

IINSPIRE Alliance COVID-19 Study

Qualitative Research: Descriptive Themes and Initial Findings

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The Iowa Illinois Nebraska STEM Partnership for Innovation in Research and Education (IINSPIRE) is an NSF LSAMP alliance among sixteen two-year and four-year colleges and universities working together to broaden the participation of underrepresented minorities in science, technology, engineering, and mathematics (STEM) education in the Midwest. The IINSPIRE Alliance colleges and universities collaborate to support students, increase their success, and provide students in the alliance with academic, research, training and mentoring opportunities.

This year has been unprecedented with the outbreak of the coronavirus disease 2019 (COVID-19) and a subsequent social distancing to prevent the spread of the virus. Given this special circumstance, our research team initiated a survey that aimed to understand LSAMP program directors' and students' experiences around a sense of belongingness and program administration in an extended period of social distancing. We collected survey responses from April to July 2020 and extracted themes reported by current LSAMP program directors and students using thematic analysis.

This research brief provides an overview of the study design and preliminary results of the thematic analysis of program director and student survey responses. Suggestions for future LSAMP programming in a socially distanced campus setting would also be provided for program directors and coordinators.

Background: COVID-19 & Social Distancing

Beginning from mid-March 2020, colleges and universities nationwide moved classes online to contain the spread of COVID-19 on campuses. This transition as a part of practicing social distancing has not been a mere shift in the class format but a drastic change in the entire school community. Students, administrators, faculties are recommended to avoid in-person contacts for non-essential work responsibilities on campus and to stay at home. The absence of face-to-face communications within school communities has constrained belongingness among students in the traditional sense. Given a low sense of belongingness that racial minority students who study STEM in predominantly white institutions endorse (Dortch & Patel, 2017), social distancing could further decrease levels of perceived belongingness. However, a sense of belongingness can be a contributing factor that leads to minority students in a STEM field to their degree completion and further academic success (Packard et al., 2011). Furthermore, social distancing and shift to online learning likely to decrease a sense of belongingness among college students (Adnan & Anwar, 2020) while belongingness can be a protective buffer of suicidal risk for adults who are ordered to stay at home (Gratz et al., 2020). Thus, we decided to investigate how current LSAMP students are experiencing social distancing with respect to its impact on a sense of belongingness within the LSAMP program. We were also curious to explore how students' experiences correspond to the LSAMP program directors' efforts to foster a sense of belongingness as well as the challenges and unexpected benefits of social distancing in administering the LSAMP program across the campus.

Qualitative Research Aim

The study is designed to further our understanding of the lived experiences of program directors and students in a social distancing period with respect to program administration and a sense of belongingness. Using thematic analysis, our purpose of the study is to answer the following questions:

- 1 What efforts have been made by LSAMP program directors to foster a sense of belongingness among their students in a socially distanced setting?
- 2 What are some identifiable challenges and unexpected benefits associated with social distancing and program administration for program directors?
- 3 How do students experience a sense of belongingness in their LSAMP program within a socially distanced setting?
- 4 What are some identifiable challenges and unexpected benefits associated with social distancing and a sense of belongingness among current LSAMP students?

Online Survey

Participants. A total of 9 directors and 15 students (excluded data of 3 directors and 4 students as they submitted blanks) responded to the survey with valid data. Years in the LSAMP program showed an average of 8.05 years for directors (ranges 3-11years), and 1 year 5 months for students (ranges 1month-4years). Directors’ institutions include Doane University, Grinnell College, Iowa State University, Kirkwood Community College, Little Priest Tribal College, University of Northern Iowa, and Wartburg College. Students’ affiliations and years in college are shown in the tables below.

Table1. (Student) Years in College

	<i>n</i>
Second year	3
Third year	6
Fourth year	5
No Response	1
Total	15

Table2. (Student) Affiliations

	<i>n</i>
Des Moines Area Community College	1
Kirkwood Community College	1
Iowa State University	3
University of Northern Iowa	2
Wartburg College	2
No Response	6
Total	15

Survey Questionnaire. We created two versions of the survey; one for program directors and another for current students. For directors, we focused on their efforts to create a sense of belongingness along with their experiences in administering the LSAMP program after the implementation of social distancing. Survey questions included: 1) Since social distancing measures were put in place, what have you been doing (or anticipate doing) to create a sense of belongingness for your campus among students in the LSAMP program? 2) What are some challenges you have experienced with respect to social distancing and administering your campus LSAMP programming? 3) What are some unexpected benefits you have experienced with respect to social distancing and administering your campus LSAMP programming? For students, we aimed to understand their experiences around a sense of belongingness in the LSAMP program as well as their challenges/unexpected benefits in social distancing and connecting with others. Survey questions include: 1) Since social distancing measures were put in place, what have you been doing (or anticipate doing) to connect with (students, faculty, staff, etc.) in your LSAMP program? 2) What are some challenges you have experienced with respect to social distancing and connecting with (students, faculty, staff, etc.) your campus LSAMP program? 3) What are some unexpected benefits you have experienced with respect to social distancing and connecting with (students, faculty, staff, etc.) your campus LSAMP program?

Data analysis. We used thematic analysis to extract themes from the survey responses. Thematic analysis is a method used for identifying themes or patterns within data (Boyatzis, 1998). Braun and Clarke (2006) introduced a step-by-step approach for thematic analysis: Step 1. Familiarize with data, Step 2. Generate initial codes, Step 3. Searching for themes, Step 4. Review themes, Step 5. Define and name themes, and Step 6. Produce report. After generating the initial codes, two graduate student researchers cross-reviewed the themes, which enhanced validity.

Preliminary Findings

Preliminary results from the data yielded various themes for program directors and students are shown in the charts below. Given this is a result of the thematic analysis, we considered the face validity of the result (Guest et al., 2012). Results showed a great face validity in terms of two graduate student researchers’ cross-review of themes and additional review from a counseling psychology faculty. We included as many themes as possible to understand varied experiences.

Table 3. Topics and Themes from Program Directors

Efforts to create sense of belongingness	<ul style="list-style-type: none"> • regular/minimal virtual check-ins (or zoom meeting) • virtual undergraduate summer research program • student led small group discussion for community building
Challenges in social distancing and program administration	<ul style="list-style-type: none"> • uncertainty • absence of in-person check-ins • lack of in-person contact • limited availability due to adjustment to new class format • time zone challenges • loose connections among student and general population • general fatigue and being overwhelmed, disinterest in zoom • time management • students’ overburdened responsibilities • difficulty encouraging virtual engagement • poorer quality of interaction due to distractibility in a virtual setting
Unexpected benefits in social distancing and administration	<ul style="list-style-type: none"> • zoom familiarity • student proactivity in communication • finding online academic resources • identify student technology needs • innovative in finding ways for student research and communication • collaboration between alliance institutions • availability of virtual programs to all alliance institutions • development and success of a virtual undergraduate mentored research program • virtual research, networking opportunities, and skill building in summer undergraduate research program • no benefits acknowledged

Table 4. Topics and Themes from Students

Experiences of being connected with others	<ul style="list-style-type: none"> • virtual communication (zoom, email, text, social media, phone calls, facetime) • regular zoom meetings and email • community building • zoom meeting for research group • zoom based discussion • efforts to stay connected • online learning • nothing; stressors at home
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Table 4. (Cont.)

Challenges in social distancing and connect with others	<ul style="list-style-type: none"> • absence of/being different from in-person contact • difficulty making new connections with students • difficulty getting to know others virtually • limited social contact in a virtual setting • lack of communication • lack of availability from students/faculty • lack of timely response • flexible schedule • time management • difficulty staying productive • no challenges
Unexpected benefits in social distancing and connect with others	<ul style="list-style-type: none"> • expanded connections • flexibility with social connections • increased communication skills • solidarity with students of color • flexible schedule • additional time for studies • autonomy in research • newfound responsibility • utilization of resources at home office • virtual programming • access to and knowledge attainment from workshops • no perceived benefits

Discussion

Preliminary result showed several similarities and differences between themes emerged within current LSAMP students and program directors. First, for experiences of connecting to others, students reported more varied uses of virtual communication. Students reported using text, phone calls, and other modalities (facetime) rather than zoom meetings as ways to be connected with others. It is also noteworthy that students perceive online learning as a part of connecting with others in the LSAMP program. Additionally, students responded that they have done nothing due to their stressors at home does not correspond with program directors’ answers that their students are occupied with other duties (e.g. ‘overburdened responsibilities’ under the topic challenges). This result supports that students’ responsibilities at home and other settings outside of school can be itself a challenge or barrier for them to stay connected with others and engaged in the program. Secondly, for reported challenges both students and directors indicated an absence of in-person contact and loose or limited connection among students. In addition, students mentioned a lack of availability and timely response from faculty and students, which also aligns with program directors’ report that they have limited availability due to adjustment to a virtual format. Students also identified holding a flexible schedule and time management as their challenges. At the same time, students’ academic concern of reported difficulty staying productive corroborates results from Cohen et al.’s (2020) study where more than one-third of their college student sample reported difficulty paying attention in classes due to anxiety. In terms of quality of communication in a virtual setting, students mentioned difficulty get to know other people while directors reported challenges of encouraging virtual engagement. Lastly, for unexpected benefits, expanded connections, flexibility with social connections, increased communication skills, and solidarity with students of color were all reported by students. Themes from students in their academic and life in general domains were flexible schedule, additional time for studies, autonomy in research, newfound responsibility, and utilization of resources of the home office. Research and career resources such as virtual programming (e.g., summer research program), access to and knowledge attainment from workshops were also found to be beneficial for students. It was noteworthy that several themes of challenges and benefits contradict each other (e.g. difficulty making connections as a challenge vs. expanded connections as a benefit).

Limitations and Implications

We recommend readers to consider the limitations of this study in interpreting the result and applying this to their LSAMP programming. Firstly, the period that we collected data is mostly during the summer so the directors' and students' current experience might look different from that specific time point to now. Secondly, since the participants only provide their answers to the survey one-time, we were not able to fully explore ambiguous answers with follow-up questions. Given this limitation, we suggest a follow-up survey and a more extensive qualitative study such as an interview for future research.

Despite its limitation, the research result yields several implications for LSAMP programming in a social distancing era as well as in a virtual setting.

- Virtual meetings can be more beneficial than directors might consider. Although program directors found it challenging to foster student engagement and quality interaction in a virtual setting, students reported they found community-building beneficial as a way to connect to others. Especially among minority students, they found virtual discussion was a chance to build solidarity with students of color. Indeed, virtual meetings turned out to promote an individual's higher perception of social support that is related to better mood and a greater sense of belongingness (Gabbiadini et al, 2020). Thus, providing virtual events for community building can be a way to further encourage a sense of belongingness among students.
- Continue organizing virtual workshops and research programs can be helpful. As students found it useful to attain more knowledge through the workshop as well as to participate in a virtual research program, continuing or even providing more workshops and research programming could be beneficial. In terms of the workshop topic, it could also be useful to consider how the pandemic have influenced students' degree completion and future career. Forakis et al. (2020) found that the pandemic doesn't significantly change STEM student's career plans in a longer range, but students face short-term academic changes with respect to their graduation.
- Providing academic and mental health resources can be beneficial. Given students' perceived challenge in staying productive and managing time, sharing resources and tips for time management, scheduling for academic success as well as sending out mental health resources can support students who struggle with anxiety or other pandemic related mental health issues.
- Knowing and considering student's availability would be important to encourage their engagement and promote a sense of belongingness in the program as limited availability impedes students to build more connection with others. Program directors or coordinators might not have been keenly aware of each students' circumstances due to a lack of communication in the pandemic. Having a conversation about availability with students could inform directors of ways to encourage students' participation in the program.

Conclusion

Social distancing and a virtual setting can be a serious challenge to continue the LSAMP programs that traditionally had taken place on campus. However, this new virtual environment can also be a chance to further foster a sense of belongingness among students by organizing virtual community-building events. At the same time, given virtual workshops and research programs were beneficial to students, continue planning and providing related events to students with timely topics such as changes in graduation or career plan due to the pandemic could also be helpful for students. Most of all, having a chance to communicate with students and check-in their circumstances and availability that might have influenced their participation in the program would be important. We hope the findings and implication of this research to be as much as useful for program directors and coordinators.

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