Summative Evaluation Report for the AN-MSI Project

From data collected by the external evaluator
of the Advanced Networking with Minority Serving Institutions Project
from July 2000-December 2003

Julie Foertsch
The LEAD Center at the University of Wisconsin-Madison

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1. Introduction: History and evolution of the AN-MSI project

The National Science Foundation (NSF) has long sought ways of expanding the participation of Minority Serving Institutions in the cutting-edge scientific research and education efforts that the foundation funds. Most of the nation's 380-plus Minority Serving Institutions (MSIs), which include Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), and Tribal Colleges and Universities (TCUs), have faced disadvantages in competing for NSF grants because their information technology (IT) infrastructures are much less well-developed and financed than those at majority research institutions. Although some MSIs have partnered with majority institutions to participate in NSF grants, many lack the advanced technological infrastructure and IT support staff to adequately prepare their science students and researchers to compete in fields that are increasingly reliant on high-end computing. The gulf in capacity and opportunity between schools that have adequate computational resources and those that do not has become known as the Digital Divide.

In September 1999, the NSF sought to address the Digital Divide by awarding EDUCAUSE, the nation's leading higher education technology association, a special $6-million grant to help improve the computer networking and IT support of the nation's Minority Serving Institutions. One million dollars of this amount was subcontracted to the Education Outreach and Training Partnership for Advanced Computational Infrastructure (EOT-PACI) to work with the comparatively few MSIs who were already interested in and ready to take advantage of high performance computing applications (i.e., "supercomputing"). EDUCAUSE proposed to use the remainder of the grant as seed money to establish a collaborative infrastructure across the three minority communities that, over time, would give all of the nation's MSIs access to networking, training, and funding opportunities in IT. It was, by all accounts, an ambitious undertaking. Given the nearly 380 MSIs that EDUCAUSE eventually hoped to reach, the modest IT budgets of most MSIs, the relatively low-bandwidth and inadequate networking infrastructure of smaller MSIs, and the difficulties that financially strapped schools face in attracting and retaining qualified IT staff, the administrators of the new AN-MSI Project had their work cut out for them.

Even among the 100 MSIs that were the initial partners in the AN-MSI Project, it was clear that $6 million over four years would not go very far. Indeed, some participants in the AN-MSI project were concerned from the outset that the relatively low amount of funding and short time frame for such a large and complicated task would doom the project to failure.[1] The effort was further complicated by the fact that most of the participating institutions had rarely collaborated with institutions within their own minority community, much less with schools from other minority communities. Hence, before the project could delineate its goals and strategies, it was necessary to build trust and a sense of common purpose among schools that had seen each other as competitors in the past. The participants would have to reach consensus, leverage resources, and develop cross-cultural partnerships that, at times, subsumed the needs of their individual institutions and communities to the needs of the larger group.

It is important to recognize the risk of such a venture for financially strapped institutions. For many of the participants, volunteering the time and effort of their small, overcommitted IT staffs to community-wide projects whose largest payoffs were in the future was no easy sacrifice.

[1] Foertsch, J. & Clifton, C. (2002). Annual Evaluation Report for the AN-MSI Project, 2001-02. UW-Madison: LEAD Center. (available at http//: www.cae.wisc.edu/~lead)

However, it was a sacrifice that those MSIs who signed onto the project were willing to make. The dozens of individuals who regularly attended project meetings and who volunteered for project committees and consulting teams trusted that, in the end, the benefit to their campuses and their communities would be more than worth the time and effort invested. As the conversations about the new project's priorities and structure began to unfold, it became clear to all those involved that this was a historic and ambitious undertaking.

Prior to the kickoff meeting in January 2000, EDUCAUSE-based Project Director David Staudt had already begun hiring Community Leaders to serve as project liaisons within the three minority communities and project consultants to provide technical expertise. Working closely with organizations that represent the interests of particular minority communities in higher education—including the American Indian Higher Education Consortium (AIHEC), the Hispanic Association of Colleges and Universities (HACU), the National Association for Equal Opportunities in Higher Education (NAFEO), and the Executive Leadership Foundation—Staudt selected individuals who could commit a substantial portion of their time to the project (generally 50%) and who were in recognized leadership or advocacy positions within their communities. Community Leaders were given the bulk of the responsibility within their communities for encouraging project participation, fostering proposal development, identifying areas of particular need or desired emphasis, and representing their communities' interests at AN-MSI meetings.

In June of 2000, the Learning through Evaluation, Adaptation, and Dissemination (LEAD) Center at the University of Wisconsin-Madison was brought on as the external evaluator for both the EDUCAUSE and EOT-PACI portions of the AN-MSI Project. At an AN-MSI Project Action Committee meeting that July, LEAD Center evaluators gave a brief workshop on formative and summative evaluation, addressed participants' concerns about how evaluation data is collected and used, and sought buy-in from the MSIs in each community to participate in the evaluation. LEAD began collecting data on project activities and their impacts that same month. LEAD's 3½-year evaluation of the AN-MSI Project ran on an annual cycle from July to June and produced 5 annual and 14 special-topic evaluation reports that are available for review (9 for EDUCAUSE's activities; 10 for EOT-PACI's activities).

This report is the final, summative evaluation report for the EDUCAUSE-sponsored activities of the AN-MSI Project. It is intended to provide a broad overview of the AN-MSI Project's development, strengths, and weaknesses over four years and an analysis of its benefits and impacts for the 40 Historically Black Colleges and Universities (HBCUs), 47 Hispanic Serving Institutions (HSIs), and 37 Tribal (or Native American/Native Hawaiian serving) Colleges and Universities (TCUs) that have participated in one or more AN-MSI sponsored events or initiatives (see the Appendix for a list of all participating MSIs). A separate summative evaluation report detailing the progress made by EOT-PACI under its AN-MSI subcontract was written in the summer of 2003.

On the next page (Table 1) is a time line for the AN-MSI Project that shows how it developed and evolved over the four years of the NSF grant. From the perspective of the LEAD evaluators, the AN-MSI Project had four distinct phases of development, as described in Table 1.

Table 1: Time-line for the AN-MSI Project

Sept 1999: NSF awards EDUCAUSE a $6-million grant (with a $1-million EOT-PACI subcontract) for the AN-MSI Project.

Phase I: Sept 1999 - Dec 1999: Preparation

- Community Leaders & project consultants were hired.
- Buy-in was obtained from national organizations representing minorities in higher education.
- Kickoff-meeting was planned.

Phase II: Jan 2000 – Jan 2001: Activity planning and community building

- Initial meetings were held within and between communities to explain the project's goals, engage MSI participants, form Project Action Committees, discuss common ground, build trust, share knowledge of IT problems and solutions, and reach consensus on the project's priorities and processes.
- Professional third-party evaluators were hired from the UW-Madison's LEAD Center to provide formative and summative evaluation for the project. LEAD evaluators conducted a workshop on evaluation for project participants at an AN-MSI planning meeting in July 2000.
- Participants were funded to attend AN-MSI meetings and IT conferences like EDUCAUSE.
- Intra- and intercommunity collaborative proposals for outside funding were written by some participants.

Phase III: Feb 2001 – April 2002: Implementation of activities and services

- Project focus shifted from planning and consensus-building to implementation of activities and services: the Tribal Colleges Wireless Project was implemented, the final draft of AN-MSI's Network Model was circulated, IT training workshops began, campus visits by AN-MSI consultants began, AN-MSI videoconference series on distance learning occurred, executive leadership workshops were held, and a collaborative Title V proposal on security written by the participating California HSIs was funded.
- Participants continued to be funded by AN-MSI to attend meetings and IT conferences.
- Some MSIs began to receive AN-MSI funding for small-scale pilot projects on their campuses.
- Project administration broadened with the formation of an 18-member Caucus that held monthly conference calls to update others on project activities and plan meetings.
- Additional consultants were hired to help with writing proposals and promotional materials and organizing Campus Visits.

Phase IV: May 2002 – Dec 2003: Looking to the future

- Planning for the future of AN-MSI began, with participants becoming more active in writing collaborative proposals for outside funding.
- Project services like Campus Visits continued at full steam, and more IT pilot projects received AN-MSI funding.
- Demands by some participants for clearer administrative processes and better accountability led AN-MSI administrators to implement more detailed reporting mechanisms and more frequent communication with participants.
- Community Leaders and Caucus members met regularly to develop a proposal for AN-MSI's future.
- Participants involved in AN-MSI's Title V Network and Information Security project wrote proposals and conducted workshops to expand the number of MSIs receiving security training.
- The AN-MSI Project Director, Community Leaders, and project evaluator met with the NSF Director and other NSF representatives to discuss the project's outcomes and future.
- AIHEC, HACU, and NAFEO submitted a proposal to the NSF for Phase II of the AN-MSI project, to be administered by the Institute for Higher Education Policy (IHEP).

2. How the evaluation data for this report were collected

The data summarized in this report come from five data-collection activities that the LEAD Center performed annually for its evaluation of the AN-MSI project:

(1) Attending, observing, and taking notes at AN-MSI Project Action Committee meetings, Strategic Planning meetings, and Caucus conference calls;
(2) Reviewing all AN-MSI documents and notes distributed at meetings or through AN-MSI's website and listservs;[2]
(3) Collecting and analyzing the content of all messages sent to the project's general listserv and its three community listservs;
(4) Performing individual phone interviews every winter with all AN-MSI Community Leaders, Committee Chairs, and project consultants;
(5) Surveying in May of each year all individuals who had participated in at least one AN-MSI meeting over the past year (annual response rate of 46%-56%).

In addition to these annual evaluation activities, in the winter of 2003, the LEAD evaluator interviewed 32 campus representatives of 27 MSIs regarding the impact of the AN-MSI on their institutions. Interviewees were selected from a list of key campus representatives (college presidents, vice presidents in charge of IT issues, campus CIOs, and other high-ranking IT executives) whose institutions had received an AN-MSI campus consulting visit and/or had participated in numerous AN-MSI meetings. The 32 interviewees included 9 individuals representing 7 HBCUs, 16 individuals representing 13 HSIs, and 7 individuals representing 7 TCUs. Of the 27 MSIs represented by these interviewees, 18 could be characterized as having a high degree of involvement in the AN-MSI Project (as measured by resources and personnel committed to AN-MSI committees and efforts), 7 could be characterized as being moderately involved, and two could be characterized as being minimally involved (with their main connection to the AN-MSI Project being the campus visit each received).

The survey data for this report comes from the May 2003 version of the annual Participant Survey that LEAD emailed to 106 of the 114 MSI and national organization representatives who attended at least one AN-MSI meeting or workshop from May 2002-April 2003.[3] The survey was completed by 59 recipients, for a response rate of 56%. With this final survey, LEAD received qualitative and quantitative feedback regarding the AN-MSI project from 16 of the 20 HBCUs, 11 of the 14 HSIs, 13 of the 19 TCUs, and 4 of the 6 national organizations that were involved in AN-MSI activities over the last year of the project.

3. Who participated in AN-MSI?

AN-MSI meetings and committees were open to faculty, administrators, and IT staff from any of the 102 MSIs that were partnered with AN-MSI, or, by invitation, to representatives and organizations that were considering partnering with AN-MSI. Because project funding was used to pay travel, room, and board expenses for all attendees at AN-MSI meetings, it is important to document who these attendees were and what role they played in the project's various initiatives.

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[2] The AN-MSI website is at http://www.anmsi.org/ . Individuals associated with the project or representing one of the three MSI communities are added to the AN-MSI listserv and community listservs upon their request.

[3] There were four meeting participants whose current email addresses and contact information could not be found. Also, the LEAD evaluators, the Project Director, and the Project Administrative Assistant were exempt from completing the survey.

According to the registration lists, a total of 177 different individuals attended AN-MSI meetings between the first Project Action Committee (Kickoff) Meeting in January 2000 and the last Project Action Committee in April of 2003. Of these individuals 35% represented TCUs, 32% represented HBCUs, 21% represented HSIs, and the rest represented majority institutions or consulting organizations working with the MSIs. About 80% of the MSI representatives at these meetings were members of their campuses' IT staff, 10% were members of the faculty, and 10% were other campus administrators. Of those individuals who participated in at least one AN-MSI meeting through April of 2003, about three-quarters were men and one-quarter were women. About 70% of participants belonged to an underrepresented ethnic minority (African American, Hispanic, or Native American).

The two national organizations involved in administering the first phase of AN-MSI—EDUCAUSE and EOT-PACI—had different but complementary missions and served somewhat different though overlapping participant groups. The EDUCAUSE administered portion of AN-MSI developed collaborative national and regional initiatives to improve the networking infrastructure, technical training, and technology-related political leverage of the nation's MSIs. As seen in Appendix A, a total of 124 MSIs—including 40 HBCUs, 47 HSIs, and 37 TCUs—participated in EDUCAUSE's AN-MSI meetings and events from January 2000 to April 2003. Thirty-five of these HBCUs, 35 of these HSIs, and 31 of these TCUs made up the original "cohort" of MSIs that signed on to the AN-MSI project in the year 2000. Eight national organizations also participated in EDUCAUSE's AN-MSI events, including project administrators from EDUCAUSE and EOT-PACI, project evaluators from the LEAD Center, and technical consultants from the Dandin Group, the Executive Leadership Council, and dot.edu of the University of Wisconsin System. Other organizational participants included liaisons from six national associations that serve the needs of various MSIs: the American Indian Higher Education Consortium (AIHEC); the Hispanic Association of Colleges and Universities (HACU), the National Association for Equal Opportunity in Higher Education (NAFEO), the National Association for State Universities and Land Grant Colleges (NASULGC), and the Executive Leadership Foundation.

The EOT-PACI administered portion of the AN-MSI grant (which received 1/6 of the project's total funding through a subcontract with EDUCAUSE) assisted interested MSIs in acquiring the advanced computational resources and staff training needed to utilize and influence the development of PACI's high performance computing applications. Because these high-end modeling and visualization applications are not currently relevant to the teaching missions or research interests of all MSIs, and because a fairly sophisticated computer network is needed to support them, EOT-PACI envisioned itself working with only a subset of the MSIs participating in the AN-MSI Project. In all, 156 individuals representing 53 MSIs (23 HBCUs, 17 HSIs, and 13 TCUs) and 4 minority-serving technology organizations participated in the 17 AN-MSI events sponsored by EOT-PACI. Twenty of the institutions that participated in EOT-PACI's AN-MSI events also sent representatives to at least one EDUCAUSE sponsored AN-MSI event. Five of the individuals interviewed about their participation in both types of events did not know EDUCAUSE and EOT-PACI were partners in the AN-MSI project and did not see any obvious connection in their activities, although several first heard about the EOT-PACI events by attending an EDUCAUSE sponsored AN-MSI meeting. Because of this difference in EDUCAUSE's and EOT-PACI's missions and the audience served, the LEAD Center was asked to evaluate their efforts separately.

4. What did AN-MSI participation involve?

Participants in AN-MSI played a number of different roles within the project, often simultaneously. Because this was a nationwide project that served three different ethnic communities in higher education and because the 124 Minority Serving Institutions involved had a wide range of technological interests and needs, the project required a broader administrative structure and a more collaborative decision-making process than is the case for some other projects. The EDUCAUSE portion of AN-MSI was administered by Project Director Dave Staudt with the aid of Project Assistant Valerie Rice-Vogel (both of EDUCAUSE) and a Community Leader from each of the three MSI Communities. Ramon Harris of the Executive Leadership Council represented the HBCU community on some level throughout the life of the project, with the official role of Community Leader first held by Laura Lee Davidson of Wilberforce University (formerly of the Executive Leadership Council) and then by Debra White of Hampton University. Alex Ramirez of HACU acted as the Community Leader for the HSIs throughout the project. The TCUs were represented informally by Tom Davis (formerly of AIHEC) for much of the project, with the role of Community Leader first held by Steve Dupuis of Salish-Kootenai College and later by Carrie Billie of AIHEC. In the first couple years of the project, Dave Staudt made most of the budgeting and hiring decisions, with recommendations from community representatives and project consultants. During those two years, the Community Leaders (all of whom received half of their salaries from AN-MSI at that time) were responsible for providing members of their communities with timely information about project developments, representing their communities at AN-MSI meetings, encouraging participation in project initiatives, and helping their communities to develop and submit project proposals for AN-MSI funding. Starting in 2002, the Community Leaders became more involved in budgetary decisions and worked with the Project Director to develop explicit guidelines for project spending, accountability, and documentation.

Project initiatives were planned and carried out by members of AN-MSI's six committees: Executive Awareness, Resource Development, Network Technology, Internet Connectivity, Applications, and Evaluation. With the exception of Evaluation, which was performed externally by professional evaluators from the UW-Madison's LEAD Center, each AN-MSI committee was led by 1-3 committee chairs and was comprised of 6-12 experts in that area, with at least one representative from each of the three MSI communities. Detailed information about each committee's goals, initiatives, membership, and recent activities was listed on the AN-MSI website at http://www.anmsi.org/committees.asp. In the last two years of the project, about half of AN-MSI meeting attendees were members of one of these committees.

Another level of project administration was provided by the AN-MSI Caucus. By May of 2001, AN-MSI members saw a need to involve more participants in project administration and increase the frequency of communication between those most heavily involved in project initiatives and proposals. To meet these needs, a new planning and project development group called the AN-MSI Caucus began having monthly meetings (usually by phone) to discuss the latest project developments, coordinate initiatives that involved more than one committee, plan upcoming meetings, and advise the project's evaluator. For most of its existence, the Caucus comprised 18 administrators and consultants from the AN-MSI project, including the Project Director and Project Assistant, the Community Leaders, the project evaluator, several project consultants, and the most active of the Committee Chairs. All AN-MSI Project Action Committee meetings after May of 2001 were planned by this group. The Caucus's monthly conference call agendas were developed with input from Caucus members, and an average of 60% of Caucus members

participated in each call. From the Fall of 2001 through Spring of 2002, Caucus members were also involved in updating AN-MSI's Strategic Plan, which was used to guide project progress and accountability for the remainder of the NSF grant and plan for the project's future. The final draft of this plan was posted on the AN-MSI website.

One other category of participation in the AN-MSI project that is important to document is serving as a technology consultant on one or more of AN-MSI's campus consulting visits. From June 2001 through the summer of 2003, AN-MSI conducted 48 campus visits, including 30 at TCUs and native Hawaiian colleges, 12 at HSIs, and 5 at HBCUs throughout the U.S. and Puerto Rico. During these two-day consulting visits, small teams of 2-5 IT experts from participating MSIs assessed the IT networks and organizational structures of MSIs that wanted affordable, vendor-neutral advice on how to improve or upgrade their existing systems. AN-MSI paid for the consultants' time, while campuses generally paid for travel and accommodations. A total of 23 individuals served as consultants on these visits, with 20 participating in multiple visits. The impacts of these consulting visits on both the participating campuses and the consultants who served on them are discussed in section 6.2.3 of this report.

In the final AN-MSI Participant Survey conducted in May of 2003, participants were asked to indicate all of the various ways that they had been involved in the AN-MSI Project. Table 2 shows the responses, listed by the percentage of respondents that engaged in that activity (N = 59).

Table 2: All of the ways in which the 59 respondents to the 2003 Participant Survey participated in the AN-MSI project	%	n
I participated in one or more AN-MSI meetings or events over the past year	86%	51
I am on AN-MSI's general email listserv	73%	43
I am on the AN-MSI listserv for a particular community (e.g. HBCUs, HSIs, TCUs)	54%	32
I have attended technical workshops/training seminars sponsored by AN-MSI or sent members of my institution's staff to them	51%	30
I have been on one or more AN-MSI Committees	39%	23
My campus has participated in one or more collaborative grant proposals related to AN-MSI	39%	23
I have given a presentation or written articles to inform people outside of the project about AN-MSI and its initiatives	31%	18
I have participated in videoconferences sponsored by AN-MSI	27%	16
I have approached government representatives, private foundations, or corporations about supporting an AN-MSI initiative	27%	16
AN-MSI sponsored consultants to come to my campus for a technical consultation or strategic planning visit	25%	15
My school applied for one of AN-MSI's pilot project grants	25%	15
My school received funds or equipment that allowed us to improve our IT infrastructure	25%	15
My school received one of AN-MSI's pilot project grants	22%	13
I have been the chair/co-chair of an AN-MSI committee	19%	11
I have been paid for working on some aspect of the AN-MSI program	19%	11

5. How were participants kept informed about the project?

General project participants were kept informed of the project's progress and IT-related opportunities through four different means: (1) presentations and discussions at AN-MSI Project Action Committee meetings (2-3 per year beginning in January 2000); (2) news and documents posted on the AN-MSI website at http://www.anmsi.org/ (established in spring of 2000); (3)

daily emails from project administrators and other AN-MSI participants on the AN-MSI listservs (established in February 2001); and (4) monthly editions of the AN-MSI Newsletter (first edition: April 2002). As mentioned in the previous section, a subset of participants known as the AN-MSI Caucus (the 18 project administrators, Community Leaders, Committee Chairs, and consultants most involved in coordinating project efforts) also met by phone about once per month to discuss project administration and plan upcoming meetings. Beginning in March of 2002, the minutes for these Caucus meetings were distributed to all participants enrolled on the AN-MSI general listserv.

Participant satisfaction with the amount of information they received about the AN-MSI project was generally high. Every May, survey respondents were asked to rate their degree of satisfaction with the amount of information and updates they had received about AN-MSI over the previous year. The responses for each year of the AN-MSI Participant Survey are seen in Table 3. As you can see from the table, in any given year, over ¾ of respondents expressed satisfaction with the amount of project information they had received, with 84% of respondents expressing satisfaction in the last year of the project. However, there were notable instances in which project participants publicly voiced dissatisfaction with the amount of information they received about particular aspects the project, particularly budgetary issues and how pilot project funding decisions were being made. In the interviews the project evaluator performed in January and February of 2002, numerous Committee Chairs and project consultants reported that the Project Director and/or their Community Leader were not giving them enough information about how certain key decisions were being made. This was not a new issue, and the interviewees felt the communication problems were getting in the way of the smooth functioning and collaborative nature of the project. At the Project Action Committee Meeting in Puerto Rico that February, the project evaluator facilitated a group conversation to address these difficulties, and several actions to improve communication and clarify the decision-making process were taken in the months that followed.[4] These actions included establishing a monthly newsletter, making Caucus meeting notes available to all, making the project budget available to scrutiny, and formalizing the process by which the Project Director and Community Leaders together selected the pilot projects that would receive AN-MSI funding. At the next Project Action Committee Meeting in Langston, OK in May of 2002, numerous representatives from the TCU and HBCU communities expressed dissatisfaction with their lack of knowledge regarding the progress and expense of the ongoing Tribal Wireless Project. This issue was discussed extensively at the meeting, although a post-meeting survey suggested that meeting participants were divided in their opinions of how useful and constructive this conversation ultimately was.[5]

Table 3: Survey respondents' degree of satisfaction with the amount of information and updates they received about the AN-MSI project and its initiatives.

Satisfaction with AN-MSI information received	2000-01 survey (N=38)	2001-02 survey (N=42)	2002-03 survey (N=57)
Very satisfied	44%	34%	40%
Somewhat satisfied	33%	49%	44%
Somewhat dissatisfied	19%	12%	14%
Very dissatisfied	3%	5%	2%

[4] For more details see Foertsch, J., & Clifton, W. (2002*).* Annual Evaluation Report for the AN-MSI Project, 2001-02. UW-Madison: LEAD Center.

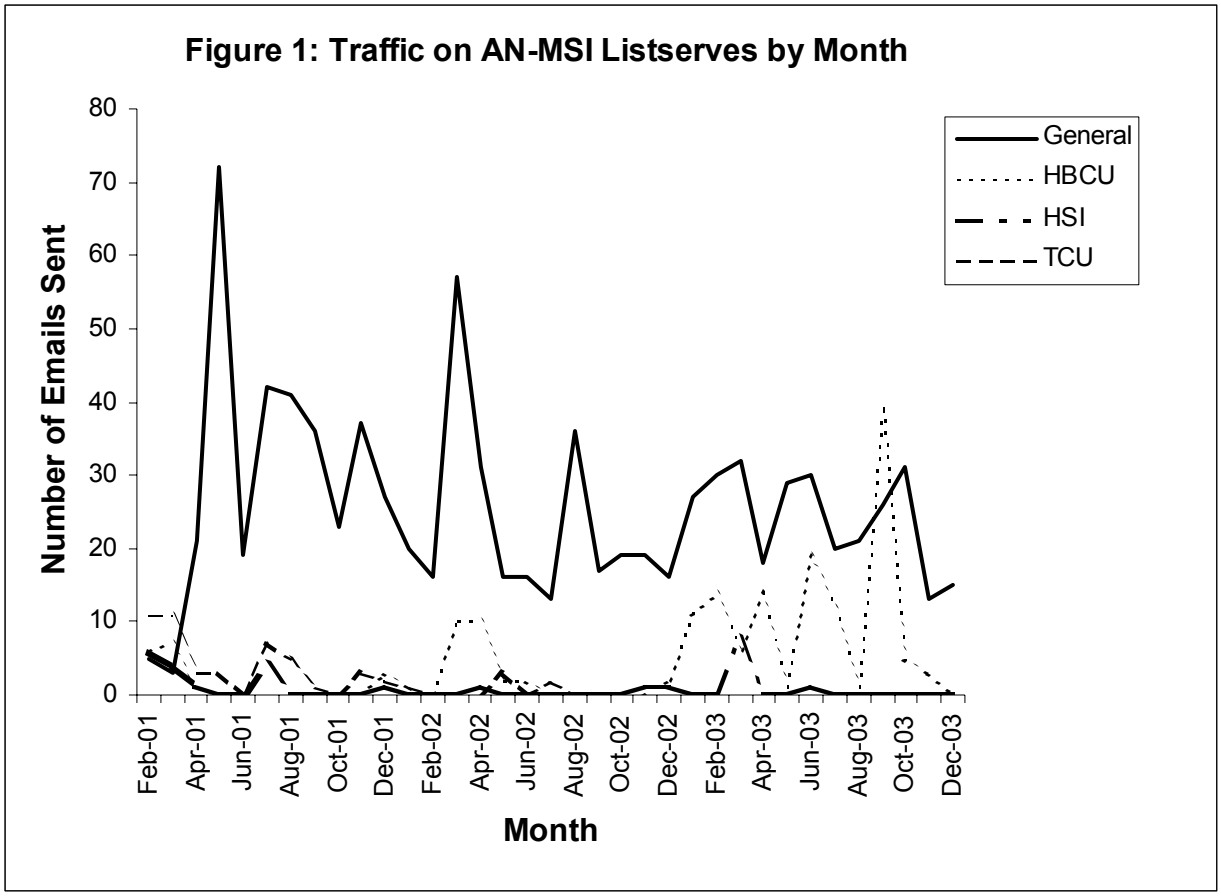
[5] For more details see Foertsch, J. (2002*).* Participant Reactions to the AN-MSI Project Action Committee Meeting at Langston University. UW-Madison: LEAD Center.

Of all the ways in which AN-MSI project participants were kept informed about project developments, discussions at meetings proved to be of the greatest importance. Throughout the history of the AN-MSI program, participants who were interviewed or surveyed by the evaluator stressed the usefulness and importance of AN-MSI meetings in keeping them informed about the project and the latest developments in IT (see section 6.2.4 for quotes). Project Action Committee Meetings, also known as "All Hands Meetings," were open to all AN-MSI participants and occurred two to three times per year, hosted by one of the MSIs involved in the project or by EDUCAUSE at its annual conference. These general meetings and other, more focused meetings sponsored by the EDUCAUSE portion of AN-MSI are described in more detail in section 6.1.1.

To supplement the information received through presentations and discussions at meetings, all AN-MSI participants were also emailed a copy of the monthly AN-MSI newsletter, and about ¾ of participants were subscribed to at least one of AN-MSI's four listservs (one general listserv and one for each of the three MSI communities). These email listservs were established in late February of 2001 and were the primary means by which the Project Director, project consultants, and Community Leaders communicated to other AN-MSI participants about project developments between meetings. In the section of the annual AN-MSI survey where participants were asked to indicate and rate the benefits they received from being a part of the AN-MSI project, "Being on a listserv that allows participants to both post and receive IT-related information and project updates" was rated as "a major project benefit" by 40% of the final year's respondents and as "a minor benefit" by 33%. Because of the importance of the AN-MSI listservs in alerting project participants to important opportunities and keeping AN-MSI's broad national community connected to one another, LEAD analyzed the traffic on all four listservs every year. Figure 1 (next page) shows the traffic on the general (main) listserv from its inception in February 2001 through the project's targeted end date in December 2003, when a total of 894 messages were sent. During the same time period, 168 messages were sent on the HBCU listserv, 52 on the TCU listserv, and 28 on the HSI listserv, as seen below in Table 4. Table 3 also shows the percentage of messages on each list serve that were sent by each community's official leader/administrator (Dave Staudt or Valerie Rice-Vogel in the case of the general listserv, and the current Community Leader(s) in the case of each community listserv).

Table 4: Number of emails sent on each AN-MSI listserv and % sent by community leader(s)

AN-MSI Listserv:	# of messages through *12/31/03*	# (%) from Project Administrators at EDUCAUSE		# (%) From that community's official leader	
General-all participants	894	426	48%	NA	
HBCU Community	168	15	9%	30	18%
HSI Community	28	9	32%	1	4%
TCU Community	52	14	27%	3	6%
Total for all 4 listservs	1142	464	41%	34	3%



An analysis of message content on the general AN-MSI listserv during the time period graphed above showed that the most frequent topics for listserv postings (by % of all emails) were:

1) Technical information and IT best practices; products worth looking into (20.9%)
2) Recognition of individual or campus achievements, job changes, deaths (16.3%)
3) Articles or updates about laws or political activity relevant to IT or MSIs (12.5%)
4) Announcements for national IT conferences & meetings (not AN-MSI) (9.5%)
5) Online resources: websites, research bulletins, databases, IT newsletters (6.5%)

6. Outcomes of the EDUCAUSE-sponsored portion of the AN-MSI Project

This section summarizes the outcomes of AN-MSI activities and events funded by the EDUCAUSE portion of the NSF grant. The outcomes from EOT-PACI's subcontract were evaluated separately and described in the summative evaluation report written for EOT-PACI in September 2003.

Outcomes of the EDUCAUSE sponsored portion of the AN-MSI Project were assessed on two levels. The first, most basic level involves documenting all meetings, conferences, workshops, campus assessments, collaborative proposals, and products that AN-MSI sponsored or produced over the four years of the grant, as well as the number of MSI campuses and representatives that participated in each of these. The second level of assessment involves determining what the impact of these efforts has been on the campuses and individuals who participated in them, using the data collection methods described in section 2.

6.1 AN-MSI activities and products and their participation levels:

This section provides a summary of the various efforts of the AN-MSI project and the level of participation in each. The efforts are divided into four categories: IT-focused meetings and conferences, on-campus IT consulting and strategic planning, innovative wireless networks and related pilot projects at selected MSIs, and IT products and services attuned to the needs of MSIs.

6.1.1 IT-focused meetings and conferences:

- AN-MSI sponsored 473 attendees to attend 10 of AN-MSI's Project Action Committee meetings, most of which were held on the campuses of participating MSIs or at the EDUCAUSE annual conference. From January of 2000 to April of 2003, a total of 177 different individuals attended these, with 35% representing TCUs, 32% representing HBCUs, 21% representing HSIs, and the rest representing majority institutions or consulting organizations. Participants at these meetings (about 70% of whom were MSI IT staff, 10% MSI faculty, and 10% other MSI administrators) networked with one another; learned about IT problems and solutions on other campuses; heard about opportunities for funding, training, and networking; received updates on AN-MSI activities; and planned future collaborations and grant proposals.

- Nineteen planning & coordination meetings focusing on particular AN-MSI communities, committees, or topics were held at the EDUCAUSE D.C. office or at other sites around the country from April 2000 to February 2003. Attendance at these invitation-only meetings totaled 339.

- AN-MSI sponsored attendance for 341 AN-MSI participants at 18 IT-focused conferences or conference sessions from April 2000 to April 2003. These events included the annual conferences sponsored by EDUCAUSE, National Learning Infrastructure Initiatives (NLII), and Networking. Many participants reported they would not have been able to attend these conferences without the financial support provided by AN-MSI.

- AN-MSI sponsored 65 MSI representatives to participate in IT training and certification workshops in networking, security, and data management. These workshops, beginning in April 2001, were offered to AN-MSI at special rates by providers like Williams, CREN, CERT, SANS, and KnowledgeNet.

6.1.2 On-campus IT consulting and strategic planning:

- AN-MSI conducted 48 Campus Visits from June 2001 through the summer of 2003, including 30 at TCUs and native Hawaiian colleges, 12 at HSIs, and 5 at HBCUs throughout the U.S. and Puerto Rico. During these consulting visits, small teams of IT experts from participating MSIs assessed the IT networks and organizational structures of MSIs that wanted affordable, vendor-neutral advice on how to improve or upgrade their existing systems. AN-MSI paid for the consultants' time, while campuses generally paid for travel and accommodations.

- AN-MSI facilitated IT strategic planning at nine MSIs by bringing experienced facilitators to the campus to lead the institution's IT staff, faculty, and administrators in developing a comprehensive campus IT plan.

6.1.3 Innovative wireless networks and related pilot projects at selected MSIs:

- AN-MSI's Tribal Wireless Project installed state-of-the-art wireless backbone systems at three remote Tribal colleges, setting distance records in the process and enabling some sites to get reliable, permanent Internet connections for the first time.

- Leftover wireless radios and lessons learned from the Tribal Wireless Project were used to provide innovative wireless solutions for the connectivity problems of several HBCUs and HSIs. With the expertise gained from a prototype project at HBCU Bethune Cookman to develop a secure 802.11b wireless campus network, AN-MSI assisted other MSIs in implementing their own secure wireless networks. Other HBCUs received AN-MSI grants to explore how to integrate small, wireless devices (e.g., PDAs and cell phones) into their curricula.

- Using the cost-effective wireless systems piloted with Tribal colleges, three HSIs in Puerto Rico are installing a wireless backbone to reduce exorbitant connectivity costs and possibly form the basis for a regional network on the island. The project is playing a key role in helping to inform the Puerto Rican community of the benefits and possible means of forming such a regional network.

6.1.4 IT products and services attuned to the needs of MSIs:

- A six-session videoconference series about online teaching and learning was held from November 2001 to April 2002, with all sessions and materials now available on CD-ROM. The series was sponsored by AN-MSI and hosted by the University of Texas El-Paso, with synchronous online sessions reaching about 75 attendees at 15 MSIs nationwide. CDs were sent to AN-MSI participants and the sponsors have mailed out an additional 75 copies to MSIs that have requested them.

- AN-MSI's Network Committee developed a "Mainstream Network Model" that dozens of participating MSIs have used as a standard in assessing or updating their own campus networks. The bound copy of the model was released in February of 2002.

- AN-MSI's Project website and 4 listservs provided the latest information on IT developments and legislation, IT solutions, training opportunities, funding opportunities, and project updates. The general AN-MSI listserv has 114 participants as of December 2003, and the three community-focused listservs each have 35-45 participants. From the establishment of the general listserv on February 22, 2001 through December 31, 2003, 894 messages have been sent to and from AN-MSI participants.

- The Knowledge Management online repository sponsored by AN-MSI and served from Winston Salem State University provided MSIs nationwide with a repository for the detailed IT information that their campuses need to function but that is often lost or degraded when their current IT staff move on to other jobs.

- AN-MSI hired experienced grant writers to support collaborative proposal writing. As of January 2001, these grant writers have been available to faculty and IT staff at AN-MSI institutions who want to participate in collaborative proposals but have little time to write them.

6.2 The impact of AN-MSI events, activities, and products on participating MSI communities, institutions, and individuals:

This section summarizes the major impacts of the AN-MSI activities and products listed above, as reported by project participants and MSI representatives in surveys, interviews, and discussions conducted between December 2000 and May 2003.

In the interviews conducted in early 2003, 32 project participants and MSI representatives from 7 HBCUs, 13 HSIs, and 7 TCUs that were among the most involved in the project were asked about the impact of AN-MSI on their campuses' IT infrastructure and connectivity, strategic planning, IT staff training, and collaborations with other MSIs. They were also asked about the project's impacts on the larger MSI community and on them as individuals. The key impacts reported by these interviewees are included in the summaries below.

6.2.1 The project was an ambitious "experiment" in collaboration that laid a cross-community foundation for MSIs to build upon.

Many interviewees emphasized the unique and historic nature of the AN-MSI Project, in that it brought together institutions and minority communities that had no prior history of, or infrastructure for, collaboration with one another. Several interviewees went so far as to describe AN-MSI as a "sociological experiment" or "experiment in collaboration." For many participants, it was their first experience developing ongoing professional relationships with IT personnel from other ethnic communities. And even within ethnic communities, it was the first time that many participants had met or worked with their peers at other institutions. Interviewees from TCUs said the biggest benefit of the project for them was being able to meet with IT staff at other Tribal schools to discuss the unique challenges that their very small, under-equipped schools face in trying to prepare their students for an increasingly technological world. Interviewees from the California HSIs emphasized that it wasn't until they met each other at AN-MSI meetings that they began to realize the huge potential for collaborative proposals amongst themselves—a realization that resulted in a $3.2 million Department of Education Title V grant to develop campus security and remote security support for five HSIs. Interviewees from two HBCUs and three HSIs described how equipment left over from the Tribal Wireless Project and the advice of other AN-MSI participants made it possible for them to install wireless systems on their own campuses. Faculty members and IT staff at an HSI and HBCU who collaborated extensively on AN-MSI's distance learning videoconference series spoke of how the experience had given them "friends and colleagues" in other communities and "people I know I can always call" for advice about IT. These are just a few examples of the collaborative AN-MSI projects in which over two-thirds of interviewees reported participating.

The vast majority of interviewees felt that AN-MSI had done an admirable job building a human network of IT professionals that provided valuable professional development opportunities, resources, ideas, models for IT development, and a community of fellow MSI representatives to whom they could turn for advice and collaborate with on grants. Indeed, the majority of interviewees felt that **the establishment of a nationwide, multi-ethnic community of IT professionals and faculty researchers was AN-MSI's most important and impressive accomplishment**. As an HSI faculty member with a great deal of experience in national collaborations said of AN-MSI:

> "It's very impressive when you look at the overall impact, the fact that so many people are now talking to each other. How else do you bring that together? I don't know of any other thing that has been that successful in doing those things—creating all that collaboration between MSIs…The fact that AN-MSI was able to bring a bunch of institutions to the table that wouldn't have come to the table in other ways, I think that has a tremendous impact, and I think that's money well-spent."

Although most interviewees felt the project had laid a solid foundation for ongoing collaboration between MSIs, they were concerned about the loss of funding for project initiatives after August 2003. The vast majority of interviewees felt that without additional funding at this critical juncture, much of the project's future potential would be lost.

6.2.2 There were "tremendous" impacts on IT strategic planning, network infrastructure, and/or staff development for the MSIs who devoted the most time and effort to the project.

The majority of interviewees felt that AN-MSI contributed to their own campuses' IT planning, IT infrastructure, and/or IT staff training in valuable ways. As with most projects, there was a fairly strong correlation between a school's level of participation in the project and how much they got back from it. This correlation was strongest among the HBCUs, where those campuses with the highest representation on AN-MSI committees and campus consulting teams were more likely to receive AN-MSI project funding and much more likely to report numerous positive impacts at the campus level. The correlation was somewhat weaker at HSIs because many of the most active project participants came from large state schools with less urgent IT needs, and a few small HSIs received considerable benefits with little prior participation. Still, even though the majority of HSI representatives came into the project expecting to "give more than we would receive," many HSIs reported significant infrastructure improvements, "career-changing" professional development opportunities for their IT staff, and collaborative ventures with other MSIs that "wouldn't have happened without AN-MSI." Indeed, many of the project's most avid supporters in the final round of interviews were from HSIs.

The correlation between campus time investment and campus gain was weakest among the TCUs. More than half of the interviewees from Tribal schools, including those who had attended numerous project events, felt that many AN-MSI initiatives were not well-tailored to the needs of their small Tribal schools. As these interviewees explained, their schools' miniscule IT budgets and staff often made it difficult to implement strategies designed for larger, better-financed schools. Furthermore, their remote locations and lack of backup IT staff made it difficult for many TCU representatives to travel to AN-MSI events outside their region. Not surprisingly, the most significant campus outcomes for TCUs came from those that were selected to participate in the Tribal Wireless Project or who requested visits from AN-MSI consultants for IT strategic planning. TCU interviewees also emphasized the value of the two AN-MSI regional workshops that focused on TCUs and recommended more such workshops in the future as a good way of meeting the Tribal schools' unique needs.

Overall, the vast majority of interviewees reported that what they got back from AN-MSI was more than worth the investment they put in. When asked if the project was worth continuing after the initial grant was finished, 9 out of 10 respondents said yes, with two-thirds using expressions like "Absolutely," "Without a doubt," and "Anything I can do to support it, I will." There were enthusiastic supporters for the project within every community, but generally interviewees from HSIs were more uniformly pleased with the project's impacts on their campuses and community. About half of the interviewees from HBCUs felt the project had a

"tremendous" or "huge" impact on their campuses, with the other half reporting some local impacts but fewer than they had wanted—often due to programmatic or institutional funding constraints. Yet even interviewees who had hoped to see a greater impact on their own campus were generally supportive of the project and felt that they as individuals had gained something of value by participating in it.

Interestingly, many interviewees felt that the largest campus-level impacts of AN-MSI were still to come—if the funding to support continued collaboration could somehow be found. "We've just gotten started," said more than one interviewee. "It would be a travesty to stop this program now," said another, echoing the opinions stated by numerous participants.

6.2.3 AN-MSI's campus consulting visits produced substantial benefits for participating campuses and individuals.

The Campus Visit network assessments and strategic planning consultations sponsored by AN-MSI appear to have produced the project's most concrete and demonstrable impacts. In the interviews conducted over the last two years, interviewees from both the consulting teams and the participating campuses emphasized the nationwide need for such assessments and the benefits they had produced for those involved. As one representative from a small HSI that had received on-site consulting from AN-MSI said:

> "The payoff has been a hundred-fold. If you look at our network as a body of water, we've turned a rain puddle into the Great Salt Lake. It's been miraculous. I mean an absolute, complete turnaround…What they're doing with those visits is actually ahead of its time and admirable. By far, the campus assessment piece and their assistance with rebuilding networks for small campuses, I can tell you that is just an absolute godsend, probably to 80% of the college campuses in this country. I thank my lucky stars here that we found out about them… Having a place to go to for outside IT advice, having that resource, is just wonderful. It is amazing what that does—how it empowers an institution."

An IT administrator at a much larger HSI described the impact of their AN-MSI Campus Visit and subsequent consulting visits in the following way:

> "Because of that report and the visits since, we have totally restructured our campus IT administration…I think [the project] is excellent and the quality has been wonderful. It's been invaluable. I have leaned on them several times and relied on their expertise on numerous occasions, and they've not let me down. I couldn't say enough good things about them. They're wonderful, very professional, know what they're talking about, and they allow us the flexibility to come to our own decision…We could not have done it without them, especially with the budget situation in our state the way it is. We would not have had the resources to go out and hire consultants from some company, consultants of their caliber, to give us the information we so desperately needed."

The president of a Tribal college that had received an AN-MSI Campus Visit said of the visit:

> "That was excellent…We had been struggling and struggling with technology and employment kinds of stuff, and how you do this and that, mainly in the IT personnel area. How do you hire people? How do you know that they have the skill? How can you tell, as the president of the college? I don't have an IT background. How can I tell if this IT staff person is good when they're doing all this stuff I know nothing about? Anyway, these gentlemen were just great. It was so helpful for us just to talk to them…That was one of the most valuable things that AN-MSI ever did, was that visit…because they sat with us, they talked person-to-person, they answered everybody's questions. They talked about things that were really relevant to us and made some really good suggestions."

Due to factors like available IT funding and the level of buy-in from campus presidents, some MSIs who received Campus Visits reported fewer concrete impacts than others. In general, the 12 HSIs who received Campus Visits or consulting through AN-MSI seemed to reap the greatest

benefits from them, primarily because these schools already had the financial resources to act on the advice they were given. For the majority of the 30 TCUs and 5 HBCUs who received AN-MSI consulting, the ultimate payoffs are yet to come. At many of these schools, a lack of funding has delayed implementation of the networking advice they were given. Nonetheless, most of these schools expressed satisfaction with their visits and were waiting for the funding to put their plans into action. As one HBCU representative said, "Once we get the money, we know what we need to do." The reports that AN-MSI consultants wrote were described as "useful blueprints for the future" that increased the IT staff's chances of securing the funds they would need. As one Chief Information Officer at an HBCU put it, the report "gave us leverage, an outside source to say, okay, here are these guys coming in saying the same things that we've been saying. You've got somebody backing you up, basically."

Apparently, the AN-MSI Campus Visits often had as much of an impact on the IT experts who were conducting them as on the campuses being visited. The top IT administrators of three HSIs, one HBCU, and one TCU who were interviewed this winter each described how much they or members of their IT staff had learned by doing Campus Visits. Some gained a broader perspective of the IT issues faced by other MSIs; others gained technical expertise by getting an up-close look at how other campuses were wiring their networks or the shortcomings of certain approaches; still others gained "hands-on" knowledge of how to navigate cultural issues and work within the constraints inherent in different cultural and institutional contexts. An administrator at an HBCU described the professional development gained through conducting Campus Visits the following way:

> "I'd call it almost on-the-job training. Where it's professional to professional—a sharing of knowledge… Through the consulting jobs, we're learning what other campuses have. You're learning when you're writing up the reports, and you're actually doing research at that point, and you're talking to other people to make sure that what you're writing down is going to be supportable. It's professional development on the go."

An administrator at an HSI said the following in describing the growth he had seen in one of his staff members who had conducted numerous Campus Visits:

> "Probably for me, one of the biggest benefits has been that our own staff has been very much involved in visiting the various campuses to assess networks and information security. [One staff member] visited, Tribal colleges, HBCUs, HSIs—he's been in all of them. That was probably the greatest transformation that I've seen. We took a tech and sent him out and we got back someone whose life was altered by those visits and whose charge was altered by those visits. He came back feeling much better about what he was doing here…He is now our active director of telecommunications network services. But all of that, the self-assurance, the learning, the renewed interest and vigor, stemmed from AN-MSI…He wouldn't have been able to do what he's doing today if it had not been for those experiences…I've been in this business now for twenty-five years or so, and I don't think I've ever seen that kind of a metamorphosis so quickly with anyone else."

An IT staff member at a TCU said of his experience doing Campus Visits:

> "I learn so much. I really enjoyed this [multiple-school] visit because you get to see how the other schools are using their technology and there's some instances where they're using something that we're not …and it was like, "Hey, you know, I could try this here at our university." They were great. You know, I can't say it enough. I learned so much, especially in this last trip. I wish I could have gone to more."

6.2.4 AN-MSI provided intensive professional development in both technology and cultural diversity for many individual participants.

Helping to conduct the AN-MSI consulting visits is just one of many ways that individuals participating in the project developed their professional knowledge and skills. The majority of interviewees commented on how much they learned about the latest technology and the IT

solutions at other schools by attending AN-MSI's meetings, conferences, and workshops, and by receiving posts on the AN-MSI listserv. A participant who came to multiple AN-MSI meetings and participated in several AN-MSI projects described it as an "intensive professional development experience, because you come back to it again and again." In this respect, AN-MSI produced benefits well beyond that of any single workshop or annual conference. Interviewees from every community gave examples of things they had learned at AN-MSI meetings that had greatly influenced the IT decisions and developments on their own campus, from discovering a cost-effective means of wireless connectivity, to finding ways to monitor network security, to getting involved in high performance computing. The opinions of numerous participants were reflected by an interviewee who said, "Without going to those AN-MSI meetings, I never would have heard of that. Or at least it would have taken me a lot longer to find out about it." As an administrator at an HBCU said, attending AN-MSI meetings put her and her fellow attendees "in the mainstream as far as tech issues are concerned…It taught us what questions to ask…and exposed us to ideas, organizations, and conferences that we didn't know about before."

An equal number of interviewees talked about the enriched understanding of cultural diversity that being a part of AN-MSI had given them, calling it "a real educational process" that gave them "an appreciation for other people's situations." Every year, interviewees from the project commented on the personal rewards of learning about other cultures and getting to know people outside their own institutional context. These interviewees placed a high value on the sense of community that had formed between AN-MSI participants of diverse backgrounds and emphasized the importance of being able to talk openly about their institutions' similarities and differences in order to come to consensus on shared goals. As a number of interviewees articulated, this intensive exposure to other cultures was not only personally rewarding, but professionally instructive. As one interviewee who had participated in many AN-MSI consulting visits said:

> "I think the greatest impact is having three minority communities working together, and I think that's been a learning experience for all three, or all four, if you count those from majority organizations…The idiosyncrasies of all three communities or four communities come into play. I think the diversity knowledge is a key element which has never been really brought up. I gained an enormous amount from that. I mean, I've been in enough diversity training programs in my career, but it wasn't until I got involved in this that it was really the practical application of diversity training and knowledge—gaining more knowledge about the nuances. Because all of these communities are different. Different priorities and different styles. So I think that was one of the major outcomes. And I don't think they were looking for that from the outset."

6.3 The benefits and impacts of AN-MSI as rated by survey respondents

As part of the annual AN-MSI Participant Survey, AN-MSI meeting attendees over the previous year were asked to consult a list of potential benefits from the project and rate each as "not a benefit I have experienced" (0 points), "a minor benefit I have experienced" (1 point) or "a major benefit I have experienced" (2 points). Table 5 shows how survey respondents rated the project's benefits on the final survey in May of 2003. The benefits are listed in order from the most frequently experienced and most important benefits to the least frequently experienced and least important benefits. The midpoint of the rating scale is 1.00, and, as can be seen from the last column of the table, 13 or the 15 benefits listed had an average rating above the midpoint. The top five benefits (with no significant difference in the mean ratings of the top four benefits) were all rated above 1.5 on a 2-point scale.

Table 5: Benefits of the AN-MSI program experienced by the final Participant Survey respondents (May 2003) and degree of benefit received: No benefit = 0, a minor benefit = 1, and a major benefit = 2. Total number of respondents = 59.

Potential benefits of the AN-MSI program (from a list developed through participant interviews)	% (N) "Major benefit" (2 pts)	% (N) "Minor benefit" (1 pt)	Total % (N) rating as benefit	Average Rating from 0-2
Expanding my own knowledge of IT-related issues	68% (39)	28% (16)	96% (55)	1.65
Getting to know IT people within other minority communities	75% (42)	18% (10)	93% (52)	1.64
Getting AN-MSI funding to attend IT-related meetings	76% (41)	11% (6)	87% (47)	1.63
Getting to know IT people at other institutions within my ethnic community	75% (41)	15% (8)	90% (49)	1.62
Being part of a diverse community of IT professionals who pursue common goals	65% (37)	30% (17)	95% (54)	1.57
Coming to understand the similarities and differences between MSIs	59% (33)	30% (17)	89% (50)	1.44
Being part of a large group of MSIs for the sake of greater visibility and leverage	58% (32)	25% (14)	83% (46)	1.40
Getting information about technology initiatives and IT funding opportunities	48% (26)	35% (19)	83% (45)	1.29
Helping to expand others' knowledge of IT-related issues	41% (23)	50% (28)	91% (51)	1.28
Coming to understand the similarities and differences between our ethnic communities	42% (23)	45% (25)	87% (48)	1.22
Educating people on my campus about our IT needs	50% (26)	25% (13)	75% (39)	1.21
Collaborating with other AN-MSI participants on IT grants or initiatives	48% (27)	29% (16)	78% (43)	1.20
Getting training in IT through workshops related to or paid for by AN-MSI	52% (27)	15% (8)	67% (35)	1.19
Being on an AN-MSI listserv that posts IT-related information and project updates	40% (22)	33% (18)	73% (40)	1.08
Educating those in the majority about the IT needs of MSIs and how to address them	37% (20)	37% (20)	74% (40)	1.06
Getting funding for technology projects that will directly affect my campus	31% (16)	25% (13)	56% (29)	0.88
Getting funding to work on technology initiatives associated with AN-MSI	21% (11)	23% (12)	44% (33)	0.61

In the final Participant Survey, AN-MSI participants were also asked to rate the degree of impact that AN-MSI had on their campus administrations' knowledge about IT, the development of their campuses' IT infrastructure and IT staff, and their own professional development. The responses are reported in Tables 6-8. Responses are broken down by the community affiliation

of the respondent because there were significant differences by community depending upon the area being discussed. It is interesting to note that the communities reporting the greatest and least degree of impact are different for each of the three questions.

Table 6: What do think the impact of the AN-MSI program has been on your campus administration's knowledge about IT and the campus's IT needs?

Degree of Impact	HBCU	HSI	TCU	Majority	Total
Significant Impact	57%	50%	64%	33%	54%
Small Impact	14%	25%	29%	--	21%
No Impact	29%	25%	7%	67%	26%
Total # of Responses	14	8	14	3	39

Table 7: What do think the impact of the AN-MSI program has been on developing your campus's IT infrastructure and/or IT staff?

Degree of Impact	HBCU	HSI	TCU	Majority	Total
Significant Impact	78%	63%	63%	25%	65%
Small Impact	6%	13%	25%	--	13%
No Impact	17%	25%	13%	75%	22%
Total # of Responses	18	8	16	4	46

Table 8: What do think the impact of the AN-MSI program has been on your own professional development in terms of technology and/or diversity issues?

Degree of Impact	HBCU	HSI	TCU	Majority	Total
Significant Impact	82%	83%	45%	100%	69%
Small Impact	9%	17%	27%	--	17%
No Impact	9%		27%	--	14%
Total # of Responses	11	6	11	1	29

In a final measure of impact, the respondents to the 2003 Participant Survey were asked to rate how well the AN-MSI project did in achieving ten of the stated goals of the AN-MSI Project. Respondents rated the project's success in meeting these goals on a scale of 1-10, where "10" was the highest possible score. Because the three MSI communities differed in how they responded to many of the items, the responses shown in Table 9 (next page) are broken down by the community affiliation of the respondent. Table 8 shows the average response for the members of each MSI community, the average response across all three communities combined (the ratings of representatives from majority institutions or non-minority organizations are not included), and the % of all respondents who gave AN-MSI a score of "8" or higher on that item.

Table 9: How respondents to the 2003 Participant Survey rated the AN-MSI project on its achievement of ten stated goals of the project.

How well did AN-MSI do in the following areas? (Scale from 1-10)	HBCU average (N)	HSI average (N)	TCU average (N)	Average for all 3 (N)	% who rated ≥8
Increasing opportunities for MSI reps to attend IT conferences/meetings	8.75 (16)	9.07 (15)	6.71 (17)	8.13 (48)	71%
Providing technical and strategic IT consulting to MSIs	6.92 (12)	8.57 (14)	6.33 (16)	7.27 (42)	54%
Fostering collaboration between MSIs that haven't worked together in the past	7.67 (15)	8.36 (14)	5.67 (15)	7.20 (44)	57%
Providing worthwhile training opportunities for MSI IT staff	6.73 (15)	8.36 (14)	6.44 (16)	7.13 (45)	61%
Increasing the knowledge of participants about IT issues relevant to their campus	6.94 (16)	8.53 (15)	5.88 (16)	7.09 (47)	52%
Creating a sense of community and common purpose across the three MSI communities	7.00 (16)	8.47 (15)	5.47 (15)	6.98 (46)	50%
Creating a collaborative network of fellow IT experts MSI reps can turn to for advice	7.00 (16)	8.33 (15)	5.50 (16)	6.91 (47)	54%
Creating awareness among MSI execs about IT and what's needed to stay competitive	6.69 (16)	7.47 (15)	5.56 (16)	6.55 (47)	48%
Alerting MSIs to funding opportunities in IT	6.33 (15)	7.20 (15)	6.00 (16)	6.50 (46)	47%
Informing MSIs nationwide about the services and benefits of AN-MSI	6.00 (15)	7.38 (13)	5.47 (15)	6.23 (43)	40%

7. How satisfied were participants with the project's progress and project leadership?

Every May, survey respondents were asked about their satisfaction with AN-MSI's progress up to that point. As seen in Table 10, 64-65% of respondents in the first two years of the survey reported satisfaction with the project's progress. This percentage significantly increased to 83% in the last year of the project ($p<.05$).

Table 10: Survey respondents' degree of satisfaction with the progress of the AN-MSI project.

Satisfaction with AN-MSI's progress	2000-01 survey (N=38)	2001-02 survey (N=42)	2002-03 survey (N=48)
Very satisfied	22%	14%	35%
Somewhat satisfied	43%	50%	48%
Somewhat dissatisfied	24%	26%	13%
Very dissatisfied	3%	--	4%
Don't know enough to comment	8%	10%	--

Tables 11-13 report how respondents to the 2003 Participant Survey rated their degree of satisfaction with project administration, in particular the performance of the Project Director, the

coordinating organization (EDUCAUSE), and the Community Leader(s) for their particular MSI community. The responses are broken down by community because there were significant differences in the degree of satisfaction in each community. Across all three communities, 78% of respondents were satisfied with Dave Staudt's direction of the project, 80% were satisfied with EDUCAUSE's coordination of the project, and 87% were satisfied with the effectiveness of their Community Leader(s).

Table 11: How satisfied do you feel with Dave Staudt's role as the director for this project?

Degree of Satisfaction	HBCU	HSI	TCU	Majority	Total
Very satisfied	25%	53%	41%	67%	40%
Fairly satisfied	38%	27%	53%	33%	38%
Somewhat dissatisfied	38%	13%	6%	--	17%
Very dissatisfied	--	6%	--	--	2%
Total # of Responses	16	15	17	3	51

Table 12: How satisfied do you feel with EDUCAUSE's role as the coordinator for this project?

Degree of Satisfaction	HBCU	HSI	TCU	Majority	Total
Very satisfied	28%	25%	39%	33%	31%
Fairly satisfied	50%	50%	50%	33%	49%
Somewhat dissatisfied	22%	25%	11%	33%	20%
Very dissatisfied	--	--	--	--	0%
Total # of Responses	18	16	18	3	55

Table 13: How satisfied do you feel with the effectiveness of your community's AN-MSI Community Leader(s)?

Degree of Satisfaction	HBCU	HSI	TCU	Total
Very satisfied	41%	38%	60%	47%
Fairly satisfied	47%	46%	27%	40%
Somewhat dissatisfied	12%	15%	7%	11%
Very dissatisfied	--	--	7%	2%
Total # of Responses	17	13	15	45

8. Lessons learned through the administration and evaluation of AN-MSI

After four years of developing and refining a national IT collaboration across three diverse communities that have been greatly underrepresented in past IT efforts, the administrators and evaluators of the AN-MSI Project gained a unique and valuable perspective on the challenges, rewards, and essential elements of such a collaboration. The key project participants now arguably know more than anyone about how to create worthwhile collaborations between institutions that differ in size, ethnicity, budget, and mission. It stands to reason that using this knowledge and building upon the foundation that AN-MSI has already laid would be the most efficient and cost-effective means of working with MSIs to address the digital divide issues that

still exist. What follows are a few of the key lessons that project administrators and evaluators learned through their work on AN-MSI. Many of these lessons echo those learned in evaluating another of the NSF's large-scale, national collaborations in technology: the Education Outreach and Training programs of the Partnership for Advanced Computational Infrastructure, which the LEAD Center evaluated from 1997-2003.[6]

8.1 Many MSIs are still lacking in the staff expertise, IT equipment, and network connections they need to be competitive with majority institutions. Despite rumors of its demise, the "Digital Divide" still exists for many of the small and medium-sized MSIs within all three minority communities, as AN-MSI's on-site network assessments of 48 MSIs nationwide made clear. Training for IT staff is an important need, and many small campuses have only one IT person to support all of their network and desktop needs. Most of the MSIs visited did not have a campus-wide strategic plan, much less one that included IT, and many did not have an annual budget to meet their IT needs, with the money for IT improvements coming from piecemeal grants. Few campuses had a CIO, and fewer still had network management capabilities. Not surprisingly, security is a low priority on most campuses, and almost all have had problems with viruses and intrusions. Remedies for these problems were suggested in the consulting teams' reports, and AN-MSI's projects and workshops helped in addressing many of these issues, but so much more remains to be done. Without consistent funding for IT improvements, training, and professional development, many MSIs nationwide will continue to lag behind majority schools in preparing their students for the 21st century job market. Given the growing number of minority students in the U.S. population and the decrease in their access to majority institutions, this lack of IT competitiveness has ramifications for the entire nation.

8.2 Diverse, large-scale collaborations take time and patience to develop. Although the stakeholders in any project like to see quick, concrete results, large-scale collaborations like AN-MSI often take years to develop, much less to produce quantifiable impacts. Before group priorities can be established and collaborative projects launched, trust must be developed between the participants through *face-to-face interaction* and open, sometimes difficult discussions. Because AN-MSI's funding started with few administrative personnel and no collaborative history in place, the project had to build its membership and its common goals from the ground up. Most of the efforts that were launched through AN-MSI have just begun to bear fruit in the last two years of the project. Because of this slow but necessary developmental process, the full potential of AN-MSI's collaborative efforts may not be realized for several more years. It should be noted that the EOT-PACI program, which is considered by many in the NSF to be a model for successful national collaboration, had a similarly slow start to its collaborative efforts, followed by exponential gains that built upon one another in years three through six.[7]

8.3 A sense of community ownership and accessible, responsive leadership are essential to the long-term stability of, and participant satisfaction with, large-scale collaborations. For collaborative efforts like AN-MSI to persist, all partners and communities need to feel like they have a voice in the effort and the ability to influence how the project is administered. This requires that they have knowledge of what is occurring and how decisions are being made, opportunities to express their opinions and concerns, and leverage with regards to project funding. They need administrators who are open about their agendas and constraints, accessible

[6] For more details see Alexander, B. B. & Foertsch, J. (2003). The Impact of the EOT-PACI Program on Partners, Projects, and Participants: A Summative Evaluation. UW-Madison: LEAD Center.
[7] Ibid.

to input and criticism, and able to communicate well with those who have different agendas, needs, or communication styles. AN-MSI has suffered from its own lapses with regards to open and culturally-sensitive communication from leadership and clear accountability from administrators and project leaders, but evaluation data and group discussions that brought these issues to light eventually resulted in positive changes in both areas.[8] In the final round of interviews, a number of interviewees emphasized the need for even greater community leadership and ownership in the ongoing organization that many hope AN-MSI will become.

8.4 Peer-to-peer consulting like that used by AN-MSI has significant advantages for both the consultant and the recipient. Most of the interviewees emphasized the tremendous value of getting IT advice from knowledgeable peers at other MSIs. This advice came through presentations at AN-MSI meetings, campus consulting visits, and informal consultation by phone. They discussed the drawbacks of trying to get IT advice from vendors who want to sell them a particular product, or high-priced consultants who are accustomed to working with large majority schools and who do not understand MSIs' institutional constraints. The campus consulting visits were considered invaluable by a number of recipients. And, as discussed in section 6.2.3, IT staff from all three communities who acted as consultants felt that they received a tremendous professional development opportunity: Some gained knowledge about IT that they were able to take back to their own institutions; others learned how to work more effectively with people from other ethnic communities and institutional contexts. As a result, AN-MSI's peer-to-peer Campus Visits simultaneously addressed two of the MSIs' greatest needs: reliable advice on how to improve IT networks, and professional development for IT staff.

8.5 Centralized funding for administrators, community leaders, and grant writers is essential in organizing and supporting collaborative efforts. Over time, AN-MSI's administrators and participants learned the importance of using project funds to pay MSI representatives full-time or part-time to serve as Community Leaders, grant writers, project leaders, and project consultants. Many interviewees stressed that the project's group efforts would not have been able to get off the ground without qualified individuals being paid to do the work that collaborative efforts require. AN-MSI learned from experience that too many of the IT staff at MSIs are too busy with their own campus responsibilities to spend much time on these group efforts otherwise. As a number of interviewees pointed out, the project's initiatives progressed much more quickly after a grant writer, PR consultant, and campus visit coordinator were hired.

8.6 Broadening participation in project administration can reduce some of the problems that arise with more "streamlined" administrative structures. In a diverse collaboration like AN-MSI, where a white Project Director has been given the ultimate authority to make decisions that affect minority communities and institutional contexts that he may know less about than the administrators he is working with, it is often unclear if the objections that a single administrator raises to a course of action are objections that most of his or her constituents share. It is a problem that comes into play whenever one assumes that all members of a particular group think alike and want the same things, as people too often do in the case of minority groups. In fact, although there were definitely differences of opinion between the ethnic communities of AN-MSI on certain matters, there were also plenty of differences of opinion *within* communities. As a result, no one person could adequately speak for the entirety of his or her "group," even when that was what one was called upon to do. The solution to this problem, which has evolved over time and been written into AN-MSI's proposed organizational structure for the future, is to

[8] See Foertsch & Clifton (2002)

broaden participation in project administration and increase the number of persons and voices that are selected to represent a given group, whether that be a project committee or a community. This way a broader diversity of viewpoints is represented, and project administrators can get a more accurate sense of what the priorities and opinions of a large and diverse group of constituents truly are. In short, with voluntary and diverse collaborative efforts where many participants have competing agendas and outside demands on their time, there are distinct disadvantages to using "streamlined" administrative structures where a small number of individuals are given the bulk of responsibility for representing and producing the outcomes for a large and diverse group. Increasing the number of voices at the table—and the number of hands doing the work—alleviates this problem.

8.7 There is a need for a collaborative organization that bridges all three MSI communities. The vast majority of interviewees emphasized the importance of the three communities continuing to work together to meet their mutual needs in IT. Many offered examples of how the project efforts in another community supported or guided the IT efforts on their own campus. Most interviewees felt that MSIs would have a stronger voice in IT if they spoke as one and greater development in IT if they continued to share ideas and leverage resources with one another. Interviewees from both this year and last year emphasized the sense of unity and common purpose that the AN-MSI project has fostered. Many participants feel that the communities have far more to gain by working together and presenting a united front than they do by working as separate institutions or communities, as they have in the past. In addition, majority institutions, government agencies, and private corporations who wish to work with MSIs in areas of IT now have a single, national organization that reaches all three minority communities at once. Majority organizations who have repeatedly asked, "How can we partner with minority serving institutions in a way that will have the most impact?" now have somewhere to turn.

9. Conclusion: The future of the AN-MSI Project

After December of 2003, when the original four-year grant for AN-MSI has ended, AN-MSI hopes to continue as an IT organization separate from EDUCAUSE, as outlined in the NSF proposal currently being circulated. In this proposal, AIHEC, HACU, and NAFEO, representing the broadest coalition of Minority Serving Institutions in American higher education, request support from the NSF for the second phase of the AN-MSI initiative: the Resource Center for Broader Participation in the Emergent Cyberinfrastructure.

Guided by the lessons learned over the last four years and ongoing cross-community strategic planning, the new AN-MSI will be controlled by the Minority Serving Institutions that compose AIHEC, HACU, and NAFEO. The project will be managed through their collaborative organization, the Alliance for Equity in Higher Education (AEHE). AN-MSI will focus on fundamental areas of wide-spread need and opportunity, as identified by MSIs, including:

- Executive awareness, professional development, and capacity building in cyberinfrastructure education, research and engineering;
- Research and training in Cyber Security and Cyber Trust;
- Campus-based cyberinfrastructure development, technical assistance, and strategic planning; and
- Implementation of scalable testbeds to help create, apply, and secure the emergent cyberinfrastructure in and across the three MSI communities.

As of December, project participants remained hopeful that the NSF will recognize the tremendous potential of the AN-MSI Project to assist MSIs nationwide and continue in supporting it. The need for a cross-community, minority-led organization that serves the considerable IT needs of the nation's MSIs cannot be underscored enough, and AN-MSI has come further than any other group in developing that organization. With the growing number of minority students in U.S. schools and the continued dearth of minorities in the scientific and technical fields that drive the U.S. economy, fostering well-trained IT staff and well-developed IT infrastructures at the MSIs that produce the bulk of the nations' minority graduates should be a national priority. By building upon the efforts of AN-MSI, the NSF and other foundations, organizations, and corporations that sponsor AN-MSI initiatives can greatly broaden and diversify the pool of students and researchers ready to use advanced technologies in the years to come.

Appendix A:

The 127 Minority Serving Institutions and 8 Organizations Participating in AN-MSI from Jan 2003 – April 2003. Listed by community and state (from 48 states, Puerto Rico, and the Virgin Islands). *MSIs joining since the last evaluation report in June 2002 are listed in italics.*

State	Historically Black Colleges and Universities – 40 from 15 states, DC, and the Virgin Islands
AL	Oakwood College Stillman College Talladega College Tuskegee University
DC	University of the District of Columbia
FL	Bethune-Cookman College
GA	Albany State University Clark Atlanta University Morehouse College
LA	Dillard University Southern University, Baton Rouge
MD	Bowie State University University of Maryland, Eastern Shore
MS	Alcorn State University Jackson State University Rust College *Tougaloo College*
NC	*Elizabeth City State University* *Fayetteville State University* North Carolina A & T State University North Carolina Central University Saint Augustine's College Shaw University *University of North Carolina - Pembroke* Winston-Salem State University
OH	Wilberforce University
OK	Langston University
PA	Cheney State University Lincoln University of Pennsylvania
SC	South Carolina State University
TN	Lane College Lemoyne-Owen College
TX	*Jarvis Christian College* Wiley College
VA	Hampton University Norfolk State University Saint Paul's College Virginia State University
VI	University of the Virgin Islands
WV	West Virginia State University

State	Hispanic Serving Institutions - 47 from 8 states and Puerto Rico
AZ	*Arizona Western College* *Pima County Community College District*
CA	California State Polytechnic University - Pomona California State University - Bakersfield California State University - Los Angeles California State University - Fresno California State University - San Bernardino *East Los Angeles College* Hartnell College *Los Angeles Trade and Technical College* Mount San Antonio College Oxnard College Rancho Santiago Community College District Riverside Community College District Santa Monica College *University of California - Riverside*
CO	University of Southern Colorado
FL	*Barry University* Florida International University Valencia Community College
IL	City Colleges of Chicago Richard J. Daley College
NM	College of Santa Fe New Mexico State University at Carlsbad *New Mexico State University--Grants* Santa Fe Community College
NY	Bronx Community College College of Aeronautics Eugenia Maria Hostos Community College/CUNY Herbert Lehman College/CUNY Mercy College
PR	Collegio Tecnologico de San Juan Inter American University of Puerto Rico - Arecibo Inter American University of Puerto Rico - Ponce Polytechnic University of Puerto Rico *Pontifical Catholic University of Puerto Rico* Universidad del Sagrado-Corazon Universidad Metropolitana *University of Puerto Rico - Bayamon* *University of Puerto Rico - Cayey* *University of Puerto Rico - Ponce* *University of Puerto Rico - Rio Piedras*
TX	*El Paso Community College* Our Lady of the Lake University The University of Texas at El Paso University of Houston - Downtown University of Texas, Pan American University of the Incarnate Word

State	Tribal Colleges and Universities (and those serving Native Hawaiians & Alaskans) - 37 from 14 states
AK	*Ilisagvik College* *University of Alaska, Fairbanks-Aleutians and Interior College*
AZ	Dine College
CA	D-Q University
HI	*Kauai Community College* *Maui Community College* *University of Hawaii at Hilo*
KS	Haskell Indian Nations University
MI	Bay Mills Community College Keweenaw Bay Ojibwa Community College
MN	Fond du Lac Tribal and Community College Leech Lake Tribal College White Earth Tribal and Community College
MT	Blackfeet Community College Dull Knife Memorial College Fort Belknap College Fort Peck Community College Little Big Horn College Salish Kootenai College Stone Child College
ND	Cankdeska Cikana Community College Fort Berthold Community College Sitting Bull College Turtle Mountain Community College United Tribes Technical College
NE	*Little Priest Tribal College* *Nebraska Indian Community College*
NM	Crownpoint Institute of Technology Institute of American Indian Arts Southwestern Indian Polytechnic Institute
SD	Oglala Lakota College Si Tanka College Sinte Gleska University Sisseton Wahpeton Community College
WA	Northwest Indian College
WI	College of the Menominee Nation Lac Courte Orielles Ojibwa Community College

	National Organizations - 8
	AIHEC (representing TCUs) Dandin Group EduCause Executive Leadership Council (representing HBCUs) EOT-PACI HACU (representing HSIs) NAFEO (representing HBCUs) NASULGC (representing HBCUs)