

# WORKING PAPER SERIES



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Higher Education and COVID-19

## Navigating Careers in the Academy: Gender, Race, and Class

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## EDITOR'S NOTE

### Crises and Opportunity: Re-imagining the Academy in the Midst of COVID-19

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More than 2 months into 2021 and COVID-19 still continues to upend everything – way beyond what we could have ever imagined. We are still trying to understand the many challenges facing the nation, our campus, our families, and ourselves. We are still working to figure out the best ways to support our colleagues. As more voices are heard, the tremendous and widespread impact of the pandemic is made more clear, including the longer term consequences that are now emerging. It is also clear that the range of impacts is broad and that not everyone experiences the same challenges on how the pandemic is affecting their work and their lives. “One-size-fits-all” initiatives to address the impacts of COVID-19 are definitely not the solution. Moving forward, it is imperative that many voices are at the table, and that all voices are heard. Insights gained will shape the “New Normal.” Returning to the old ways is not an option. Rather, this crisis needs to be leveraged with the lessons learned through our struggles and as a result, universities will be re-imagined (Malcom 2020).

This “Butler-ADVANCE Working Paper Series” is a unique venue that provides insights and reflections to bring attention to personal experiences. These experiences subsequently can inform broader thinking and policy for the future. This opportunity to make connections between the personal and the public is not available in other formats or on other platforms. Articles in this special issue bring additional voices into the discussion of the pandemic and speak to its varied challenges, as well as offer recommendations and strategies to address the challenges in ways large and small, narrow and broad. Several of the lessons learned have implications beyond the specific topics covered in the papers. Insights from the papers published here will shape the norms we strive to establish and the lives we want to live once the acute phase of this pandemic is behind us. This is where we begin to envision our “new normal.”

It is well recognized that universities as we know them are not inclusive, with policies and practices that often disadvantage individuals from under-represented groups. COVID-19 exacerbates this exclusiveness and is laying bare additional inequities in higher education and society. Learning from the crisis and re-imagining our personal and professional lives post-COVID-19 presents an opportunity to *be better*. In the process, it is imperative that university

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leaders seek out and listen to many voices, and most especially those who have historically been silenced or marginalized.

The required rapid transition from in person to on-line teaching is a major theme in this Special Issue. Dr. Rush in her article “Empowering Faculty to Teach Online from 'Bottom-Up': An Online Course Design Institute” describes efforts of one university to assist faculty in the transition of courses (from a variety of disciplines) from in-person to online. The content and instruction provided by the newly developed institute described in this article, the *Online Course Design Institute (OCDI)*, assists faculty in navigating challenges associated with the transition of traditional course to an on-line format. The course consists of 12 modules completed in a 6-week process. The modules cover essential topics including current topics in course design, suggested evidence-based practices and activities, and assessment. Detailed, step-by-step descriptions of the modules and guidelines as well as lessons learned from each module are provided.

The author notes that many factors contributed to the success of the initiative: “By establishing a community of members, providing resources, professional development events, and actively supporting learning opportunities, OCDI played a pivotal role in navigating the challenges of constructing and implementing traditional courses to an on-line format” (pg 8). Additional comments from the author (an experienced course facilitator) provide important tips and insights to significantly enhance the student learning.

With the transition to on-line course delivery, technology is playing an ever-increasing and important role in how we teach. Dr. Nnoromele in her article, “Reflecting on the Impact of the COVID-19 Pandemic on Higher Education,” shares insights on how, through the use of technology, faculty can engage students and create learning environments above and beyond what they thought possible. Like in-person instruction, digital instruction can be effective and engaging with thoughtful planning, innovative strategies to engage students, and insightful assessments.

Higher education, already facing numerous challenges even before COVID-19 emerged, has been forced to rethink the business of teaching and learning. Dr. Nnoromele reflects on the past several months and the lessons learned. She makes the point that although the crisis is disruptive, very unsettling, and presenting what seem to be insurmountable challenges— it also presents an opportunity to rethink what we do, writing in her piece, “the pandemic is providing opportunities for higher education to regain its vision and appropriate new avenues to make itself relevant to society” (pg 24).

Like other authors in this volume, Dr. Nnoromele believes that moving forward will not be going back to the way things were pre-COVID-19, but rather moving ahead toward a new normal. A new normal which is not simply a set of quick fixes, but rather is a comprehensive approach with input of all stakeholders. Understanding students better is a part of moving forward. Dr. Nnoromele suggests that as a result of the crisis, the needs of students, from academic to emotional became more clear. And importantly, solutions have emerged, including the awareness that students need generosity, patience and understanding, and that different students have different needs and challenges. The author advocates for a move to a more holistic, student-

centric approach so that learning is enhanced for students from all groups. In this article, she shares recommendations on how to accomplish these goals.

Study Abroad and Experiential Learning Programs experienced the most dramatic disruption and halt to business-as-usual. In “Understanding the ‘New Normal’: The Internationalization of Education and Study Abroad during the COVID-19 Era,” Swanson and Duncan present the results of their study assessing the impact of COVID-19 on study abroad programs. The goal of the research was to understand students’ perspectives on study abroad during the pandemic with a focus on the impact of: 1) perceptions of risk (safety), 2) financial considerations, 3) past experience with study abroad, 4) progress toward degree, and 5) the value students place on the experience. Results indicate that students are weighing value and risk. Nevertheless, students want very much to participate in study abroad once the world reopens and international travel becomes feasible.

Insights from the study address the “new normal” of adapting to new realities and limitations. To provide a global experience for students, many experiences and activities moved online, such as virtual city walking tours and virtual walks through museums and galleries. When traveling is restored, these on-line strategies and resources can both complement the in-person abroad experience, as well as provide “study abroad-like” experiences for those unable to travel for any number of reasons, including budgetary constraints or lack of physical ability, for instance. As suggested by the authors, “as we take students into a ‘post-COVID-19 world’ for the first time, we can use the pandemic pedagogically to help students conceptualize and process their personal experiences of this global event, just as we can help them appreciate both the unique constellations of particular places and the complex interdependence of the globalized world” (pg 47).

Like study abroad, experiential learning came to a sudden halt. Dobbs-Oates, Elias, Purcell and Watkins, in their piece, “Experiential Learning from Home: The impact of COVID-19 on field-based practices,” discuss the impact of COVID and experiences of faculty and students in field-based experiential education (EE). In the transition from in-person to remote instruction, field-based courses sadly were not on the administration’s radar; little support and guidance was made available. Yet, field-based education is critical for programs such as nursing, social work, and student research. As a result, students were faced with the difficulty of not getting the hands-on experience needed for their professional careers. Faculty who were trying to make experiential learning work for students found themselves caught between the policies of the university and those of the professional settings where students were placed.

A clear message from the paper is that as part of the new normal for EE of the future, as well as higher education in general, it will be important that systemic actions be taken to understand the challenges for faculty teaching in a crisis. At the same time, faculty need to be in the lead and empowered to decide how best to teach. To accomplish this, the authors suggest that “universities should strive to make health-and-safety decisions that can be applied broadly; to clearly communicate the bounds of those decisions; and to provide faculty with the guidance necessary to adapt general university policies to specific pedagogical settings” (pg 65).

The final two papers in this Special Issue focus on faculty success. Shah reflects on her experience as an assistant professor, a voice far too infrequently brought into the conversation. In

her paper, “Conducting Research during COVID-19: An Assistant Professor’s Perspective,” she shares reflections about conducting research during COVID-19. Issues raised include 1) recruiting and retaining graduate students, 2) obtaining research funding, and 3) conducting research. All of these pieces of a research program are critical for the success and promotion of junior faculty. Having graduate students in the lab is crucial to the execution of an ongoing research agenda. “I would say that they [graduate students] are essentially the 'reactants' or 'starting material' of a chemical reaction that are needed to make the reaction occur and subsequently generate products,” she writes (pg 69).

But as Dr. Shah points out, this issue is about far more than output quantity. Research *quality* can be impaired due to the loss of students, especially loss of international students and the associated loss of diverse, global perspectives. The paper goes further to propose actionable items as first steps for progress on the path forward to support faculty. The paper underscores both the important input from junior faculty as well as encouragement to junior faculty to speak and make their concerns be heard.

Underrepresentation of women of color in STEM is a major and longstanding concern. Effective mentoring is documented as a contributor to significantly increased retention and success for all faculty, especially those in minoritized groups. The social distancing requirements put in place to reduce COVID-19 infections eliminated the ability for in-person mentoring. Instead, E-mentoring became the go-to method to create community and provide support. Huderson, Vilfranc, and Carter, in their paper, “The Importance of Online Mentoring Communities for Black Women,” discuss the importance of on-line mentoring communities in the retention and success of Black women STEM scientists. “E-mentoring, though a well-studied practice, emerged as a sustainable mentoring approach as mandated isolations and social distancing requirements saw the disappearance of previous in person gatherings” (pg 82). The paper is especially important and timely for these times when challenges and obstacles are made tougher and harder to overcome due to sweeping external circumstances, including the stress of responding to social justice and racial justice demands compounded on top of COVID-19. Major contributions of the paper are the tools and insights that allow for the creation of meaningful mentoring communication ties that meet the specific needs of marginalized groups. Included in the paper is a detailed list of existing E-mentoring spaces for Black women.

Multiple themes emerge from this set of papers and those in the previous volume, including recognition of difference, a new normal, leveraging a crisis, unintended opportunities, and lessons learned. Despite experiencing tremendous obstacles and challenges, we can find encouragement in the overriding optimism from the authors about the future and the process of re-imagining. But how do we get to the newly-reimagined state, one that works for *all of us*? Now, more than ever, it matters that *all voices are present at the table*. True inclusion means that all voices are included in decision making and that policies meet the needs of all stakeholders. It is essential to recognize varied life experiences, and to embrace that many life experiences are very different from those of the small group at the top. The important issues and concerns raised in this set of papers need to be shared, discussed, and substantively addressed. Most importantly, recommendations provided in the papers are crucial first steps to moving forward.

Opportunities to be heard and opportunities for education go hand-in-hand in creating the new normal. Expecting and/or requiring university leadership to actively seek and hear all voices is critical. Only intentional approaches will succeed. Intention and education underlie several initiatives at Purdue. Intentional actions to provide opportunities for voices to be heard are important and effective. The working papers series itself is an intentional and strategic action to provide opportunities for often overlooked voices to be heard.

Subramaniam (2020) describes important work from the Butler Center that, in addition to the Working Papers series, actively seeks different perspectives. These include the Support Circles initiative and Coaching Resource Network.

ADVANCE Purdue Center for Faculty Success once-a-semester “Lunch with the provost” for newly hired STEM women faculty is an additional venue to hear various perspectives. These gatherings provide an opportunity for newly-hired assistant professors, a group that is often not heard from, to bring issues forward (the good, bad and ugly) to the provost. On a larger scale, Butler – ADVANCE Coaching Resource Network initiative provides annual sessions for the participants to provide their perspectives to the provost.

Faculty-driven workshops serve to educate. These include: the ADVANCE Purdue Faculty Hiring Workshop; the ADVANCE Faculty Advancement to Success and Tenure (FAST) series; the Butler Center’s Conference for Assistant Professors; the Butler-ADVANCE Conference for Associate Professors; the Butler Center’s Round Tables; the Gender Bias workshop created by Mangala Subramaniam, Ayşe Ciftci and Chris Sahley; the discussion series “Cross Cultural Discussions: White Women and Women of Color as Allies in the Academy” created by Nastasha Johnson and Megan Sapp-Nelson; and the Equity in Graduate Student Admissions GRE workshop created by Kevin Gibson.

As Subramaniam stresses in her editor’s comments in the first special issue, “Initiatives and structures are a crucial step towards transformation... (transformation) requires transparency, cohesive planning and functioning to facilitate action by hearing carefully what faculty are experiencing, enabling inclusion by being attentive to differences, and responding in thoughtful ways including deterring attempts to stymie meaningful mechanisms for support and change” (2020:3).

Likewise, assessment and evaluation of the actions and initiatives are critical. Many universities responded with rapid changes in policy and practice to deal with COVID-related challenges. These actions need to be evaluated for their effectiveness and inclusiveness, and then modified accordingly to ensure that those previously marginalized are not further disadvantaged by policy changes that fail to recognize their specific circumstances or needs.

Change is slow and the work is hard. Continuously seeking out new and additional voices, listening and dialogues are essential. The work and reflections in both volumes 1 and 2 address important concerns. The recommendations presented in these papers are important contributions toward creating the new and reimagined normal.

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# Empowering Faculty to Teach Online from the “Bottom-Up”: An Online Course Design Institute

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COVID-19 introduced new challenges in course instruction, chiefly the move to an online format. Regardless of faculty’s teaching experience, moving face-to-face classes to online formats, hasn’t been easy. The main conundrum espoused by many faculty adjusting to the “new normal” is how to converge effective teaching strategies, bridge the gap that exists between research and practice, and deliver actual classroom instruction in a virtual format?

This paper provides the efforts one mid-sized regional university offered as a solution for their faculty’s understanding of the “virtual unknowns” in course design and instruction. The assistance came through a professional development course, *Online Course Design Institute (OCDI)*. By establishing a community of members, providing resources, professional development events, and actively supporting learning opportunities, OCDI played a pivotal role in navigating the challenges of constructing and implementing traditional courses to an online format. This paper draws from one key facilitator’s experiences during the delivery of OCDI, as well as her expertise to recommend best practices for online course delivery.

## About OCDI: Structure Faculty Received to Moving to an Online Platform

In my role as the OCDI facilitator, I came to the realization that faculty are seldom, if ever, provided with the means to learn how to be better instructors. Thus, this was the purpose of the six-week course. Not only was the OCDI course designed to improve teaching for an online format, but it provided faculty with guided insight, resources, and an opportunity to become self-reflective practitioners. During the six-week professional development course (OCDI), courses from various disciplines, were created by faculty from a “blank slate” for online implementation. The worksheet in Appendix A served as the guide for the “new” course design. Using the bottom-up approach, faculty used existing, face-to-face courses to re-invent an online approach. With many key players, including designated facilitators, faculty deconstructed and rebuilt their learning, best practices and teaching philosophies for online learning and course delivery.

## Bottom Up Approach

A bottom-up approach is the piecing together of systems to give rise to more complex systems (Fink 2003). Specifically, the bottom-up approach analyzes characteristics of a concept or problem to identify its micro attributes as a solution. For the OCDI course, the objective was to take an existing course and discover the aspects of application learning—such things as problem

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solving, thinking, and decision making (Collins-Brown, n.d.). Faculty members were given the task of navigating the many issues of curriculum design while implementing appropriate curricula.

To guide this operation, faculty used a structured worksheet (see Appendix A: Design Plan for Online Course Design) to effectively construct their “new” course. Using the bottom-up approach, faculty re-invented their course from face-to-face to an online approach. During the six-week process, reconstructed learning goals moved beyond an “understand and-remember type of learning” (Fink 2003). The bottom-up approach allowed faculty to collect and organize all their information and ideas for a given course topic. Systematically, faculty figured out what teaching activities were more appropriate for online learning. In addition, in-depth, sustained discussions generated new ideas for active learning and student engagement.

Following a basic instructional design model, principles from Dee Fink’s (2003) work on Creating Significant Learning Experiences, Wiggins and McTighe’s (2005) work on Backwards Design, and the Quality Matters criteria for quality online and blended courses, faculty used the bottom-up approach for each of the twelve course modules during the OCDI professional development sessions. The bottom-up approach was consistently used to connect the instructional design models to the OCDI structure and content.

**OCDI Module Content**

The OCDI key teaching modules focused on the most essential topics a faculty member needed to move their courses online quickly and effectively. During OCDI’s implementation, experts of online learning prepared novice faculty from varied disciplines to move from minimally proficient to the experienced online instructors. In addition, the twelve modules, in conjunction with the guided worksheet (Appendix A), allowed faculty to discover new tips, current topics, evidence-based practices and useful activities to consider in their online course design. As one of the lead OCDI facilitators, I will provide a description of each module during the six-week process (Table 1).

**Table 1**

Six Week Design	Module Description
Week 1	Module 1: Laying a Good Foundation Module 2: Universal Design for Learning (UDL)
Week 2	Module 3: Basics of Course Design Module 4: Building Quality and Best Practices Started
Week 3	Module 5: Backward Design, Learning Outcomes, and Aligned Assessments Module 6: Assessment
Week 4	Module 7: Learning Activities and Supporting Content Module 8: Chunking Course Components
Week 5	Module 9: Course Organizer or Schedule Module 10: Creating the Online Syllabus
Week 6	Module 11: Quality Online Course Review Module 12: How My Course Works

### *Module 1: Laying a Good Foundation*

Description: This module explored learning styles and teaching perspectives to develop or redefine a teaching philosophy. Teaching philosophies are self-reflective statements about one's teaching beliefs, values, and styles. Constructing teaching philosophies are important to build the foundation for online course design in that it allow faculty to make a connection of how their values and beliefs about teaching fit into the context of their discipline. For example, faculty self-reflected on their concept of learning, teaching, goals for students, teaching methods, interaction with students, and means to assess learning. As noted in Appendix A: Worksheet 1, the purpose of this module explored the nature of the course and the overall needs of the targeted audience.

### *Module 2: Universal Design for Learning (UDL)*

Description: This module familiarizes the participant with the basic concepts of UDL and suggest ways faculty can incorporate UDL into their course design. In general, using a UDL approach provides an overarching framework for thinking about the design of curricular materials (i.e. goals, assessments, materials, and methods). UDL is a conceptual shift from thinking about 'fixing the student' to 'fixing the curricula.' It provides multiple means of representation, action and expression, and engagement in the curriculum to enhance student learning (*Appendix A; Worksheet 2*).

### *Module 3: Basics of Course Design*

Description: This module identified the components of ADDIE (a conceptual framework for instructional design; Analyze, Design, Develop, Implement, and Evaluate), discussed similarities and differences between online and face-to-face, and identified characteristics of assignments, content & context (*Appendix A; Completion of Worksheet 1 & 2*).

### *Module 4: Building Quality and Best Practices Started*

Description: This module examined what quality in course design looks like using two quality tools: *Quality Course Teaching & Instructional Practice* - from the *Online Learning Consortium* and *Quality Matters* - from the *Maryland Online Consortium*. To build course consistency, regardless of the discipline, the two quality tools structured faculty course designs to nurture them with well-conceived, well-designed, well-presented courses and programs.

### *Module 5: Backward Design, Learning Outcomes, and Aligned Assessments*

Description: In this module, the purpose of using a backward design is described, but most importantly, how it differs from the traditional approach to course design in higher education is discussed. The module also examined course alignment in backward design and how it assists the designer in creating an integrated learning experience. Once backward design outcomes were written, faculty participants explored the many types of assessments that suitable for the online environment.

### *Module 6: Assessment*

Description: Once outcomes were written, this module explored the many types of assessments that are suitable for the online environment. In addition, new or revised assessments were created to align with the learning outcomes.

### *Module 7: Learning Activities and Supporting Content*

Description: In this module, appropriate learning activities were used to compare and contrast different activities for online learning. Participants created content appropriate for student learning outcomes, assessments, etc. To name a few, tools and strategies for student access included lockbox activities, Zoom jigsaw, case studies, online simulations, home lab kits, mini-lecture videos, and mini-quizzes (Bloom 2020).

### *Module 8: Chunking Course Components*

Description: Organization requires “putting the pieces together.” In this module, various lesson plan templates outlined each topic, module, unit, or lesson. The idea for this module was to provide explicit, sequential and systematic learning through detailed components of a lesson plan (objectives, subject matter, procedure, assignment and evaluation). The intent was to unpack the standard, traditional style of course instruction to transition into an online delivery.

### *Module 9: Course Organizer or Schedule*

Description: This module expands on the topical or conceptual outline to create a course schedule. In other words, how meeting dates, assignment due dates, etc. will be delivered? In this module, faculty were expected to create a visual template of long-term plans for the course.

### *Module 10: Creating the Online Syllabus*

Description: From the course organizer, faculty created their syllabus for online implementation. Using the article, “Creating an Effective Syllabus for Online Learning”, this module provided a format to design the online syllabus (Geary 2018). Overall objectives of this module included incorporating best practices in the design of an online syllabus to insure attainment of course goals and objectives, as well as acquaint students with clear and comprehensive expectations.

### *Module 11: Quality Online Course Review*

Description: This module reviews Module 4 requirements; Quality Course & Quality Matters. Using the criterion outlined in the rubrics of the two tools, faculty self-assessed the quality of their online modules before the initial launch.

### *Module 12: How My Course Works*

Description: This module provides direction and guidance on how to navigate the course. Now that the pieces are complete, it is important that it is also functional and operable. Module 12 explores ways to avoid questions about “not finding things” within the learning management system (LMS) to disrupt course delivery. Operational tasks were clearly outlined and defined.

## **Identifying Best Practices**

Educators need more opportunities to learn effective, research-based strategies and align them with their classroom instruction. As such, the OCDI professional development course was designed to provide guided practices to novice faculty through the expertise of lead facilitators. Specifically, OCDI delve into topics pertinent to best teaching practices and course design.

Regardless of the field or discipline, lead facilitators (in conjunction with other campus experts) provided an asynchronous, six-week course to better prepare their faculty to deliver online

instruction. Through structured modules, faculty were provided detailed explanations, activities, and resources as they formatted a course ready to implement the following semester. Faculty were expected to spend 5 to 10 hours each week to complete the modules. In addition, to establish an effective community of learners, weekly synchronous meetings (via Blackboard Collaborate™, Zoom™ or Teams™) were led by lead facilitators to provide the additional support faculty needed. During the OCDI course, participants received:

1. An interactive, hands-on, workshop approach.
2. A chance to create and build usable course assets throughout the workshop.
3. The opportunity to experience online teaching best practices from the student perspective.
4. A model of flexible course design that provided ample time for collaboration while also allowing participants to set their own pace.

Using a bottom-up approach, faculty sprang into action to quickly migrate their entire curriculum to an online format using learned, best practices presented through OCDI.

### **Best Practices: Lessons Learned**

These lessons are intended to provide practical tips for course designers and instructors attempting to improve their students' online learning experience. The following provides a description of each module and the lesson learned from the key facilitator's perspective, including ideas and strategies explored within the OCDI modules commonly used to improve online course design.

#### *Module 1: Laying a Good Foundation*

Lesson Learned: We think we know the students who are in our classes, but when we really examine them (as well as ourselves) we'd be surprised. A close examination of what we believe (characteristics of the instructor, learner, content, and context) will prepare us to view things differently. Dee Fink (2003) calls this sizing up the situational factors. In order to size up, one must first move from shallow learning to deep construction of learning. As noted in module 1's description, exploring teaching philosophies is a best practice approach to discover one's teaching beliefs, values, and styles.

#### *Module 2: Universal Design for Learning (UDL)*

Lessons Learned: Learning is achieved for different people in a variety of ways, as we all have different learning preferences. Using the principles of Universal Design of Learning is one way to construct a course to reach all learners. For reference, the CAST UDL Guidelines<sup>1</sup> provides a structure to support the UDL curriculum design. (Appendix A; Completion of Worksheet 1 & 2). The guidelines suggest a variety of teaching methods that include multiple forms of medium, engagement and activities.

#### *Module 3: Basics of Course Design*

Lessons Learned: Less is just as good, or better, than more. Shorter assignments accomplish the same pedagogical goals. This is not giving up on rigor; it's simply recognition that now no one,

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<sup>1</sup> CAST UDL Guidelines <http://udlguidelines.cast.org/>

has the same attention span as before COVID-19 (Appendix A; Completion of Worksheet 1 & 2).

*Module 4: Building Quality and Best Practices Started*

Lessons Learned: How can we build quality practices? Here’s an example of Appendix A: Worksheet 3.

At the end of the course, you will be able to... (how will they apply the foundational knowledge of this course)	How will you (and the instructor) know that they can do this?
1. identify and analyze characteristics and needs of exceptional learners with high incidence disabilities	Academic language-assess through quiz &/or Discussion Boards (i.e. Blackboard Collaborate™, What’s App™) & Quizlet™

*Module 5: Backward Design, Learning Outcomes, and Aligned Assessments*

Lessons Learned: An example of using the backwards design model to plan learning outcomes, assessments, activities and content is presented below. Notice that the pieces of the design are sequential (Appendix A: Worksheet 4).

COURSE LEARNING OUTCOMES (What will you be able to do by the end of your course?)	ASSESSMENT How will the you show the instructor that you have met the learning outcomes?	LEARNING ACTIVITIES: Reading assignments, watch videos, self-assessment, drafts of papers and/or projects, etc. These are the activities that provide foundational knowledge, but also allow the student to practice before attempting the assessment.	CONTENT: Resources, texts, videos, worksheets, quizzes, project or assignment instruction, etc.
1. Identify and analyze characteristics and needs of exceptional learners with high incidence disabilities	Academic language (through quiz, DB, & assignments)	For my asynchronous module/ I present a self-contained learning experience (Robert Gagne’):  <u>Content folder-</u> Gain student’s attention ( <b>Essential Question-</b> Pose thought-provoking questions to the students; <b>Inform student of objectives;</b> <b>Discussion Board-</b> Have students pose questions to be answered by other students; Elicit student activities <b>Present the content -</b> Use a variety of media to address different learning preferences; <b>Provide learning guidance-</b> Provide case studies, analogies, visual images and metaphors; Use examples & non-examples; <b>Provide feedback-</b> Corrective and remedial feedback – informs the student the accuracy of their performance or response; <b>Assess performance-</b> Conduct a post-test to check for mastery of content or skills; <b>Enhance retention and transfer to the job-</b> Generating examples/final products related to SPED instruction (i.e. lesson plans, BIP plans, concept maps, etc.)	Article/website examples, rubric of course descriptors,  Evidence Practice assignment (EBP)  Hunter Library (other resources/list); chapter quizzes related to content, creation of lesson plans for PWD, required field experience (in classroom up to 10 hrs.)- requires a case student of a PWD / real-time experience  For each “required” assignment, information folders with rubrics & exemplars are provided. For example ... Scenarios, case study’ live module (research one two EBPs to help this student; connect real-life/classroom experiences; an emotional investment); weekly guides of “graded” assignments. Ppts.

*Module 6: Assessment*

Lessons Learned: Learning is assessed in several ways. Assessment can include tests, case studies, and short-response writing assignments. Students should also be graded on a criterion scale. Other online assessments rely on seminar style assessments such as discussions, responses to reading questions for articles, and a research paper. A “Scoring at a Glance” chart let the online student know how assignments are weighted (Appendix A: Worksheet 5). Here’s an example.

**ASSIGNMENTS/ SCORING AT A GLANCE**

Assignment	Possible Points
Orientation Week (syllabus quiz )	2
Discussion Board (7 @ 20)	140
Quizzes (15 @ 20)	300
EBP	20
Lesson Plan	20
Field Experience: Case Study	20
Total Points	500 (502)
Grade Equivalencies: To calculate your final grade, add up all your points and divide it by 500.	

*Module 7: Learning Activities and Supporting Content*

Lessons Learned: Learning is not about regurgitating facts - that is memorization and recitation. Saying this, making connections is not obvious but that’s where learning should be fun, engaging, and personal. When designing courses, try to find a personal connection or design an activity that is relatable. Keeping learning objectives in mind, create assignments that make connections and dive a little deeper into the material (Appendix A: Worksheet 6).

*Module 8: Chunking Course Components*

Lessons Learned: You can choose any lesson plan template you need to make your course relevant. However, choose the one that you feel works for you and how you organize your instruction. Remember, since this is online, you must be very detailed and sequential to walk the students through what you would normally talk them through in the face-to-face class (Appendix A: Worksheet 7; three lesson plan options provided).

*Module 9: Course Organizer or Schedule*

Lessons Learned: Scheduling and organization are essential to keep any course on-track. I always provide this type of organizer/schedule for my students. It gives them a macro view of the course.

Activity Tracker

Week/Module/Dates	Readings/Tutorials/Mini-lectures	Assignments	Assessments
Week 1 (Oct 12 - 18)			
Week 2 (Oct 19 - 25)			

This organizer also helps online learners to organize their in-person life and online learning life. Most print the organizer out and post it by their workspace and check deliverables off as they complete them. I also embed the organizer within my syllabus and one “marked” location with



the learning management system (i.e. Blackboard™, Canvas™, etc.) This practice is also beneficial if/when I add or change the dates on assignments and assessments (Appendix A, Worksheet 8).

#### *Module 10: Creating the Online Syllabus*

Lessons Learned: Again, you don't have to be too complicated with a syllabus design. In fact, less can provide just as much when it comes to expectations and standards. When using best practice, to create a syllabus, I always create it with a KISS (**K**ee**P** **I**T **S**weet and **S**imple) (Appendix A: Worksheet 9).

#### *Module 11: Quality Online Course Review*

Lessons Learned: Now things are finalized, it is important to make sure that all is in order. Using the rubric from these two resources: *Quality Course Teaching & Instructional Practice* - from the *Online Learning Consortium and Quality Matters* - from the Maryland Online Consortium. (Appendix A: Worksheet 10) will guarantee a quality, effective course.

#### *Module 12: How My Course Works*

Lessons Learned: Each course is designed and facilitated a bit differently and that needs to be explained at the start of the course. An activity I like to use to check if students' can navigate the learning management system is to create a syllabus quiz (a scavenger hunt) of questions that relate directly to the syllabus. Within the online course, I also present a "Welcome Letter" to highlight expectations; or create a video explaining the functions of their LMS. (Appendix A: Worksheet 10).

#### **Additional Tips**

As the OCDI facilitator, I discovered other pertinent factors that should be considered within online course design. These recommendations resulted from conversations and observations during scheduled, synchronous sessions with the OCDI learners. The recommendations reinforced the idea that good teaching is good teaching, no matter the medium, no matter the time. In addition, I also came to realization that social distancing did not mean social isolation. More than anything, online learners need to know that there is someone else there on the other side. This is what I concluded:

#### *Make a human connection.*

Despite teaching in an online venue, it is essential to not lose the human connection with our online learners. "Our role as faculty must extend beyond grading assignments to include verbal and written encouragement, vital for the academic and personal development of students" (Lowe 2005). Online learners value connection and community in their learning (Rao, Eady, and Edelen-Smith 2011). Providing a variety of ways to meet with the learner such as scheduled meetings and virtual office hours is important for their success (Rush and Cooper 2019). For example, many students in the OCDI course rated our synchronous meetings using videoconferencing tools as very helpful. They could see and talk with me about the course requirements, assignments, etc. For all online learners, there's a need to feel that the instructor is available, knowledgeable, and competent to support them (Rush and Cooper 2019). Instructors do not need to be available 24 hours a day and 7 days a week, but being available to answer questions at regularly scheduled times is very important (Rush and Cooper 2019).

*Identify students who are struggling early.*

Every class should begin by establishing initial introductions. A mini “bio,” if you will. I post a little about myself but I expect to know more about my students. By assigning initial written introductions, I have a good sense of each student’s relative strengths and weaknesses. I’m also able to keep an eye on those who are less engaged and just going through the motions.

Flippgrid™ is an excellent way to engage students through video messaging. A flipped classroom model is a resourceful way to prepare students to discuss their progress, engage in peer feedback, get one-on-one instruction, and otherwise engage in an in-person community (Bloom 2020). In addition, Microsoft Teams™ provides a platform for easy and quick communication, a collaborative place to express opinions and explore ideas that are a tad easier to access and navigate (Bloom 2020).

*Let them “chat” during Zoom class.*

For those less inclined to engage during class, encouraging comments in the chat function for whatever online learning platform you choose, gives students an opportunity to express themselves and lightens the mood. The chat feature can also promote student engagement during the learning process.

*Hold virtual office hours.*

Setting a standard Zoom™ (videoconferencing) time for virtual office hours allow students to have easy access to you. Another suggestion, make office hours a requirement, at least once for each student. Establishing standard office hours will let your students know you are there.

*Email, email, email.*

I reach out by email to send reminders for assignments, praise students who are in the spotlight, as well as those who may be less visible. It’s very important to establish a strong teacher to student rapport. Many students will appreciate the extra support.

*Make all assignments due at the same time each week.*

Just as I practice during non-pandemic times, I have everything due at the same time and same day of the week. This proves to be helpful for those students who have expressed that they are having trouble keeping track of what is due for other classes within the semester. Establishing a consistent routine with assignment dates is especially beneficial for those courses that are asynchronous.

## **Conclusion**

COVID-19 forced many institutions to transition completely to online learning and left many faculty members with a feeling of uncertainty about how to best serve their students. Despite the widespread ambiguity during the pandemic era, one institution provided a professional development course (OCDI) to effectively prepare their faculty about the effectiveness of online learning. Using the “bottom-up” approach, courses once delivered in a traditional face-to-face format transitioned to virtual delivery. The structure and content for the OCDI professional development is outlined and discussed. Furthermore, the OCDI facilitator offers additional recommendations to enhance virtual instruction.

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## Appendix A

### Design Plan for Online Course Design

**Designer/Faculty/Instructor:**

**Course Number and Name:**

**Term to be Taught:**

#### **Worksheet 1: Analysis**

Audience/Context Analysis: Dee Fink (2003) calls this sizing up the situational factors. We think we know the students who are in our classes, but we'd be surprised.

Audience:

#### Characteristics of the learners:

- What are the life situations of the students at the moment: full-time students, part-time working students? family and work responsibilities?
- What life or professional goals of students relate to this learning experience?
- What are the students' reasons for enrolling?
- What are the students' prior experiences, knowledge, skills, and attitudes toward the subject?
- What are the students' learning styles?
- What knowledge, skills, and attitudes should a student leave this course with?
- What motivates these students? Are they self-starters, responsible learners, or beginning undergraduates?

#### Characteristics of the Instructor:

- Are your goals articulated with the next level course? Are the connections clear to the students?
- What is the instructor's level of competence and confidence in this subject?
- What are the prior experiences, knowledge, skills and attitudes of the instructor with regard to the process of teaching?
- What are the instructor's prior experiences, knowledge, skills, and attitudes toward the subject?
- What are the instructor's strengths and in which areas does the instructor need to grow?
- How much time do you have to develop this course?

#### Context:

- How many students are enrolled in your course?
- Is the course lower division, upper division, or graduate level?
- How will the course be delivered: live, online, or in a classroom or lab?
- What physical elements of the learning environment will affect the course?
- Does your course outcome require special equipment or learning experience?
- What are society's expectations of students in general or with regard to this particular subject?
- What are the state's or related professional society's accreditation requirements and how do these relate to goals of this learning experience?

- What curricular goals/outcomes of the institution or department will affect this course or program?
- Are there any standards or expectations for this course (from other sources) that must be met?

- Are there professional standards that will be tested?

Content:

- Is the subject matter convergent (working toward a single right answer) or divergent (working toward multiple, equally valid interpretations)?
- Are the topics addressed discrete and independent or do they build on one another?
- Is the subject primarily cognitive or does it include the learning of physical skills as well?
- Is the field of study relatively stable, in a period of rapid change, or in a situation where competing paradigms are challenging each other?
- What purpose does this course serve in the students' education?
- What will the students use from your course in other courses?

**Worksheet 2: Goals for the Course**

Thinking 2 - 5 years out after the students take your course, what do you want them to retain from the course? What would you like them to get out of your course that they will take into their life? Limit to 4 or 5.

**Worksheet 3: Course Outcomes**

First, go through “How to write Observable and Measurable Learning Outcomes” module in Blackboard.

Using your course goals to guide this process, write 3 - 6 course learning outcomes using the process and active verbs from the “How to write Observable and Measurable Learning Outcomes” module. Course outcomes must be observable and measurable and must tell the student what they need to be able to do and how they will show you that they can do it.

**Worksheet 4: Assessments**

Next copy the outcomes into the first column. Write down ways that the student will be able to demonstrate these outcomes in the second column. These will become your assessments. An assessment might align with more than one outcome.

At the end of the course, you will be able to... (how will they apply the foundational knowledge of this course)	How will you (and the instructor) know that they can do this?

**Worksheet 5: Learning Activities**

Learning activities - what type of learning activities will help the student be successful on the assessments. Reading assignments, watch videos, self-assessments, drafts of papers and/or projects, etc. These are the activities that provide foundational knowledge, but also allow the student to practice before attempting the assessment.

### Worksheet 6: Content/Resources

Assemble your existing content and align to outcomes. Identify content/resources that you need to find and/or create and add to the list.

Resources - what resources will the student need and can you get to support the of the learning activities. May be people, places, or things, including media. Resources, texts, videos, worksheets, quizzes, project or assignment instruction, etc.

### Worksheet 7: The Course Alignment Table

To determine if all of your course components align to the course outcomes, assemble your work in this table.

<i>COURSE LEARNING OUTCOMES</i> What will you (the student) be able to do by the end of your course?	<i>ASSESSMENT</i> How will the you show the instructor that you have met the learning outcomes?	<i>LEARNING ACTIVITIES</i> Practice activities	<i>CONTENT</i> Resources, texts, videos, worksheets, quizzes, project or assignment instruction, etc.

Instead of organizing your content by weeks, let's use topics or concepts as the organizing structure. List of 4 - 7 most important topics, concepts, issues, or themes (that will become lessons, units or modules). These are not Weeks.

First free write your topics/concepts, anything that comes to mind:

Now start condensing and filtering out topics until you have 4 - 7 of the main topics for the course:

Now list them in order (chronologically, simple to complex, fundamental to advanced...they must build on each other so the student can use what they learned in the first one through the rest of the other topics):

- 1.
- 2.

### Worksheet 8: Organizing Content

There are different ways you can organize your content. Create a lesson/unit/module for each topic. It depends on how you visualize and organize information. Some people like charts (option 1), others like outlines (option 2), maybe a lesson plan (option 3) or concept maps (option 4). Use the approach that works best for you, but the object is organizing all of the course components into smaller chunks around a topic. This need to be aligned (topic outcomes, assessments, learning activities, and resources).

#### Option 1: Charts

You can add more rows (right-click in the row to insert more rows) for each table and more tables for more topics/modules or delete if you do not have 8 modules. I suggest that you use one

row for each outcome. An assessment might tie to more than one outcome, as will the learning activities.

Topic or Module or Unit #1: (name)

Outcomes: These are more focused on and specific to the concepts	Assessments	Learning Activities	Resources (what will you need for this module? websites, readings, activities, tests?)

### Option 2: Outline

This is just a sample structure of how you can outline your lessons/units/modules:

1. Topic
  - a. Outcome 1
    - i. Assessment (maybe formative so students can gauge their progress)
      1. Learning activity
      2. Learning activity
        - a. Content/resources
        - b. Content/resources
  - b. Outcome 2
    - i. Assessment (maybe formative so students can gauge their progress)
      1. Learning activity
        - a. Content/resources
        - b. Content/resources

### Option 3: Lesson Plans

For each module/topic/concept, etc. complete a module map. You will use the completed module map to build the modules in the LMS.

First, create a list of the activities including an appropriate mix of 1) Covering or mastering the content and 2) Learning how to use that content (Fink, 2003). Arrange them in the proper sequence the student will follow to go through the module.

Here is a more linear way that might make sense to you:

What	Name of:	Details
Module outcomes		
Reading Assignment		
Narrated mini-lecture or module overview		
Learning Activities discussion project		

papers quizzes exploration team assignments self-assessment		
Assessments presentations papers projects tests/quizzes		
Student Feedback One minute Paper One on one conversation?		

OR

*Module Plan (or lesson plan)*

Module Name:

Module Description:

Module outcomes:

Learning Activities (sequential):

Assessments:

Learning Activities:

Content/Resources:

Worksheet 8: Course Organizer/Schedule

Create a weekly course schedule for the entire semester. This gives students a one-page view of the course, the dates and when assignments or assessments are due and where to turn them in or complete them. This is the **ONLY** place you put specific dates (so you only have one place to change the dates each semester).

Here is the course organizer from the OCDI Course:

Week/Dates	Topics	Learning Activities	Deliverables/Due Dates
Wk 1 May 12-16 May	Introduction: <ul style="list-style-type: none"> <li>Moving to Remote Instruction</li> <li>Backward Design and Course Alignment</li> <li>Quality Framework</li> <li>Using Existing Content</li> </ul>	<ul style="list-style-type: none"> <li>Moving to Remote Instruction: Discussion</li> <li>How Much is Too Much: Guidance on time commitment for online learning</li> <li>Your Course Design Plan: Design Worksheets (WS)</li> </ul>	<b>May 12-14</b> Discussion - What has been your experience so far?  <b>May 13</b> Complete Step 1: Analysis and Goals Upload to Assignments



	<ul style="list-style-type: none"> <li>• Introduction to Your Bb Course Shell</li> <li>Step 1: Goals</li> <li>Step 2: Modify Outcomes (objectives)</li> </ul>	<ul style="list-style-type: none"> <li>• What do You Already Have?: Collect existing content</li> <li>• Your Course in Blackboard: BB Shell, post Instructor Bio</li> <li>• What is Course Alignment and Why Is It Important? Course alignment content</li> <li>• Step 1 WS: Goals</li> <li>• Step 2 WS: Outcomes</li> </ul>	<p><b>May 14</b> Complete Step 2: Outcomes, Upload to Assignments</p> <p><b>May 15</b> Create video introduction and post to your Blackboard course shell and post in Discussion in MRRI course</p> <p><b>May 16</b> Make a list of existing content and post in Discussion. Comment on which content will be challenging to move online.</p>
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Worksheet 9: The Syllabus

Here is a good introduction to the online syllabus, entitled [Creating an Effective Syllabus for Online Learning](#).

Worksheet 10: How this Course Works

Even though we are all following the same course design process, each instructor has their own way of doing things in a course. Regardless of whether or not students have taken other online courses, a best practice and a quality criterion is to include instructions, either written or in a video, that orient the students to the processes of the course.

# Reflecting on the Impact of the COVID-19 Pandemic on Higher Education

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## Introduction

Analyses of the literature on higher education within the last decade would paint an image of a struggling institution: fiscal concerns leading to financial insolvency of several colleges; increasing tuition costs and mounting debts for students; impact of changing demography on enrollment; debates on access, equity, and student success (Tandberg and Martin 2019). Opinions suggest that higher education has lost its mission, abrogated its role within the community, and is playing with potential extinction. A survey by Inside Higher Ed (Jaschik 2018) found that only 48 percent of Americans expressed confidence in higher education. This represents a 9-percentage point decline from 2015. Questions abound regarding the quality of the educational experience and the value of academic credentials. According to Tandberg and Martin, “higher education is facing a host of challenges, including external questions regarding its value and purpose” (2019).

Then arrived the COVID-19 pandemic. Even though colleges and universities are constantly engaged in conversations about strategic and continuity plans, no one ever imagined the havoc an unprecedented global pandemic could wreak on the fabric of higher education institutions. Working closely with faculty, staff, and administrators over the last few months and staying attuned to the narratives and ethos emerging from colleagues across various colleges and universities, I have come to appreciate the complexity as well as the resilience of the higher education enterprise. The crisis brought by COVID-19 is disruptive, unsettling, and devastating in numerous ways. But, in forcing the academe to rethink the business of teaching and learning, the pandemic is providing opportunities for higher education to regain its vision and appropriate new avenues to make itself relevant to society. The following are reflections, highlighting important lessons COVID-19 continues to teach us about the transformative power of higher education.

## Technology Can Be an Effective Pedagogical Tool

As of January 2020, the average age of professors in the United States was 49 years, with 37 percent aged 55 and older (Flaherty 2020). This means that most professors grew up before the explosion of technology and the pervasive presence of the internet. As such, although traditional age students in 2020 fall within the iGen generation, defined as children who have largely grown up with technology, most of their professors understandably were not comfortable with

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technology. Prior to the COVID-19 crisis, it was not unusual for faculty to solicit help from students with basic technology in the classroom, such as setting up a video or streaming device. Few instructors had seriously sought after and learned some aspects of the numerous digital resources that can be used to leverage learning outcomes. In fact, a 2019 study of Faculty Attitudes on Technology found that less than half of professors had taught an online course, and on some campuses that figure is even much less (Jaschik and Lederman 2019). Terms like Zoom, Teams, Whiteboard and Google Hangouts sounded like foreign languages. “Blackboard” and “Canvas” had meanings different from the Learning Management Systems they represent.

The argument for the brick and mortar classroom experience rested on the notion of quality and integrity of higher education learning. In an opinion piece aptly titled, “Why I Won’t Teach Online,” Christopher Schaberg (2018) argued that while he sees some value in online learning for some students, he would never teach online. He reasons:

I can’t get to know my students in person. I can’t meet with them in my office for regular advising sessions or crisis situations and help them through the sometimes clumsy or just confusing experiences of college. Sure, there’s Adobe Connect and Skype, but honestly, it’s just not the same. So much of what happens in real office hours involves nonverbal cues, the intangible qualities of human presence. Part of what we’re training students to do in college, after all, is to work with actual other people.

Schaberg took scathing criticism for his views. However, his questions about the quality, effectiveness, and efficiency of online teaching and learning resonated with many in the profession. Faculty invest significant portions of their lives studying and mastering their fields and designing classes to engage students with course materials in ways that help them experience the joys of learning. The fear has always been that online or virtual learning undermined these cherished aspects of teaching, which Schaberg (2018) fittingly calls “the intangible qualities of human presence.” Yet, in March 2020, within a space of two weeks, almost every faculty across the country not only moved their courses online or remotely in response to the pandemic but were actively engaged in looking for ways to make a traumatic experience meaningful for them and their students.

Despite the reluctance with digital learning, the frenzy brought on by COVID-19 gave faculty no choice but to embrace existing resources and technology in the effort to continue their classes and assist students to complete the semester. It was no ordinary fit, as many instructors across the country affirm. But, if we focus only on the trauma, we will miss the incredible transformation that occurred on how we teach and learn. Being forced to confront the demons and latent fears of using technology as a medium for teaching and learning, we discovered that we are not only capable of adapting but that technology can be an effective tool for engagement and learning in ways we never imagined. We learned that we can take advantage of online learning to provide innovative educational opportunities, and will continue to be a part of the solution (Whitaker 2020). We reaffirmed what we have always known, that neither the online nor face-to-face models, by themselves, guarantee success in teaching. Effective teaching and learning whether in the face-to-face (in-person) or the digital classroom require thoughtful planning, imagination, and creative strategies to engage students, including appropriately designed assessment instruments to gauge and reinforce learning.

Schaberg was not wrong in enumerating the things we value about teaching. But several months of discovering and evaluating the digital teaching platforms reveal that we are indeed capable of achieving the “intangible human experience” in the digital as well as in the face-to-face classroom. With just a bit of creativity, patience and flexibility, the things we value in the brick and mortar classroom can be replicated in the digital classroom and leveraged to motivate and engage students. Video conferencing through tools like Teams and Zoom can be used to maintain presence. Office hours can be kept virtually to allow students to continue to engage with faculty so they do not feel that moving online or virtually means that faculty are no longer available. Spontaneous and collaborative learning can be achieved through the whiteboard feature on Teams and Zoom. Group work can be achieved effectively in a digital classroom with breakout room features, and faculty can encourage students to continue their study groups and outside of class activities using digital tools. In many ways, we are learning that despite its advantages with regards to human physical contact, the brick and mortar classroom can be limiting. Afterall, “part of what we’re training students to do in college is to work with actual other people” (Schaberg 2018) in whatever medium and circumstances they may find themselves. Opportunity to model and provide experience to students on how to successfully engage with varying technology should be an essential part of an effective learning strategy for our time.

This is not to assume that technology is the “be all, cure all” of instructional concerns or to advocate that we transition operations to embrace the philosophical strategies of online mega-universities. Not at all. One of the many things we learned from moving classes to the digital platform is that technology, as a tool created by imperfect humans, has its own limitations. Internet failures, power outages, software malfunctions and security issues, like the recent security breach with Proctortrack, can be very disruptive to learning. Even when digital learning platforms function as designed, there could still be problems with use and protocols. For example, using the “chat” feature in Zoom or Teams can be a meaningful or cumbersome experience, depending on instructor’s and students’ digital knowledge base. And, even at its best, the “chat” feature is not a substitute for the give and take of the brick and mortar classroom discussions. In addition, it is also becoming obvious that our students’ savviness with social media and everyday apps does not equate to competent usage or agility with online learning tools. Often, faculty who are themselves struggling with the technology have to use valuable class time to help students navigate software or connectivity issues.

But rather than ditching technology because it can fail or not work the way we expect or prefer, faculty can take the lead in providing real-time feedback and advocacy that helps leverage product improvements. We can use our experiences (both the good and the bad) to initiate and advance positive changes in campus technological infrastructure, software design and resources to achieve optimal learning opportunities for our students. Software designers are constantly introducing new products and soliciting feedback for existing products from faculty. We should make use of these opportunities to have a voice in influencing what the learning landscape of the future would look like. A recent whitepaper published by Workday (2020) suggests that “trends will continue to demand faster, more effective responses, and outdated planning processes just won’t cut it... higher education institutions need to be practice active, continuous planning.” As

higher education landscape continues to change, faculty must be involved in helping their institutions improve learning in all platforms.

### **Meeting Our Students Where They Are**

Not only are we gaining new tools to engage students and leverage learning outcomes, the trauma and disruption of COVID-19 is leading us to rethink and ask questions about curriculum and classroom practices, including content coverage, assessment, and engagement. Do students have to read those 500-page books or novels to gain needed information or knowledge? Might shorter texts be most effective in teaching content, critical thinking, and analytical skills? Is it necessary to cram content into a single semester course or might there be ways of breaking up learning materials into manageable units for student consumption? Will the nature of assessment and exams remain the same? What about policies and course requirements? In sum, how can we meet the challenges of these confusing times, while enabling our students to learn and be successful?

There is widespread acknowledgment that things are now different. There is no crystal ball to predict the future and show the academe how to continue to meet its mission, despite current and impending disruptions. But, as some faculty have echoed, the questions provide the opportunity to “reconsider what we value,” and “why we gather together in places like universities” (Goldrick-Rab and Stommel 2018). What would we want our students to remember about this year, this historic event and how the profession handled it? What impact would these changes and reflections have for the future of teaching and learning? Faculty are suggesting that the COVID-19 experience offers a chance to consider the whole student and err on the side of generosity. “In such a sad and terrifying time as this, the best way I can think to teach my brilliant, brave young students right now is...suffused with love and generosity, patience and understanding” (Johnson 2020:13). “Love,” “generosity,” “patience,” and “understanding” may not have been higher education primary vocabularies pre-COVID-19. But they are not incompatible with rigor. They also have practical pedagogical implications for the classroom.

In “Teaching the Student We Have, Not the Students We Wish We Had,” Goldrick-Rab and Stommel (2018) argued that “Today’s college students are radically different from the students occupying college classrooms even a decade ago... Today’s college students are the most overburdened and under-supported in American history.” They urged faculty to think about the realities of their students’ experiences rather than their own when designing their courses. Shifting paradigms is not easy. However, recognizing the complex and diverse needs and lives of our students provides an opportunity to rethink what we teach and how we teach it. COVID-19 has forced us to reimagine almost every aspect of the university experience, from new student orientation to convocation to rushing for sororities and fraternities. Teaching and learning, the most important aspect of the higher education enterprise cannot be left behind. Rather than relying on old tools that catered to specific students (mostly traditional students with little or no responsibilities outside of college), we are being asked to recognize that our courses and curriculum need to serve the entire populations of our students. Our students are diverse in multiple ways. Appreciating the diversity of our student population, who they are and where they come from, their strengths and struggles, we can redesign our courses to build in different options and pathways for their success. Course design needs to “include a critical examination of our tools, what they afford, who they (include and) exclude... and how humans learn”

(Goldrick-Rab and Stommel 2018). As Johnson (2020:13) reflects, “the responsibility we have to protect and preserve one another isn’t new, but this disaster made it newly implicit, and perhaps whatever it was about the past that allowed us to ignore that responsibility for so long isn’t something we should want to return to.”

In practice, this might mean rethinking course content in ways that examine the inclusivity of our models, readings, and assignments. Understanding that some of our students have jobs and other competing demands, we might consider one that helps them to do the work and learn, even if it is not on our preferred timeline. Instead of the traditional in-person office hours, we could also include virtual office hours so that all students can have access to faculty time. If students do not show up for office hours, how about inviting them to conversations with the instructor and making it part of the course requirement? Weimer (2020) writes about the difference a word switch like “student hours” as opposed to “office hours” can have on students’ perception of faculty approachability. We can indeed weave into our course design a welcoming tone, and policies that indicate that the classroom does belong to the students.

Assessment of learning continues to pose challenges for faculty as they transitioned in-person designed courses online or virtually. Some agonize on how to remain flexible and accommodating while being fair to all students and maintaining the integrity of their timed exams. But, instead of worrying about students cheating or putting students through the trauma of having proctored online tests, how about redesigning class assignments and exams that allow students to actually show what they have learned as opposed to how quickly they can respond to timed questions? Such a paradigm shift, however, would require faculty to change their “focus from prosecution to prevention.” Integrating problem-based, case-based, and project-based design models into assessment can help create a learning environment that simultaneously reduces motivation to cheat while making cheating more difficult. Every discipline has problems that it aims to solve. How about designing assessments around those issues and engaging students in a process that allows them to use their creativity to approach the solution? Faculty can choose an aspect of course material that students historically find challenging and ask students to produce a video that teaches that topic to the instructor. Instead of creating questions and asking students to respond to them, how about flipping the model to asking students to create the questions and provide answers to those questions? (Bart 2017).

In a recent article, Supiano (2020) reports the surprise a faculty member had when he overhauled the quick recall and define-terms type of exam he used for in-person classes, and opted for open-book take-home essay-based exams for the on-line version of his class. He concluded:

Sometimes when you give an essay exam, you get a sense of what students are doing, they come into the exam and their heads are filled with lots of information, and they’re sort of ticking off the key points that you might be expecting to see. With more time, students instead synthesize ideas and weave together cohesive responses, demonstrating a deeper understanding of the material. They move from trying to give the answer they thought [the professor] wanted to producing their own pieces of writing (Supiano 2020).

Problem-based, case-based, and project-based assessment models can also work for science laboratory courses. It is a real challenge reducing science experiments that involve the sense of

touch and smell into a digital format. However, Emily Fisher, director of undergraduate studies for the biology department at John Hopkin’s University, encourages lab instructors to shift their focus to other forms of instruction. “If you’re trying to introduce students to an authentic research environment, then the chaos of real research is part of that,” (McMurtrie 2020). Instead of crunching data from a lab experiment, students could research and write up a proposal for one. That, too, she notes, is part of the life of a scientist. “Researchers don’t just pipette all day. They do a lot of thinking” (McMurtrie 2020). There will always be debate among faculty in terms of what teaching and learning strategies are most useful in achieving classroom success. No doubt, “the digital revolution gives faculty far more tools for assessment than the traditional paper or worksheet. Now students can better exercise their creativity in presenting their learning through a combination of text, images, videos, and other media” (Velez-Torres 2020). We can also return to those time tested and proven strategies that we may have abandoned, like open-text exams. However, our willingness to embrace change and seek different ways to innovate our teaching and cater to diverse student populations will send a message of compassion and care to our students.

### **Cultivating a Culture of Care**

For an entity that historically is slow to act or change, the speed with which colleges and universities responded to the pandemic and the scale and depth of the response are quite remarkable. The point is that the pandemic unmasked the economic issues that colleges and universities have always known were there, but which they had chronically ignored. For years, we had numerous conversations and collected data about the inequity in higher education. We knew that students from low-income families, first generation students, and minority students often struggle with access and opportunities. During the COVID-19 crisis, however, it was no longer a matter of data and storytelling. We all became witnesses to the breadth and depth of the issues, and the evidence could not be ignored. The burden the pandemic placed on many students exposed the staggering class divides that always existed in higher education (Patel 2020). Schools with predominantly first generation and economically challenged students had to confront obstacles rooted in systemic and social inequalities. We noted that some of our students had cell phones but not computers or laptops. Some had no Wi-Fi, and those that did had such weak connections it rendered them practically useless. We saw that several of our students were also parents who suddenly found themselves caring for their children at home while trying to take classes at the same time. Most struggled with sharing Wi-Fi connections with their school-age children who also had to get schoolwork completed. A few students had housing challenges and insecurities. Some did not have a safe environment at home; and some had no home to which to return. Others, who may have had a safe home to return to, did not have their own private rooms or a space conducive to learning. Faculty lament the discomfort students face in having to discuss sensitive topics in spaces shared by siblings and, sometimes, the whole family.

In response to the pain and suffering the pandemic placed on students, colleges and universities worked to put together support, with varying degrees of generosity. Many launched fund-raising campaigns for emergency money that could be used on a case-by-case basis for things like airfare back home, a rental deposit, storage, food, rent and utility bills. Some carved out exceptions for students with no other housing options to remain on campus. Some colleges committed to paying their student workers through the end of the semester, and many devised different ways to keep students employed virtually over the summer and Fall semesters (Patel

2020). From providing laptops to students to continue their education, to boosting connectivity on campus so that students can connect to Wi-Fi from their cars, to offering pass/fail options, institutions have risen up to stand in the gap, providing assistance to minimize the disruption and trauma of the COVID-19 experience. It is unfortunate that colleges and universities needed a tragic, universal event to cue them to the needs and sufferings of their students. But now that we are aware of both the needs and the solutions, we cannot afford to go back to the way things used to be. We can cultivate a culture of care within the academe. Higher education must consciously and strategically commit to investing in programs and initiatives that support our varying student populations.

## **Conclusion**

When the crises began in March 2020, few of us could have predicted how long it would last. Most administrators, faculty and staff thought that the crisis would surely be over by the end of the Spring semester, giving us the opportunity to use the summer months to heal and prepare for the Fall semester. Few anticipated the tumult and confusion we are still engaged in and the questions surrounding the best approach to teaching and learning for Fall 2020, Spring 2021, and thereafter. There are many things we do not know about the future. What we do know, however, is that higher education will never be the same. Jacques Berlinerblau (2020) describes his new classroom reality:

Through the medium of Zoom, my students are geometrically arrayed across my computer screen in little Brady Bunch boxes. One is a passenger in dad's car, her seatbelt draped around her like an ambassador's sash. Unbeknown to another participant, his brother is fixing a sandwich off in the background: ham, cheese, tartare mayonnaise, Kaiser roll, all that. Most of the others are reclining on their beds in the rooms where they grew up, played Pokémon, and never once imagined that their college dreams would be waylaid by COVID-19. I never once imagined anything like this either. The only doomsday scenarios that I ever entertained centered on the unhealthy, compromised organism that is the American professoriate.

None of us ever imagined anything like the current time, with its heartaches and blubbing hope. As I write, there are 9,278,400 confirmed COVID-19 cases in the United States. 230,879 have died. If the trend continues, 317,312 people are projected to succumb to this virus by December 1, 2020. Worldwide, there are 46.4 million confirmed cases and 1.2 million+ deaths. This is not only mind-boggling but mentally debilitating. Recently, the Center for Disease Control issued data indicating that twenty-five percent of Americans ages 18-24 have seriously considered suicide in the past couple of months. These are our students. It is true that suicide among college students were already on the rise pre-COVID-19. There is no question, however that the pandemic exacerbated the feelings of isolation, loneliness, anxiety, and defeat suffered by students. The digital platform, by itself, can increase the feeling of anxiety, confusion, and isolation. But it can also be used to bridge the gap and effectively engage our students. We cannot unlearn what we learned about the divergent and varying needs of our students. We can no longer return to the false security of years past. It is up to us to decide how to use our resources and creativity to extend care and support to our students physically and emotionally within and outside the classroom.



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# Understanding the “New Normal”: The Internationalization of Education and Study Abroad during the COVID-19 Era

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## Introduction

As confirmed cases of a novel coronavirus, now known as COVID-19, began to spread beyond China’s Hubei Province in early 2020, higher education administrators across the United States began contemplating how their institutions would respond to the health and safety threats presented by a potential coronavirus pandemic. By early March, colleges and universities began hastily announcing campus closures, transitions to online learning, work-at-home orders, event and travel cancellations, dormitory closures, and a broad range of other changes that radically and quickly transformed higher education in the United States (Baker, Hartocollis, and Weise 2020; Kamenetz 2020a, 2020b). In this vein, study abroad programs for spring and summer were recalled or cancelled *en masse* by colleges and universities for the first time in recent memory. Simultaneously, federal, state, and local governments began issuing health advisories, shelter-in-place orders, business closures, travel bans, and other measures to reduce contact between populations and thereby slow the spread of COVID-19. These responses, too, resulted in radical and rapid transformations in the daily routines, working conditions, and social practices of millions of people in the United States.

During the month of March, amidst constantly shifting medical knowledge of the novel coronavirus and daily briefings by health and public officials, a “new normal” emerged. We learned to socially distance, work remotely, wash our hands more diligently, and wear masks around others (Maragakis 2020). We also learned that uncertainty would be an inescapable aspect of pandemic life. From the beginning, though, we have viewed our new normal as temporary—a transition period to the *real* “new normal” that will crystallize after the COVID-19 pandemic recedes. Questions around a potential new normal in a post-COVID era have certainly not escaped higher education administrators, faculty, staff, and students (Blumenstyk 2020; Kim 2020; Lederman 2020; Snyder 2020). These questions fall across a range of issues, from the future of online courses, to job security amidst restructuring, to the availability of professional or academic opportunities, to funding sources, to health and safety on campuses, and many others. Among our own questions, as study abroad program leaders and administrators, is the future of study abroad. The cancellation of spring, summer, and fall study abroad programs in 2020 marks

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a sharp departure from the decades-long expansion of study abroad among U.S. colleges and universities. This expansion, part of a broader trend in the internationalization of education, was made possible by processes of globalization generally and by increases in mobility for many students specifically. At the same time, the features of an interconnected world produced by globalization, including increased mobility through international travel, also provided the pathways to facilitate the outbreak of a global pandemic. With student mobility limited by health concerns and travel warnings, what then is the future of study abroad after COVID-19?

As Amelia Dietrich, Managing Editor of *Frontiers: The Interdisciplinary Journal of Study Abroad*, reflected in the aftermath of spring and summer program cancellations, COVID-19 “has certainly shaken the field of education abroad to its very core,” bringing about an “unprecedented halt [to] what we’ve called study abroad for almost 100 years” and leaving us with a wide range of uncertainties about the future of international education (Dietrich 2020:5–6, 7). This paper begins to address some of these uncertainties by asking: What effects will COVID-19’s “unprecedented halt” of study abroad through mass program cancellations have on students going forward? Which forces and factors will ultimately shape the “return” of study abroad, both for students and for institutions? These practical questions shaped our inquiry into the future of study abroad post-COVID-19 as we consider our own steps going forward as administrators and program leaders. At the same time, these questions allow to us to think more broadly about the role of global events like this pandemic in shaping the ongoing internationalization of higher education such as whether they disrupt internationalization processes, and if so, how do we characterize the disruption(s).

## **Background: International Education**

### *Internationalization of Education*

The expansion of study abroad programming offered by U.S. universities has taken place within the context of an expansion of international education at global scale over recent decades. This expansion is evidenced by increases in numbers of students crossing borders to enroll in universities, an enlargement of the list of “receiving” countries for international students, and the proliferation of “branch” campuses established by universities outside their home countries. Governments and institutions have also increased support for sending and/or receiving students across borders, making these opportunities accessible to more students. At the same time, U.S. colleges and universities have established joint-degree or other co-curricular programs with institutions in other countries, and they have launched online courses and programs that facilitate increased international student enrollment (Bhandari and Blumenthal 2011).

Many of these examples reflect some of the latest trends in the internationalization of higher education, which is defined by Knight as “the process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of higher education at the institutional and national levels” (Knight 2008:21). Internationalization has taken place on college and university campuses—ranging from the initial focus on increasing studies of world languages and cultures to more recent efforts to embed intercultural learning outcomes and multiple cultural perspectives into university curricula—as well as outside these institutions’ home countries, particularly in the form of sending students to and recruiting students from other countries (Knight 2012).

As globalization intensified and sites of production and consumption multiplied across industries and sectors, the logics of global competition structuring global commodity chains are being increasingly applied in field of higher education, resulting in a global competition among states and institutions for student enrollment, faculty expertise, research and programming funding, and revenue-generating sources (de Wit 2020; van der Wende 2001). Institutional support for study abroad and other international programs enabled universities to increase their global profiles in the increasingly competitive field of higher education. Indeed some cities and states now count higher education among their top industries, particularly driven by enrollment of international students (Bhandari and Blumenthal 2011; Knight 2012). Government interventions, too, expanded possibilities for study abroad through scholarship programs for students and grant funding for institutions to develop programs that advance national interests (Goodman and Gutierrez 2011).

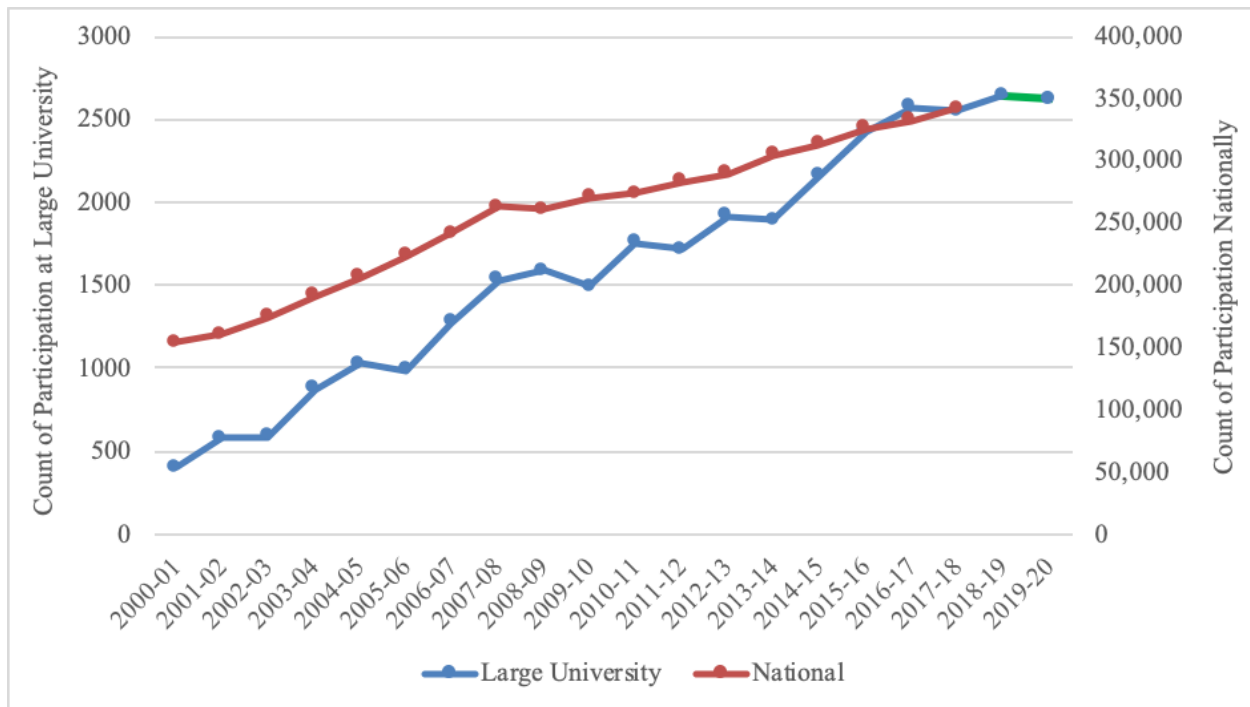
As with all aspects of globalization, however, its effects on education are uneven, intensifying inequalities between those who benefit from and those who are disadvantaged or left behind by globalizing processes. Scholars are increasingly challenging study abroad program leaders and administrators to incorporate questions around privilege into discussions and student work (Breen 2012). At the same time, colleges and universities are establishing scholarships and other means of support to increase enrollments of underprivileged students and those from minoritized and marginalized communities, who are persistently underrepresented in study abroad programs.

Although globalization increased cross-border mobility for populations of the Global North—through, for example, increased transportation networks, tourist infrastructure, and visa waiver programs—the internationalization of higher education depended upon the willingness of students to enroll in study abroad programs and travel. Indeed, previous research showed that students were motivated to enroll in study abroad for a variety of reasons, including professional development, the development of intercultural knowledge and skills, the uniqueness of the opportunity, recommendations of friends or family, and the support available for study abroad (Salyers, Carston, Dean, and London 2015:369). The increasing interest in study abroad programs (and the willingness of students to travel for these educational experiences) emerges clearly both in national study abroad participation data and in our own institution’s study abroad enrollment trends.

### *Study Abroad Participation Trends*

The number of U.S. students studying abroad increased steadily over recent decades, doubling during the 1990s from around 70,000 to nearly 144,000 at the turn of the millennium (Institute of International Education 2020), and then doubling again between 2000 and 2014 (see Figure 1). During the 2017–2018 academic year, the most recent year for which data are complete, more than 341,000 U.S. students studied abroad (NAFSA 2020). Total enrollment in study abroad programs increased by varying amounts each year since at least the mid-1980s, with the exception of the 2008–2009 academic year, which coincided with the peak of the financial crisis in the United States. Participation decreased only slightly that year, however, and upward trends in enrollment resumed the following year. Participation still trended upward, then, in the aftermath of major geopolitical events like the attacks of 11 September 2001 and the U.S. invasion of Iraq in 2003 and in the context of previous regional and global health crises, such as the SARS epidemic of the early 2000s and the Zika virus epidemic of 2015–2016.

**Figure 1**  
Trends in Study Abroad at Purdue University, 2000-2020<sup>1</sup>



**Source: Large university’s institutional data and various Open Doors reports**

According to NAFSA: Association of International Educators, while the number of students studying abroad in 2017–2018 translated to only around 1.7% of all US higher education students, it represented nearly 10% of those completing degrees that year (NAFSA 2020). As study abroad enrollment continues to grow, so too does the list of destinations for U.S. students. Although the majority of U.S. students study abroad in Europe (54.9% in 2017–2018) (NAFSA 2020), program offerings are increasingly expanding to “nontraditional” host countries, especially in the Global South (Wells 2006). While the earliest study abroad programs took the form of semester-long exchanges, in terms of numbers of students, short-term programs overtook semester-long programs in 2006 (Goodman and Gutierrez 2011).

Study abroad participation trends at Purdue University are generally consistent with these national trends (see Figure 1). The number of Purdue students participating in study abroad climbed steadily over the past two decades, beginning with 404 students at the turn of the century and growing to six times that number by 2020. In academic year 2014–2015, Purdue broke into the top 25 ranking of universities for study abroad in the country. Through multifaceted efforts to increase student recruitment, faculty participation, course equivalencies, institutional partnerships, program subsidies, and scholarships, the university made significant strides in increasing access to study abroad opportunities for its students. Participation rates at

<sup>1</sup> University’s total for 2019-2020 includes students (520) enrolled in spring break programs that were cancelled.

Purdue in 2019–2020 were expected to come in close to the previous year’s totals, until study abroad administrators and program leaders, like their counterparts at other universities across the country, were confronted with the threat of the novel coronavirus in late 2019 and early 2020.

### *Purdue University and the COVID-19 Pandemic*

With the advent of COVID-19, Purdue administrators took weighty actions to suspend travel and recall students already on programs to protect the health and safety of students, faculty, and staff. The first in what became a series of travel-related decisions by the university in early 2020 came on 1 February, when Purdue, citing increased State Department travel warnings, suspended university-sponsored travel to China and announced the impending return of six students whose semester-long study abroad programs were already underway in Shanghai (Purdue 2020a). Toward the end of February, by which time coronavirus cases were confirmed in the United States and dozens of other countries, the university extended the ban on university-sponsored travel to four additional countries (South Korea, Iran, Italy and Japan) based on COVID-19 risk levels published by the Centers for Disease Control (CDC) (Purdue 2020b). It was at this stage that spring break study abroad programs outside of China became subject to cancellation, and program leaders to other locations began watching conditions in their destination countries carefully as the number of confirmed cases and the number of affected countries ticked up each day. On 5 March, eight days before the start of Purdue’s Spring Break, all international spring break study abroad programs were cancelled as COVID-19 cases continued to increase in many program destinations, especially in Europe (Purdue 2020c).

In the final days leading up to Spring Break, while announcing the transition to online classes and other changes in campus operations that would begin after the break, the university announced the cancellation of all summer study abroad programs and a prohibition on university-sponsored travel, both domestic and international (Purdue 2020d). While students participating in semester-long programs were first informed early in the term that the university was monitoring the threats posed by the novel coronavirus globally, these semester-exchange students were ultimately recalled around the Spring Break time period and required to return to the U.S. On 29 April, Purdue extended study abroad cancellations to all semester-long programs scheduled for Fall 2020 (The Exponent 2020).

Although the timeline of these decisions varied from institution to institution, colleges and universities across the United States followed a similar trajectory to that of Purdue in cancelling programs. These decisions were taking place within the broader context of federal, state, and local officials implementing a wide range of responses to the pandemic: shutdowns, stay-at-home orders, quarantines, and travel restrictions. Behind many of these policies was a strategy to slow the spread of COVID-19 by suddenly and severely limiting mobility, that very force upon which the growth of study abroad historically depended.

### **Data and Methods**

Emergency measures undertaken by university and government officials had the effects of limiting mobility for global engagement in the immediate terms, but to what extent could these measures and the uncertainty produced by the pandemic stymie plans for the future? To examine

the implications of the COVID-19 pandemic on the future of study abroad participation—and by extension, the continued globalization efforts by universities—we turned to students themselves.

This study uses survey data collected at Purdue to analyze students' perspectives on study abroad in the age of the novel coronavirus (IRB approval: IRB-2020-728). In May 2020, more than 2,500 students (N=2562), either enrolled in upcoming study abroad programs, already participating in programs, or expressing interest in participating in study abroad in the future, were recruited via email to participate in the online survey.<sup>2</sup> Specifically, the population of interest were students who: (a) had been abroad for Spring 2020 but returned to the U.S. part-way through the semester; (b) enrolled in Spring Break programs cancelled within a week or two of their departure; (c) enrolled in summer programs cancelled at least two months before their departure; (d) enrolled in Fall 2020 programs cancelled about four months before their departure; and (e) had expressed interest in study abroad to an advisor but had yet to enroll in a program. The survey was open for three weeks, and students received one email reminder to complete it, yielding a response rate of 27 percent. The sample of 717 respondents was restricted to undergraduate respondents. Seven students only answered the first three questions of the survey<sup>3</sup> and these respondents were removed from the sample. We estimate an ordered probit model to examine the effects of the pandemic on students' interest in future study abroad. We used an alpha level of 0.05 to report statistical significance.

The dependent variable is *Interest in Study Abroad*, which is based on participants' responses to the question "Please indicate your interest in studying abroad in the future." Response choices were based on a five-point Likert scale, from "very unlikely" (1) to "very likely" (5).

The independent variables draw on survey questions related to respondents' perceptions of the pandemic and factors that studies show influence students' decisions to study abroad (Salyers et al. 2015: 369). Of these independent variables, six are created from factor analyses of conceptually related items on the survey. For the factor analysis, we identified items that load on each factor.<sup>4</sup> From these loadings, we created additive indexes, which were entered into the model as independent variables.

The first factor analysis included items on the survey that asked respondents to indicate the level importance of "COVID-19 pandemic," "destination of program," "which term a program is offered," "concerns over traveling," "risk of cancellation," "scholarships," "family finances," and "program cost" as considerations in their decision to study abroad. Two variables, *Risk* and *Finances*, based on the additive indexes were created from the loadings of the two factors extracted. The second factor analysis comprised survey items on how students felt when their study abroad plans were interrupted. These feelings were anger, anxiety, sadness, relief, happy, calm, grief, rage, panic, longing, and nervous. Items loaded on four factors, for which additive indexes, and four variables, were created: *Exasperation*, *Acceptance*, *Uncertainty*, and *Loss*.<sup>5</sup>

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<sup>2</sup> The university's study abroad office distributed the survey on our behalf.

<sup>3</sup> See full survey instrument in Appendix A.

<sup>4</sup> The threshold used for including measures was 0.50.

<sup>5</sup> See Appendix B for tables with results from the factor analyses.



Additional independent variables are based on responses to survey items that capture students' academic experience(s) with the interruption of study abroad (*Academic Disruption*); students' perceived the value of study abroad (*Value of Study Abroad*); and their progression toward the completion of their studies (*Year and College*). Table 2 presents a full description of all variables.

## Results

Generally, the sample reflects the population of study abroad participants at our university in all but one aspect—the representation of respondents across year.<sup>6</sup> Table 1 presents a snapshot of the composition of the sample. First and second-year students are over-represented in the sample, 19.41 percent and 34.78 percent, respectively, while seniors are under-represented comprising about 9.5 percent. Juniors represent 36.31 percent of the sample.<sup>7</sup> Students pursuing majors in engineering made up the largest share of the sample (25.38 percent) which is on par with the representation of engineering students enrolled in study abroad programs at the university. Similarly, the composition of respondents based on the college of studies is representative of the distribution of participants in the university's various study abroad programs. Among the colleges in which students are pursuing degrees, respondents from the Colleges of Pharmacy, Exploratory Studies, and Veterinary Medicine make up the smallest shares.

**Table 1**  
Sample Composition

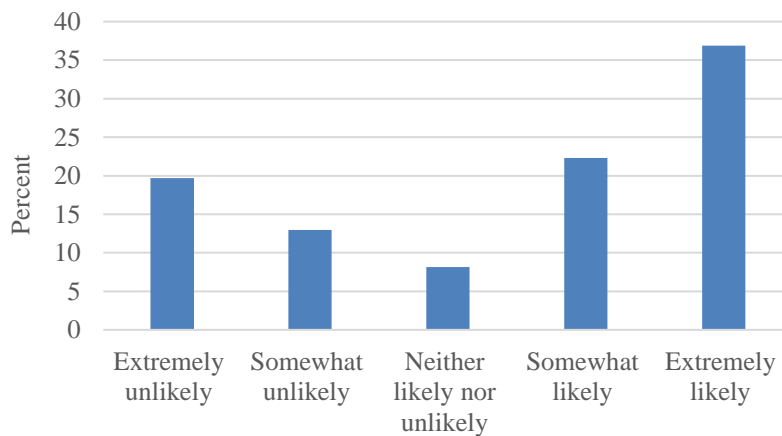
Dimension		Count	Dimension	Count		
<b>Year</b>	First year	139 (19.4%)	<b>Program type</b>	Semester exchange	190 (26.6%)	
	Second year	249 (34.9%)		Short term spring break	111 (15.6%)	
	Junior	260 (36.3%)		Short term May	189 (26.5%)	
	Senior	68 (9.5%)		Short term summer	199 (27.9%)	
<b>College</b>	Agriculture	89 (12.4%)		Other	24 (3.4%)	
	Education	20 (2.8%)		Multiple programs	24 (3.4%)	
	Engineering	182 (25.4%)		<b>Destination</b>	Europe	469 (69%)
	Exploratory Studies	9 (1.3%)			Asia	59 (8.7%)
	Health/Human Sciences	132 (18.4%)			Africa	22 (3.2%)
	Liberal Arts	71 (9.9%)			Latin America	66 (9.7%)
	Management	55 (7.7%)			North America	10 (1.5%)
	Pharmacy	12 (1.7%)	Oceania		54 (7.9%)	
	Polytechnic	55 (7.7%)				
	Science	83 (11.6%)				
	Veterinary Medicine	9 (1.3%)				
	Honors	118 (16.5%)				

<sup>6</sup>Based on data from the university's Office of Study Abroad.

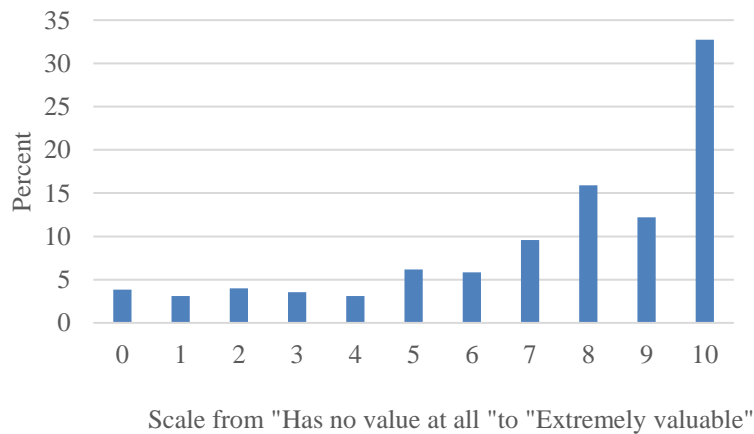
<sup>7</sup>Program enrollment at the university is as follows: first- and second-year students comprise 3 percent and 12 percent, respectively, while seniors make up 52 percent.

Regarding features of programs in which students were enrolled—when, where, and duration—programs with certain characteristics were more popular than others. Students in our sample reported at a higher frequency to be about to embark on a short-term program during 2020 (73.35%), rather than an exchange program (26.65%). They also reported more frequently to being enrolled in programs scheduled to occur during different periods of the summer (May and summer, 54.42%). Where short-term programs are concerned, fewer students were scheduled participants in programs taking place over spring break than the mini-summer module (May) and summer programs. Students were most commonly enrolled in programs destined for Europe (68.97%).

**Figure 2**  
Interest in Future Study Abroad and Value of Study Abroad



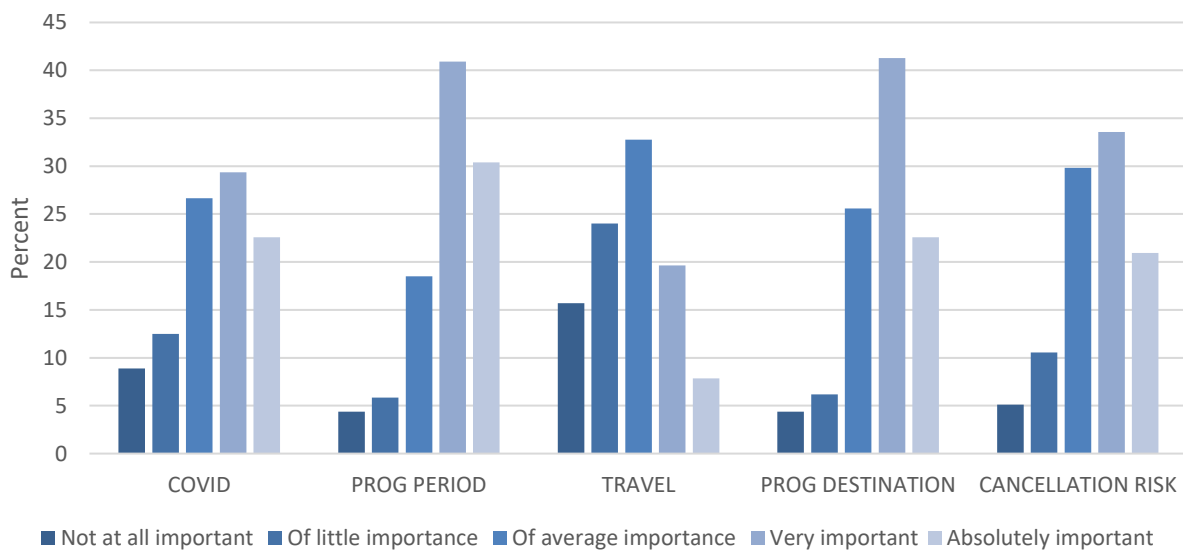
Responses to Question: “Please indicate your interest in studying abroad in the future.”



Responses to Question:  
“... indicate the value of studying abroad to you during your remaining time at Purdue?”

We turn now to the summary statistics, presented in Table 2, of the variables included in the regression analysis. On average, respondents are tepid about their interest in participating in a study abroad program in the future (mean of 3.44). Their value of studying abroad during their remaining time is, on average, high (mean 7.31). Figure 2 shows frequency distributions of responses to the item on interest in study abroad and their value of study abroad. On average, respondents' academic progress was unaffected by the cancellations. Where risk calculations (the variable *Risk*) are concerned, students place, on average, "Average Importance" on COVID-19 and attendant concerns surrounding travel, including when and where they go. The frequency distributions in response to the question, "Using the scale below, indicate how important the following factors are on your decision to participate in a study abroad program in the future," though, reveal greater importance placed on these considerations independently, except in the case of "Travel," by more students, as shown in Figure 3.

**Figure 3**  
Levels of Importance of Factors Considered in Decision to Study Abroad



Responses to Question: "Using the scale below, indicate how important the following factors are on your decision to participate in a study abroad program in the future."

On average, financial considerations (*Finances*) are of "Average Importance" as well. When we look at those variables that are proxies for respondents' experiences with study abroad—*i.e.*, their emotions when programs were cancelled/interrupted and the impact of the disruption on their academic progress—on average they more felt *Loss* (0.68) and less so *Uncertainty*. On average, they were in a state of *Acceptance* (0.08).

**Table 2**  
Summary Statistics

<b>Full Sample (n=717)</b>					
Variable	Mean	Std. Dev.	Min	Max	Description
<i>Dependent variable</i>					
Interest in Study Abroad	3.44	1.56	1	5	ordinal variable, 1-5 Likert scale, where 1 is extremely unlikely and 5 is extremely likely
<i>Explanatory variables</i>					
Value of Study Abroad	7.31	2.93	0	10	ordinal variable, 0-10 scale, where 0 is “has no value at all” and 10 is “extremely valuable”
Risk	3.48	0.75	1	5	index of ordinal items on COVID, travel, destination, period, potential program cancellation, where 1=not at all, 2=of little importance, 3=of average importance, 4=very important, 5=absolutely important
Finances	3.54	1.03	1	5	index of ordinal items on program cost, family finances, scholarships, where 1=not at all, 2=of little importance, 3=of average importance, 4=very important, 5=absolutely important
Year	2.36	0.9	1	4	ordinal variable, 1-4, where 1=first-year, 2=second-year, 3=junior, 4=senior
College	5.16	2.89	1	11	categorical variable, 1-11 for each college of study
Academic Disruption	2.22	0.88	1	3	categorical variable, 1-3, where 1=yes, my academic progress was disrupted, 2=I don't know, 3=no, my academic progress was not disrupted
Exasperation	0.44	0.34	0	1	additive index of binary items on emotions of anger, rage, and grief
Acceptance	0.08	0.17	0	1	additive index of binary items on emotions of happy, relief, and calm
Loss	0.68	0.3	0	1	additive index of binary items on emotions of longing and sadness
Uncertainty	0.29	0.33	0	1	additive index of binary items on emotions of anxiety, panic, and nervous

To understand the factors that affect students’ perceptions of study abroad participation in the near future, especially during this era of the coronavirus pandemic, we estimate ordered probit models with *Interest in Study Abroad* as the dependent variable. Our explanatory variables encompass factors surrounding perceptions of risk, financial considerations, past experience with

study abroad, progress in completing a degree, and the value students place on study abroad. Table 3 presents the results of the regression models.

In Model 1, we examine the relationship between concerns about the coronavirus and interest in future study abroad. The bivariate model indicates that considerations of COVID alone do not have a statistically significant effect on interest in study abroad. Including other indicators in the model, Model 2, we find that several other factors have a statistically significant effect on students' perceptions of future study abroad. First, we find that how much students value study abroad has a positive effect on respondents' interest in studying abroad ( $p < 0.01$ ). The more students place value on studying abroad during their undergraduate career, the more likely they are to be interested in participating in a future program.

Although students might hold study abroad in high regard, sometimes it is an unattainable aspiration without the requisite funds for supporting said experience. While students may cover expenses through personal/familial support networks, many also rely on institutional support, such as scholarships, to make participation a reality. We find that the higher the concern students place on finances, in the model measured by *Finances*, the less likely they are to be interested in study abroad in the future ( $p < 0.05$ ). This finding might be due to the severe economic impact of the pandemic nationwide or general concerns students tend to have regarding the affordability of study abroad and opportunity costs of lost wages when they do participate. The pandemic itself and the cloud of insecurity it has created around travel between now and until a vaccine is found and distributed, particularly to destinations that are hardest hit by the virus, however, is not dampening interest around studying in a different country. Rather, the more importance students place on risk calculations, measured by the variable *Risk*, the more likely they are to study abroad ( $p < 0.05$ ). This relationship is consistent with Relyea et al.'s finding that “[s]tudents with a higher propensity for risk were more likely to decide to venture abroad on an international experience,” given that their “high propensity for risk leads them to do things that may often be considered ‘out of the box’ by others, especially if the risky situation is positively viewed” (2008:356, citing Maner and Gerend 2007).

Regarding past experience with study abroad enrollment—operationalized as the emotions felt in response to programs being cancelled or interrupted in 2020 and the potential disruptions that the cancellations had on academic progress—rather than their feelings, students' academic progress has more bearing on future interest in study abroad. Of students' emotions toward program cancellation or interruption, only feelings relating to *Uncertainty* (nervous, anxiety, and panic) are statistically significant ( $p < 0.05$ ) and negatively related to future study abroad interest. The directions of the relationships for the other emotions though are intriguing. Students who experienced *Exasperation* (anger, rage, and grief) are less likely to be interested in future programs, while those who experienced *Acceptance* (happy, calm, and relief) and *Loss* (longing and sadness) were more likely to be interested.

Based on the modal choice selected by respondents to the question “Has the program cancellation or interruption disrupted your academic progress?”, students' academic progress was not disrupted by program cancellations (51.86% respondents answered “No”). The regression model results indicate that compared to students whose progress *was* disrupted, those who responded “I don't know” significantly are more likely to have interest in future study

abroad ( $p < 0.05$ ). This finding suggests that even though students are uncertain about the impact on their studies (which could be negative or neutral), they are still willing to study abroad relative to those who experienced disruption. There is no difference in perception of study abroad between students who *did* and *did not* experience disruption.

**Table 3**  
Regression Estimates<sup>a</sup>  
Dependent Variable: Interest in *Study Abroad*

Variable	Model 1			Model 2		
	Coeff	Std Err <sup>b</sup>	Sig <sup>c</sup>	Coeff	Std Err <sup>b</sup>	Sig <sup>c</sup>
COVID Concerns	0.022	0.037				
Risk				0.185	0.076	**
Value of Study Abroad				0.269	0.021	***
Finances				-0.119	0.051	**
Exasperation				-0.190	0.170	
Acceptance				0.275	0.271	
Uncertainty				-0.390	0.151	**
Loss				0.201	0.161	
Academic Disruption (I don't know) <sup>d</sup>				0.309	0.142	**
Academic Disruption (No)				0.152	0.111	
Year				-0.465	0.06	***
College of Education <sup>e</sup>				-0.312	0.331	
College of Engineering				-0.349	0.172	**
College of Exploratory Studies				-0.619	0.292	**
College of Health/Human Sciences				-0.218	0.184	
College of Liberal Arts				-0.203	0.239	
College of Management				-0.615	0.204	**
College of Pharmacy				0.109	0.304	
College of Polytechnic				-0.002	0.214	
College of Science				-0.284	0.199	
College of Veterinary Medicine				0.053	0.389	
Pseudo R2		0			0.219	
Log pseudolikelihood		-984.374			-714.478	
Wald chi2		0.37			310.74	
n		663			615	

<sup>a</sup> Ordered probit regression estimates.

<sup>b</sup> Robust standard errors.

<sup>c</sup> Significance levels denoted by \*\*\*= $p < 0.01$ , \*\*= $p < 0.05$

<sup>d</sup> Omitted category "Yes" academic progress disrupted

<sup>e</sup> Omitted category College of Agriculture

Finally, results indicate that the requirements for completing a degree and students' progression along their courses of study have bearing on their interest in future study abroad. The variable

*Year* (i.e., year in school) has a negative relationship with interest in studying abroad, suggesting that the closer students are to the end of their studies, the less likely they are to have interest in going abroad to study. Also, the difference among students belonging to different colleges and their view on study abroad speaks to degree-specific requirements and the role of study abroad in degree programs. For example, students in engineering, exploratory studies, and management are less likely than their peers pursuing studies in agriculture to have future interest in study abroad.

## **Discussion**

In general, students want to study abroad in the future. However, several factors influence this perspective in one direction or another, including perceived value of study abroad, level of concern around risk, level of financial concerns, past experiences with study abroad, and progress toward degree. Where the current historical moment is concerned, our results of the survey and the regression analysis show that safety issues around COVID-19 alone do not diminish students' interest in study abroad. Rather, it is "traditional" factors in study abroad decision-making, such as broader considerations of risk, financial concerns, and classification, that are impacting future study abroad interest. Our results show that the pandemic itself did not significantly affect likelihood of future study abroad participation. Indeed, when students were presented with free-response options in the survey, both students planning to study abroad in the future and those *not* planning to study registered concerns they had about the pandemic, including health concerns for themselves or their family members.

That students placing a higher value on study abroad translated to increased likelihood of future participation in a study abroad program should not be surprising. What might seem less intuitive is the increased interest in study abroad for those who are highly concerned with risk. This trend, however, aligns with a previous study by Relyea et al., which "suggest[ed] that although students are aware of the inherent risks of studying abroad, they are more interested in the value that these experiences bring" (Relyea et al. 2008:359). Of course, COVID-19 may add significant forms of risk to these calculations, including new health concerns for themselves and/or members of their households.

Negative experiences (e.g., feelings of anxiety, panic, or rage or academic disruption) associated with program cancellations this year affected interest in future study abroad participation. This finding suggests an opportunity for study abroad program leaders and administrators. Even though the pandemic itself remains outside our control, we can still reduce some of the concerns driven by the pandemic by offering students clear information on cancellation policies and procedures and helping them to better understand how decisions related to health and safety will be made so that they are better equipped to make decisions about enrolling in programs. In fact, several students requested exactly this sort of transparency in their open-ended responses to help them evaluate risks and anticipate likelihood of cancellations.

Some students planning to enroll in future programs also provided suggestions that could help others overcome their lingering feelings of disappointment from this year, which included offering cancelled programs again as soon as possible and potentially offering a priority enrollment to students whose programs were cancelled this year. One student went so far as to express his/her fear that faculty might feel "discouraged" from offering study abroad programs in 2021. Their hope was that it would not be the case.

We can also be more sensitive to the financial needs of students and try to seek out additional sources of scholarships and/or program subsidies, given both the widespread economic devastation caused by the pandemic and the fact that our analysis showed increased concern over finances lowered future interest in study abroad. For example, a number of students were already concerned about the future of scholarships and financial support available through the university, given broad economic uncertainties in the U.S. economy. As such, program leaders should keep a closer watch than usual on institutional resources available to subsidize costs of programs and/or to assist individual students in financial need, especially those impacted financially by circumstances surrounding the pandemic.

Finally, our finding that likelihood of future study abroad participation decreases as year in school increases is consistent with the scheduling realities that students face as they progress through their degree programs. Students in earlier stages of their programs have sufficient time remaining at the university to work a short-term or even semester-long study abroad program into their degree plans, while juniors and seniors have less flexibility as they assess their remaining degree requirements or are presented with important professional opportunities. We saw this same trend in responses to open-ended questions in our survey, as many students noted they were graduating soon and therefore future study abroad was not an option for them without extending their degree plans. Such responses often included a range of emotional responses attached to this reality, from anger, to sadness, to regret, to understanding. Some in this position expressed they *would* enroll in a study abroad in the future if they were at earlier stages of their college education, and a few even remarked on their intention to look into study abroad opportunities during graduate school.

## **Conclusion**

Our findings shed light on one of the immediate impacts of the COVID-19 pandemic on undergraduate students as they reflected on the cancellation of study abroad programs for calendar year 2020. The findings also offer insights into the longer-term effects COVID-19 may have on study abroad and the internationalization of education more broadly. Without a doubt, the ongoing pandemic caused massive changes in and disruptions to higher education generally and study abroad specifically since early spring 2020. We are still uncertain what “new normal” will emerge after that pandemic and how much it will be influenced by the events and conditions of these past several months (*i.e.*, the “temporary” “new normal”).

On the one hand, restrictions on mobility aimed at slowing the spread of the novel coronavirus affirm the need for further developing virtual and alternative forms of study abroad and for further expanding our use of digital tools for intercultural interactions and experiences. Over the past several months, in fact, the professional guides many program leaders hire for group walking tours created virtual versions of their city walks. In addition, the museum exhibitions we incorporate into our lesson plans posted virtual walkthroughs and galleries. Simultaneously, the scholars, organization staff, government officials, and other guest speakers who agree to meet with our students abroad have all become accustomed to digital meeting spaces. Program leaders and administrators should guard against suggestions to just move their study abroad programs on-line in the way that in-person courses were abruptly moved online in March 2020. At the same time, we should recognize the possibilities that online resources offer for responding to



unexpected global events and crises like the COVID-19 pandemic. Similarly, these resources hold potential for expanding access to study abroad-like experiences for those unable to enroll in traditional programs for any number of reasons.

On the other hand, as our results suggest, we should be prepared to “resume” study abroad as soon as possible, with students indicating they are ready to enroll in programs as soon as Spring Break 2021. In doing so, we should take seriously the concerns of students and be sensitive to their experiences of the COVID-19 pandemic, including those we have outlined in this paper. Although we cannot predict where the virus will be (and will not be) this coming year, when a vaccine will be available to publics here around the world, or what travel restrictions may still be in place by governments and educational institutions, what this study suggests is that students at this stage remain willing to enroll in and travel with study abroad programs when they become available. We know already that COVID-19 will produce a sudden and dramatic drop in the national study abroad participation trend line spanning the 2019–2020 and 2020–2021 academic years, however our findings suggest this decline could be contained to a relatively short period of time, as students already await the resumption of study abroad programming.

Some aspects of internationalized education may take longer to recover or may only recover in modified forms—*e.g.*, capital-intensive projects like planned branch campuses threatened with construction halts and/or budget freezes due to the pandemic—but for those relying primarily on individual interest and positive conditions of mobility and public health, such as study abroad and international fieldwork, we can expect a more rapid return. Key to returning to pre-pandemic trajectories, however, will surely be scholarships and other financial support for study abroad, given the economic hardships brought by the COVID-19 pandemic, which have been disproportionately felt by students underrepresented in higher education generally and study abroad specifically. At the same time, given the negative experiences associated with cancellations this past year, study abroad program leaders will want to communicate risks clearly and be sensitive to possible newfound anxieties over enrollment as we move forward. Finally, given the far-reaching, yet incredibly varied, impacts of COVID-19 around the world, program leaders should not miss the opportunity to incorporate this event into the content of their future study abroad programs (and not just their health and safety plans). As we take students into a “post-COVID-19” world for the first time, we can use the pandemic pedagogically to help students contextualize and process their personal experiences of this global event, just as we can help them appreciate both the unique constellations of particular places and the complex interdependencies of a globalized world through this unique case study.

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## Appendix A Survey Instrument

**Q1 Thank you for agreeing to participate in our survey. This questionnaire is being conducted to understand students' attitudes toward study abroad program cancellations during the COVID-19 pandemic and participation in future study abroad programs.**

**Q2 Please indicate your year.**

First Year  
Second Year  
Junior  
Senior  
Grad/Professional

**Q3 Please indicate your disciplinary college.**

Agriculture  
Education  
Engineering  
Exploratory Studies  
Health and Human Sciences  
Liberal Arts  
Krannert  
Pharmacy  
Polytechnic Institute  
Science  
Veterinary Medicine

**Q4 Are you a student in the Honors College?**

Yes  
No

**Q5 Were you enrolled in a semester-long or year-long exchange program that was cancelled or interrupted?**

Yes, for academic year 2019-2020  
Yes, for Spring 2020  
Yes, for Fall 2020  
No

**Q6 Were you enrolled in a short-term study abroad program that was cancelled?**

Yes  
No

**Q7 During which period was your program to occur?**

Spring Break 2020  
Maymester 2020  
Summer 2020

Winter Break 2020

**Q8 Where was your program's destination?**

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**Q9 With which college was your program affiliated?**

Agriculture

Education

Engineering

Exploratory Studies

Health and Human Sciences

Honors College

Liberal Arts

Krannert

Pharmacy

Polytechnic Institute

Science

Veterinary Science

Other/Non-Purdue Provider (please specify): \_\_\_\_\_

**Q10 How did you feel when your study abroad plans were interrupted? Please mark all that apply.**

Anger

Anxiety

Sadness

Relief

Happy

Calm

Grief

Rage

Panic

Longing

Nervous

Other \_\_\_\_\_

**Q11 Has the program cancellation or interruption disrupted your academic progress?**

Yes \_\_\_\_\_

I'm not sure \_\_\_\_\_

No \_\_\_\_\_

**Q12 How would you plan to overcome any disruption to your academic progress? Please mark all that apply.**

I plan to enroll in other Summer 2020 credits.

I plan to enroll in a future short-term study abroad program.

I plan to enroll in additional credits in a future fall or spring semester.

I plan to enroll in additional credits in a future summer term.

I am unsure at this time.

Other \_\_\_\_\_

**Q13 In addition to your exchange program, were you enrolled in a short-term study abroad program that was cancelled?**

Yes (please indicate term, destination, and sponsoring college) \_\_\_\_\_

No

**Q14 Please indicate your interest in studying abroad in the future.**

**How likely are you to participate in a study abroad program during your remaining time at this institution?**

Extremely likely

Somewhat likely

Neither likely nor unlikely

Somewhat unlikely

Extremely unlikely

**Q15 Using the scale below, indicate how important the following factors are on your decision to participate in a study abroad program in the future.**

	Not at all important	Of little importance	Of average importance	Very important	Absolutely important
COVID-19 pandemic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Which term a program is offered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concerns over traveling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Destination of program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scholarships/grants to support study abroad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk of cancellation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q16 Please indicate, using the sliding scale below, when in the future you would most likely participate in a study abroad program. 0 refers to least preferred academic term and 10 most preferred academic term.**

0 1 2 3 4 5 6 7 8 9 10

Spring Semester 2021

Spring Break 2021

Summer 2021

Further in the future

**Q17 Where would be your preferred destination for a future study abroad program? Please rank order the regions below.**

Sub-Saharan Africa

Latin America

East Asia

Europe

North America

Middle East/North Africa

Oceania

South/Central Asia

**Q18 On the scale below, where 0 is “has no value at all” and 10 is “extremely valuable,” indicate the value of studying abroad to you during your remaining time at Purdue?**

0 1 2 3 4 5 6 7 8 9 10

**Q19 Is there anything else you would like to tell us about your interest in or plans for future study abroad programs?**

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**Q20 We would like to offer you an opportunity to further process your experience as a student intended to participate in a study abroad program that was cancelled or interrupted. If you would like to engage in a reflection exercise on your deferred study abroad plans during the COVID-19 pandemic, please click here.**

**Appendix B**  
**Results from Factor Analysis of Survey Items<sup>a</sup>**

<b>Survey Item</b>	<b>Factor Loading</b>	
	<b>1</b>	<b>2</b>
<b>Factor 1: Risk</b>		
Importance of <b>COVID-19</b> on your decision to participate in a study abroad program in the future.	<b>0.45</b>	0.13
Importance of <b>term program offered</b> on your decision to participate in a study abroad program in the future.	<b>0.62</b>	0.10
Importance of <b>concerns over traveling</b> on your decision to participate in a study abroad program in the future.	<b>0.41</b>	0.26
Importance of <b>program destination</b> on your decision to participate in a study abroad program in the future.	<b>0.64</b>	0.11
Importance of <b>risk of program cancellation</b> on your decision to participate in a study abroad program in the future.	<b>0.57</b>	0.24
<b>Factor 2: Finances</b>		
Importance of <b>scholarships/grants</b> on your decision to participate in a study abroad program in the future.	0.28	<b>0.84</b>
Importance of <b>family finances</b> on your decision to participate in a study abroad program in the future.	0.21	<b>0.88</b>
Importance of <b>program cost</b> on your decision to participate in a study abroad program in the future.	0.19	<b>0.89</b>

<sup>a</sup> N=660. The extraction method was principal component factoring with an orthogonal (varimax) rotation. Factor loadings above .40 are bolded.



**Results from Second Factor Analysis of Survey Items<sup>a</sup>**

<b>Survey Item</b>	<b>Factor Loading</b>			
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Factor 1: Exasperation</b>				
How did you feel when your study abroad plans were interrupted? <b>Anger</b>	<b>0.72</b>	0.04	0.13	-0.17
How did you feel when your study abroad plans were interrupted? <b>Rage</b>	<b>0.71</b>	0.17	-0.13	0.01
How did you feel when your study abroad plans were interrupted? <b>Grief</b>	<b>0.56</b>	0.08	0.46	-0.01
<b>Factor 2: Uncertainty</b>				
How did you feel when your study abroad plans were interrupted? <b>Nervous</b>	0.05	<b>0.79</b>	-0.04	0.05
How did you feel when your study abroad plans were interrupted? <b>Anxiety</b>	0.09	<b>0.78</b>	0.09	-0.02
How did you feel when your study abroad plans were interrupted? <b>Panic</b>	0.45	<b>0.54</b>	-0.03	-0.01
<b>Factor 3: Acceptance</b>				
How did you feel when your study abroad plans were interrupted? <b>Happy</b>	0.08	0.06	0.02	<b>0.73</b>
How did you feel when your study abroad plans were interrupted? <b>Relief</b>	-0.34	0.05	0.14	<b>0.63</b>
How did you feel when your study abroad plans were interrupted? <b>Calm</b>	-0.16	-0.18	-0.33	<b>0.50</b>
<b>Factor 4: Loss</b>				
How did you feel when your study abroad plans were interrupted? <b>Longing</b>	0.09	-0.12	<b>0.76</b>	0.15
How did you feel when your study abroad plans were interrupted? <b>Sadness</b>	-0.12	0.28	<b>0.62</b>	-0.21

<sup>a</sup> n=673. The extraction method was principal component factoring with an orthogonal (varimax) rotation. Factor loadings above .40 are bolded.

# Experiential Learning from Home: The impact of COVID-19 on field based practices

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In Spring 2020, the COVID-19 pandemic upended the operations of educational institutions worldwide. In the U.S., colleges and universities responded to the call to help “flatten the curve” by clearing campuses, transitioning staff to remote work, and moving students and instructors to “emergency remote learning.” Resources and support for faculty members navigating this change at Purdue University addressed a generalized vision of instruction, one primarily focused on how to get course content online. However, what if the content of the course was place-based learning such as in the “field” or “real world” vs. the campus classroom? What happened when students not only needed to study the course content but also *practice* the course content? For degree programs that require experiential learning such as internships or student teaching, the requirement to “go online” was fundamentally more complicated.

Field-based experiential education (EE) places learners in authentic professional settings where they can observe, learn, practice, and reflect on skills and the professional craft for which they are training. Students are embedded into a field-based setting part-time or full-time throughout the semester and receive coaching and mentoring from a field-based cooperating professional. Among others, one valuable component of EE is the ability to observe and reflect on one’s own professional skills as well as the skills of masters in the field. Schön (1983: 1987) identified that reflection on one’s own or a master’s actions (reflection on action) and reflection during events or behaviors as they unfold (reflection in action) are vital components to professional growth. However, these concepts do not translate well to an online platform if students are unable to personally observe a master in the field and practice their skills in the settings where they would be used.

In this paper we focus on our experiences in field-based experiential education. We reflect on how the courses we instruct and supervise were affected by the onset of the COVID-19 pandemic, how we, as faculty who oversee experiential education, managed the shift to

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emergency remote instruction (Hodges et al. 2020), and the long-term implications of the rapid pivot to online education for field-based education.

### **The Conceptual Mismatch Between EE and Purdue's Plans for Remote Instruction Due to COVID-19**

Experiential education (EE) is a philosophy that views hands-on experiences and reflection on those experiences as a mechanism for student learning (Smith and Knapp 2011). Among the key design principles of EE is authentic engagement with meaningful issues in real-world contexts, settings, or situations (Itin 1999; National Society for Experiential Education 1998). Learning is thus not under the sole control of the university course instructor. EE relies on partnerships with real-world contexts, such as, schools, hospitals, and social service agencies; staff, clients, or students who operate within those contexts; the university student; and, the course instructor. The collaborative, immersive, and applied nature of EE stands apart from classroom learning in its potential to facilitate students' development of the kinds of knowledge, skills, and attitudes required for future professional roles. As a result, EE activities may be essential components of department curriculum standards or may be required for students to meet state or national standards for graduating from professional programs, such as, teaching, nursing, and family life education.

When Purdue made the call to discontinue face-to-face instruction in the spring of 2020, all the university's educational activities moved online. While a well-designed online course can be just as, if not more, effective and engaging than an on-the-ground course, this modality of teaching and learning, arguably, works best for courses that are primarily focused on the delivery of content as based in lectures. Faculty who are preparing students for professional roles, such as teachers, nurses, and social service workers, provide EE opportunities for students to learn in applied ways from professionals in the field. The content, in this case, is field-based skill development that is not easily or quickly replicated online. Thus, the typical strategy at Purdue for educational continuity during the pandemic (i.e., "put your course online") was fundamentally a mismatch with the nature of the learning in EE courses.

### **The Pragmatic Mismatch Between EE and Purdue's Plans for Remote Instruction Due to COVID-19**

During the move to emergency remote instruction, Purdue hustled to dispatch guidance and resources to assist instructors with moving their courses online. Attention to experiential components such as labs, service learning, and student research was sparse. Considerations related to substantial field-based EE such as student teaching, internships, and clinical rotations were virtually nil. For instance, the initial communication about the change in mode of instruction sent by Purdue's administration to the university community included one line about "clinical programs" and indicated that further guidance would be provided by departments/programs directly. However, instructors of field-based courses had trouble ascertaining how the overall guidance related to their specific courses occurring at off-campus sites rather than university campus classrooms. The guidance provided to instructors failed to address the challenges in converting field-based courses to online formats and the consequences that could have on students' academic progress.

As instructors of field-based opportunities, we had basic questions such as: Do Purdue's decisions about in-person instruction apply to field-based experiences? If field sites are still operating, can students continue their placements, and at what point should they be removed in order to protect health and safety? There were also more complicated questions about how to reconcile Purdue's guidance in view of partnership agreements with field sites and requirements of licensing and accrediting bodies. For example, how do we apply the guidance in cases where students are receiving academic credit for field experiences and are employed by the field site? Will exceptions be made for graduating seniors accumulating field-experience hours toward professional licensure? Who has the responsibility and the authority to answer these questions and enact solutions? The absence of clear parameters for field experiences contributed to angst among instructors who were not only navigating an uncertain situation themselves, but were also attempting to support students who were concerned that their academic progress, degree completion, and post-graduation plans were in jeopardy.

Planning for emergency remote learning placed unique demands on EE instructors. The first demand relates to the scale of the adaptations. For example, in a lecture-based course, any changes in lectures, projects, and assessment following a move to remote instruction were made at the class level. In field-based courses, any changes that occurred had to be made at the student level, since students were commonly placed individually at a site, and sometimes doing substantially different types of work. Thus, instructors had to communicate with and make modifications for each student individually.

The second demand to consider is the complexity of the required adaptations. For example, modifications for each student also involved community partners and their external requirements/decisions. Although Purdue decided to move instruction online, community partners may have decided to remain open. Thus, students and faculty had to negotiate whether and how students would continue their field-based learning. We faced this situation, for example, with interns who were engaged in essential work providing state-mandated services to families in the child welfare system. Agencies had to find a way to continue this work throughout the pandemic, and their strategies did not necessarily align with the plans Purdue was implementing.

Alternatively, when Purdue moved to remote instruction, some organizations chose to shut their doors, leaving students without any option for remote work with community partners. For example, in March 2020, a national not-for-profit organization closed all its physical offices and discontinued its internship program in response to the COVID-19 crisis. As a result, college student interns were immediately left without the ability to continue their internships, even remotely.

Working with site supervisors, we, as instructors, brainstormed ways to make field experiences viable, keeping in mind the restrictions imposed by Purdue. Organizational sites varied in their capacity to conduct online or remote work and, subsequently, extend this work to students. Sites also varied in the level of precautions taken to ensure the health and safety of those employed. Initially, we worked with organizations to understand whether and how students could be safely maintained in their field placements. Adapting to these experiences while ensuring students' safety was difficult and uncertain work particularly without guidance from Purdue health and safety experts who were best positioned to evaluate and approve such plans.

The third demand includes the timing and urgency of adaptations. The timelines, plans, and intentions of community partners did not always align with that of the university. We, as instructors, were tasked with ensuring each student continued successfully with their professional experience by meeting all educational objectives on an unchanged timeline while also managing relationships with community partners who had substantially different priorities. For example, students who were full-time in community P-12 classrooms completing their required student teaching received Purdue's message about moving to emergency remote learning. But at that time, their school-based placements had not yet moved to their own versions of emergency remote learning. Student teachers are instructed from the beginning of their experience that they follow their placement school's schedule rather than the University's; hence, they were still full-time student teaching and the faculty were still full-time supervising them, in person. Eventually, even the P-12 schools moved to emergency remote learning. However, during the "mismatched" period of time, there was an increased level of uncertainty and stress on the students and supervising instructors trying to balance the different communications and varying schedules.

Finally, we should consider the volume of the work needed to implement these adaptations. At many universities, EE instructors tend to be non-tenure track faculty. At Purdue, these faculty commonly teach twice as many courses as tenure-stream faculty. The shift to emergency remote teaching meant non-tenure track faculty were managing twice the crisis-level workload. It is also important to note that non-tenure track faculty status intersects with a variety of other marginalized statuses. At Purdue, clinical faculty are slightly more likely to be an under-represented minority compared to tenure-stream faculty (10% vs. 8%, respectively) and far more likely to be female (58% vs. 30%) (Purdue University Data Digest 2020: Office of the Provost 2020 Clinical Faculty Town Hall). So, as the pandemic places disproportionate health risks on people of color and disproportionate caregiving burdens on women, these risks and burdens fall disproportionately on faculty who are carrying more, and more complex, teaching burdens.

### **Our Immediate Educational Responses to Pandemic Conditions at Purdue**

An overall theme of the move to remote instruction at Purdue was the need to simultaneously prioritize both health and educational progress. At the time, the prevailing solution to protecting student health and safety of students in our programs was to move learning experiences online. When site partners struggled to maintain normal operations, went into self-preservation mode, or shuttered operations, we could not expect them to prioritize student learning and move work online. Students in our programs were not keen about completing their field experiences online. The field experience is viewed as a time to apply practical skills and gain professional experience related to one's future career. For some students, the field site becomes their first job in their career field, whether they hold an employee status concurrent with being a trainee or are hired on after the experience concludes. It is therefore easy to see how the idea of completing the field experience online would be undesirable, untenable, and create a double bind for students who are considered essential employees or rely on the experience for financial survival. Considering all this, we faced an impossible calculus of maximizing health and safety, academic progress, strong field site partnerships, and student well-being, all at the same time.

The shift in instruction was not just to emergency remote learning, it was crisis education. Instructors had little time to design effective educational strategies, given the time constraints

from notification of moving to remote learning to the due date for course launch coupled with feelings of anxiety and overwhelm regarding the pandemic. Under these challenging circumstances, EE faculty at Purdue University used various approaches to ensure effective learning, practical application, and professional growth continued for students. For example, capstone interns from the Department of Human Development and Family Studies were able to complete Spring 2020 internships despite COVID-19 via three different options: 1) ending internship early and reducing credit hours, 2) continuing the internship placement 100% remotely, or 3) ending the placement and completing a menu of online professional development activities.

For students who were planning summer and fall internships, we adapted the internship search and placement process to emphasize the evaluation of prospective internship sites for their capacity to supervise interns remotely if conditions required that. Eventually, we developed an exception process to allow certain narrowly defined internship placements to happen in person during the summer. All other summer internships were designed to be fully remote.

Students in the Early Childhood Education and Exceptional Needs (ECEEN) teacher education program, who were completing their full semester of student teaching in the spring, experienced an array of changes throughout the semester. Each program approached remote learning in substantially different ways. Some programs and schools had little to no contact with their own learners while others had regular online learning sessions, kept in close contact with families and children, and provided, in some cases, rather elaborate learning plans. As a result, the student teachers had various levels of contact with the learners in the classroom they had been with up to the time of the schools' moving to remote learning. Hence, no two student teachers had a similar experience. Due to the variety of continued EE for these student teachers and in order to keep them engaged in professional development, similarly to the HDFS interns, a menu of professional development opportunities was provided and facilitated by the Purdue student teaching supervisor to fill the gaps left by lack of contact with the program and classroom of their placements.

Those of us leading EE experiences in spring 2020 relied on a process of adaptation that was individualized and iterative. We were constantly gathering information and seeking guidance from administrators, site partners, each other, and our broader professional networks. In hindsight, we can discern some general principles guiding our adaptations. We sought to continue to offer students professional growth opportunities throughout the semester. Whenever possible, we maintained the partnership with the host site, even as the work became remote. When that was not possible, we created alternative activities that could be conducted remotely without a partner site. The intention was to keep students engaged in practicing and reflecting on their professional skills. Sometimes direct practice became impossible, and analysis and reflection of case studies and examples had to fill the gap. These adaptations required more instructor time devoted to assignment design, assessment, student and partner site communication, and the professional development needed to ensure student success. Throughout this experience we struggled with the reality that an optimal learning experience for our students was no longer possible. At a key point in their education, students lost out on the richness of field-based educational experiences.

As instructors plan for another academic year, we must consider a wide variety of scenarios for how to educate as the pandemic presses on. Since we can now be somewhat more proactive rather than completely reactive, we are making plans to more effectively support students in experiential education during pandemic conditions. Lessons learned from the prior spring and summer terms are being applied. New technologies, such as, GoReact, have been explored for how they may expand and enhance practice, reflection, and supervisor feedback given a lack of or very different expectations of field placements. In HDFS, our strategy for the fall has been to temporarily eliminate smaller-scale, less essential field-based work in order to invest our resources in the substantial field-based EE that are capstone requirements for major and degree completion. In the Human Services program, this has meant temporarily eliminating a service-learning project from a junior-level course while investing substantial time in preparing students and placement sites to develop comprehensive contingency plans for remote or hybrid internships. In the early childhood education program, this has meant replacing in-person early field placements with virtual and distance methods for skill development and pouring resources into contingency plans for capstone student teaching experiences. However, the problem still exists: how do you provide a university student professional experiences when the logical place to practice is not available? We discuss this question in the following section.

### **Long-Range Planning Considerations for EE Instructors and Site Partners with Purdue Programs**

With all the unknowns surrounding the pandemic and a return to normalcy, EE instructors will need to think beyond the 2020-2021 academic year about the viability of EE and how significant adaptations to EE will impact student outcomes as well as workforce needs. Field-based learning offers students opportunities to enhance their employability through the development of professional knowledge and skills, exploration of different career paths, and preparation for future career roles. Educational research indicates that early career mentoring and induction into the career positively influences new teachers' transition into professional life and early career success (Beck and Kosnik 2002; de Paor 2018). For site partners providing the mentorship, early access to well-trained students seeking to enter the workforce conveniently expedites employee recruitment and training efforts. But, when the depth, quality, and continuity of the EE is altered, student employability may be compromised, and workforce demands may go unmet. Take for example the early childhood education teacher education program at Purdue University that prepares early childhood educators for myriad opportunities in working with young children and families. By year two of this four-year program, students are engaged in part-time field-based activity where they practice their skills caring for and engaging in instruction and intervention with young children. Yet, due to the pandemic this spring, students completed less than half of the required time and expectations for their field placements. In the fall, as mentioned above, these same students will not have traditional in-person early field experiences. What happens, then, when these students are seeking employment after graduation having missed out on so much learning, mentoring, and preparation in their early semesters? Will students' level of preparation match the minimum expectations of employers? If students are not as fully prepared to independently take on professional roles, what responsibility does the program have to ensure professional success for these alumni? Will employers modify their onboarding and training processes to accommodate employees whose academic preparation was altered because of the pandemic? How do academic programs, EE site partners, and employers individually and collectively own their parts in supporting students' professional success? The uncertainty of what

is ahead for our students makes it difficult to predict and support their transition into their professional lives.

EE site partners have been no less affected by the circumstances wrought by the pandemic and are themselves figuring out what the future holds for their organizations amid a rapidly changing service delivery landscape. Uncertainty about organizational outlook, the shift of work to essential duties, resource exigencies, and other pressing concerns may make it difficult for site partners to commit to offering EE experiences. Though sites may have come to rely on the benefits of hosting students' EE experiences, the return on investment may no longer be convincing or consequential due to other mission-related priorities. As a result, there is a real danger of field site partners reducing or even eliminating their EE offerings. Academic programs will need to think creatively about how to respond to these potential shortages. Students may not be able to go "out" into the field to gain EE experiences, but perhaps real-world EE experiences can be created within the university. Large universities, such as Purdue, operate with all of the same core functions found in societal institutions from business to social services. And, with all the planning and responding to COVID-19, there may be new roles and responsibilities that could represent meaningful, field-relevant learning opportunities for students such as, contact tracing or supply chain management. Insofar as student learning and development is an educational priority, actively building capacity for offering campus-based EE seems like a worthwhile endeavor for universities and EE instructors to undertake. In structuring these positions, consideration should be given to compensating students in whole or part for their work. In education and social service fields especially, EE commonly involves full-time work for little to no pay. The lack of compensation adds a thick layer of burden for students already balancing work and school and those living with financial constraints.

On the workforce side, employers will likely need to adjust their preparation expectations of job seekers who completed their academic training during the COVID-19 era. Applicants will be no less high quality than before; but they will have had fewer opportunities for professionalization due to whether and how EE was available. Employers should prepare to invest additional training, development, and mentoring resources in their new employees so that they can effectively fulfill their job roles and be on track for career advancement. Field-specific training and professional development has always been the responsibility of employers and would be no different from what employers would offer other entry-level employees. What is different is that our professional preparation programs may now be constrained in their ability to facilitate a streamlined recruitment and training process for employers. EE faculty, campus career services consultants, and employers would benefit from discussing each other's efforts and identifying the supports that students will need to make a successful college to career transition.

### **Considerations for Higher Education Institutions and Systems**

As we look ahead to the immediate and long-term future, higher education will continue to face substantial challenges presented by COVID-19 and its consequences. Individual faculty on a course-by-course basis cannot solve those challenges. They are systemic issues and require systemic solutions.

Substantial, and often invisible, work is required to continue each university's teaching and learning mission through the pandemic, and this work requires resources. Current reports widely



acknowledge the financial resources necessary (Ali 2020; Chronicle of Higher Education 2020). For example, as of early July, public colleges in the state of Kentucky had accrued \$145 million in pandemic-related expenses (Rogers 2020). However, more than money is required. Since the onset of the pandemic, faculty, administrators, and other employees of higher education have been operating in crisis mode. That is perhaps not surprising, for this is indeed a crisis. But, operating in crisis mode for a period of months with no end in sight is unsustainable. Add to this that the crisis is not limited to one's professional responsibilities. Parents with children at home are expected to continue their work despite the closure of childcare programs and P-12 schools. Older or otherwise at-risk loved ones require care and support. And, of course, systemic racism and police brutality, though never absent, are once again omnipresent and un-ignorable causing additional stressors in the lives of faculty. As previously mentioned, non-tenure track faculty who regularly teach field-based EE courses are more likely to be women and more likely to be faculty of color speaking to a stronger connection to and impact by the compounding national and world issues. This intersectional perspective would remind us that these other crisis conditions are not extraneous concerns.

Universities should be taking action that helps to make educating in crisis conditions more sustainable for the long haul. Faculty need breaks, opportunities for self-care, and support in navigating traumatic aspects of this experience. Many pedagogical leaders have called for trauma-informed teaching practices in the wake of crises (Gutierrez and Gutierrez 2019; Imad 2020). There is likely to be a traumatic element to the return to campuses, as students and faculty alike confront visible, constant reminders of the threat of the virus. Since the onset of the pandemic, faculty have functioned as educational first responders, engaging in substantial care work to help students manage the ways the pandemic has disrupted their education, their career plans, and their lives.

This work is demanding, and it calls for recognition and support. For example, universities could plan for smaller faculty supervision loads for current and subsequent semesters. This is particularly needed for those faculty who supervise EE in programs such as education where students will undoubtedly need added mentoring and support in their capstone student teaching experience since their early field-based EE was cancelled and/or greatly altered. This early field-based work allows for guided practice prior to their full-time student teaching experience, building professional skills in preparation for their capstone student teaching. Current students in education majors will have far fewer practical hours than those who have completed programs before them, leaving them potentially less confident in their professional abilities. Some colleges and units were able to compensate for course redevelopment but that was not campus wide. Faculty worked tirelessly throughout the summer with varied levels of compensation to prepare for the fall semester under strict new guidelines for social distancing and safety policies. What will faculty do to accomplish the daunting task of course redesign during a full fall semester if spring semester is also to be altered? Many universities are planning for longer winter breaks. However, will this extended break be another block of time where faculty will spend time redeveloping coursework in preparation for spring semester without added compensation?

If colleges and universities want faculty to be effective in redesigning instruction and carrying it out in pandemic conditions, then they must address the need for balance. Not everything can be a priority. Tenure stop-clock policies are one way colleges have tried to address this (Gomollón-

Bel 2020; Pettit 2020), but they also have drawbacks (Manchester, Leslie and Kramer 2013; Quinn 2010) and are not inclusive of most instructors (neither those with tenure nor those in non-tenure track positions). Universities must adjust their systems so that faculty are rewarded for addressing the most pressing priorities including rapid but educationally effective changes to hybrid and remote learning and the essential emotional work of addressing student well-being throughout the crisis. At the same time, faculty should not be penalized for reduced accomplishment in those areas that are not urgent at this time.

Finally, systemic considerations ought to include the longstanding systems of faculty governance and academic freedom. As experts in their discipline, faculty are in the best position to determine the most effective ways to teach it. Principles of academic freedom and shared governance have long emphasized that faculty have the right and responsibility to make curriculum decisions (American Association of University Professors n.d.; Euben 2002; Levinson 2009; Messier 2017). In the midst of a pandemic that has changed so much, this principle is unchanged. Once each university has decided how best to protect the health and safety of its students, faculty, staff, and neighbors -- which is its responsibility -- then the faculty should be empowered to decide how best to teach given the changes and limitations imposed by social distancing and other necessities. The answer to “how best to teach” will be different for field-based EE than for a lecture-based survey course, for example. For faculty to be truly empowered to select the teaching settings and methods best suited to the learning goals of their courses, universities should strive to make health-and-safety decisions that can be applied broadly; to clearly communicate the bounds of those decisions; and, to provide faculty with the guidance necessary to adapt general university policies to specific pedagogical settings, including the right to appeal for exceptions when appropriate.

### **Conclusions**

The COVID-19 pandemic has fundamentally changed the present reality, and likely the future, of higher education. So, too, has it changed the world of work for which our students are preparing. A particular strength of field-based EE is the way it combines the settings of work and education. Therefore, we encourage EE instructors to take advantage of this intersection. Explore the changes being experienced in relevant career settings and consider how you can employ new technologies, methods, and strategies to design your EE experiences to prepare students for these new realities such as using Google classroom, Flipgrid and other social learning platforms for education majors; tele-practice tools for Human Services majors; and, the myriad virtual meeting platforms. This is not an individual-level challenge, however, and it will not be solved by individual instructors alone. Higher education systems must recognize the comprehensive and colossal impact of the loss of practical application aspect of the professional preparation experience and provide the resources, guidance, and support needed to allow field-based EE to adapt to pandemic conditions while continuing to provide students with authentic experiences for professional skill development.

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# Conducting Research during COVID-19: An Assistant Professor's Perspective

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## Introduction

For many faculty members, conducting research serves as one of the critical drivers for why they have chosen a path in academia. I also consider myself among this group, and although I have encountered many challenges in conducting research that have made it feel like an oscillating curve of negatives and positives, my desire to keep exploring has always seen me through them. One event that I certainly did not expect to impact this curve and essentially temporarily flatline it has been the global health crisis related to the COVID-19 pandemic. This pandemic began in late 2019, and while many countries have—at least temporarily—seen through the worst, the US remains troubled by it and conditions seem to be getting worse in certain states, as of July 2020 (New York Times 2020). This constant threat has now created additional problems, that really begin to question whether higher education at universities can continue without tremendous costs to the health and safety of its workforce.

The true gravity of this situation hit me hard when reading several recently published news articles. The first article, which was published in July 2020, provided an alarming statistic—the majority of universities in the US (53%) still plan to have students attend classes in person in Fall 2020, as noted in Figure 1 (The Chronicle of Higher Education Staff 2020), even as the number of coronavirus cases and deaths in the US are on the rise. This fact has troubled many faculty members across the country, according to a New York Time article (Hartocollis 2020a) who have signed petitions requesting a change. In the same article, Dana Ward, an emeritus professor at Pitzer College in California directly stated, “Until there’s a vaccine, I’m not setting foot on campus.” (Hartocollis 2020a) These challenges are especially concerning to junior faculty, many of whom are assistant professors like me, because we need to return to a safe environment where we can conduct research easily and effectively as we watch the minutes of our tenure clock go by.

In this essay, I will draw attention to additional challenges that faculty face in trying to conduct research as we move through the COVID-19 pandemic. Certainly, these challenges are especially acute for assistant professors like me because time needed to conduct research is not a luxury while navigating a fixed timeline towards tenure. I also offer this perspective as an assistant professor at the advanced stages of a tenure-track position. Additionally, my research focuses on

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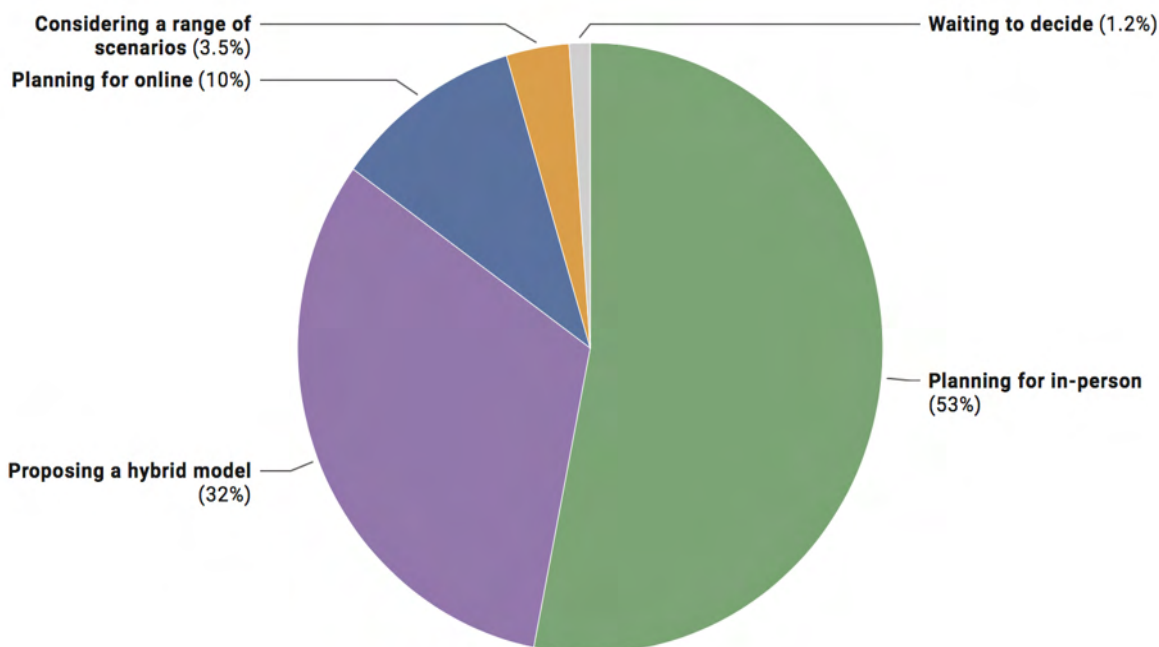
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**Figure 1**

Colleges' plans to reopen in the fall 2020 semester. This chart is currently tracking roughly 1,210 colleges in the US.



water quality and sustainability and is highly experimentally driven. These attributes make me especially concerned about access to resources in the lab so that research projects can be completed and results can be published, while also maintaining a pool of students that can keep research activity progressing at a consistent pace. Bearing this background in mind, I would like to focus this essay on three topics that specifically discuss challenges to: (1) recruiting and retaining students with particular emphasis on international students, (2) acquiring funds to support research efforts, (3) and enabling and mentoring students to perform research tasks. These discussions will culminate in my final thoughts regarding the “path ahead” and how we must target specific outcomes to ensure that our ability to conduct research and advance science are never compromised.

### **Student Recruitment and Retention**

The foundation of conducting research within a university setting is built on the graduate and undergraduate students that participate in it. If I were to create an analogy from my area of research expertise, environmental chemistry, I would say that they are essentially the “reactants” or “starting material” of a chemical reaction that are needed to make the reaction occur and subsequently generate products. Thus, it is impossible to produce anything without them. It is for these reasons that I want to begin this essay by focusing on this topic and especially because our ability to recruit and retain graduate and undergraduate students has become tremendously challenged during this pandemic. One of the main reasons for this is simply a logistical one – why would graduate and undergraduate students choose to come to university and conduct research when “social distancing requirements are nearly impossible to meet for many research areas,” especially for “traditional modalities of bench science and human subjects research, as well as much field and archival research,” as noted by Peter Schiffer and Jay Walsh (2020).

These issues are further exacerbated by the additional burdens being borne by international graduate and undergraduate students. Some students are not even able to enter the US due to current travel restrictions and “increased logistical hurdles to visa processing.” (Schiffer and Walsh 2020) In addition, a recent Forbes article provided startling predictions suggesting that “the enrollment of new international students at U.S. universities in the Fall 2020-2021 academic year is projected to decline 63% to 98% from the 2018-2019 level,” which was based on analysis conducted by the National Foundation for American Policy (Anderson 2020). At Purdue alone, such a drop would considerably reduce total student enrollment, as nearly 21-24% of all students (graduate and undergraduate) enrolled each year at the West Lafayette campus between 2014 to 2019 originated from countries outside the U.S. (Office of Enrollment Management, Purdue University 2020). There is no doubt that such a decline would have a tremendous effect on research productivity and output but would additionally limit our ability to use students’ diverse background to think more creatively about research. Recent decisions made by the Trump administration have created additional turmoil, as they have set guidelines that will cause students to lose their visas if they only take online classes in the upcoming Fall 2020 semester.

This action is “using foreign students as pawns to keep all schools open, no matter the cost to the health and well-being of these students and their communities,” as stated by Mark Rosenbaum, a lawyer who represents foreign graduate students at three California universities, in a recent New York Times article (Hartocollis 2020b). One can only wonder what psychological effects these events are having on international student who must be asking whether they are welcome to study and work in the US with or without the pandemic in the background. This policy has since been withdrawn.

### **Challenges in Acquiring Funding**

In my mind, one of the most challenging and frustrating aspects of this COVID-19 pandemic lies in the financial difficulties that most of the world economies are facing as a result. These difficulties have trickled down to affect many aspects of our daily lives, but as a scientist it is obvious to see the strain it is placing on securing funds to drive research forward. I recently experienced this first-hand through two retracted funding opportunities. The first one felt more or less expected— a small seed grant typically given through my department was closed to applications in May 2020 due to austerity measures put in place for the 2020-21 fiscal year. However, the second one took me much more by surprise – a large global chemical company was unable to fund a relatively small research project that was directly linked to the side effects their disinfectant might have on indoor surfaces when used to destroy the coronavirus. They stated that one of the primary reasons that they were unable to fund this project was due to the current downturn in the economy. This left me thinking about the following: if a large billion-dollar company is reluctant to fund a project which is directly related to the COVID-19 crisis, then who instead could we turn to for funds?

Unfortunately, there is no doubt that my personal experiences are emblematic of what lies ahead for funding research. Schiffer and Walsh noted in a recent op-ed that “most corporate, philanthropic and state government research funders will be strained in the coming months, auguring a period of constrained resources.”(2020) One example of this strain was recently demonstrated by austerity measures proposed by the state of New Mexico. According to the

Santa Fe New Mexican newspaper, the state proposed to “slash, roughly 6 percent from research and public service projects at universities and 4 percent for broader university and public college funding from the state.” (Gerstein 2020) If similar measures are enacted in other states across the US, such “belt tightening” measures would clearly have far reaching consequences for all research-active professors. It would most certainly also create additional stress for research-active assistant professors, who need funds to initiate and/or continue their research so that they can generate critical products needed to meet the metrics for tenure and promotion. I would also like to especially highlight the burden it places on women, such as myself, who are already confronted with bias in grant review panels and must be 2.5 times more productive to be judged as equally competent in grant applications (Barres 2006; Malisch et al. 2020). Such disparities are also positioned against the fact that during the pandemic, research productivity measured as a function of journal submissions was also well known to be highly gendered due to the unequal distribution of household and intellectual labor (Flaherty, 2020). These gender-based gaps will have dire consequences for individual career trajectories, rise to leadership positions, and overall scientific progress in a multitude of academic fields.

### **The Experimentalist’s Roadblocks**

It is amazing how often you do not miss something until it is gone. This statement is very relevant to how researchers who primarily engage in experimental work, such as myself, likely feel, as their research labs have never been stripped away from their hands; which has occurred over the past few months. In my case, the timeline of events for closing and reopening my research lab were probably not unlike others who do experimental work, which falls outside the scope of COVID-19 related research. First, my lab, along with others in my same research field, were closed down in mid- to late March 2020, where all personnel were restricted from entry and all analytical equipment that typically remains online were shutdown. Months followed that included tireless efforts by our lab manager and likely many others, in tracking the litany of constantly updated guidelines on how and when our labs could reopen. Finally, we were allowed to reopen in late July 2020 but with the following rules: (1) all personnel must notify administrators when they will make laboratory visits and must restrict activities to certain lab spaces, so that adequate space exists between personnel, (2) all personnel must wear various forms of personal protective equipment (e.g. surgical masks or face masks) while in the laboratories or building itself, and (3) have access to additional disinfectants and cleaning materials while in the laboratories as well.

Certainly, these requirements are necessary considering the many unknowns about COVID-19, but it really remains to be seen whether such measures will be sufficient to ensure a safe and healthy work environment. It also begs the question as to how long our labs can remain open when considering outside factors that remain beyond our control. An excellent example of this actually lies in the fact that students began arriving on campus in August for the fall 2020 semester. Will it be possible to remain safe within our existing research labs even when the hallways are filled with asymptomatic students who could possibly be infected? It remains to be seen if the closing and reopening of such research labs will be the beginning of a recurring cycle. Such a cycle will be especially challenging for researchers who are attempting to do long term bench-scale work or field studies, where continuity is an essential part of the experimental research process.



## The Path Ahead

The COVID-19 pandemic is really one of the first times a global crisis has affected me so personally. It is hard to see how to move on from this point, but it is clear that we must take action to propose and implement changes that enables research at higher education institutions to continue on and which allows science to progress. I would like to recommend several actionable items that I believe will provide the first steps for such progress to be achieved. They are as follows:

- Bi-annual forum: To promote open dialogue amongst research active personnel, resources should be allocated for enabling research active faculty (tenure-track, clinical/professors of practice, and research faculty) and staff to meet bi-annually. This forum will enable attendees to discuss the research challenges presented due to the COVID-19 pandemic and strategies to mitigate them.
- Research lab transition assistance: Resources are needed for research faculty and staff to better streamline the processes (e.g. development of standard operating procedures and training exercises) associated with transitioning the on-campus lab settings so that they can adhere to strict safety protocols while optimizing and maintaining research productivity.
- Graduate student transition assistance: Graduate students are the life and blood of a productive and successful research laboratory. Greater resources must be provided to them to help transition research activities to the home environment, by providing better and more ergonomic workspaces.
- Research and development of virtual labs and artificial intelligence: A greater push should also be made towards advancing research related to virtual lab design, artificial intelligence, and remote learning. These areas of research will enable students to begin learning laboratory skills from a remote location and will expedite the time required to fully train them when they are later placed in a laboratory setting.

Overall, I hope that these initial suggestions offer a suitable and constructive foundation for generating other actionable items, that may enable us to effectively meet the research challenges presented to us in the uncertain times ahead.

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# **E-Mentoring: Building and Sustaining an Online Mentoring Community for Black Women**

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## **Introduction**

Lack of role models, structured supports, and cultural affirmation in science, technology, engineering, and mathematics (STEM) fields impact female students of color's interest in science (Aryee 2017). Research reveals these factors play a significant role in a student's decision to enter science-related careers as early as elementary school (Wang and Degol 2013). Recently, there is a renewed focus not only on why this happens, but also how educators can provide opportunities to students at a young age to help them break through familial, cultural, and societal constraints in order to select careers that genuinely interest them. Individuals make the decision to enter certain careers, including science careers, at a young age. Combined, these two strategies of exposure and mentoring have been documented as critical in increasing the interest of groups historically underrepresented, especially Black Women, in STEM overall.

Black, LatinX, and Native American students are considered historically underrepresented or minorities in STEM doctoral programs (National Academies of Sciences, Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce 2019). In 2018 NSF reported, that between 2000 and 2015, the number of black U.S. citizens and permanent residents awarded a bachelor's in science and engineering fields increased from 9% to 10% (NSF 2018). LatinX students who were U.S. citizens or permanent residents receiving a bachelor's degree in science and engineering fields increased from 7% to 13% (NSF 2018). Unfortunately, the number of science and engineering bachelor's degrees awarded to U.S. citizens or permanent residents of American Indian or Alaskan native descent remained at about 1%. The increases noted amongst the Black and LatinX communities is likely due to the population increase as well as an increase in college attendance amongst minorities (NSF 2018). Race-matched connections, such as mentoring, have been shown to validate, affirm, and increase the success of black doctoral students, which will all contribute to their completion of their programs (Felder and Barker 2013).

Mentoring has long been understood as a beneficial component of academic and professional development (Ragins and Cotton 1999). In recent years, mentoring has become a cornerstone approach from K-12 settings through higher education and early career development to

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increasing American performance in STEM and addressing issues of historical underrepresentation in STEM careers (Singh, Bains, and Vinnicombe 2002). Many traditional higher education and early career development programs introduced or deepened a mentoring component of their services. But investigations of the attributes of effective mentoring interactions in STEM are only now starting to shed light on how exactly these complex and dynamic relationships form, evolve, and impact the lives and careers of the current and next generation of STEM professionals. In addition, mentoring in relation to Black Women in STEM has been shown to be critical to recruiting and sustaining this population.

Research suggests that Black girls who have access to relatable, adult Black Women who are able to connect with them in unique ways have lower academic, social, and cultural risks than Black girls who do not have access to gender and race-matched mentors (Dennis, Cummings, and McClendon 2011). Career development programs designed for all women (regardless of minority status) or all minorities (including men) may not take the unique experiences of diverse women into account. Since racially/ethnically diverse women have experiences and perceptions that are unique from women as a group and men of color as a group, identifying and implementing successful mentoring programs has been shown to be critical for the success of Black Women in STEM.

Positive mentoring relationships are not only beneficial to mentees, but Black Women mentors show psychosocial gains from their interactions with Black girl mentees (Thomas 2018). The positive outcomes gained for the Black girl mentees and Black Women mentors can be best described using two of the four principles of Black Feminist Epistemology (Collins 2000):

- Principle #1: criteria for meaning argues that those individuals who lived through the experiences in which they claim to be experts are more credible than those who have not. Essentially, this translates into credibility and trust in the mentoring relationship between Black girls and Black Women.
- Principle #2: use of dialogue in accessing knowledge encourages connectedness and provides contexts for Black girls and women to connect on a deeper level.

The purpose of this article is to highlight the importance of online mentoring communities for Black Women in STEM higher education and the workforce, through examination of existing models and programs. This article explores the importance of online mentoring communities and how they influence Black Women's success in STEM fields. This article aims to advance knowledge for all organizations working to build virtual communities of support for Black Women in STEM. Understanding the benefits and need of establishing an online mentoring community for Black Women has the potential to advance the retention of Black Women in STEM by providing tools and insight to dismantle “One-Size-Fits-All” mentoring programs and allow for strategizes that specifically target Black Women, thus optimizing the effectiveness of such programs.

## **Background**

### ***Factors Contributing to Success in STEM***

Indicators of Success in STEM include measures of self-efficacy, high GPAs, completion of degrees, credentials in STEM-related fields, and securement of employment in STEM (National Academies of Sciences, Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce 2019 and National Academy of Sciences 2011). A variety

of factors are reported to contribute to one's success in STEM, including summer programs, research experience, career exposure, adjustment to the academic environment, a sense of belonging, academic support, mentoring and again self-efficacy (National Academy of Sciences 2011). Of these factors, self-efficacy is commonly found as both a contributing factor, as well as a measurement of STEM success.

Self-efficacy is described as how one perceives their ability to perform or achieve at a certain level, which can be general or task-specific (Wise and Trunnell 2001). Students' pursuit of specific majors or careers is dependent on their belief in their capabilities of being successful in a field of their interest (Lent, Brown, Sheu, and Schmidt 2005; Wang and Degol 2013). Thus, a high sense of self-efficacy has been shown to promote persistence in STEM majors (Aryee 2017; Hardin and Longhurst 2015). STEM self-efficacy can be heavily influenced by one's ability to identify as a capable scientist, which can be difficult given the common "weed out" culture of STEM on most campuses. This culture fosters a highly competitive academic atmosphere. Studies show underrepresented minorities, already experiencing psychological challenges, will experience disproportionate attrition, especially when ill-prepared (National Academy of Sciences 2011).

### ***Black Women in STEM***

Women are working to better establish their place in STEM. Still, female researchers are more likely to earn less, be cited less often, and receive less funding. Additionally, five decades of the infamous "Draw a Scientist" study, concluded that: (1) young children drew more women scientists (2) more female children drew women scientists than male children, and (3) with age, children begin to draw scientists as male (Terada 2019; Chambers 1983). While the gender disparities in STEM are often studied, the "Draw a Scientist" review offers a ray of hope for the atmosphere of STEM for women. In contrast to the gains in gender, Yong reports that about 79% of the drawings from the studies were white, but David Miller of Northwestern University points out that assigning race to a child's drawing is not as simple, and factors like coloring material must also be considered (Yong 2018). While this may be true, numerous research studies have demonstrated that stereotype threat and implicit bias influenced the perceptions that promote social barriers for certain groups within STEM (Steele and Aronson 1995; Greenwald and Krieger 2006; Dewsbury 2017).

Crenshaw makes the point that intersectionality, the intersection of multiple identities such as gender and race can contribute to one's oppression or privilege in a society, depending on the identities. For Black Women, the identity of the female gender along with the identity of the black race subjects the Black woman to two oppressive groups, where they'd receive "double discrimination" (Crenshaw 1989; Malcom, Hall, and Brown 1976). The data indicate that Black and Hispanic women are the two groups of women facing the most difficulty in terms of STEM self-efficacy and establishing their rightful place in STEM.

Black Women and white women college students express the same interest in STEM majors; however, Black Women are not well represented in STEM, likely due to retention of minorities in STEM (National Academy of Sciences 2011). Of awarded STEM bachelor's degrees, only 2.9% of degrees were awarded to Black Women (Indiana University-Purdue University Indianapolis School of Science 2019). Of awarded STEM doctorates, the National Science

Foundation (NSF) reported ~4.5% were awarded to Black Women (2018). As mentioned earlier, success in STEM is often measured by successful employment in STEM fields. An American Institutes for Research (AIR) analysis reports that 1 in 5 Black STEM PhDs will pursue a non-STEM career (2014). Of the Black Women with STEM PhDs, specifically, about 46% work in a government setting, 9% work in research and development, and 34% hold mid-and top-level management positions (Upton and Tanenbaum 2014). Collectively, these statistics suggest that Black Women are not well retained in STEM and of those that remain in STEM fields, they are more likely to work outside of research and development.

### ***Black Women success in STEM***

An additional phenomenon of success in STEM as it relates to retention is the idea of “survival of the fittest”, in which the characteristics of a STEM student contribute to their success or failure in STEM. In turn, this “survival of the fittest” mindset also implies that the underrepresentation of black students is of their own doing, further contributing to racial stereotypes for black students in STEM (McGee 2017).

With highly competitive environments, “survival of the fittest” mindsets, and implicit and explicit racial biases, to name a few, it is not surprising that Black Women in STEM have a hard time finding a sense of belonging. A sense of belonging is a key factor contributing to STEM success. The environment and challenges of one’s identity, two identities for Black Women, are associated with lower STEM self-efficacy and poor long-term performance (Settles, O’Connor, and Yap 2016; Ahlqvist, London, and Rosenthal 2013).

While there are quite a few negative factors working against Black Women in STEM, there are a few things that researchers identified as contributing to their retention in STEM. Representation, specifically of other Black Women in their field, is said to be a great factor in the success of Black Women in STEM. Studies report that Black Women in STEM who establish community with other Black Women in STEM role models, had an increased sense of belonging. The same was shown when these women recruit mentors in Black Men or allies who acknowledge and respect their identities (Indiana University-Purdue University Indianapolis School of Science 2019). At times, role models can become mentors. Mentorship is often identified as one of the keys to successful completion of graduate programs for Black Women, especially at predominantly white institutions (PWIs) (Cropps and Esters 2018; Patton and Harper 2003). As McGee (2017) carefully states: “the persistent bias, discrimination and other stereotypical challenges that may plague a Black Women in STEM’s journey can lead to battle fatigue which often discourages women from pursuing faculty careers or remaining in STEM fields, altogether.” Therefore, mentorship of Black Women in STEM fields can only be advantageous to this particular group of individuals.

### **What Is Mentoring?**

Throughout literature the words “mentor” and “mentorship” have various definitions. For the purpose of this paper we chose to define mentorship as “a relationship in which a more experienced or more knowledgeable person helps to guide a less experienced or less knowledgeable person” (Farren Ph.D 2006). The mentor may be older or younger than the mentee, but must have a certain area of expertise. This relationship is characterized by mutual

trust and benevolence; and aims at promoting the development and progress of the mentee (Chaio 2009).

Mentoring can be either inperson or on-line. In person mentoring, whether one-to-one or in groups, seems to be most common in programs intended to either spark initial interest in STEM for young children or in programs aimed at supporting older youth through some transition point (e.g., applying to college as a STEM major). Online models tend to be used in programs that seek to build large numbers of STEM relationships or to provide access to a wide variety of role models and perspectives. Online formats are also popular when in-person relationships are not possible due to geographic distance or other factors such as individual disability (Foundation 2012). Both in-person and online formats demonstrated evidence of effectiveness, but these different program formats often differ in key ways related to their structure and the focus of their mentoring relationships.

### ***Mentoring Roles, Types, and Models***

There are two roles within the mentoring relationship - the mentor and the mentee. Throughout the literature the mentor is described as an advisor, counselor, confidant, advocate, cheerleader and listener (Inzer and Crawford 2005). The mentor should be confident, secure, sensitive to diversity, and a good communicator. The mentor's role includes using their own experience and insight, to: identify the goals of the mentee; provide advice and guidance, encourage the mentees career/personal development, and provide suggestions on activities and information that would benefit the mentee's growth; and recommend pursuits that will develop specific areas in the person's personal and professional advancement. The mentee is described as the individual receiving the mentoring and generally must know what he or she wants and shapes the overall agenda for the relationship (Inzer and Crawford 2005). The mentee must establish priority issues for action or support.

There are two broad types of mentoring relationships: formal and informal (Ragins and Cotton 1999). Formal mentoring relationships are set up by organizations or institutions and are not created organically. This model theoretically aims to pair a qualified and trained individual (mentor) with a person in need of guidance (mentee) (Arnesson and Albinsson 2017). Limitations of this model include incorrect pairing, lack of training for the mentor on how to mentor, and lack of interest from either individual to mentor or be mentored (Straus, Johnson, Marquez, and Feldman 2013). Informal mentoring occurs without the use of structured recruitment, mentor training and matching services. Informal mentoring arrangements are usually done outside of a formal structure and usually develop organically. This model allows for both individuals to naturally form a relationship, instead of being assigned (Singh, Bains, and Vinnicombe 2002).

We know from practice and research that there are six models of mentoring: one-on-one, group, peer, distance/online, reverse, and speed (Buell 2004). One-on-One mentoring is the most traditional of all the types of mentoring (Thompson, Hansen, and Reinhart 1996). Only the mentor and mentee are involved in this type of mentoring, and it is usually a more-experienced individual paired with a less-experienced or much younger mentee. Group mentoring involves one or several mentors working with a group of mentees. Schools and youth programs often apply this model because there may not be enough time or resources to have one mentor for each

participant. Peer mentoring utilizes participants with the same role or department or have shared or similar experiences in their professional or personal lives (Karcher 2005). These peers pair up to offer support for each other. This can be a group or a one-on-one mentoring relationship. Reverse mentoring uses a flipped model from the traditional model (Murphy 2012).

That is, instead of a senior professional mentoring a more junior employee, the junior employee mentors a more senior professional. This relationship is usually for the younger or more junior professional to teach the skills or a new application or technology to the more senior one. Speed mentoring is a play on speed dating and usually occurs as part of a corporate event or conference (Cook, Bahn, and Menaker 2010). The mentee has a series of one-on-one conversations with a set of different mentors and usually moves from one mentor to the next after a brief meeting. The expectation is that the mentee should come prepared with questions for advice from the senior level professionals. Distance or e-mentoring uses online software or even email to expand the mentorship relation from face-to-face to virtual. For the purpose of this article we will focus on the impact of e-mentoring, specifically as it relates to Black Women and their success in STEM fields to serve as a potential mentoring tool during the COVID-19 pandemic.

### **E- Mentoring**

Electronic mentoring, or e-mentoring, is defined as “a computer mediated, mutually beneficial relationship between a mentor and a mentee that provides learning, advising, encouraging, promoting, and modeling, that is often boundaryless, egalitarian, and qualitatively different than traditional face-to-face mentoring” (Bierema and Merriam 2002). Boyle-Single and Muller (2001) described e-mentoring as a computer-mediated relationship between an established professional (mentor) and junior individual (mentee) to increase the mentee’s likelihood for success. Furthermore, they defined structured e-mentoring as a formalized program format that provides mentor training and outcome evaluation (Boyle-Single and Muller 2001).

E-mentoring created unparalleled opportunities for mentoring, as it provides several advantages over traditional mentoring. These include increased flexibility, geographical location between mentor and mentee is inconsequential; and management and coordination of mentoring interactions is easier without reliance on travel or meetings (Bierema and Hill 2005). As such, a variety of technical mediums can be used to facilitate e-mentoring relationships including: e-mail, electronic mailing lists, chat groups, intranets, and computer conferencing (Bierema and Hill 2005). E-mentoring also reduces barriers resulting from instant first impressions, based on physical appearance, thereby enabling mentors and mentees to focus on commonalities that encourage deep connections (Ensher and Murphy 1997). E-mentoring uniquely promotes mentoring relationships as it broadens the pool of available mentors by engaging a wider range of professionals (e.g., including physically disabled persons, corporate executives) and appealing to socially withdrawn potential mentees (Scealy, Phillips, and Stevenson 2002). Finally, e-mentoring provides a convenient way to supervise and monitor mentoring relationships through a written record provides, thereby providing a creating an archive of data to use for evaluation of mentoring processes and outcomes.

For all of these reasons, E-mentoring is thought to be more inclusive of marginalized groups [including people of color, low-income students, and women] than traditional mentoring as it crosses boundaries of race, class, and gender (Harris 1996; O’Neill, Wagner, and Gomez 1996).



Thus, e-mentoring provides mentorship opportunities for minorities and women who might otherwise have difficulty finding a mentor (Bierema and Hill 2005).

### ***Impact of COVID-19 on E-mentoring***

The novel coronavirus, COVID-19, pandemic challenges traditional mentoring methods as it demands flexibility and shifting priorities as students face ongoing uncertainty regarding curricular requirements. Women and communities of color, in particular, have been disproportionately negatively impacted by the COVID-19 pandemic on many different levels, including in the workplace. According to the Inside Higher Ed article, *STEM Equity and Inclusion (Un)Interrupted*, the pandemic will particularly negatively impact the careers of women of color in STEM and failure to respond could jeopardize years of slow progress toward faculty equity and inclusion (Goodwin and Mitchneck 2020). Understanding how the pandemic will differentially impact women of color in STEM, specifically Black women, is key to deliver equitable and inclusive solutions in the wake of the global health crisis.

To better understand systemic inequities in STEM, amplified by the COVID-19 pandemic, the National Academies of Science, Engineering, and Medicine (NASEM) commissioned a fast-track study focused on early indicators of the potential impact of the COVID-19 pandemic on the careers of women in STEM. Preliminary results of this study will be shared via a series of public webinars this Fall. In the third of five sessions, authors found that ensuring equity for women in STEM during COVID-19 creates equity for all minoritized identities as it relates to intersectional relationships within that said group (National Academies of Sciences, *Investigating the Potential Impact of COVID-19 on the Careers of Women in Academic Science, Engineering, and Medicine* 2020).

As such, the short- and long-term impacts of the COVID-19 pandemic on e-mentoring of Black Women in STEM are not yet known. Some key considerations that contribute to significant underrepresentation and disproportionate hardship include: increased negative impact of online learning environments as a result of contrapower incivility and harassment, hidden labor performed by women when it comes to mentoring students, and increased household labor (childcare, housework, and eldercare) (Goodwin and Mitchneck 2020). Additional considerations include challenges to the digital delivery format that may impact accessibility, varying geographically; devices shared among multiple members of the family; and multiple timing options to increase participation in online mentoring activities.

### **Mentoring of Black Women in STEM**

Black Women remain underrepresented in science, technology, engineering, and mathematics (STEM) fields, as only 2% of practicing scientists and engineers are Black Women (NSB 2018). Their severe underrepresentation is linked to a myriad of issues Black Women face throughout the STEM career pipeline, with inadequate access to mentorship being one of the most prominent (Jefferson 2019). For example, women of color are disproportionately denied access to mentoring in academia due to majority group males traditionally dominating the academy (Crawford 2015). Furthermore, mentoring relationships are described as a counterspace, or a “safe space” that are occupied by members of non-traditional groups including women and racially/ethnically underrepresented groups (Ong, Smith, and Ko 2017).

Social support systems consisting of family, teachers, peers, and minority networks are critical in STEM achievement and the development of STEM identity and interest among Black Women and girls (Rice and Alfred 2014; Tate 2005). Mentorship at the graduate level, among Black Women in STEM has been shown to be a particularly effective form of positive institutional support (Borum and Walker 2012). While the benefits of peer mentorship have been widely researched, few studies have focused on the advantages of virtual mentorship programs, inclusive of training for mentors.

### ***Impact of Mentoring on Black Women's Success in STEM***

Race-matched connections validate, affirm, and increase the success of black doctoral students, contributing to their completion of their programs (Barker 2011). A 2010 study by the Bayer Corporation found, that of the Black men and women surveyed, 62% of the men and 71% of the women reported lack of mentors as a significant barrier they faced while pursuing pre-college STEM studies. Additionally, 45% of the Black women respondents reported the lack of mentors as a significant barrier they faced in college or graduate school while attempting to pursue careers in STEM (Bayer Corporation 2010).

Additional studies and frameworks, such as Felder and Baker's 2013 interest convergence advising framework, found doctoral degree completion Black students was highly dependent on successful advising or mentoring relationships that supported the students' academic interests. The researchers recommend the use of culturally inclusive advisements as a means to maximize student success and degree completion (2013). Altogether these statistics demonstrate the importance of mentoring, especially for African American women hoping to pursue STEM studies and careers.

### **Examples of Current E-mentoring STEM spaces for Black Women**

We discussed the dynamics of mentoring, specifically E-mentoring, and its benefits on Black Women in STEM. Although there is no definitive ending to this COVID-19 pandemic, online STEM spaces have evolved and have provided more opportunities to cater to students. The following examples include current e-mentoring STEM spaces or overall supportive virtual communities that can benefit Black Women in STEM:

- 1. The National Center for Faculty Development and Diversity (NCFDD)** is a virtual career and professional development platform offering training and mentoring for graduate students, postdocs, and faculty members striving for tenure-track positions. Online resources provided include, but are not limited to: professional development webinars, a dissertation success program, online courses about navigating the job market, as well as, webinars and courses regarding writing papers, getting funded, and preparing a tenure file. More information can be found at: [facultydiversity.org](http://facultydiversity.org).
- 2. CariScholar** is a virtual mentorship network catering to students of Caribbean descent. This group aims to connect Caribbean students with individuals in their field of study to promote Caribbean-based mentorship amongst students and mentors. More information about this network can be found at: [carischolar.com](http://carischolar.com).
- 3. Mentorship for Underrepresented STEM Enthusiasts (M.U.S.E.)** is an online resource for underrepresented students in STEM. They aim to provide representation across STEM fields, clear pathways to higher education, all while providing 1:1 mentorship for high school students, college students, and early career graduate students. M.U.S.E. can be found: [www.instagram.com/musementorship](https://www.instagram.com/musementorship).

4. **Building Relationships to Diversify Graduate Education (BRDGE) Alliance** is a new mentorship program aiming to develop undergraduate students at Historically black colleges and universities by pairing the undergraduate student with black graduate students at research institutions. While it will normally operate face-to-face, during the COVID-19 pandemic, this program will be virtual. Learn more at: [brdgealliance.org](http://brdgealliance.org).
5. **VanguardSTEM** is one of the oldest online platforms for WOC and non-binary people of color (POC) across various STEM disciplines. You can find them on Twitter and Instagram promoting original content as it relates to WOC in STEM, highlighting WOC in STEM, and doing what it takes to be an overall safe space for all of the identities of the WOC and non-binary POC in STEM who wish to join and engage in their community. Find information about them at: [www.vanguardstem.com](http://www.vanguardstem.com).
6. **Black Girls Guide to Grad School** is an online platform offering support to black girls in graduate school. They offer various services from free personal statement revisions to tips for graduate school. It is a growing platform that serves as a space for community building and connecting. There is limited 1:1 mentoring; however, the mentorship initiative is expanding. More information can be found at: [malikagrayson.com/bgggs](http://malikagrayson.com/bgggs).
7. **STEMNoire** is the first research conference and wellness retreat for Black Women in STEM. While the retreat was postponed due to COVID-19 pandemic, it has become an online community for Black Women in STEM. A version of the wellness retreat was modified and delivered as “Black Women in STEM Week,” which was found across online platforms, such as instagram and twitter. Their “Wellness Wednesday” online discussions cover a variety of topics that relate to Black Women in STEM. Find them at: [stemnoire.org](http://stemnoire.org).

## Conclusion

During the onset of the COVID-19 pandemic, we saw numerous disruptions in traditional methods of STEM professional engagement, causing society to reevaluate some of the traditional methods of STEM networking and career development; including mentoring. E-mentoring, though a well-studied practice, emerged as a sustainable mentoring approach as mandated isolations and social distancing requirements saw the disappearance of previous in person gatherings. E-mentoring provides several advantages over traditional mentoring, including: increased flexibility and management and coordination of mentoring interactions is easier without reliance on travel or meetings (Bierema and Hill 2005).

In addition, COVID-19 related professional disruptions had an even larger impacts on already marginalized communities, particularly Black Women. Black Women in the STEM workforce make up only 2.4% and 2% of science and engineering jobs, respectively, though they make up 6.4% of the total population. For Black Women in STEM, one variable to their persistence and success is mentoring. Mentoring has long been understood as a beneficial component of academic and professional development. It is consistently linked to academic success (e.g. increased GPA), as well as increases in self-efficacy, integration into the community, retention, career goals, intention to persist and much more. Access to individuals who look like you and have similar experiences has been linked to successful mentorship relationships, especially for Black Women (Ong, Smith, and Ko 2017).

Overall, research on mentoring, and particularly mentoring of Black Women, consistently points to the value of such relationships in professional achievement and persistence. Understanding the

strategies and barriers to establishing an online mentoring community for Black Women has the potential to advance the retention of Black Women in STEM by providing tools and insight to dismantle traditional mentoring programs and allow for strategies that specifically target Black Women.

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**Dominique Carter**, PhD is an interdisciplinary scientist, diplomat, and entrepreneur. Over the course of her early career, she has contributed to the development of a diverse, globally-engaged workforce by supporting international research and research-related activities for U.S. science and engineering students. Dr. Carter currently serves as an Agricultural Science Advisor for the USDA Department of Agriculture (USDA) Office of the Chief Scientist, where she advises the Chief Scientist on policy development pertaining to agricultural research and education. Dr. Carter is also an Advisory Council Member for the Harvard Business Review (HBR) and on the Advisory Board for SIA-Africa, a non-profit organization working to develop sustainable global alliances in science and education across Africa. As such, Dr. Carter is the Founder of Global STEM Solutions, LLC, a boutique consulting firm providing thought leadership and counsel for developing international partnerships in STEM education and research. A Chicago native, Dr. Carter attained her BS in Chemistry from Saint Norbert College and her PhD in Microbiology and Bioengineering from the Medical College of Wisconsin.

**Jennifer Dobbs-Oates** is a clinical associate professor in the Department of Human Development and Family Studies at Purdue University. Dr. Dobbs-Oates completed her graduate training at the University of Massachusetts in clinical psychology, with a concentration on children, adolescents, and families. Her research interests bridge the disciplines of psychology and education, and initially focused on the learning and behavior of preschool-aged children. Currently, Dr. Dobbs-Oates focuses on work that examines university teaching and learning. She is particularly interested in experiential education practices – pedagogical approaches that get students actively involved in authentic learning experiences in the classroom and beyond.

**Natasha T. Duncan** is the Associate Dean for International Education and Affairs in the Honors College at Purdue University, where she is charged with building the College's capacity for high-impact learning and research experiences beyond campus and with establishing and sustaining learning and discovery relationships with institutions of higher learning abroad. With a goal to increase students' exposure to and experience with different cultures and worldviews, she leads the Honors College's efforts in study away, intercultural learning, and both faculty and student exchange programs. She herself has taken students to Guyana, Colombia, India, and the U.S.-Mexico border. Dr. Duncan is well-published and has an active research agenda. A political scientist by training, she teaches courses that examine the international relations among states and non-state actors. She is particularly interested in international migration, which is the focus of her research and inspires the types of courses she offers.

**Cézanne M. Elias** is a clinical assistant professor in the Department of Human Development and Family Studies at Purdue University. Dr. Elias completed her graduate training in Marriage and Family Therapy at Purdue University. Her research focuses on how physical health, well-being, and activation impact individuals, caregivers, and subsystems within and outside of the family system. Currently, Dr. Elias' work includes the examination of best educational practices and pedagogical approaches to undergraduate teaching and learning.

**Ashley Huderson** is a researcher, STEM Policy Expert, Professor, Author, Speaker and



Entrepreneur. A culmination of personal and academic interest prompted her to turn her sights completely to diversity and inclusion issues within STEM education and embark on a career that would allow her to make a meaningful contribution on diversifying the scientific workforce and empowering those interested in STEM. Dr. Huderson currently serves as the Director of Engineering Education and Outreach at the American Society of Mechanical Engineers (ASME) and as an adjunct professor at the University of the District of Columbia. She has published over 10 technical papers, 2 book chapters, and received numerous awards related to mentorship, leadership, and STEM advocacy. Dr. Ashley Huderson is a native of New Orleans, LA. She is a 2006 graduate of Spelman College and a 2013 Ph.D graduate of Meharry Medical College.

**Salome C. Nnoromele** is the Associate Dean of Campus Operations and Professor of English at Ohio University-Southern Campus. She came to Ohio University after a long teaching career at Eastern Kentucky University, where she also served as Executive Director of Student Affairs and Founding Director of the African and African American Studies program. She is the author of several books and articles, including *Mentoring for Academic Administrators: Building a Culture of Sustainability and Success*, *Life Among the Ibo Women of Nigeria*, *(Re)Tracing Africa: A Multi-Disciplinary Study of African History, societies and Cultures* (with Ogechi Anyanwu) and *Journeys Home: An Anthology of Contemporary African Diasporic Experience* (with Lisa-Day Linsley).

**Megan L. Purcell** is a clinical associate professor in the Department of Human Development and Family Studies at Purdue University. Dr. Purcell completed her graduate training in early childhood special education and family studies at the University of Kansas. Her professional focus is on the preparation of providers who will serve young children with and without disabilities and their families. Her ultimate goal is to work with and prepare current and future early childhood educators and early interventionists to provide highly effective, inclusive services for ALL children to achieve the best possible outcomes.

**Charmion Rush, Ph.D.** is an assistant professor of Inclusive and Special Education at Western Carolina University. Dr. Rush earned her doctoral degree from the University of North Carolina at Greensboro in Special Education/Teacher Education and Development. Her master degree was granted from Appalachian State University in Special Education/Cross Categorical. She also received undergraduate degrees from Winston-Salem State University in Special Education/Learning Disabilities and Therapeutic Recreation. Dr. Rush's teaching focuses on preparing educators to teach diverse populations. Her areas of research include culture relevant pedagogy, disproportionate representation, implicit bias, inclusion, and literacy practices. As principal investigator of the North Carolina State Improvement Project (NCSIP), Dr. Rush is preparing educators how to teach students with persistent reading difficulties, including the specific learning disability of dyslexia. As program director for the Call Me Mister program, Dr. Rush is actively recruiting men of color to the teacher educator workforce.

**Amisha Shah** is an assistant professor in Civil Engineering (CE) and Environmental and Ecological Engineering (EEE) at Purdue University. Dr. Shah received her Ph.D. in Environmental Engineering from Georgia Institute of Technology in 2008 and received her B.S. in Chemical Engineering (currently the Department of Energy, Environmental and Chemical Engineering) from Washington University in St. Louis in 2002. She was a post-doctoral

associate in the Department of Chemical and Environmental Engineering at Yale University from 2008 to 2012 and a research associate in the Water Resources and Drinking Water division at the Swiss Federal Institute of Aquatic Science and Technology (EAWAG) from 2012 to 2014. Dr. Shah's research focuses on understanding the role of various physico-chemical processes on water quality during water treatment, sustainable water reuse, ballast water treatment, and CO<sub>2</sub>-capture technologies. Specific interests include evaluating chemical reaction kinetics and byproduct formation during disinfection (e.g. chlorination, ozonation, and UV treatment) and evaluating mass transport mechanisms and contaminant rejection during membrane filtration.

**Nathan W. Swanson** is a Postdoctoral Fellow in the Honors College and International Programs at Purdue University. A political and cultural geographer with a background in law and political science, his research focuses primarily in three areas: (1) geopolitics of everyday life, (2) public space and power, and (3) critical cartography and counter-mapping (as a member of the Counter-Cartographies Collective, or 3Cs). Dr. Swanson conducted research for his doctoral dissertation in the Middle East, and his current research focuses on the geographies of Middle Eastern migrant communities in Scandinavia. He teaches courses related to his research interests and also offers classes and programming aimed at advancing intercultural development. He serves as a study away program leader for both domestic and international programs and assists with study abroad administration in the Honors College.

**Chrystelle L. Vilfranc** is a PhD candidate studying Cancer and Cell Biology at the University of Cincinnati College of Medicine, where she focuses on the mechanisms involved in the protection of the liver against injury and subsequent chronic diseases, such as liver fibrosis and liver cancer. Chrystelle is the creator of #RevealToHeal, a writing series for women of color in STEM, done in collaboration with #VanguardSTEM. She is passionate about STEM Education reform, specifically the retention of black students in STEM fields. Though a cancer biologist in training and a champion for health education overall, Chrystelle is specifically committed to reproductive and mental health advocacy. She is a Brooklyn native who received her B.S. in Biochemistry from Oakwood University.

**Natasha D. Watkins** is a clinical associate professor in the Department of Human Development and Family Studies at Purdue University. Dr. Watkins completed her graduate training in clinical-community psychology at the University of Illinois at Urbana-Champaign. Dr. Watkins teaches content and practical skills courses in the area of human services and jointly coordinates the department's capstone internship program. Her research and teaching interests are in the areas of intercultural competence, community youth development, and experiential learning.