

FEBRUARY 3, 2006

THE UNIVERSITY OF IOWA

"The WiderNet Project is the best thing that's happened to the University of Ibadan in the last ten years. It got us interested, and now all the universities have changed."

Techno Tour 2003
Participant

Information Technology with Attitude

The WiderNet Project's primary mission under a three-year grant from the John D. and Catherine T. MacArthur Foundation has been to provide the four MacArthur-affiliated universities in Nigeria with technical and strategic consulting services around the planning and implementation of Information and Communication Technologies (ICT).

To this end we have:

- delivered over 1,400 of hours of consulting and training at partner universities
- trained over 1,300 individuals in courses and workshops
- hosted 23 administrative staff at the University of Iowa for high-level exposure to the myriad roles ICT plays in Higher Education
- provided our partners over \$400,000 in new and used computer equipment and software
- delivered 400 refurbished computers, thousands of donated books, and a plethora of networking equipment and spare parts
- spent nearly 200 days on partner campuses, with four expert volunteer trainers making multiple trips to Nigeria.
- developed numerous reports on top ICT issues for decision makers

But even more critically, we have changed attitudes. In over 800 evaluations, our partners consistently scored our training programs nine out of 10 points, while their comments made it abundantly clear that they

appreciated our "see one, do one, teach one" philosophy.



"For the first time I was able to tear down and reassemble a computer unit. I have thought that the system is so fragile and that it would break if I touched it anyhow. The instruction was well presented, the practicals as well. These practicals do not exist even at the post graduate diploma level here."

Technician Training 2002 participant from ABU

"I came here uncertain about what ICT was all about. I am going away with many ideas I can use to plan and improve the management of teaching and administration at Ibadan."

Techno Tour 2003
Participant

Trainees in our programs have constructed computers, developed strategic ICT plans, crimped network wires, installed fiber optics, built Web sites, designed databases, wrote grant proposals, deployed digital libraries, crafted digital course curricula, set up servers, configured wireless networks, and visited each others campuses to exchange ideas and pick up new skills. And they have done it extraordinarily well.

Bolstered by generous equipment and software donations from Microsoft, Red Hat, 3Com, LearnKey and others, along with hundreds of refurbished computers, our partners were able to experiment with new configurations and deployments unhampered by bureaucratic and fiscal constraints.

The nature of the MacArthur Foundation's support has been especially effective for two clear reasons: because of the long-term commitment we were able to overcome numerous potentially project-killing obstacles like national strikes, university strikes, power outages, administration changes, terrorist attacks on the U.S., hesitant partners, delays in customs, and unpaid invoices; and because of the generality of the support, we were better able to listen to our partner's needs and develop programs that fit our partner's most immediate felt needs. (In fact, the WiderNet Project developed and delivered over 30 customized training programs during this grant period.)

"It has been a highly rewarding experience which must be followed up and improved upon. I see hope for the IT sector of this country."

Technician Training participant 2002

Large and comprehensive programs like the WiderNet Project simply would not happen without the support of organizations who care and have the foresight to invest in the future of African universities. Information and communication technology (ICT) is simply expensive. Even experimenting with ICT to find less expensive ways to deploy ICT is expensive. The MacArthur Foundation has provided a solid foundation for the WiderNet Project to work with our partner universities and have our deepest appreciation. We only hope that we've delivered the "bang for the buck."



"Widernet.org gets a thumbs-up from me! You guys are doing a good job in helping to cast a wider net which now covers even interns and apprentices like us. And to our instructor, Mike Goo, you're the best!"

Computer Technician
Training participant

Major Accomplishments

Since 2001, the WiderNet Project has provided a holistic approach to the development of ICT at our partner universities in Nigeria.

As the following numbers suggest, we have leveraged many resources in our efforts to identify low-cost, effective solutions to the issues of human capacity development, equipment procurement, and the delivery of ICT services.

- **Number of Participants at Training Events: 1,341**

Two of the WiderNet Project's goals are to demonstrate the powerful potential of on-seat training to create a sustainable cadre of ICT technicians and show how large-scale awareness campaigns can grow enthusiasm for ICT-mediated teaching and research. These numbers reflect an impressive amount of participation on all our partner campuses.

- **Participant Gender Ratios: 25% women / 74% men**

Gender equity issues in ICT are challenging to all institutions worldwide. The WiderNet Project encourages partner universities to consider gender equity when selecting participants for our training programs and the results vary. Interestingly, amongst our partner universities in Nigeria, there appears to be a geographic pattern with more women participating in the south and the ratio steadily decreasing as we move north.

- **Training Events: 129**

- **Number of Hours of Training Delivered: 1,474**

- **Average Number of Contact Hours Per Training Event: 11**

These events, each of which has a distinct training focus, are the core of our capacity-building programs. They include conferences, classroom training, hands-on workshops, group consulting, and public presentations for campus awareness building.



Fiber Optics Training at BUK



Touring Kirkwood Community College's ICT

"I've learned so much, the mind boggles. The training has opened my eyes to endless possibilities. So many issues have now been raised that will definitely impact on the direction my university will go in fulfilling its mission."

Techno Tour 2003 participant

▪ **Average Training Event Evaluation (429 surveys): 8.77 (out of 10)**

Hundreds of event evaluations have given us the opportunity to assess the effectiveness of our training programs and make adjustments quickly. Overall, we have received high marks from our participants. Interestingly, the lowest marks are for "meals and beverages" and the "course was just the right length of time." While the former is more a matter of personal taste and partner's budgetary constraints, comments regarding the latter were remarkably consistent: many people felt that the training sessions needed to be longer and more frequent.

All of our partner universities have hosted enough training events that we no longer encounter many of the organizational issues we faced at the onset of our programs. Now we show up on campus and get right to work, with the trainers and the trainees equally ready to surmount the obstacles and make the best of whatever situation we face.

▪ **Number of Days Trainers Spent at MacArthur Universities: 199**

A core mission of the WiderNet Project is to demonstrate the practical and effective use of "on-seat" training. This technique makes it possible for a university to train dozens, even hundreds, of people for the same amount of money it might cost to send a handful abroad for training. Our trainers deliver intensive classroom or workshop based training along with CDs full of customized training materials and commercial computer-based training kits for follow-up work after the trainer has gone.

Trainers are selected for their advanced expertise, their intercultural and interpersonal communication skills, and their openness to working with the tools at hand (not some preconceived bias of what constitutes the "best" software or "best" system).

Recruiting trainers to go abroad is not always easy. With the political turmoil the world has seen in the last four years, as well as the domestic troubles Nigeria has endured, coupled with the prospect of facing unfamiliar and/or uncomfortable situations, many who show initial interest and get invited to travel eventually turn down the opportunity. However, the hospitality of our partner universities and the enthusiasm of the trainees have generated a striking result: every trainer who has traveled once to Nigeria has chosen to return -- oftentimes as an unpaid volunteer!



"The workshop addresses my ICT needs as if it was purposely designed for me. It's just fantastic!"

"Doing More With Less: Your Network Working for You" workshop participant

- **Number of U.S. Presenters Visiting MacArthur Universities: 7**
- **Number of Presenters Meeting with MacArthur Visitors in Iowa: 26**
- **Average Presenter Evaluation on a Scale of 1-10: 9.3**

The WiderNet Project has been fortunate to draw from a wide variety of experts for our training programs. Participants in our training programs have heard the ICT stories and experiences of everyone from the president of the University of Iowa, to the premier U.S. researchers in digital course design, to the top Nigerian wireless network engineers.

Presenters at our training programs receive consistently high marks from our participants -- with most measures scoring better than nine on a 10 point scale. Still, the lowest rating comes in an area where we share in the participant's disappointment -- many people feel that the training sessions need to be much longer and more frequent.

- **Number of Visitors from MacArthur Universities to Iowa: 19**
- **Average Number of Days Visitors Spent in Iowa: 23**

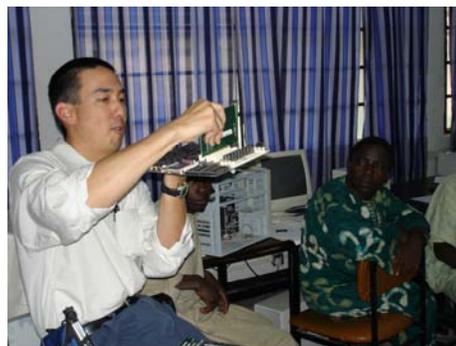
"Nothing is in the intellect that is not first in the senses." -- Aristotle

There are some things which simply cannot be explained in words, that's why those charged with setting the strategic direction for their universities benefit greatly from the opportunity to witness the dramatic impact that ICT has on teaching, research, and administration in the modern university.

As one participant wrote in his evaluation,

"When playing soccer and there is no goal, it is hard to get a winner; thus you will play forever. But going to Iowa and seeing the possibilities helped me to better assess our situation here and made me know that, though I thought we were way ahead, there is still a lot to be done and a greater possibility still lies ahead."

While visitors usually spent 10 hours a day hearing presentations, touring the University of Iowa and Kirkwood Community College, or taking intensive training, we still found time to attend athletic events, visit an Amish farm, or take in a backyard barbecue. Several visitors visited UI classrooms and met colleagues who share the same research interests.



"This training is unique because we have been located on a campus with a very concentrated structure of IT, we have been hearing from professionals who have learned from trial and error, and as a listener I feel that I have gained a greater insight and confidence in taking the plunge of supplying my university with the proper IT systems."

Techno Tour 2003 participant

▪ **Amount of ICT Resources Purchased for MacArthur Universities: \$18,800**

It can sometimes be difficult and expensive for our partner universities to secure certain types of quality ICT resources in Nigeria. At the same time, the staff of the WiderNet Project is very savvy about purchasing ICT goods at significant discounts. In these cases, the WiderNet Project staff purchases and transports supplies to Africa, reselling them at the exact price originally paid -- with the partner university winding up only paying a fraction of what it would otherwise cost to source and ship the items. In several cases we also helped universities take advantage of their product warranties by transporting damaged items back to the U.S. for repairs.



"The training is good and timely as my University is just laying her fibre cable around the campus. This training will allow me to participate fully and work with the consultant, actually supervising and knowing what to expect."

Fiber Optic Installation
2004 at BUK

Deliverables

Four years ago we pledged in our grant proposal to deliver a set of services to each of the MacArthur universities. For the most part, we've exceeded even our own expectations. In some areas we fell short. Still, there are some valuable lessons to be gained from this experience.

Let's review what we said and how we performed...

Six campus visits by consultants and trainers from the WiderNet Project (averaging 10 days of on-site consulting and training per year)

We pledged to a total of 120 days on the ground. We delivered 199 days of training at MacArthur universities; many times with two or three trainers simultaneously.

The quality of the presenters is represented both in participants ratings (scoring them 9.3 on a 10 point scale) and in their generous comments, which can be viewed at our Web site:

<http://www.widernet.org/reports/presentationcomments.asp>

Train 18 technicians/planners who have been through an in-country weeklong workshop on building networks and implementing ICT

We should come up with a total of 72. Instead we have over 400 individuals who spent 30 hours or more in a hands-on workshop or classroom training. Our partners requested more on-campus training and this proved to be an appropriate strategy. With few campus denizens proficient in computer skills and many harboring doubts about the whole enterprise, it turned out that engaging a larger swath of the campus community in the process was more important than focusing on a select few.



Digital Doctor Participants, Ibadan 2002



Network Cabling, BUK 2003

"The session provided a good overview of the necessary union between town and gown and simulated the potential links with industrial and the private sector."

Techno Tour 2002 participant discussing the "Tour of Kirkwood Community College"

Twelve ICT administrators/implementers who have visited the WiderNet Project lab in the U.S., received hands-on training with equipment similar to their own, and worked with their counterparts at the University of Iowa.

This one is not even close. We should have a total of 48 visitors to Iowa, but instead we have 23. Those 23 spent an average of 21 days in Iowa. (Two database programmers spent nearly two months in Iowa.) When we planned this portion of the program we were expecting that more partner universities would pay for their staff to travel. This did not turn out to be the case. However, it should be noted that our partner universities were beset with financial strife throughout the grant period and that international travel was severely hampered by terrorist attacks on the U.S.

It also needs to be noted that generous hosts in Iowa City opened their doors to provide 144 nights of hospitality for our guests.

Distribute CDs with thousands of articles on ICT and higher education

This we did with a vengeance. Over 1,200 CD-ROMs for technical trainees and decision makers – as well as titles in networking, satellite technology, fiber optics, Web design and others—were delivered to participants at the MacArthur universities. (Garnering us 8.8 and 8.9 respectively on two course materials measures in our evaluations.)

On-line examples of these can be found at our Web site:

<http://www.widernet.org/TechTraining/CD/index.htm>

<http://www.widernet.org/decisionmakers/CD/index.htm>

Provide WiderNet Project research and consulting services on 36 campus-specific ICT issues and have access to the results of 108 other research and consulting requests made by the other targeted universities

During the grant period we handled hundreds of unique requests for product information, research, and contacts. The output of many requests for our consulting wound up becoming a training or workshop, while much of the work done to gather information was included and delivered in the CD-ROMs and the eGranary Digital Library.

For example, after a direct request from a Techno Tour 2002 participant,

"Very good presentation. Practical and simple. Can Dr. Graber find sometime to come to Nigeria for a period between two - four weeks to educate medical teachers on these new skills and possibilities?"

Dr. Mark Graber, a University of Iowa family practice physician and the author of *"The Family Practice Handbook"* traveled twice to Nigeria to demonstrate handheld computers for medical education and practice at the medical schools of Ibadan and ABU.

"Although my university back in Nigeria has a fundraising program..., today's talk has exposed us to other more effective approaches to achieving success -- especially as a long-term strategy."

Techno Tour 2002
participant discussing
"Fundraising for the
Modern University"

Unfortunately, we did not develop a database for tracking these requests, so we cannot provide accurate numbers.

However, the output of several large research projects in...

- Satellite Connectivity
- Power Protection
- Gender and ICT
- Computer Fees
- Total Cost of Ownership
- Fundraising and Grant Writing
- Library Automation

...can be viewed at our Web site:

<http://www.widernet.org/projects/index.htm>

Dozens of free and highly discounted software packages

During the grant period we distributed 350+ pieces of donated software worth over \$100,000 to our four partner universities. (Actually, we only started keeping statistics after the first year, so there are a number of donations that didn't get recorded. Sorry.) Titles included:

- Microsoft Server 2000
- Microsoft Exchange 2000
- Microsoft SQL 2000
- Microsoft Visual Studio .NET
- Arcsoft imaging editing and management software
- RedHat Linux Professional
- Mosby's Emergency Medicine
- Mosby's Rheumatology CD
- WebMD SAM-CD Connected (Internal Medicine)

Plus a whole host of computer-based training packages from LearnKey.

Hundreds of email technical updates, implementation ideas, and ICT encouragements

Originally, we thought we would put out weekly newsletters and develop a digital community with our trainees through email lists and discussion boards, but we found this endeavor very frustrating.

In the first place, few of our trainees used a reliable email account (including many campus administrators). Even those who had email accounts experienced epileptic Internet connectivity. Viruses and spam and a whole host of other Internet curses make it difficult for them to participate on a consistent basis. Email accounts would work one week and not the next. Correspondents would change their addresses when their email boxes became filled with spam.

We have done several experiments wherein we sent out a message to a

"The Widernet training programme has really been rejuvenating. The knowledge acquired therefrom will be very useful for my professional needs and equips me better to retrain my colleagues. There is an urgency to fund the programme. It is a capacity building programme that will revolutionize the information and communications technology world of less developed countries. WiderNet: more power to your elbows!"

Technician Training Workshop 2002 participant

large group of individuals on our mailing list, only to have a sizeable (sometimes greater than 50%) portion of the e-mails returned as undeliverable within the first few hours. In informal surveys, we have found that it is a tiny minority (less than 5% of those we've queried) who can point to a year's archive of their emails.

We quickly gathered that we could not rely upon email to communicate with the majority of our participants. So we resolved to go asynchronous with the group communications: to deliver as much information as we could via CD-ROMs and the eGranary Digital Library.

Then we focused on face-to-face communications with those who did not have reliable email, and individual email discussions with those who did. As mentioned earlier, we did not track individual requests, but have handled hundreds of unique requests.

In the end, it turns out that we had a much easier time communicating with those campus contacts for whom we had provided an email account on the WiderNet Project server. We will certainly promote this strategy in future endeavors.



Gigabytes of mirrored Web sites (consisting of over a million documents) for use on their campus intranets

This may turn out to be the most enduring legacy of this grant program: the eGranary Digital Library has gone from being an expedient way to deliver training materials for our partner universities in Nigeria, to becoming a phenomenon that is now installed at 70 institutions on three continents.

As originally conceived, we planned to overcome the lack of Internet bandwidth at our partner institutions by copying educational resources from the Internet and distributing this collection via hard drives. This worked so extraordinarily well that we expanded the program, recruiting more volunteers to grow the collection to two million documents by the end of the grant period.

Christened the "eGranary Digital Library" the project attracted funding from USAID's Leland Initiative, which sponsored the development of an entirely new protocol for delivering content updates to subscribers via

"The programme was presented in a manner which allows all participants, including those who are just entering the world of ICT, to derive maximum benefits."

Decision Makers
Workshop 2003
participant

any kind of transport mechanism (Internet, intermittent Internet, CD-ROM, flash memory, satellite radio...).

By the end of the grant period, an eGranary Digital Library server had been installed at each partner university, but with varying outcomes. Some universities, like ABU, share it broadly and conduct Internet training around it, while others limit its usage or have a difficult time keeping the server running. Still, a great deal of critical experience was gained working with ICT staff and librarians, all of whom contributed their suggestions and frustrations to help us develop a better product.

Today, the eGranary Digital Library contains over three million documents, including sites like Wikipedia, the Centers for Disease Control, Columbia University, Cornell University, MIT OpenCourseWare, UNESCO, the World Bank, and the World Health Organization.

The eGranary Digital Library contains a built-in proxy server and search engine that gives patrons the true look-and-feel of the Internet, but at a speed – up to 5,000 times faster than an Internet connection – that makes it possible for them to "surf at the speed of thought." The proxy server allows user's requests to "play-through" to the Internet if a connection is available, so the patron's experience is seamless. Still, every page opened from the eGranary Digital Library saves the university the cost of the bandwidth while providing the patrons lightning-fast access to a wealth of knowledge.

Since the grant period ended, a whole host of enhancements have been made to the eGranary Digital Library, including new bandwidth management capabilities, that would serve the MacArthur universities very well. It is our fervent hope that, if nothing else, we develop a program with the MacArthur universities to update their eGranaries.

Access to the complete WiderNet knowledgebase and resource materials (thousands of documents and hundreds of solutions to common issues in ICT)

All of this was accomplished through our eGranary Digital Library and CD-ROM distribution programs.



*"Kudos to
Widernet.org on a
job well done!
It's been a great
and fascinating
time. Keep it up!"*

Ibadan Digital Doctor
2003 participant

Outcomes

These are outcomes for participating campuses which we expected that the WiderNet Project's involvement would enhance or influence.

- the design and implementation of multiple local area networks
- a wide area network for each campus to link multiple satellite campuses
- the implementation of broad-scale email services
- the development of campus-wide network file and print servers
- the introduction of some form of Internet connectivity
- the establishment of significant Web resources on the campus intranet
- the founding of in-house training programs to promote ICT skills
- concrete and realistic long-term strategic plans for future development

These things have essentially happened at all participating universities (to wildly varying degrees), although it is difficult to measure the precise impact that our training programs have provided.

In conducting post-project interviews, several informants indicated that they would like to see the Decision Makers program revived for the sake of the new senior staff who have risen to administrative positions in the years since our last Decision Makers program. Many informants credited the Decision Makers program with giving their leaders confidence and enthusiasm for implementing ICT.

Here are some sample comments from the Decision Makers participants:

"It has been a very hectic week but I've seen and learned so much – it's awesome! I hope to be able to take back some of these experiences back home and see how I can make a difference - if in not just a small way - in my university. Thank you for the opportunity."

Techno Tour 2003 participant

"The training should be made available to a wider audience. This should include management at the three levels: lower, middle and top levels."

Decision Makers Workshop 2003 participant

The programme is presented in a manner which allows all participants, including those who are just entering the world of ICT, to derive maximum benefits.

Decision Makers Workshop 2003 participant

"I wish to commend our benefactor, the McArthur Foundation, for bringing this laudable project. The benefits already derived from the workshop can be felt in the university."

Port Harcourt Decision Makers Workshop 2004 participant

"Thanks very much for the training. It is very beneficial. I hope to assist others who will need help in this regard. I really want to attend other training workshops organized by WiderNet"

Port Harcourt Wireless Installation/Optical Fiber 2004 participant

Beyond Three Years

In our 2001 proposal we wrote, "After three years we expect that the target universities, having been exposed to a variety of modalities for developing their infrastructure and capacity, will harness and finance those strategies which best suit their purposes. If the WiderNet Project is successful, we expect that the target universities will be willing to fund their participation in the ongoing project."

Alas, this has not been the case. Although not for lack of trying. A host of emails, meetings, and draft proposals have generated only curiously mild responses from our partners.

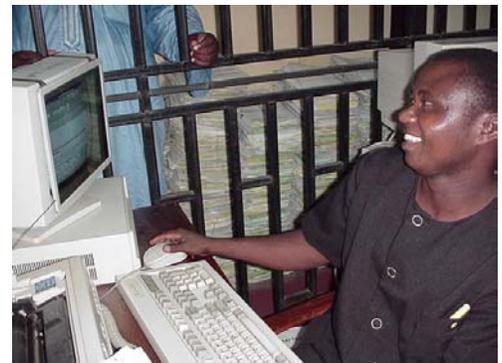
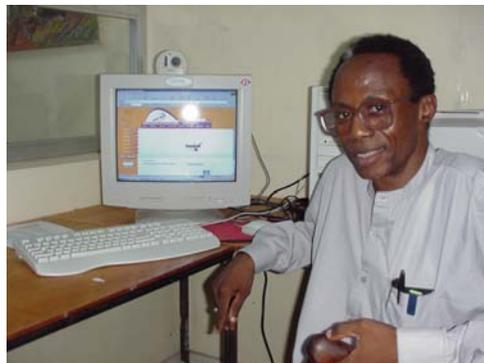
Given the overwhelmingly positive feedback we've received from participants and university administrators, it is hard to fathom this underwhelming response.

There may be a number of reasons for this, but some stand out as show stoppers.

First: several individuals at partner universities have privately disclosed that they perceive that foundations have a limited amount of resources to supply. They surmise, probably correctly, that promoting the WiderNet Project programs would decrease their share of the funding pie.

Second: several colleagues point out that universities have operated in a recipient mode for so long, that shifting to a strategic partnerships mode is going to take several more than just a few short years.

Third: our initial involvement with the four universities came from a generous and broad mandate from the MacArthur Foundation and a general consensus by the top leadership of the universities that they would welcome outside help. Implicit in all of this was the notion that, as an outside change agent, the WiderNet Project would inject some excitement and likely "stir things up" a bit. Today we're negotiating with those responsible for delivering ICT services, many of whom are exhausted from the past years of sweeping changes. Their enthusiasm for more change has been tempered.



"The instruction materials are well articulated and well presented. It is easy for all stages of experience and exposure to understand and assimilate.

Well done and keep the flag flying! Your service to humanity is appreciated."

Decision Maker 2003 participant

Fourth: we have literally spent dozens of hours planning programs with senior ICT staff, librarians, and department heads, only to find that they have little influence on funding decisions.

We have followed a protocol of working through a single intermediary for planning campus programs. Having a single person act as a gatekeeper carries both benefits and risks. A single contact point is infinitely easier to sustain, especially given the email difficulties outlined earlier in this document. Yet there is no guarantee that such a person will – or can legitimately be expected to – handle such a diverse portfolio. Some intermediaries seem distant from ICT issues, others appear to be feathering their own nests, while some are simply overworked and irritated at the additional work that a high-energy, high impact project entails. Many times, for example, we have arrived at a campus for a training program or planning meeting to hear complaints from all sides that few were apprised by the campus coordinator of our scheduled visit.

Fifth: the economic conditions at universities require them to constantly seek new sources of donations. At this point their attentions simply need to be focused on much larger fish.

All of this adds up to our progress towards defining continued linkages being less than stellar.

Those of our U.S. colleagues who are more experienced in garnering grants counsel us to simply draft a proposal, send along a few generic "letters of concurrence" for partner signatures, and submit the package for funding. But this would defeat our purpose. We would prefer to set up a collaboration structure that has ICT constituents – educators, librarians, technical staff -- communicating directly, openly, and enthusiastically about their needs, missions, and plans to come up with proposals that the top university administrators can affirm.

We will continue our contacts with the universities with the hope that eventually we will reach a point where we can identify ways for the WiderNet Project to serve their ICT capacity building needs.



"The legacy of WiderNet is the way you people have related to us.....the openness and trust....it is really very touching. Not many people are prepared to share, but WiderNet shared with us."

Vice-chancellor in an assessment conversation with Dr. Michael McNulty

Conclusion

This program has been challenging, rewarding, and largely successful.

It has also been a great joy.

In Nigeria, our partner universities have gone the extra mile to host our training events while participants have braved angry strikers, inclement weather, scary roads, and weeks away from their homes to gather and learn about ICT in the hopes of improving their lives and their institutions. In Iowa City, hundreds of volunteers have put in thousands of hours collecting donations and refurbishing computers while others have hosted visitors in their homes. At the University of Iowa, dozens of staff and students, from the president to computer science majors, have contributed their talents and time to share their experiences with ICT. Around the U.S., individuals and corporations saw fit to donate their valuable resources. And several young men traveled repeatedly to Nigeria, some donating their time and costs, to teach the technical skills they love.

No one involved with this program has remained untouched.

In the final report for the 2003 Techno Tour, project director Cliff Missen wrote:

"After last year's Techno Tour, I received several "thank you" letters from presenters. They wrote to say that they appreciated the opportunity to provide meaningful service and meet their African colleagues. Throughout the year, in Iowa City and Africa, I heard hundreds of comments from those involved with the Techno Tour about what a special occasion it was and how their hearts and minds had been changed through the experience."

A 2002 Techno Tour participant put it this way:

"I am truly appreciative to WiderNet for this great opportunity. I have come to re-affirm that people are people anywhere in the world. People generally have desires, dreams, aspirations etc., both individually and collectively. For a people's objectives to be met, the bottom line is "To do what is right at all times." Little pocket groups of efficiency and effectiveness brings about large efficient and effective societies."

The MacArthur Foundation has every reason to be proud of its contribution to underwrite this effort. At this very moment there are hundreds of people at Nigerian universities deeply engaged with information and communication technology, who do so more confidently because of the ideas, tools, and especially, attitudes they have garnered from the WiderNet Project.

