

OpenKenya

Evaluating Educational Technologies (OCW and iLabs)

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Project description

Currently, there are many challenges facing education in Kenya which stem from a basic lack of funds, teachers, classrooms, and learning materials¹. MIT has taken very important strides in the past few years to aid this relevant problem with two of its well-known initiatives: OpenCourseWare and iLabs. This project will focus on introducing, implementing and evaluating the effectiveness of OCW and iLabs in Kenya. The goal of this work is to establish a sustainable model for sharing and disseminating educational content to universities in this developing region of the world. In particular, OpenKenya will focus on evaluating the effectiveness of OCW at two universities and a high school. OCW mirror sites were installed at these locations several months ago, and the OpenKenya team will investigate metrics (i.e. access, use, and impact statistics) for these mirror sites to date. In addition, the OpenKenya team will explore the educational landscape in Nairobi, Kenya in order to determine the most effective way to introduce iLabs into the Kenyan curriculum. This project spans from September 2005 to September 2006.

The purpose of the OpenKenya project is to evaluate the effectiveness of OCW in Kenya through two established initiatives:

1. The OCW mirror site program in Nairobi, Kenya (established in 2005.)

During the summer of 2005, a mirror site of the OCW web site was installed at the University of Nairobi, Kikuyu campus in Kenya through the African Virtual University (AVU). In addition, two additional mirror sites were set up at Alliance High School and Aga Khan University, making MIT course material available to some of Kenya's brightest students. So far, it is clear that the mirror sites have added great value for the affected students. The goal of this project is to gather specific data through surveys and conduct personal interviews with educators and students to understand the effectiveness of OCW along three well-defined dimensions: access, use, and impact. The team will also install tracking software on each of the mirror sites for the MIT OCW team based in Cambridge, MA.

2. The MIT Africa Internet Technology Initiative (MIT-AITI) self-learning program (established in 2003.)

The MIT-Africa Internet Technology Initiative (MIT-AITI) is an innovative program created and managed by MIT students that integrates computers and internet technology into the education of students in African schools. MIT-AITI achieves this goal by sending MIT undergraduate and graduate students to three African nations for six weeks in order to conduct intensive classroom and laboratory sessions.

In 2003, the MIT-AITI program introduced a self-learning track through which the top students in each country were asked to independently learn the curriculum that was being

¹United States Agency for International Development, http://www.usaid.gov/locations/sub-saharan_africa/initiatives/aei.html

presented in lecture. They achieved this goal by forming groups and using resources such as the MIT OCW website, textbooks, the internet, and their peers to understand the material at hand. This program was revamped in 2004 and 2005, and OpenKenya's goal is to determine the effectiveness of such a model on the education of African students through surveys and interviews.

The other component of OpenKenya is to explore the possibility of launching iLabs in Kenyan universities especially at the University of Nairobi and Strathmore University. To further explore the level of interest from both universities, OpenKenya will conduct workshops at both institutions to demonstrate iLabs through live experiments. OpenKenya will also study the Internet infrastructure at these institutions, the curriculum to determine if iLabs can enrich any course, and the accessibility of computer laboratories to students among other relevant statistics.

Significance/Importance of Project

Education is vital to Africa's economic growth and lasting democracy, but there are many challenges facing education in Africa today. Lack of learning materials, few qualified teachers, and financial constraints are just but a few of the challenges. The AIDS Epidemics and famine have placed further limitations on what governments can spend on education. Given these challenges, the educational institutions in Kenya are not able to meet the needs of those seeking higher education. Therefore, we see a profound need to adopt innovative technologies to deliver content to those seeking higher education. The use of information and communication technologies (ICTs) will overcome the space, time and money constraints that institutions are currently facing. At the same time, ICTs will provide African students with interactive educational content that is flexible and responsive to the needs of the individual student. Our project promises to break down traditional barriers to higher education in Kenya by delivering educational content to those who need it when they need it.

Low bandwidth and poor Internet connectivity can limit how much ICTs can impact education in Kenya, and addressing bandwidth and connectivity issues requires huge financial investment that no African government can undertake. Therefore innovative alternatives that bypass connectivity are required. This project will install and configure OCW and iLabs on the local networks at universities, providing easy and fast access to students and faculty, thus significantly reducing bandwidth and connectivity limitations.

Inadequate laboratory facilities and prohibitive costs of lab equipment limit the access to the enriching laboratory experiences. By providing OCW and iLabs, students can gain exposure to tools and resources that would elevate their academic experiences. In addition, MIT OCW and iLabs provide collaborative opportunities between academic institutions. OCW and iLabs will act as platforms where students and faculty can extend and increase the effectiveness of existing educational programs. As the iLabs motto says, "if you can't come to the lab, the lab will come to you", OCW and iLabs give opportunity to those who would otherwise never get quality education.

Performance evaluation is a crucial part of this project. OCW was installed in 2005 in two universities and one high school in Kenya. This provides a unique opportunity in 2006 to evaluate the use of OCW among students, faculty and administrators. The OpenKenya team will carry out an extensive survey using various tools including live video, paper and electronic questionnaires as well as personal interviews of students and faculty. This study will provide important answers to questions about how best to use OCW in self-learning initiatives and how to improve the delivery of OCW content in Kenya. The performance evaluation will facilitate creation of in depth and sustainable models that can then be replicated and localized in other institutions all over Africa. This extended and improved usage of OCW in other African nations is the most important potential result of our project.

Key Participants

Mohamed Haji

Mohamed is an MIT senior pursuing a Bachelor of Electrical Engineering and Computer Science. Mohamed has lived in Nairobi, Kenya and is familiar with the institutions we will visit. Mohamed has experience in international development projects through MIT-AITI, having worked in Ethiopia in 2003. Mohamed has also worked with Professor Jesus del Alamo on a feasibility study on the use of remote online Laboratories in Africa (iLabs) where he closely worked with faculty and administrators in three African universities. Mohamed speaks Swahili, the national language in Kenya and Somali which is spoken by many Kenyans. Mohamed knows the Alliance High School Principal very well and is an acquaintance of Rector Peter Dvzimbo, president of AVU – two institutions the OpenKenya team will be working with.

Bryant Harrison

Bryant is the President of MIT-AITI and a senior at MIT studying electrical engineering and computer science. He has experience in Kenya as the team leader and brings expertise from the AITI-Kenya team's work in 2004. Bryant has worked directly with two of the schools in Kenya that used OCW, and he oversaw the implementation of the OCW initiatives in Kenya in summer 2005.

Jonathan Harris

Jonathan is a graduate student at MIT in the Department of Urban Studies and Planning. He has experience conducting evaluation and needs assessment for the Mayor's Office of the City of Chicago. He also has substantial coursework in policy analysis, including program evaluation and cost-benefit analysis, and the impact of information technology on the labor market. This is pivotal to understanding the abilities and limitations of ICTs to add value to an economy. On the technical side, he is well versed in database management, which will be an asset in managing and manipulating information for as well as understanding the data generated by the tracking software we will implement. He also has experience producing interactive web interfaces for the purposes of conducting online experiments.

Goals for IAP and Spring 2006

- ✓ Draft a report on the IAP 2006 activities of OpenKenya, including a description of what was done, the challenges that were faced, and recommendations for the future
- ✓ Installing software tracking system
- ✓ Explore iLabs introduction in Kenya
- ✓ Answer the following questions:
 1. What level of institutional support do self-learning initiatives require?
 2. Should content be localized to reflect social, political and economic realities?
 3. Self-learning, taught by a teacher or blended teaching – which is the best mode of learning?

Goals for the First Year

- ✓ Publish a comprehensive report on the OpenKenya project, focusing on successes, challenges, and future recommendations
- ✓ Executing the introduction of iLabs in Kenya if strong interest is expressed by students and faculty at our partner institutions
- ✓ Designing new ways to further improve the usability and scalability of MIT OCW content by making use of data gathered and analyzed via our tracking system.
- ✓ Developing ways in which we can dynamically update the content of OCW as it changes at MIT

Budget

(For 3 team members)

Expense	Description	Details	Cost
<i>Round trip Airfare</i>	Boston to Nairobi, Kenya	Round trip flight based on Orbitz rates (\$1,694 each)	\$5,082
<i>Housing</i>		\$15 a night for 24 nights	\$1,080
<i>Food</i>	Breakfast, Lunch, and Dinner	\$15 a day for 24 days	\$1,080
<i>Inland transportation</i>			\$300
<i>Survey tools</i>	video cameras, oral/written surveys and evaluation materials		\$2,000
<i>Software writing/installation</i>	Software tracking system		\$200
<i>Information sessions, media and publicity and other related costs</i>			\$400

TOTAL COSTS: \$10,142

Faculty Advisor

Professor Shigeru Miyagawa

Prof. Miyagawa is the faculty Supervisor and Advisor. Prof. Miyagawa was on the small team that established MIT OCW and brings great expertise to the team. He understands the need for disseminating educational materials through ICTs. He is also a representative for the World Summit on Information Society (WSIS), a group that lobbies for the creation, utilization and sharing of information and knowledge worldwide for sustainable development. Professor Miyagawa has close relationships with Rector Peter Dvzimbo, the president of AVU.

Professor Shigeru Miyagawa teaches Media, Education and the Marketplace: a class with a focus on the rise of information and communications technologies (ICTs) in a global world, with emphasis on ICTs' effect and potential in developing nations across the world. OpenKenya project has been developed throughout this semester in this class under Prof. Miyagawa's supervision. All the OpenKenya team members are enrolled in this class.