

Information Technology in Missions in Theological Colleges in the Majority World¹

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The purpose of this paper is to explain how Information Technology (IT) is used and supported in theological colleges in the majority world. This paper will cover: the general purposes of IT in theological colleges, the specific challenges of the African Bible College University (ABCU) in Liberia, West Africa and then survey a few IT organizations that are striving to support the IT needs of missionary organizations. The paper will highlight the diverse ways in which IT missionary workers can serve the Lord.

Purposes of IT in Theological Colleges

A Christian academic environment challenges the students to find new ways of spreading the gospel, such as the Internet, in their own country. The IT ideas being utilized in North America, such as the Internet, to spread the gospel are quickly being adopted and pursued by academic institutions worldwide. Here are some of the ways IT is being used in theological colleges in the majority world:

Communication. As in North America, educational institutions in Africa are being significantly impacted by the spread and ubiquitous use of IT. Africans want to be on the web for emailing and social communicating, doing research for writing papers, finding and publishing news articles, taking online courses, creating teaching materials, etc. They have the same pedagogical needs and wants as in the West, as well as some needs specific to Africa.

Christian Mass Media Content. Africa is a large continent – four times the size of the U.S. Its communication infrastructure is not as tightly integrated or as homogeneous as in North America, so communication is a bigger challenge. Christian radio is heavily used to bring the gospel to remote

¹ Majority World is another way of referring to the third world or developing world countries.

places where there may not even be a stable power source or phone lines (Internet access). IT is used in communication studios for the production and broadcasting of media content for radio, TV and the World Wide Web (WWW).

Training. For the training of Christian workers, there is often a shortage of good schools and trained professors to cover all the teaching needs of the students. One option that is being pursued is “online courses”. This allows trained professors from outside the local training institution to teach classes that would otherwise be very difficult to provide for the students.

Research. In times past, theological institutions were bastions of published theological material which was readily accessible for research and personal edification. In the majority world, there is often a limited amount of such material available to students. The ability to perform research online from places such as JSTOR (www.JSTOR.org – a website for journal storage) provides students and faculty with access to resources that would certainly not be available anywhere close to where the actual classroom training is being conducted. With Internet access, students are helped to remain closer to their own home town or mission instead of having to make expensive travels abroad to further their education.

Case Study: African Bible College University, Liberia, West Africa

African Bible College University in Liberia has all the same, regular challenges of maintaining an IT infrastructure that any accredited learning institution already deals with in North America. ABCU is a good example of using IT to aid theological training. The University offers degrees in Bible (for



Figure 1. Students participating in classroom instruction in the computer lab at ABCU.

pastors), education (for teachers) and communications (for workers in Christian radio and television). See Figure 1.

Due to a recent civil war, much of the country's infrastructure is still not operational. There is no public power, land line telephone system or mail system. The roads are in poor condition making the transportation of people and goods difficult and expensive. Therefore, computers are used heavily for the spreading of information and communication (such as email, etc.).

ABCU also has difficulty getting academically-qualified professors to come to Liberia for a significant length of time. They are experimenting with distance learning as one option for teaching classes. This will allow courses to be offered by qualified and experienced professors in far away locations. For this, they need stable, broadband Internet access, a strong networking environment and good host PC's to display the multimedia content in a timely fashion.



Ray and a class at ABCU

Internet access is via satellite connection. This access is expensive for the amount of bandwidth provided. Networking is not as good as a land line due to the satellite transmission delays. Also, the satellite signal is a shared connection with other users in the same geographical vicinity. During some periods of heavy rain, the satellite signal can be totally blocked. Sometimes traffic congestion causes significant delays which impact real-time Internet connections such as online learning or streaming media such as radio or TV broadcasts. ABCU is in the process of bringing a Christian radio station on

the air. Students will learn to operate a real Christian radio station and will be involved in producing the broadcast content. ABCU would also like to stream the radio broadcast out on the Internet.

There is also a need for skilled IT workers to support the whole IT infrastructure. ABCU is running a fully accredited university with over 100 students and they have no full-time IT staff. Short-term missionaries are able to come and provide some assistance. The challenge is to maintain a consistent system architecture that will allow for strategic growth of the IT infrastructure. Without a permanent IT staff, the systems are not being upgraded and maintained properly and therefore they quickly degrade. Often the work that is carried out resembles triage work performed in the ER department in a hospital. The most severe problems are solved first and the workload is determined by crisis management. The student IT assistants have no formal IT training so there is a large need for on-the-job training to make their work much more productive.

This need for full-time IT workers is currently being filled by short-term missionaries. These IT workers are full-time career IT workers in their home countries. They provide great experience and knowledge while they are on-site at ABCU. Their limitations are in the area of long-term planning and strategy. System growth tends to be haphazard and inefficient. Some projects have to be redone two or three times due to lack of proper planning from the beginning. Lack of continuity in planning and implementation makes long-term projects hard to undertake. This is especially true in areas such as networking and server maintenance. Also, the IT missionary's time available to mentor the student IT assistants is quite limited due to the time constraints of a short-term mission – there is much work to be done in a short period of time. There is not much time left over for IT skills transfer to the IT assistants.

Traditional mission field needs such as building construction requiring services such as electricians, carpenters, welders, etc. are well understood, planned for and supported. IT workers are a fairly new and huge need on the mission field. The organizations responsible for sending mission help need to be made more aware of the urgent need for full-time IT missionaries.

Challenges for IT Use at ABCU:

General Challenges:

- Lack of IT training among the student IT assistants.
- Software patching consumes precious bandwidth.
- Virus scanning software must be diligently maintained.
- Equipment hardware refresh needs. Moving from Windows/XP to Windows 7 will require many new PC's.

- Wireless security. Many students now have laptops and the scarce wireless network resources must be protected from general public use.
- Workable backup strategy. Financial records, student records, etc., require a simple, robust solution in case of hardware loss (failure, theft, etc.).
- Varied and frequently changing client devices needing configuration. ABCU has many short-term workers who bring their own hardware (such as iPods, Macs, PC laptops, etc.) which must be configured and supported for each new visitor.
- Internet content filtering is needed to protect precious Internet bandwidth and to maintain the Christian testimony of the university and the integrity of the student body. Currently, Cyberoam provides this function with a hardware appliance. However, it was destroyed recently by lightning and it has been difficult to restore this box.

There Are a Host of Hardware Challenges That Are Specific to ABCU:

- Hot, humid climate with no air conditioning. Liberia is a tropical rain-forest country that receives two hundred inches of rain per year. Humidity accelerates the corrosion of electrical contacts and makes printing difficult since paper curls easily. Overheating causes intermittent problems and premature equipment failure. During the tropical rains, the Internet access is sometime cut off since the heavy rains actually shut out the satellite signal.
- Heavy sand dust. During the dry season, the orange, Harmattan sand dust blows down from the Sahara desert and is sucked into hardware by the cooling fans. Not only does it hinder cooling by putting a coating of dust on components, but it's like having a sand blaster aimed at your hardware.
- Spare parts are hard to obtain and expensive. They are only available in the capital city of Monrovia – 7 hours away. The variety of hardware is small, expensive and often “out of stock”. Even basic tools such as network pliers and cable testers are hard to obtain. Anything out of the ordinary must be shipped from the United States by container. There is no shipping into the country at this time. It takes significant planning and lead time to receive even basic supplies. The schedule dates for containers are ad hoc, and therefore it is difficult to coordinate IT upgrade projects with other construction projects being carried on. Wiring of the new communication building for IT capability was a good example of mismatched planning schedules. The construction of the building was almost completed and the IT network

and workstation planning was still in the infancy stage. This is not a good time to start looking for the parts needed to bring the IT environment online by the time the building is ready to open.

- Lightning storms in the rainy season wreak havoc on network cabling and routers. Often gear will be struck and destroyed by lightning. There is a shortage of surge suppressors and often sensitive electronic equipment is plugged directly into the wall sockets. Network components are especially susceptible to lightning since they are connected from building to building and the underground LAN cable acts like a lightning rod. Currently, there is no surge protection on the campus LAN network.
- Unavailable and unstable voltage source. Liberia does not have a public electric power utility. All electricity at ABCU is self-generated with diesel generators which run from 6 a.m. to 11 p.m. daily. This means that every single day, the entire IT infrastructure is shutdown and then rebooted the next day. Most IT gear is not meant to take this kind of cold, hard shutdown on a daily basis. There is also an urgent need to have surge suppressors for all electrical equipment since the line voltage is not very clean.
- Mixed voltage supplies. The campus has both 120 and 220 volt lines. Most equipment from the United States is 120v. Liberia itself has chosen 220v for the country standard, like most of Europe. Therefore, at the college 120 to 220 adapters are very common. These make for poor connections and often cause power problems.
- Printing is difficult in the hot, humid environment. Paper curls easily and jams the printers. Toners and paper stock are hard to obtain. Spare parts for printers are again a major hurdle. Printers become virtually disposable for lack of operational supplies or knowledgeable staff to maintain them. Printer paper is expensive and hard to obtain.
- Network cables are chewed up by rodents. Just running regular Cat 5 network cable is short sighted since little creatures like to cut their teeth on this. Network cabling needs to have conduit or else armor to prevent random network failures due to cable failure.

The network cables in the cabinet in Figure 2 had been destroyed by rodents and the cabinet had to be rewired.

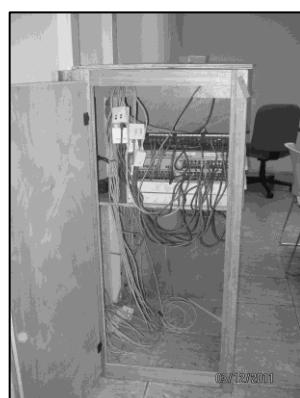


Figure 2. A network cabinet in need of shielded cable.

There are some software challenges that are specific to ABCU:

- Site licensing for Microsoft products (Windows and Office) is needed. This would make administration much easier.
- Active Directory (AD) Domain Administration. AD needs maintenance as computer users and devices are added/modified/deleted from the university network system.

IT Organizations Doing IT Mission Work

Much thanks to Dorinda Beeley from Lightsys.org for her input to this list of IT organizations that are striving to provide IT resources to mission organizations that need IT expertise.

LightSys (www.lightsys.org)

- LightSys is dedicated to equipping Christian missions and ministries with the computing technology correct for them, including the knowledge and contacts needed to support that technology.
- Mobilization and connecting – spreading awareness of the need for missions IT and helping connect interns and IT professionals with short-term and long-term opportunities.

Mark 5 Ministries (www.mark5ministries.org)

- “We are still a community of Christians dedicated to solving computing technology problems for missionaries.”

Missionary Tech Support (www.MissionaryTechSupport.com)

- A ministry dedicated to providing free end-user and infrastructure technical support to evangelical Christian missionaries and missions worldwide.

Christian Technology Initiative (www.christiantechnologyinitiative.org)

- We are passionate about helping small to medium-sized ministries be as efficient and effective in their ministry work as possible.

IT Without Borders (www.itwob.org)

- IT Without Borders is a groundbreaking new charity conceived in 2010 to answer the urgent call of Christian aid workers in developing countries.
- An Australia-based organization hoping to crowd-source IT solutions/helpdesk for “Christian aid workers”.

Cross Link Group (www.crosslinkgroup.com)

- Cross Link Group's mission is to provide affordable, professional, and functional infrastructure and technology services to every ministry they serve. Their goal is to enable ministries to leverage technology, in good stewardship, to achieve their mission.

Computers In Ministry/Computers In Missions (www.cimonline.org)

- Computers In Ministry is a non-profit Christian organization which exists solely to support the information technology needs of Christian ministries.

Conclusion

IT in theological colleges in the majority world is a powerful tool for learning and for spreading the gospel.

However, there are very unique challenges. The biggest ones are: a major shortage of IT expertise, a lack of hardware/infrastructure support, and financial support. IT work should also be seen as a missionary calling and therefore requires financial support. IT missionaries must be very independent because of working in such an isolated IT environment, and they must be self-taught in order to stay abreast of the rapidly changing technologies.

On a personal note, in Mark 10:45 Christ says, "He came not to be served, but to serve and give His life as a ransom for many." From this verse, my goal is to serve the church by meeting the IT needs on the mission field. From working at ABCU in Liberia, I have experienced first-hand the huge IT needs of a theological college in Africa. Having full-time IT support staff is critical to maintaining the current environment and pursuing strategic growth in the future.

The work at ABCU is very strategic to the spread of the gospel in Liberia. Most of the students are planning to stay in Liberia and minister to their own people. Since they will have an accredited university degree, this will allow many of them to advance as leaders in whatever role God provides for them. In the long term, this will give the gospel a major foothold in the whole country and allow Christian truth to be brought to the forefront of any issues that are raised – not only in the church, but also in schools, broadcasting environments and even in the public arena.

Instead of just teaching the students, we are teaching them to teach others from a Christian worldview perspective. This allows the individual effort of a single missionary to be multiplied many times over and will have a wonderful compounding effect over time. For me, this is the dream of the IT missionary working in a theological college in the majority world.