
LOUIS STOKES MIDWEST CENTER OF EXCELLENCE PILOT, 2012-2018

FINAL EVALUATION REPORT

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INTRODUCTION

The Pilot Louis Stokes Midwest Center of Excellence (LSMCE), created in 2012, was designed to serve as a resource and support entity to broaden the participation of underrepresented minority (URM) students at 28 non-LSAMP institutions in Indiana, Illinois, Ohio, Michigan, Missouri, and Wisconsin who have chosen academic majors in science, technology, engineering and mathematics (STEM) degree programs. These 28 institutions were colleges and universities not previously receiving funding from the Louis Stokes Alliance for Minority Participation (LSAMP) Program. Congressionally mandated in 1991, LSAMP supports sustained and comprehensive approaches to broadening STEM participation at the baccalaureate level.

Soon after its initial grant award, the Center expanded its mission to include providing an annual opportunity for networking and professional development for LSAMP institutions across the United States. The lead institution for the Center was Chicago State University (CSU). Other members of the leadership team came from Indiana University-Purdue University Indianapolis (IUPUI), and Argonne National Laboratory, and the Academic Specialist-Program Associate was based at IUPUI.¹

As identified in its proposal to the National Science Foundation (NSF), the LSMCE had three primary objectives:

Objective 1: Taking a leadership role to articulate the national critical need for broadening minority participation and success in STEM undergraduate programs.

Objective 2: Developing an information hub that provides consistent online resources and sustained opportunities to showcase best practices in STEM teaching/learning and to support URM student persistence and engagement through research and internship experiences.

Objective 3: Establishing a cyber portal to disseminate information and create networks of support for non-LSAMP students on the partner campuses in the Midwest.

¹ The co-principal investigators were: Dr. LeRoy Jones of Chicago State (prior to joining the national LSAMP staff at the National Science Foundation) and Dr. Christopher Botanga at Chicago State; Dr. Kim Nguyen and Dr. Pamela Shaw at IUPUI; Ms. Meredith Bruozas at Argonne National Labs. The Academic Specialist-Program manager was Deborah Cole, based at IUPUI. Other regular participants in the leadership team for most of the project were Lezlie Thompson (Chicago State), Dr. Rafael E. Bahamonde (IUPUI), Robert Schuch (Argonne), and Dr. Sukey Blanc from Creative Research & Evaluation. The Principal Investigator was Dr. Angela Henderson (Chicago State).

The LSMCE was funded as a pilot regional center of the National Science Foundation's Louis Stokes Alliances for Minority Participation (LSAMP) Program. A rigorous national evaluation of the LSAMP program indicated that LSAMP participants had more positive outcomes on a variety of measures than comparable students, including enrollment in post-baccalaureate STEM courses.² In recent years, the LSAMP program has sought to expand and build on its successes, both through an increasing emphasis on research and dissemination within the alliances and through the creation of regional dissemination centers such as LSMCE.³

In this report, we demonstrate that although specific activities of LSMCE evolved from the original plan, the Center has successfully taken a leadership role in supporting the National Science Foundation, the national LSAMP community, and 28 regional partners in the Midwest. These 28 partners represent a wide range of institutional size, type, and capacity, and they joined over the course of the initiative's six years (five originally planned, plus a no-cost extension). Drawing on prior experience with LSAMP and other broadening participation efforts, the Center provides valuable resources to its partners as well as to the larger LSAMP community. This report provides findings based on six years of program evaluation, with interviews, surveys, and/or participant-observation occurring annually. We report and discuss six major evaluation findings – four related to program implementation (Findings 1-4) and two related to outcomes for students and campuses (Findings 5-6).

Finding 1: LSMCE successfully recruited 28 partner institutions. The successful recruitment and engagement of 28 partner institutions demonstrates that there is a substantial number of institutions of higher education that have their own institutional needs and commitments to broaden participation in STEM and are looking for technical assistance, professional development, and student opportunities, even in the absence of programmatic funding.

Finding 2: LSMCE successfully provided resources and technical assistance to a majority of LSMCE coordinators. The role that coordinators play on their campuses varies substantially depending on the individual campus, on the individuals involved, and on individuals' relationships with Center leadership or other partners.

Finding 3: LSMCE successfully organized five annual conferences that brought together the national LSAMP community and non-LSAMP partners. The annual LSMCE conference has proven itself to be a flexible, dynamic, and growing venue for support of broadening participation in STEM.

Finding 4: LSMCE successfully developed and shared webinars and online content, with web traffic of approximately 700 user web sessions per month between September

² Clewell, B.C.; de Cohen, C.C.; Tsui, L.; Deterding, N. Revitalizing the Nation's Talent Pool in STEM (2006). Washington, DC: Urban Institute (<https://www.urban.org/sites/default/files/publication/50501/311299-Revitalizing-the-Nation-s-Talent-Pool-in-STEM.PDF>).

³ For example, see current NSF solicitation for LSAMP initiatives: <https://www.nsf.gov/pubs/2017/nsf17579/nsf17579.htm>

2017 and May 2018. Online strategies such as sharing internship opportunities, highlighting upcoming events, and providing information about STEM careers complement the Center's face-to-face activities.

Finding 5: LSMCE helped students at partner campuses enlarge their networks and professional skills. Students and faculty report that LSMCE conferences and resources open up opportunities that would not otherwise be available to students at LSMCE partners.

Finding 6: LSMCE successfully leveraged change and/or increased the potential for change at a majority of partner colleges and universities. Over the course of the Center's six years, 17 out of 28 participating campuses have reported new programs, increased capacity, plans for new programs or collaboration, and/or past programs and collaborations that grew out of LSMCE involvement.

Evaluation Overview

The evaluation framework for the Louis Stokes Midwest Center of Excellence is designed to contribute to an ongoing process of assessment and knowledge-building within the Center. From the planning and proposal stages of this project, Creative Research & Evaluation LLC has been an active partner in providing feedback, raising questions, and providing interim findings to the LSMCE leadership team. This evaluation has been conducted in close collaboration with project staff and leaders, drawing on an approach known as Utilization-Focused Evaluation that is designed to maximize cooperation between the evaluator and evaluation stakeholders. This helps ensure that the evaluation is focused on the stakeholders' actual needs and that evaluation data and findings provide information and insights that are useful and relevant to stakeholders.⁴ In addition, we have utilized a culturally responsive evaluation approach that leads us to think critically about issues of culture, power, equity, class, race, and diversity, and we pay attention to how these issues shape the interactions and interpretations that are part of the evaluation process.⁵ In the LSMCE evaluation, culturally responsive evaluation has guided us to pay attention to the varied groups involved in this project and to recognize that perceptions and experiences of individuals vary by role, race, gender, experience, and other factors. Similarly, experiences of institutions vary according to their nature as minority or majority institutions, public or private institutions, history within the LSAMP community, and so on.

Of particular importance has been close collaboration with the LSMCE leadership team, and in particular, Chicago State University, LSMCE's lead partner and a minority-serving institution. As the first pilot regional center of LSAMP, LSMCE had an evolving approach to its work. Creative Research & Evaluation LLC (CR&E) has worked closely with the entire

⁴ M.Q. Patton. *Utilization-Focused Evaluation. 4th Edition.* Thousand Oaks, CA: Sage Publications, 2008.

⁵ Symonette, H. "Walking Pathways Toward Becoming a Culturally Competent Evaluator: Boundaries, Borderlands, and Border Crossings." *New Directions for Evaluation* 102 (2014): 95-109.

leadership team to provide formative findings, to offer tools to conceptualize directions and needs of the partnership, and to share findings with a variety of audiences.

Data sources for this evaluation included participant-observation at program and leadership events, annual rounds of interviews with LSMCE partners, annual surveys of conference participants and LSMCE campus coordinators, and review of program documents. *(Please consult the Appendix for a detailed table of evaluation activities and products in relation to the various phases of the initiative.)*

PROGRAM IMPLEMENTATION

Finding 1: LSMCE successfully recruited 28 partner institutions.

The successful recruitment and engagement of 28 partner institutions demonstrates that a substantial number of institutions of higher education have their own institutional needs and commitments to broaden participation in STEM and are looking for technical assistance, professional development, and student opportunities, even in the absence of programmatic funding.

As identified as a goal in the proposal, 28 potential LSMCE Midwest campus partners were targeted based on their high rates of minority enrollment and low rates of minority graduation. Looked at by academic year, five partners had been formally recruited and signed memoranda of understanding by August 2014. Nine more partners formally joined by the end of the 2014-2015 academic year. Another nine joined in 2015-2016. This was followed by two in 2016-2017 and four more in 2017-2018.⁶ Some of these partners were among the original 28 identified in the proposal. Others contacted LSMCE when they heard about the Center's activities, and others were identified through other means. Table 1 lists the names of these partners, their locations, and the phase that they were assigned by the organization for their entry into LSMCE.⁷ In addition, it shows which partners have requested to be included in the current proposal for new funding for a Midwestern Louis Stokes Regional Center of Excellence and which partners have joined existing LSAMP alliances.

During the first few years of the initiative, the LSMCE leadership team identified and implemented a successful process for outreach and recruitment. After receiving an invitation letter from the leadership team, each prospective LSCME partner identifies a campus coordinator and a high-level administrator who will eventually sign a memorandum of understanding after an initial site visit and meeting with members of the Center's leadership team. At the site visit, LSMCE leaders meet with the administrator, the proposed representatives from STEM disciplines across the campus who are involved with diversity efforts, and representatives of other offices or programs as appropriate. These meetings, which often last an entire day, provide an opportunity for the leadership team to meet staff, students, and faculty at each partner site; learn about the strengths and programming in STEM and diversity efforts; explore the needs and goals of the partner; and begin identifying how Center resources, networks, and expertise might be relevant to a new partnership. In many instances, the initial meeting with LSMCE was the first time that representatives from different academic departments, STEM schools, student support services, and diversity initiatives were in the same room together.

⁶ The actual number of signed memoranda of understanding is 29 rather than 28. The LSMCE "champion" at one site moved to a different university, and her new university is also an LSMCE partner, while her former university is no longer actively involved.

⁷ There is a slight difference between the academic years reported in this paragraph and the phases reported in Table 1. Phases are based on data provided in May 2018 by LSMCE staff. Academic year entry into the Center is based on information collected throughout the project.

Table 1: Phase and Current Status of LSMCE Partners

School	Phase	Location	Current Status
Bradley University	1	Peoria, IL	LSMRCE
Lincoln University	1	Jefferson City, MO	LSAMP
Marian University	1	Indianapolis, IN	LSMRCE
Northern Illinois University	1	DeKalb, IL	–
University of Missouri–St. Louis	1	St. Louis, MO	LSAMP
Bowling Green State University	2	Bowling Green, OH	LSMRCE
Eastern Illinois University	2	Charleston, IL	LSMRCE
Harris-Stowe State University	2	St. Louis, MO	LSAMP
Indiana State University	2	Terre Haute, IN	–
Loyola University Chicago	2	Chicago, IL	LSMRCE
Roosevelt University	2	Chicago, IL	LSMRCE
University of Toledo	2	Toledo, OH	LSMRCE
Waubonsee Community Coll.	2	Sugar Grove, IL	LSMRCE
Western Illinois University	2	Macomb, IL	LSMRCE
Dennison University	3	Granville, OH	–
Dominican University	3	River Forest, IL	LSMRCE
Eastern Michigan University	3	Ypsilanti, MI	–
Marquette University	3	Milwaukee, WI	–
Marygrove College	3	Detroit, MI	–
Rose-Hulman Institute of Technology	3	Milwaukee, WI	–
Triton Community College	3	River Grove, IL	LSAMP
University of Akron	3	Akron, OH	–
University of Illinois Springfield	3	Springfield, IL	LSMRCE
University of Indianapolis	3	Indianapolis, IN	–
Valparaiso University	3	Valparaiso, IN	LSMRCE
Benedictine University	5	Lisle, IL	LSMRCE
Illinois Wesleyan University	5	Bloomington, IL	LSMRCE
Ohio Dominican University	5	Columbus, OH	LSMRCE
University of Detroit Mercy	5	Detroit, MI	LSMRCE

Notes: This table is based on information provided by LSMCE staff in May 2018. Marygrove College is included in this list of 29 schools showing entry and status of partners. It is not included in information about campus outcomes. The coordinator at Marygrove College moved her program to University of Detroit Mercy when Marygrove eliminated its undergraduate programs. Schools marked “LSMRCE” are part of LSMCE’s new proposal for a Louis Stokes Center for Regional Midwest Center of Excellence. Schools marked “LSAMP” are part of an existing Louis Stokes Alliance for

Minority Participation. Based on CR&E's current knowledge, schools with no initials have no ongoing affiliation with LSMCE or LSAMP.

Following the initial site meeting, a formal memorandum of understanding must be signed with a high-level administrator before a campus becomes officially associated with the Center. This memorandum includes a general framework for sharing information about best practices for supporting the success and progression of underrepresented minority students in STEM fields. Every school is asked to identify a campus coordinator who will be the primary contact person for LSMCE activities. Students and faculty from partners and potential partners receive funding to attend the annual LSMCE conference. In addition, each partner campus is offered opportunities to highlight its work through the LSMCE's website and webinars, at LSMCE conferences, and in the electronic newsletter.

After the second year of partner recruitment, the LSMCE leadership team had to weigh the question of the level of specificity needed in providing a set of expectations and activities for participating partners. On one hand, leadership team members found it useful to approach potential partners in an open-ended fashion and hear about each potential partner's current strengths, goals, and challenges. The initial meeting often proved a valuable opportunity for local campuses to begin identifying their own primary concerns and begin asking questions about how to address these issues. On the other hand, leadership team members also wondered whether partner institutions would be expecting more explicit guidance and a defined roadmap of the change process. Based on the LSAMP experience, where every Alliance defines its own goals and path forward within a general set of parameters, the LSMCE model remained open-ended as far as expectations for partner participation and change.

Sixteen partners have been retained for the current proposal for a new Midwest Regional Center of Excellence. In addition, three current partners have joined together as part of a new Missouri LSAMP Alliance, and one current partner has joined the Illinois LSAMP. The range and patterns of partner engagement will be addressed in more depth below.

Finding 2: LSMCE successfully provided resources and technical assistance to a majority of LSMCE coordinators.

The role that coordinators play on their campuses varies substantially depending on the individual campus, on the individuals involved, and on individuals' relationships with Center leadership or other partners.

The model of partner engagement that evolved in the LSMCE pilot is at its core a professional network that provides support, resources, and technical assistance to champions for broadening STEM participation on non-LSAMP campuses. Interviews with eight LSMCE coordinators who volunteered to share their final perspectives on the LSMCE pilot provide valuable insight into the ways that coordinators leverage the resources that are available through LSMCE to make change on their campuses. *(More information about campus outcomes and cross-campus collaboration will be discussed in Finding 6.)*

Coordinators can be divided into three categories: “Leaders,” “Proponents,” and “Confused or Disengaged.”

Group One: Leaders

For Dr. Andrea Porrás-Alfaro, the campus coordinator for Western Illinois University, the most important contributions of LSMCE is the wealth of ideas that it provides. This coordinator began her recent interview by describing the many spinoff effects from her team’s experiences at the annual LSMCE conferences. This began in 2013 when Dr. Porrás-Alfaro and a colleague attended the first LSMCE conference. As soon as she got on the plane after the conference, the coordinator began sketching out a new undergraduate research and mentoring program for her campus, based on the key elements of academic, social, and professional integration that characterize the LSAMP model. Every year this campus brings a large contingent of faculty and students, and by 2018, the undergraduate science research program has become well-established. In addition to supporting student success, she said this initiative catalyzes other campus changes:

The most important thing was that the undergrad research program created a community on campus. Before, we didn’t talk to each other. Now, physics, chemistry, biology – we are all doing RISE, and we work together. We got an interdisciplinary grant for an electron microscope. That never happened before. We still have a long way to go – mentoring additional faculty. We are thinking about inclusive teaching – not just science – and working with the Center for Teaching at our university. They have good venues for taking what we learn at the LSMCE conferences and bringing it to the rest of our faculty.

Focusing on another dimension of the LSMCE partnership, Dr. Christopher Anderson from Dominican University highlighted how members of the LSMCE leadership team assisted him with grant development and networking. He explained,

My university doesn’t have a strong history of external grant involvement. Since joining and getting involved with LSMCE, this has really changed. We had already applied for a pre-alliance planning grant for LSAMP before we joined LSMCE in October. Chris and LeRoy [co-PIs from CSU] came out to visit us. And then we joined the Center. We brought together a lot of different institutions for the planning grant, and it’s been great to have LSMCE serving as a resource for that. I’ve gained a lot from seeing how NSF works and meeting the leadership team. The whole leadership team is great. Deb Cole [the program manager] has been amazing – letters of support and all the other things that she helps us understand. In October of last year, Pam Shaw came and spoke about graduate and career placement opportunities. That was incredibly useful not just for my campus, but for the other institutions. We are trying to launch a coordinated network. We’ve been working on other grants too, and our experience with LSMCE has helped for all of that.

Group Two: Proponents

In contrast to the experience of the two coordinators discussed above, most of the coordinators who volunteered to participate in the final interview described a more mixed experience integrating LSMCE resources and strategies into their jobs and their campuses. For most of the coordinators, involvement with LSMCE was a source of support and a catalyst for change even if it is not a smooth fit with the culture or priorities of their jobs and their institutions.

One former chairperson who is close to retirement explained that helping students access the resources of LSMCE requires time and effort that are already scarce to come by. On the other hand, being part of the Center also triggered this campus to write a grant to Howard Hughes Medical Institute for the retention efforts for minority students. According to the coordinator, “We probably wouldn’t have even thought about that grant if it wasn’t for the partnership. We were talking to some of the people at Loyola who had gotten an HHMI. That helped us formulate our ideas, and hearing the talks from the faculty at the conference helped us too.”

LSMCE has also helped coordinators keep broadening participation efforts front and center in other ways, especially in a resource-poor environment. According to one:

LSMCE was a think tank that we wouldn’t have had otherwise. It validated my work in a resource-poor environment. And just the personal networking. Between Deb and Kim [co-PIs from IUPUI], there’s constant communication: ‘Hey, are you getting this?’ It was just so invaluable. There was a personal connection and a contact that really made the partnership at a personal level.

Similarly, another coordinator says that because of LSMCE:

At the university, the conversation is kept alive about minority participation. We have a lot of faculty on campus who have really good intentions. But something else always takes priority. For me personally and for the university, it’s the contacts and the ideas of LSMCE that are worthwhile. We’re part of a group talking about a new LSAMP proposal that wouldn’t be happening without LSMCE.

At a state university that was very hard hit by the Illinois budget crisis, the LSMCE coordinator explained,

Our intent [for joining the Center] was initially very different than happened in the past few years. I would have liked to have attended the conferences and learned from other schools and see what they have been doing. It’s hard to tackle the bigger picture. If the new LSMCE grant comes through, it will help us turn the corner on our situation and start climbing out if it. If nothing else, it will give me a chance to dedicate some time and be more involved.

Group Three: Confused or Disengaged

This is another small group of campus coordinators. Individuals in this group have a variety of relationships with broadening participation efforts and might be labeled “Confused or Disengaged.” In contrast with the two other groups, even if these coordinators feel a connection with goals and mission of LSMCE, they are still searching for the intersection between their own professional goals and commitments, their institution, and the resources of LSMCE.

One striking example of a confused coordinator was an African-American biologist who reached out to the evaluator to share his experience as part of the final round of LSMCE interviews. He explained,

I think I could best summarize my involvement in LSMCE by, I guess, by confusion. ... I say confusion because I never really understood our relationship and what the initiative had to offer to my campus.

Reflecting on the basis of the disconnection, the coordinator offered a few theories:

Part of it could have been the origins of it. It was almost as if there was involvement at the upper levels, but no involvement at the faculty level. I was approached after they had made the decision.

This coordinator also commented that his administrators had assumed that as a Black faculty member, he would be passionate about the mission of the Center and would take on the extra responsibilities it entailed. As a young faculty member, with many other obligations, this coordinator felt that LSMCE couldn't be a priority for him if it wasn't also a strategic priority for his university.

At other points during the evaluation process, CR&E encountered other coordinators who said they were unsure what LSMCE could offer their campuses, who were asked to take on this role without knowing anything about the Center, or who simply had too many other professional responsibilities to take on another role. The LSMCE leadership team developed a strategy for connecting individual team members with partner schools, and this strategy was successful in many, but not all, cases. As we will mention in the section about outcomes for partner campuses, one of the challenges for some campuses may have been an insufficient connection with the Center that stemmed from the large number of newly recruited schools that joined the Center during its second and third years. (*Also see Recommendations.*)

Finding 3: LSMCE successfully organized five annual conferences that brought together the national LSAMP community and non-LSAMP partners.

The annual LSMCE conference has proven itself to be a flexible, dynamic, and growing venue for support of broadening participation in STEM. Conferences provide valuable learning and networking opportunities for students, faculty, staff, and other STEM professionals.

Typical comments from faculty and administrators describe excitement at meeting new colleagues and hearing about new ideas. As one participant from 2017 said, “I have already emailed two new potential University collaborators that I met while attending the conference. Our alliance is undergoing a mid-point review and I met a seasoned evaluator at this conference.” Typical comments from students describe the excitement that they experience being around other STEM students and professionals who look like them, as well as specific skills, strategies, and content that they learn at the conference. As one student commented about the 2017 conference:

Despite the barriers and adversity that most STEM minorities face, a career in the STEM fields is very much possible. One is really not alone at all. I was able to, first-hand, experience and see the great community of students, researchers, and professionals that are willing and there to offer support and advice for one another.

The 2017 keynote speaker, Dr. Juan Gilbert, underlined the need for meetings that shine a spotlight on the scientific aptitude and contributions of Black and Brown students.

I think meetings like this are critical – they call you an underrepresented minority because you’re one of a few and it’s easy to feel isolated. They build community. ... They also help faculty understand that experience of being an underrepresented minority.

One LSAMP coordinator commented in a follow-up interview:

My students raved about conference. It allows a lot of networking and a lot of space so you can work with your faculty and figure out scheduling. I might say, ‘Let’s all attend this workshop.’ Or, I might say, ‘If there’s something you need, go to it. And we can share.’ I also have a lot respect for the national people they brought in. There are senior alliances who are doing fantastic things. And it’s good to understand the responsibilities for when you become a more mature alliance.

The National Science Foundation's Louis Stokes Alliance for Minority Participation (LSAMP) funded the LSMCE conference for five years with the goal of providing professional development and networking opportunities to three major constituencies:

- Faculty, staff, and administrators affiliated with colleges that receive LSAMP funding as part of a geographical grouping of institutions that form an LSAMP alliance.
- Faculty, staff, and administrators affiliated with colleges that partner with the Louis Stokes Midwest Center of Excellence as part of a pilot strategy for disseminating successful LSAMP practices.
- Undergraduate students from LSAMP institutions and from LSMCE partners.

Each year the conference included a poster session for students, keynote speakers, breakout sessions on special interest topics, and other professional development activities for students. Part of the conference was a meeting for LSMCE partners. In its final year a new set of pre-conference activities with National Science Foundation personnel was added for LSAMP project directors, coordinators, and evaluators from LSAMP institutions.

Based on available data provided by program staff, overall conference attendance has risen consistently. The proportion of students attending has risen over time, based on data available for 2015-2017.⁸ LSMCE partner participation at the national conference rose as the number of partners increased, and then it fell slightly in 2017. The reason for this fall is not clear. (*See Appendix for additional information about conference attendance between 2015 and 2017.*)

Average overall satisfaction ratings for LSMCE conferences are generally "good" or "excellent." In 2015 the percent of survey respondents who rated the conference as good or excellent was 96%. In 2016 it was 94%, and in 2017 it was 92%.

The slight drop in satisfaction ratings is difficult to interpret, although it may be due in part to the changing balance of constituent groups in relation to the focus of program offerings each year.

⁸ These numbers are approximate, as attendance information is based on registration data provided to evaluator, not actual participation. The trends are consistent with patterns provided in other program reports by program staff.

Table 2: Attendees Who Rate Overall Conference Experience as “Good” or Excellent”

	2016 Conference	2017 Conference
LSMCE Students	94% (n=36)	87.5% (n=24)
LSAMP Students	95% (n=65)	88% (n=99)
LSMCE Nonstudents	86% (n=25)	100% (n=19)
LSAMP Nonstudents	97% (n=34)	96% (n=73)

Both LSAMP and LSMCE professionals find the conference valuable, although they tend to have slightly different requests for improvements. LSMCE participants tend to ask for additional clarification about their connection with LSAMP, as well as additional time for planning and networking, while LSAMP participants also ask for additional time to address LSAMP-specific questions and joint planning and problem-solving.

In 2017, LSAMP conference attendees also expressed a perception of LSAMP as a national initiative with a need for dissemination, communication, and evaluation. This was likely a response to the visibility and messages from NSF staff at the preconference session and the entire 2017 conference. Some participants brought up the importance of the national initiative when commenting on their anticipated follow-up with new connections. For example:

I have already made connections with several attendees. The ongoing interactions are important if we intend to sustain well-aligned nationwide activity.

Other participants identified new learning about NSF and the national initiative when asked about the most important thing they were taking away from this conference. Important learnings included:

The understanding of the current and new initiatives from the National Science Foundation. The networking with fellow alliance members needs to be expanded.

I/We need to document the evaluation and assessments of our program and communicate our successes using various means and outlets.

The need to organize ourselves across alliances. We're working in our own little spheres and need to gain efficiency by working together.

Follow-up interviews with non-LSMCE participants in the annual conferences are consistent with these survey comments. These interviews also indicate that the annual

conference provides a needed opportunity for LSAMP coordinators, administrators, and students to meet with each other. Specific comments were that the LSCME conference has provided a venue for recruiting underrepresented students to participate in international research; this is an important opportunity for underrepresented students to participate in a friendly environment (“It’s catalytic for students”); and that the conference provides an opportunity for other alliances to identify common interests, such as a regional focus.

Finding 4: LSMCE successfully developed and shared webinars and online content, with traffic of approximately 700 web sessions per month between September 2017 and May 2018.

Online strategies, such as sharing internship opportunities, highlighting upcoming events, and providing information about STEM careers, complement the Center’s face-to-face activities.

As the Center has expanded its target audience to all LSAMP participants, the virtual activities and resources have also evolved in a variety of directions. These directions include providing webinars, highlighting stories of success among LSMCE partners and LSAMP graduates, sharing contact information for LSAMP undergraduate and Bridge to the Doctorate programs, and sharing information about internships and job openings. In order to increase access to LSMCE webinars, these have been recorded and are available both on the LSMCE’s YouTube channel and on Kaltura, a repository of videos used by many academic institutions.

One challenge for LSMCE as its pilot phase sunsets is that a major searchable collection of LSAMP practices that was developed in conjunction with this Center is currently unavailable, although Center leadership is working with the contractor to remedy this problem.

Qualitative data collection about partners’ use of LSMCE’s virtual resources took place during 2014-2015, Year Three of the project. Interviews with seven coordinators from campuses that had joined LMSCE the year before showed the following:

- All interviewees utilized the virtual resources in one way or another. With a few exceptions, interviewees talked about their familiarity with one or two aspects of the website.
- Faculty and staff reported utilizing LSMCE.org for a variety of reasons, including searching for internship and scholarship opportunities for students, as well as undergraduate research opportunities.
- Faculty from one university also used LSMCE.org to research how other campuses have implemented projects or started programs.
- Other participants reported that they use the website to look up colleagues and other campuses after the annual conference. In addition, they are pleased that the website and the online newsletter increase the visibility of their own universities and programs.

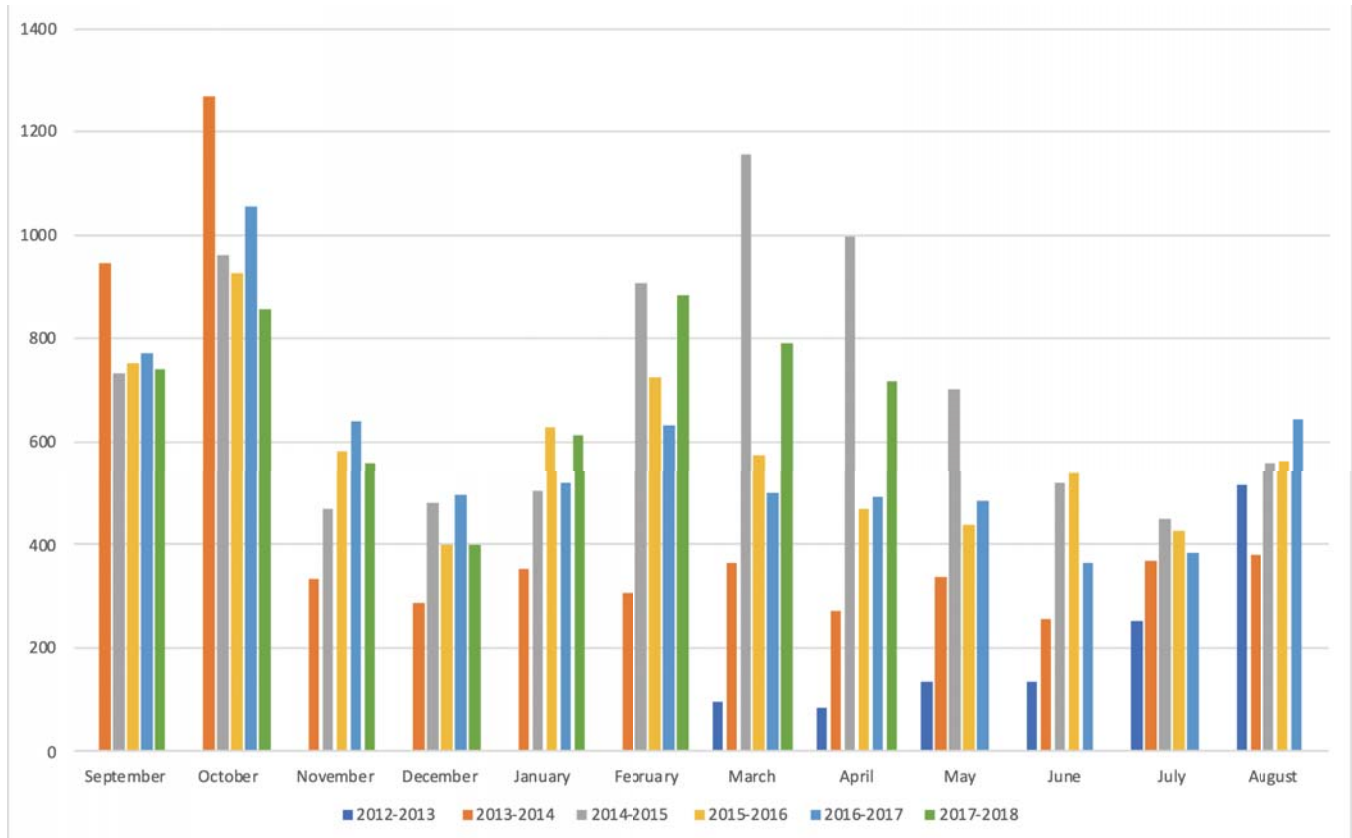
In 2014-2015 CR&E also conducted an analysis of online activities drawing on the eight webinars and one Reddit chat held during that year. Data were collected through observation of webinars, tallies of log-ins to webinars and Reddit, and online surveys following each webinar. Over 115 participants were observed participating in these activities in 2014-2015. Of those, approximately 53% completed post-webinar surveys. Survey respondents reported very high satisfaction rates; 98% agreed that the seminar topics and content were relevant, and 98% agreed that the information presented was directly applicable to their work and/or goals. For the webinars that were offered between November 2014 and mid-April 2015, the number of participants logging in varied from a low of eight participants to a high of 34 participants. In addition, there may have been multiple people participating in the webinar through one account, such as an undergraduate class. Coordinator interviews as well as webinar observations indicate that some faculty members have had entire classes participate in the webinars using the instructor's email address.

The 2014-2015 series was geared to student success (with the exception of one webinar about developing faculty mentors). Coordinator interviews indicated that the live webinars were attended in varying degrees by students at partner universities. Based on coordinator interviews held at this time, LSMCE coordinators believed that these webinars were helpful to their students. Among the faculty and staff interviewed, one had participated in several webinars with students, one had attempted to use the Reddit chat with students, and one faculty member directed her graduate assistant to use webinars as a resource for staying up-to-date with information for undergraduates. Whether or not interviewees had directly accessed the webinars, most thought that they would be useful to students. One administrator interviewed noted that webinars provide the kind of support that is not built into their campus program.

Subsequent data collection and analysis suggest that the patterns of interaction with LSMCE's virtual resources identified in 2014-2015 remained relatively stable. Review of web session data indicates that Indianapolis, Chicago, and Darien, Illinois, are consistently the locations where the top number of LSMCE.org sessions originate. These are the sites where LSMCE leadership team and web developers are located, suggesting that LSMCE leadership and staff may originate many of the sessions. However, looked at month by month, there are also sessions that originate from locations in other parts of the Midwest and from the entire United States. This is consistent with coordinator interviews and webinar surveys indicating that LSMCE.org has resources of general interest.

Figure 1 below shows the number of web sessions by month and year from the launch of LSMCE.org through April 30, 2018.⁹ This demonstrates regular peaks every year in September and October around the time of the annual conference. In addition, this chart indicates that web usage rose during the 2014-2015 academic year, the year that webinars were launched. Usage had a lull during 2015-2016 and 2016-2017 and began rising again during 2017-2018.

Figure 1: Number of Web Sessions on LSMCE.org by Month and Year



In a short survey of the 10 coordinators attending the 2017 LSMCE pre-conference for LSMCE partners, most coordinators indicated that their students access resources on LSMCE.org. Most coordinators also indicated that they forward the LSMCE electronic newsletters with information and links to virtual resources to their colleagues, but few coordinators know whether other faculty and administrators actually utilize these resources or pass them on to their students. (*See Recommendations for additional discussion.*)

⁹ Data from Google Analytics were provided with assistance from LSMCE’s technology specialist and were tabulated by month and year by CR&E.

OUTCOMES FOR LSMCE STUDENTS AND CAMPUSES

Finding 5: LSMCE helped students at partner campuses enlarge their networks and professional skills through participation in conferences and access to other resources.

Student participation in annual LSMCE conferences is one of the central features of the pilot center. Four-fifths of the 25 campuses that signed up as partners between 2013 and 2017 brought students to the annual LSMCE conference. The level of participation ranged from bringing one or two students to a few conferences to bringing 10 or more students to several conferences.

In the final set of interviews with eight LSMCE champions, faculty underlined their appreciation that LSMCE pays for transportation, lodging, and conference fees for their undergraduates, providing opportunities that their students would not otherwise have. Several coordinators began their interviews by saying, “The conference was the most important thing – especially for students,” or “It was the conference experience for students – that is great.” One coordinator said, “It was a big incentive to bring the students to the conference cost-free. Because of our financial situation at the university, being able to go to the conferences is important.” According to another, the biggest impact of LSMCE was being able to bring students to the regional conferences: “Having the support and having the opportunities for them to present and also present in that body of underrepresented students. Before we’d go to other state conferences, but the minority students couldn’t identify. These conferences were definitely important for them.” According to another, “We are a small campus. The LSMCE conference gives our students models who look like them.”

For some students at predominantly white schools, it is the only time that they have an opportunity to be in a professional context with other underrepresented minority students and professionals. For other students, it is a valuable opportunity to present their posters in a student-friendly context. In some cases, this is a friendly environment for students who have never before presented. In other cases, a campus may not have its own opportunities for students to present research. Even when a campus does have its own poster sessions for undergraduate research, it may not be part of a larger network of undergraduate researchers, so the LSMCE conference is the only opportunity for some students to participate in a cross-campus undergraduate research opportunity.

The student conference experience is something that both students and faculty value. After the most recent LSMCE conference, LSMCE students reported that they learned several skills related to their professional development and had the opportunity to see themselves in a larger social context of science and society.

As one LSMCE student said,

[The most important thing I learned was] The importance of recognizing the impact you can have on society in STEM fields more than just contributing to

those particular fields. With the knowledge we receive as STEM majors, we can utilize other resources to improve disparities in our fields as well as outside our fields when we collaborate with others.

According to another,

I learned how to be prepared with every opportunity to keep my resume on hand or via phone, business cards and market my brand professionally by creating my own website. Also, to never give up on your dream career despite what others or negative people may say. Also, to stay encouraged despite obstacles in your journey.

A 2017 check-off question also indicates that the majority of students felt that they improved their skills in networking (74%) and communication (65%), but fewer learned about poster preparation (44%), acting professionally (44%), or successful interviewing techniques (22%).

Nineteen partners who attended the 2016 LSMCE conference completed a survey about their perceptions of LSMCE's impacts on students.¹⁰ In their responses, three partners note that they have not yet taken advantage of student opportunities, but they hope to in the future. Not surprisingly, the greatest reported impact on students is growth from preparing and presenting their research. A majority of partners also reported that their students have more information about opportunities at other schools and organizations. A smaller number reported that their students had information about graduate school or had participated in internships or research through the LSMCE network.

A follow-up survey a year later with 10 partners at the 2017 LSMCE partner meeting showed a similar pattern. A majority of coordinators report that students benefit from LSMCE conferences and meeting professionals and other students. Students also benefit from increased connections with graduate schools and research or internship opportunities.

Over the years, coordinator from the following partners specifically reported increased access to internships, research opportunities, and graduate school: Bradley University, Eastern Michigan University, Harris-Stowe State University, Lincoln University, Loyola University Chicago, Marygrove College, Northern Illinois University, University of Toledo, Waubensee Community College, and University of Illinois Springfield. Due to changes in personnel and the absence of specific reporting requirements for LSMCE partners, this information is based on qualitative data that has been compiled over time.

¹⁰ All partners with signed MOUs were asked to provide this information. Four partners did not attend the conference and did not respond to requests for information.

In open-ended survey questions and interviews conducted during LSMCE's initial five years, coordinators have provided the following specific examples about placements and potential placements through the LMSCE network:

- Northern Illinois University: At least two students attained summer internships at Fermi.
- Harris-Stowe State University: At least two students attained summer internships at Argonne.
- Bradley University: At least two students were placed in Bradley's summer research program; one student was offered an internship at Cummins Inc. after an LSMCE tour.
- Waubensee Community College: At least two community college students participated in summer research experiences at four-year colleges.
- Lincoln University: At least one student received a Woodrow Wilson fellowship to attend graduate school at IUPUI, and others have increased their interest in further school or research.
- Western Illinois University: Numerous students have participated in summer REU that were publicized through LSMCE's newsletter and website.

Coordinators also describe a process of intensive mentoring and brokering that often accompanies successful applications and students' acceptance of these offers. For example, in the Fermi and Argonne internships mentioned above, the coordinator played an active role in identifying appropriate students for open internship positions and then helping students walk through the steps of the application and the decision-making process, as they helped students understand what it might mean for them to move out of their accustomed comfort zone and why this could be an important step to take.

Conversely, coordinators may also be excited about potential opportunities available through the LSMCE network but believe that their students may not be ready for these opportunities. For example, one coordinator who is very grateful for the opportunities that have opened up through LSMCE also commented that "I never would have known about the Argonne internships. My students aren't ready for that, but it's something to look to in the future." (*Please see the Recommendations for additional discussion of this issue.*)

Finding 6: LSMCE successfully leveraged change and/or increased the potential for change at a majority of partner colleges and universities.

Over the course of the Center's six years, 17 out of 28 participating campuses have reported new programs, increased capacity, plans for new programs or collaboration, and/or past programs and collaborations that grew out of LSMCE involvement¹¹.

¹¹ As noted above, Valpraiso University is not included in this discussion. The programs that have the potential to be impacted have left Valpraiso University along with the LSMCE coordinator.

The process, extent, and nature of campus change varies substantially depending on the individual campus, on the individuals involved, and on individuals' relationships with center leadership or other partners. In order to report campus-level impacts and

collaborations, CR&E identified four discrete categories of campus partners. CR&E assigned each partner to a single category based on survey data, interview data, and documents provided over the course of the evaluation. The total distribution of campuses among the categories and examples for each campus are shown in Table 3. After Table 3, we provide more detailed examples of programs that are currently in place.

The categories we identify are the following:

Structured programs and collaborations: Nine campuses have currently funded or structured programs or collaborations that grew from involvement with LSMCE.

Prior and pending programs or collaboration: Eight campuses previously explored and experimented with LSMCE-related collaborations and programs, or they are currently in the process of developing and planning new collaborations or programs that grew from LSMCE involvement. Although they may not have any LSMCE-motivated programs at the current time, these coordinators report that LSMCE brings added capacity to broadening participation initiatives on their campuses.

No campus impacts reported, continued interest in LSMCE resources through involvement with LSRCE proposal: Five campuses that have not reported on-campus programs or cross-campus collaborations that grew out of LSMCE do indicate their hope to benefit from LSMCE resources by continuing with the Center in its next iteration. All of the coordinators in this category have attended LSMCE conferences, several of them on a regular basis. In addition, several of these coordinators have brought students to the conference on a regular basis and report that LSMCE resources are of benefit to their students. Two of the campuses in this group signed memoranda of understanding within the last six months, and so they have had minimal time to demonstrate outcomes.

No campus impacts reported. Six campuses have not responded to evaluator requests for information for more than a year, have not reported or demonstrated any impacts, and are not partners in the next iteration of LSMCE. The reasons for the withdrawal of these schools from the LMSCE initiative are not clear, as most of them have not been responsive to evaluation requests. Of these campuses, coordinators from five campuses attended at least one LSMCE conference, and three coordinators brought students with them. It may also be worth noting that in baseline qualitative data collection conducted with all incoming partners, faculty, and administrators from a number of schools in this group were unclear about the responsibilities, as well as the potential, of LSMCE involvement. Two coordinators from schools in this group were committed enough to participate in follow-up surveys or interviews and explicitly stated that they were confused about how their schools could connect to the Center.

One reason for the lack of impacts as well as the lack of ongoing connection with LSMCE among schools in this group may be the large number of schools that were recruited in Phase Two and Phase Three of the initiative. With the large number of new recruits, it seems likely that there may not have been enough human capital in the leadership team to follow through with the interpersonal connections that have made the LSMCE network valuable for so many of the other participants. *(See the Appendix for more details about recruitment phases and campus outcomes.)*

Table 3: Categories and Examples of Impact at Campus Partners

Category of Campus Impact	School	Example of Campus Impact
Structured Program/ Collaboration	Benedictine University	See Finding 6
Structured Program/ Collaboration	Dominican University	See Finding 6
Structured Program/ Collaboration	Harris-Stowe State University	See Finding 6
Structured Program/ Collaboration	Lincoln University	See Finding 6
Structured Program/ Collaboration	Triton Community College	See Finding 6
Structured Program/ Collaboration	University of Missouri – St. Louis	See Finding 6
Structured Program/ Collaboration	University of Toledo	See Finding 6
Structured Program/Collaboration	Western Illinois University	See Finding 6
Structured Program/Collaboration	Rose-Hulman Institute of Technology	Creation of new diversity position on campus
Prior or Pending	Bowling Green State University	Exploration of pipeline programs to graduate school
Prior or Pending	University of Detroit Mercy	Pending proposal for expanding current initiatives
Prior or Pending	Loyola University Chicago	Leadership in new LSAMP proposal
Prior or Pending	Marian University	Outreach to URM high school students
Prior or Pending	Northern Illinois University	Proposal for pipeline with Waubensee Community College
Prior or Pending	Roosevelt University	Howard Hughes Minority Participation proposals
Prior or Pending	Valparaiso University	Participation in new LSAMP proposal
Prior or Pending	Waubensee Community College	Multiple collaborations previously explored and pending
No Campus Impact, LSRCE	Bradley University	NA
No Campus Impact, LSRCE	Illinois Wesleyan University	NA
No Campus Impact, LSRCE	Ohio Dominican University	NA
No Campus Impact, LSRCE	University of Ill. Springfield	NA
No Campus Impact, LSRCE	Eastern Illinois University	NA
No Campus Impact	Eastern Michigan University	NA
No Campus Impact	Dennison University	NA
No Campus Impact	Indiana State University	NA
No Campus Impact	Marquette University	NA
No Campus Impact	University of Akron	NA
No Campus Impact	University of Indianapolis	NA

Participation in LMSCE contributed to new funding and/or structured collaborations for nine partners. Eight examples are detailed here:

Undergraduate Research: Western Illinois University

At Western Illinois University, exposure to the LSAMP model led to the implementation of the Research Inspiring Student Excellence undergraduate research program after the first annual LSMCE conference in 2013. The results were visible within a year, as the university created an organized undergraduate research and mentoring program in three departments: biology, physics, and chemistry. As reported in the initial press release, this program began by awarding more than \$18,000 in new scholarship money through institutional support and donations from individuals. This included research awards, scholarships for traditionally underrepresented students, travel awards to attend conferences, support to cover graduate school applications, and four \$3,000 scholarships for undergraduate students to conduct research over the summer.¹²

In the spring of 2018, Dr. Andrea Porrás-Alfaro, the university's LSMCE coordinator, shared how far the program had grown, including:

- WIU's first Natural Science Research Symposium, with the participation of four science departments and the presentation of more than 100 posters and oral presentations;
- A new initiative to open opportunities for high school students to do research with faculty;
- A new class in Biology to allow them to earn college credit and we received additional funding (\$15,000 grant supplement) from the National Science Foundation to support three high school female students from rural areas;
- The purchase of a new electron microscope for WIU. The new state-of-the-art equipment of more than \$300,000 will support a larger number of students with unique research experiences;
- At least 12 students continuing from undergraduate research into Ph.D. graduate programs in biology, chemistry, physics, and environmental science;
- Multiple publications coauthored and awards received by undergraduate student researchers.¹³

Scholarship Funding and Partnerships: Dominican University

Dominican's successful 2017 application for the National Institute of Food and Agriculture's Multicultural Scholars Program received feedback from the LSMCE leadership team and includes LSMCE as a professional development partner.

This grant provides \$200,000 over a two-year period to support two cohorts of underrepresented students who transfer from two-year colleges into Dominican's four-

¹² http://www.wiu.edu/news/newsrelease.php?release_id=12394

¹³ Communication from Dr. Porrás-Alfaro.

year nutrition program.¹⁴ In addition, Dominican is part of an LSAMP pre-alliance planning grant along with other local institutions (Elmhurst College, Concordia University Chicago, Oak Park River Forest High School, Proviso Math and Science Academy, Hooke College of Microscopy). According to Dr. Christopher Anderson of Dominican, the planning-grant PIs attending the 2016 LSMCE conference connected with a valuable network of other funded LSAMP programs.

Lead Institution for Missouri Louis Stokes Alliance for Minority Participation and Member of Midwest LSAMP Committee for Coordinators: Harris-Stowe State University

Harris-Stowe State University (HSSU), one of two historically Black colleges in Missouri, announced the launch of the Missouri LSAMP in October 2016. This is a five-year, \$5 million alliance of eight two- and four-year colleges. Harris-Stowe State University, one of LSMCE's earliest partners, was introduced to the Louis Stokes Alliances for Minority Participation through LSMCE and received extensive feedback and advice from LSMCE leadership in planning a Missouri Alliance and submitting the application.

In addition, HSSU is part a coordinating committee of five Midwestern LSAMPs that participate in periodic conference calls and share information. This committee is currently compiling information for LSAMP coordinators into a handbook. If the new proposal for the Midwest Center of Excellence is funded, this handbook will be posted on the website.

Entry into LSAMP Partnerships: Lincoln University, University of Missouri–St. Louis, Triton Community College

As HSSU developed the Missouri Alliance, the LSMCE partnership facilitated collaboration with two other active Center members. Lincoln University and University of Missouri–St. Louis (UMSL) are now Missouri LSAMP members. LSMCE coordinators from Lincoln and UMSL report that the statewide network of LSAMP provides their students with new opportunities. In addition, this is a needed infusion of resources that occurred at the same time that state funding for higher education was cut.

Triton Community College joined LSMCE with the goal of increasing minority participation and success in its successful STEM programs and agreements with four-year colleges. Shortly after joining LSMCE, Triton was invited to become a member of the Illinois Louis Stokes Alliance (ILSAMP). As a member of ILSAMP, its underrepresented minority students will have the opportunity to receive stipends to participate in activities such as undergraduate research and peer mentoring, and Triton faculty will have the opportunity to develop additional relationships with faculty who share similar commitments to mentoring underrepresented minority STEM students.

Dean's Sabbatical at Argonne National Laboratory: Benedictine University

Dean Robin Rylaarsdam from Benedictine University will be spending her sabbatical at Argonne National Lab, located outside Chicago. Argonne will be her base institution to help develop a strategy around supporting underrepresented minorities in STEM. She will spend half a year in Argonne learning about available resources, connecting with experts, and

¹⁴ <https://cris.nifa.usda.gov/cgi-bin/starfinder/0?path=fastlink1.txt&id=anon&pass=&search=R=75485&format=WEBFMT6NT>

studying what it looks like to systematically support URM students in STEM. This collaboration arose from an initial recruitment meeting that Argonne and Chicago State University had with Benedictine.

Multicultural Scholars Learning Community: University of Toledo

In 2015, the University of Toledo started a multicultural summer bridge program for 25 students in STEM and social sciences. This bridge program has demonstrated positive academic impact¹⁵ and still remains in place. This program had been on the drawing board for a number of years, but the two African-American faculty members proposing it felt that the administration had been lagging about implementing its stated goals around diversity. After attending the first LSMCE conference, Dr. Anthony Quinn returned to his campus with new energy and commitment.

Things moved rather quickly, as far as putting this program together. But I can step back and say in reality, this is a program that has been coming together in some form or shape for the last three years, as a grassroots effort. ... Attending the conference allowed me to come back to my home institution to say: 'These are the things that we need to do; other institutions are doing it and if we don't do it, we're going to be behind.'

Dr. Quinn was also exploring a number of other collaborations with LSMCE partners, such as pipeline programs for University of Toledo's graduate schools and developing a math center similar to the one at IUPUI. Tragically, Dr. Quinn passed away before these were realized.¹⁶

RECOMMENDATIONS

This six-year evaluation of the pilot Louis Stokes Midwest Center of Excellence indicates the value of this regional center for its partners, for the region, and as a model for LSAMP moving forward. As reported in Finding 5 and Finding 6, LSMCE has fostered the growth of underrepresented STEM students at partner campuses and is contributing to the momentum for broader changes at many of the partner schools.

¹⁵ According to information provided by Dr. Quinn in 2016, Institutional Research shows a significant positive relationship between students' participation in the summer bridge program and retention status compared to students in the general population. According to information provided by the LSMCE coordinator, the mean high school GPA of students in this program was 2.61. All 25 students who began the summer bridge program completed it with an average GPA of 3.2 for summer courses. Additionally, 24 of the 25 students enrolled completed the fall semester and earned an average GPA of 2.89 in college course work, and 90 percent completed summer and fall terms and were still engaged in the spring semester.

¹⁶ Dr. Quinn will be remembered at LSMCE conferences through an annual faculty award, "Dr. Anthony Quinn Service & Leadership Award," to a faculty member whose work has been impactful in developing new initiatives and building collaborations in the area of diversity and inclusion of underrepresented minorities in STEM.

Several challenges were also intertwined with the Center's many successes. As the Center considered its current proposal for a new Louis Stokes Regional Center for Excellence, it moved toward greater coordination of initiatives among campuses and less institutional flexibility. Thus, the new proposal is also likely to be aligned with some or all of the following recommendations.

Challenge 1: The disconnection between some campus partners and the Center.

Recommendation: This challenge can be addressed by developing clearer expectations for partners and for the Center itself. These might include a written job description for campus coordinators and a structured schedule of check-in meetings between each campus coordinator and the appropriate contact at the Center. Administrators should also be asked to recognize their responsibilities in supporting a coordinator before an MOU is signed. In addition, it is important to acknowledge the need for having sufficient Center staff and leadership to meet the objectives of large numbers of partners.

Challenge 2: The need to actively connect more students to internship opportunities available through the LSMCE network.

Recommendation: Center leadership and partners can develop a rubric for identifying the professional skills that students need for preparing and moving into internship opportunities and identify how LSMCE conferences, online resources, webinars, and professional development for faculty address each of these skills. The Western Illinois RISE program provides an example of a structured approach to ensuring and rewarding student development over time. This, or other structured professional skills development programs, can be widely shared within LSMCE.

Challenge 3: Optimizing audience interaction with LSMCE's online resources and online activities.

Recommendation: Establish quarterly goals for web traffic and for reaching specific audiences. Track web traffic and clicks on electronic newsletters. Identify what generates

interest. Conduct audience studies of audience subgroups (e.g. partner faculty and students). Compare reports of web traffic, clicks, and audience use with quarterly goals. If goals are not being met, reconsider strategies and the purpose of the web resources.

Challenge 4: Limited information about outcomes for students.

Recommendation: Create a template to identify the student outcomes that LSMRCE seeks to track. These could potentially include enrollment and graduation of URM students, as well as demonstrating student participation and success in activities such as internships, undergraduate research, and graduate school application. Use this template with partners to establish campus goals. This template can also be used for annual reporting about student outcomes.

CONCLUDING COMMENTS

LSMCE's success in attracting partners and catalyzing new initiatives suggests that the Center's approach is a viable model for leveraging campus change in many institutional contexts. While this approach draws on knowledge of successful LSAMP experiences, it also is a networking model, which means that the Center's relationship with its partners is different from the relationships and expectations within an LSAMP Alliance. LSMCE partnerships do not have a funding structure, an application process, specific expectations for programmatic change, or monitoring requirements – all of which are part of LSAMP Alliances. In contrast, LSMCE has catalyzed change by connecting people with resources, providing information, and enhancing networking. The networking approach embodied in LSMCE has been identified as valuable by scholars of higher education, and the LSMCE pilot may deserve additional study to further identify its contributions as a model.¹⁷

In addition to its specific approach to disseminating knowledge to non-LSAMP schools, the pilot center represents a new type of structure for LSAMP, bringing together members of the LSAMP community and non-LSAMP community in new ways, generating new activities and experimentation. The Midwest Center has created new energy around LSAMP in its region, leading to one new Alliance and providing assistance to several other groups that are planning to submit or are considering submitting LSAMP proposals. In addition, the Center activities and professional relationships have supported increased communication and coordination among several existing Midwest Alliances.

On the national level, the Midwest Center has created resources such as a map of LSAMP alliances and Bridge to the Doctorate programs that didn't exist elsewhere, and it has provided an institutional base for national LSAMP meetings. These meetings helped expand specific initiatives (such as increasing involvement of LSAMP students in international research). Most recently, LSAMP coordinators, administrators, and evaluators were successfully prompted to begin thinking about their work and its outcomes as part of a large national initiative, and it is expected that the next national conference will provide dedicated time for collaboration and coordination among Alliances.

Organizing an annual national LSAMP conference was not part of the original proposal of the Louis Stokes Midwest Center of Excellence. However, the leadership of the regional center had the flexibility, knowledge, and commitment needed to expand the Center's role in order to support the larger LSAMP mission. The success of LSMCE within its region, as well as its contribution to the national LSAMP community, suggests that new Regional Centers of Excellence have great potential for increasing the success of underrepresented minority STEM students in their regions and for strengthening the entire LSAMP community.

¹⁷ Kezar, A., & Gehrke S. (2015). *Communities of Transformation and their Work Toward Achieving Scale for STEM Reform*. Pullias Center for Higher Education, Rossier School of Education.

APPENDIX

Table 4: Major Program Activities, Evaluation Activities & Evaluation Products¹⁸

	Major Program Activities	Major Evaluation Activities	Major Evaluation Products
Year One: 2012- 2013	Development of program infrastructure, national advisory board, and website	Participation in planning and leadership team activities	Annual evaluation report
Year Two: 2013- 2014	<ul style="list-style-type: none"> • Inaugural LSMCE Conference • Engagement of 7 partner campuses • Restructuring of website 	<ul style="list-style-type: none"> • Conference evaluation • Tools to document change among LSMCE partners • Analysis of LSMCE & LSAMP models • Participation in biweekly conference calls and twice annual face-to-face meetings. 	<ul style="list-style-type: none"> • Annual conference report • Tools for tracking partner progress • Overview of LSAMP model and its relevance for LSMCE partners • Annual evaluation report
Year Three: 2014- 2015	<ul style="list-style-type: none"> • 2nd annual LSMCE Conference • 14 partner campuses engaged • First set of virtual activities 	<ul style="list-style-type: none"> • Conference evaluation • Two rounds of interviews with seven partners that joined in Year One and Year Two • Evaluation of online activities in Year Three • Participation in biweekly conference calls and twice annual face-to-face meetings. 	<ul style="list-style-type: none"> • Conference evaluation • Evaluation of webinars • Annual evaluation report
Year Four: 2015- 2016	<ul style="list-style-type: none"> • 3rd annual LSMCE Conference • 23 partner campuses 	<ul style="list-style-type: none"> • Conference evaluation • Webinar evaluations • Phone interviews with representatives from 16 partners • Participation in biweekly conference calls and twice-annual face-to-face meetings. 	<ul style="list-style-type: none"> • Conference evaluation • Visual for program framework • Visual for partner development model • Evaluation findings for LSMCE white paper • Annual evaluation report

¹⁸ Evaluation instruments can be provided upon request to sblanc@creative-evaluations.com.

	Major Program Activities	Major Evaluation Activities	Major Evaluation Products
Year Five: 2016-2017	<ul style="list-style-type: none"> • 4th annual LSMCE Conference • 25 partner campuses 	<ul style="list-style-type: none"> • Conference evaluation • Rubric data used to identify center-wide partner progress • Targeted interviews with advisory board and incoming partners • Participation in bi-weekly conference calls and periodic face-to-face meetings 	<ul style="list-style-type: none"> • Conference evaluation • Visuals for proposal planning • Findings from targeted interviews • Annual evaluation report • “Developing Clarity About Process and Outcomes in a STEM Dissemination Center: The Role of Visuals,” paper delivered at Eastern Evaluation Research Society
No-Cost Extension and Conference Supplement 2017-2018	<ul style="list-style-type: none"> • 5th annual LSMCE Conference • 28 partner campuses 	<ul style="list-style-type: none"> • Conference evaluation • Review of prior data and documents • Phone interviews with 8 partners and 6 other midwestern/national participants in LSAMP 	<ul style="list-style-type: none"> • “Successes in Broadening STEM Participation in Higher Education,” paper delivered at the 4th annual Conference for Culturally Responsive Evaluation • Conference report

Table 5: Annual Conference Attendance, Students and Nonstudents

	Student	Nonstudent	Total
2015	143	134	277
2016	170	143	313
2017	175	148	323

Note: These numbers are approximate, as attendance information is based on registration data provided to evaluator, not actual participation. The trends are consistent with patterns provided in other program reports by program staff. 2017 actual count by program staff was 195 for students and 228 for nonstudents.

Figure 2: LSMCE Faculty Representation at Annual Conference

Note: 2017 LSMCE figures may be an undercount (see note above).

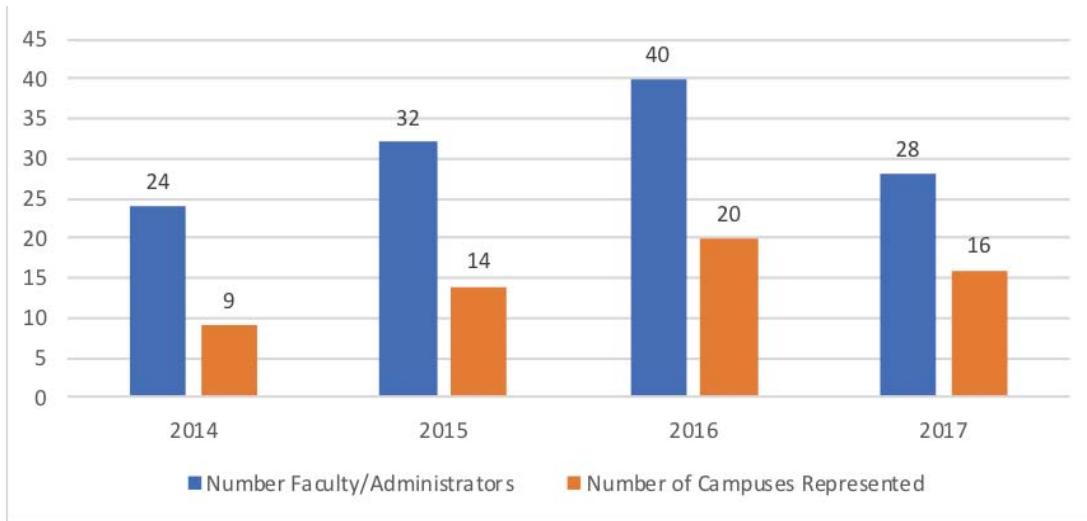


Figure 3: LSMCE Student Representation at Annual Conference

Note: 2017 LSMCE figures may be an undercount (see note above).

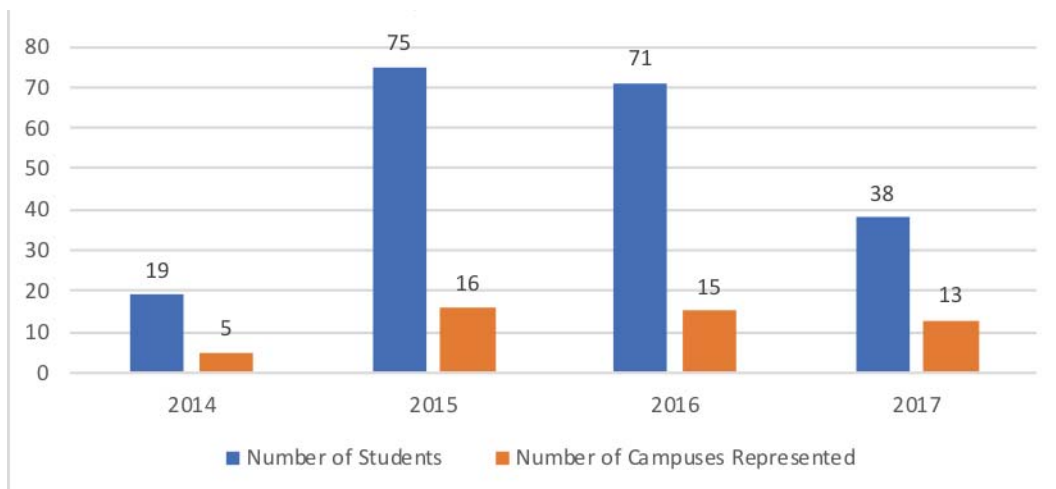


Table 6: Impact Categories and Recruitment Phases

Category of Campus Impact	Phase	School
Structured Program/Collaboration	1	Lincoln University
Structured Program/Collaboration	1	University of Missouri – St. Louis
Structured Program/Collaboration	2	Harris-Stowe State University
Structured Program/Collaboration	2	University of Toledo
Structured Program/Collaboration	2	Western Illinois University
Structured Program/Collaboration	3	Dominican University
Structured Program/Collaboration	3	Rose-Hulman Institute of Technology
Structured Program/Collaboration	3	Triton Community College
Structured Program/Collaboration	5	Benedictine University
Prior or Pending	1	Marian University
Prior or Pending	1	Northern Illinois University
Prior or Pending	2	Bowling Green State University
Prior or Pending	2	Loyola University Chicago
Prior or Pending	2	Roosevelt University
Prior or Pending	2	Waubonsee Community College
Prior or Pending	3	Valparaiso University
Prior or Pending	5	University of Detroit Mercy
No Campus Impact, LSMRCE	1	Bradley University
No Campus Impact, LSMRCE	2	Eastern Illinois University
No Campus Impact, LSMRCE	3	University of Illinois Springfield
No Campus Impact, LSMRCE	5	Illinois Wesleyan University
No Campus Impact, LSMRCE	5	Ohio Dominican University
No Campus Impact	2	Indiana State University
No Campus Impact	3	Dennison University
No Campus Impact	3	Eastern Michigan University
No Campus Impact	3	Marquette University
No Campus Impact	3	University of Akron
No Campus Impact	3	University of Indianapolis