

**Report of the National Visiting Committee
NSF ATE Midwest Center for Information Technology – MCIT
NVC Meeting held on February 23-24, 2006**

NVC Members:

Ann Beheler, Executive Director/Dean of Engineering Technology,
Colin County Community College District, Frisco, TX

Jeff Busch, Engineering Manager, Hewlett Packard, Omaha, NE

Carol Gamble, First District Regional Educational Service Agency, Savannah, GA

Dominick Fazarro, Assistant Professor of Industrial Technology,
University of Arkansas at Pine Bluff, Pine Bluff, AR

Ashraf Saad, Georgia Institute of Technology (Chair)¹, Savannah, GA

Larry Williams, Richard Larkin & Associates, L.L.C., Estero, FL

Art Zygielbaum, (Former Director) National Center for IT in Education, Lincoln, NE

Cognizant NSF Program Director:

Gerhard Salinger, Lead Program Director, EHR/ESIE,
National Science Foundation, Arlington, VA

Introduction

This year's National Visiting Committee (NVC) site visit to the Midwest Center for Information Technology (MCIT) took place on Thursday-Friday, February 23-24, 2006. The meeting agenda (included in [Appendix A](#) of this report) was mailed to all participants prior to the meeting. Binders with meeting-related materials were provided to all members of the NVC upon arrival to Omaha for the meeting. These materials comprised the meeting agenda, all presentation slides covered in the meeting, the external evaluator report, a copy of past NVC reports, a template for the NVC evaluation, and an appendix that included various articles of importance to the Center's activities and evaluation. The meeting comprised presentations over two days, including presentations by the external evaluator, Mr. Bob Mortenson, who gave the NVC members present an overview of the impact and outcomes of the Center activities over the previous year.

This year's report is based on the MCIT's activities for the first year of the new three years grant award (NSF DUE # – 2005-08), which is a follow up to the original MCIT grant award (NSF DUE # – 2000-2004). This year's report builds upon the one submitted to NSF and to the Center's leadership team in 2005. It provides commendations and recommendations along the five dimensions for the Center activities, namely: Faculty Development, Curriculum Adaptation, Workforce Development, Articulation and Recruitment, as well as Dissemination and Replication.

¹ This NVC report to the MCIT leadership and to the National Science Foundation was prepared by Dr. Ashraf Saad, Associate Professor of Electrical and Computer Engineering, Georgia Institute of Technology, Savannah, GA 31407, ashraf.saad@gatech.edu, +1.912.966.7916. Dr. Saad was graciously confirmed to serve as Chair of the NVC by a unanimous vote of all members of the NVC present at the meeting.

Overall Evaluation

With a new, three-year annually renewable grant from NSF for 2005-08, MCIT has now entered the next stage of its evolution. The Center has articulated the objectives and deliverables for each of the five dimensions comprising the Center activities. While MCIT continues to build upon its progress and accomplishments to-date, this stage should be mainly characterized by a gradual transition towards sustainability of the Center's activities. The findings of the NVC are presented below as a set of commendations and another of recommendations.

Commendations

1. Faculty Development

The MCIT continues to sustain faculty development opportunities with support from subawards to each participating community college. These opportunities have led to IT training and/or certification as well as academic degrees (bachelor's and master's degrees) for participating faculty. This support continues to have a twofold benefit: a direct positive impact on IT instruction and curriculum development by participating faculty as well as contributing, thereby leading to their upward career mobility.

The MCIT supported a second successful Working Connections IT Faculty Development Institute in the summer of 2005 (June 27-July 1). Plans are also underway for organizing and conducting a third Working Connections Faculty Development Institute in the summer of 2006 (June 26-30). As with previous Institutes, workshop topics are determined based on a survey of the needs of participating faculty in order to ensure the highest possible level of participation and benefit. Testimonials confirm the benefit of these workshops to participating faculty.

2. Curriculum Adaptation

Curriculum development and adaptation is sustained at participating community colleges and past recommendations of the NVC have been addressed. New degree options have been developed, a curriculum has been adapted for online delivery, and a modular "hybrid" delivery format has been developed. New degree options include Nanoscience Technician, Telepharmacy Technician and eBusiness.

An exciting area of new development is that of preparing IT faculty to adopt a project-based learning (PBL) approach using the Case Files methodology – developed few years ago by an ATE project at Nashville Tech. This approach seems to be gaining wider acceptance within the larger community of NSF ATE projects and centers for IT education. The NVC agrees with the MCIT staff in charge of this activity that this methodology can be engaging for both students and faculty by providing a tool for experiential learning. Moreover, the proposed web portal for Case Studies that will be developed by all ten colleges can indeed lead to increased sharing of curricula and best practices among participating faculty.

3. Workforce Development

The Center continues to sustain activities for workforce development. MCIT has developed and implemented: the Heartland Technology Expo, a Security Summit, as well as customized training for businesses on-site.

4. Articulation and Recruitment

MCIT continues to develop and revise articulation agreements with feeder high schools as well as four-year colleges and universities. The Center continues to conduct numerous student recruitment and support events, including outreach to underserved communities. The Center also continued to offer dual credit courses at participating high schools, and implemented IT training for secondary teachers to teach those courses.

5. Dissemination and Replication

The MCIT leadership team as well as faculty and Site Coordinators from participating community colleges have made several presentations about the Center's mission and outcomes at national conferences, including the annual NSF ATE PI conference. All such activities are contributing to increased visibility of MCIT on the national level.

Overall Commendations

The NVC believes that MCIT continues to fulfill its mission and continues to successfully sustain its activities at all partnering institutions. The MCIT staff are competent and dedicated individuals who have maintained the continuity of the Center's operations. The collaboration between the ten participating community colleges continues to be evident and strong. The Center's leadership team has developed a set of objectives and deliverables, and the corresponding timeline. The MCIT has also taken to heart the implementation of a Lateral Diffusion Team to disseminate best practices regionally to participating colleges. The report prepared by the external evaluators continues to provide a third party evaluation of the Center as it transitions into the next phase of its operation.

Recommendations

1. Faculty Development

Metrics are needed to measure the success of the *lateral diffusion* of experience and expertise among the participating faculty. Similar to prior recommendations of the NVC, MCIT is in an ideal position to provide support for *Communities of Practice* among faculty from participating community colleges in order to increase sharing of curriculum as well as teaching resources and strategies. More effort will need to be made on the part of the newly established *Lateral Diffusion Team* to establish such a forum as MCIT transitions gradually over the upcoming two years towards self-sustainability.

With respect to the Working Connections, more data are needed in order to assess the sustainability of this valuable opportunity for faculty development beyond the duration of NSF funding. Specifically, data are needed: about the composition of faculty participants (participating institution, demographics: gender, ethnicity, age group, ..., percentage of returning faculty), about the financial model (including any cost sharing) for running the workshops, as well as the process for the selection of topics and identifying instructors to conduct the workshops.

2. Curriculum Adaptation

Significant effort for curriculum development and adaptation is clearly occurring at all participating community colleges. However, per the NVC's prior recommendation for this area, MCIT needs to institute and support the necessary mechanisms that can enable sharing curricular resources between colleges and faculty. This takes on an added importance in the current context for establishing the Center's sustainability beyond the duration of the current NSF funding. It is not obvious whether the newly established, student-run help desk can enable achieving this goal.

The integration of soft (presentation, technical writing, teamwork, communications, ...) and business skills into IT courses and curricula remains critical. MCIT may have already identified a potentially effective approach to do so, that is: integrating these skills in the case studies developed by the Project-based Learning/Case Files approach for curriculum development. The NVC believes that AIM and its member companies may be well suited to be tapped for help in providing the business context to develop the case studies. They can also help provide MCIT with information regarding IT as an enabler in various business and industry sectors.

3. Workforce Development

The NVC continues to emphasize the importance of this area. Past recommendations are still valid in the current context for IT education. They include: the need to continue to assess the current and future needs for workforce-related IT skills in the region, with special attention to assessing the required "quality" of graduates in terms of business and soft skills in addition to technical skills and knowledge; the need to recognize emerging requirements of IT-enabled industries for new IT professionals – outside of the IT industry proper – and the magnitude of this need in the regions served by MCIT.

This area now takes on an added importance in the current business context for offshoring and outsourcing of IT jobs. The leadership of MCIT should become more cognizant of the "big picture" for IT employment, since it does inevitably have a direct bearing on local job markets of the Center's stakeholders. Specifically: where are the IT jobs going, can a skill-gap analysis be conducted, can a survey be conducted to get such information – e.g., by Gallup? MCIT needs to obtain input from both the CTO's and IT Managers in order to be able to tell where the jobs are now and where they are going to be – even a "fill-in-the-blanks" type of survey should provide valuable input to the Center's leadership. The NVC also recommends a recent report by the ACM on globalization and offshoring of software

as an excellent starting point. The report was released in February 2006. It is available at: <http://www.acm.org/globalizationreport/index.htm>.

4. Articulation and Recruitment

While the MCIT continues to support numerous student recruitment and various articulation efforts, the NVC believes assessment mechanisms are needed on several key aspects of these efforts. Specifically:

- How can we know about the impact of the Center's activities on student's success and employability?
- Where do the graduates of IT programs at the ten partner institutions go?
- Are there points of intervention in the established 2+2+2 pathways?
- How to identify students' aptitude for IT-related studies? Is some kind of a test needed?
- How to reach students at the high school level?
- Can feedback be obtained from students who have been with the participating colleges over the years and who are now in the workforce?
- While MCIT should of course continue to recognize the need to address gender and diversity differences, what lessons have been learned about what works for particular groups and not others?

These are some of the key points the MCIT leadership should take into consideration in relation to this aspect of the Center's activities.

5. Dissemination and Replication

The need is still present for MCIT to devote resources to dissemination and replication efforts "internally" in order to enable resource sharing and knowledge exchange among faculty at participating colleges on issues related to course, curriculum and program development and adaptation.

The evaluators' report also calls for addressing NSF's recommendation (as presented at a conference in November 2005) for a "paradigm change" to investigate narrower, research grade questions that can lead to potential scholarly publications about the lessons learned from NSF ATE projects and Centers of Excellence for IT education.

6. Evaluation and Assessment

There is a need for a stronger evaluation and assessment system to help determine the success of IT programs in the participating institutions. The evaluation and assessment system dictates how well the program is executing according to the NSF grant specifications. Developing and implementing a comprehensive evaluation and assessment plan for the program will provide clear outcomes and desired data, which can then be used to make key changes or enhancements in the program. Also a comprehensive plan will clearly illuminate any negative outcomes in the program. Specific suggestions are:

- Within the limits of privacy rules, collect information on student demographics.

- Create a tracking method to collect data from participants to ascertain impact after completion of the MCIT intervention.
- Establish some method of outcome-based assessment that evidences student achievement.

Overall Recommendations

The most pressing and overarching recommendations of the NVC is for the MCIT leadership to focus on sustainability and measurability. Regarding the latter, data presented to the NVC leaves much room for subjectivity. For instance, it is hard to assert that the results for all five objectives can be solely attributed to the Center's impact. The NVC also believes that the ALFI (Adult Learning Focused Institute) assessment tools and metrics may be actually providing anti-correlated measurements, which would be quite alarming. Its current findings could also be quite misleading if it results in paying disproportionate attention to a small section of the student population.

As highlighted in the commendations section, the Center continues to carry out numerous activities that have a direct bearing on student enrolled in IT programs. However, the NVC cannot get a good handle at this stage on the impact of these activities on students at the high school and community college levels. A quantitative "body count" of students is not all that is needed. Establishing the causal link that attributes positive impacts for students to MCIT activities is still undocumented.

As discussed in the exit meeting with the Center's leadership, a follow up conference call with the NVC should be scheduled in six months time. The MCIT leadership has proposed to hold it on the last Friday of September 2006 (September 29) in order to make it part of the Center's Site Coordinator meeting. Pending successful renewal of the Center's funding, the next meeting of the NVC would be scheduled for the last Thursday/Friday of February 2007 (February 22-23).

Concluding Notes

Overall, MCIT is now becoming one of the longest running NSF ATE Centers of Excellence for IT education nationwide. From this vantage point, MCIT has the opportunity to pose and seek to answer research questions that other projects and centers cannot. This will also position the Center to offer advice to community colleges and other NSF projects and centers seeking to build upon MCIT's experience and lessons learned.

The Committee was pleased with the presentations provided by MCIT staff and participants. Much progress was evidenced. The success of the project to date provides a strong impetus for improvement that could result from implementing the Committee's recommendations. The work to date provides a strong basis to inform future such efforts on issues of organizations, student achievement, and focused curricula. We congratulate the MCIT team.

As a post note: the NVC would like to extend its thanks to the leadership of the MCIT for their hospitality during this year's site visit. Special thanks are also due to Gallup University for hosting the meetings of the committee on February 23rd.

Appendix A: NVC Meeting Agenda, February 23-24, 2006



THE MIDWEST CENTER
for Information Technology

THURSDAY, FEBRUARY 23, 2006

The Gallup Organization; Gallup University **1001 Gallup Drive, Omaha, NE**

- 1300** Welcome and Introductions (Ashraf, Dennis)
- 1315** Welcome to the Gallup Organization (Charlie Colon)
- 1400** Progress of the MCIT (John)
- 1500** Evaluation Results (Neal)
- 1545** BREAK/Tour of Gallup
- 1600** Presidents Panel (Dennis)
 - College Impact
 - Future Vision
- 1645** Adjourn
- 1730** Dinner - Rick's Boatyard Café

FRIDAY, FEBRUARY 24, 2006

Greater Omaha Chamber of Commerce **1301 Harney Street, Omaha, NE**

- 800** Welcome and Introductions (Ashraf, Dennis)
- 830** Call Center Initiative (Tom)
 - Collaboration issues
 - Technical considerations
- 915** Working Connections (Dave)
 - Faculty needs assessment
 - Future plans

- 1000** BREAK
- 1015** Adult Learner Focused Institution (John/Ruth Frey)
- 1115** Project-based Case Files (Jeanne)
- 1200** **LUNCH/NVC Executive Meeting**
- 1330** NVC Executive Meeting (Keith)
- 1400** **Report Out (Ashraf)**