helping a lot...I know I was kind of the face of it, but there was a lot of people involved in that when speaking about a specific program." Throughout the interviews, the administrative team spoke about the team mentality when approaching problems to ensure effective programming. There was consistent reference to other members of the administrative team playing an instrumental role in transitioning the program to a virtual setting.

For creating support structures unique to the virtual space, grade team meetings, shift in administrative roles, and integrating potential teaching tools into meetings were new for this summer to support instructors in a virtual environment. At the start of the summer, the administrators demonstrated a way to engage students in a virtual classroom to students:

I decided to do a Nearpod, like PD on the first day. I mean I wasn't doing a PD on Nearpod but just use it in the PD because I felt like if I was able to model using it that teachers would be able to think about how they could use it.

While engaging students over the summer was a challenging task, administrators demonstrated a piece of technology that could be utilized by instructors to increase engagement in staff meetings. Instructors were able to engage with the technology together and talk through how it could be utilized in the virtual space. Additionally, when students struggled to connect or be present, administrators took on additional roles of supporting instructors to motivate students to be present. "The student support deans, I don't think I necessarily envisioned that they would call students as much as they did, because that's now really how it looks in person but they were willing to step into that role." While existing structures continued, there were certain aspects of administrators' roles that had to change to better support the program. The creation and shifting of support structures was a common theme across all interviews. For example, the support deans making phone calls for absent or unresponsive students was a transition due to a situation that did not exist for in-person programming.

Significance and implications

While there have been regional events that have prevented specific OSSPs from being held, such as extreme weather events, the COVID-19 pandemic has created an unprecedented challenging situation for educators and programs across the country. While research provides insight on best practices for supporting STEM instructors in OSSPs (Cohen, 2018) and best practices in virtual programming (McKlenon, 2006), existing research on transitioning from in-person to virtual programming is limited. This study, which fills this gap, has implications for OSSPs as they transition between in-person and virtual programming. This scholarship provides educational administrators of OSSPs a few best practices in how to provide support to their instructors during the school year and provide insights as to the challenges of this transition. This project provides administrators in a variety of settings ways to support their instructors in shifting in person STEM programming to a virtual space.

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Author Biography

Christopher Fornaro received his Bachelor of Science in chemical engineering from Rutgers University and Master of Education from Temple University. After working as a process engineer for roughly three years, he completed an alternative certification program and Master's degree as a Robert Noyce scholar, funded by a Wachovia grant. Over the next nine years, Chris spent time in public, charter, and independent schools teaching math and science classes. This time culminated in creating and managing the STEAM department and MakerSpace at The Shipley School.

Chris's research interests originate in trends he saw in STEM spaces both in and out of the classroom. Specifically, ways that STEM can be effectively integrated in and out of classroom spaces, out of school STEM programming, confidence in STEM programming for instructors and students, and informal learning environments. Chris has been a research assistant for Drs. Alonzo Flowers, Toni Sondergeld, Aroutis Foster, and Sheila Vaidya.