

Using information technology to create global classrooms: Benefits and ethical dilemmas

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The global digital divide represents one of the most significant examples of international inequality. In North America and Western Europe, nearly 70% of citizens use the Internet on a regular basis, whereas in Africa less than 4% do so. Such inequality impacts business and trade, online education and libraries, telemedicine and health resources, and political information and e-government. In response, a group of educators and community leaders in South Africa and the United States have used various information technologies to create a “global classroom” that connects people in the two countries. University students, high school students and other citizens communicate via Internet exchanges, video conferencing and digital photo essays. The project has produced a number of tangible benefits and has developed a model for reducing inequality in global education, at least for those institutions with the technological resources to participate. We also present several recommendations for expanding the initiative and thereby increasing the number of people who can benefit from it.

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Introduction

Global inequality is an enduring reality, and nowhere is this more evident than when examining the global digital divide. Across Africa, for example, only 3.6% of the population use the Internet, well below the world average of 16.9%. At the upper end of the world system, 24 countries (primarily in North America and Europe) have Internet usage rates that exceed 60% and five countries have rates higher than 70% (Internet World Stats, 2007). This global digital divide impacts business and trade, online education and libraries, telemedicine and health resources, and political information and e-government.

Inequalities in information technology (IT) clearly represent an ethical issue (see Britz, 2007). The “wired” world has distinct advantages over the “unwired” world in terms of access to resources and opportunities. These advantages perpetuate global inequality and make it more difficult for the developing world to catch up. As discussed below, solutions to the global digital divide are extremely difficult to implement for a variety of reasons.

This chapter discusses an ongoing project that uses IT to facilitate greater equality in global education. More specifically, for more than five years, a group of university professors, secondary school teachers, government leaders and non-governmental organisation (NGO) leaders in South Africa and the US have formed a unique “global classroom” that facilitates international education and intercultural understanding. We discuss this project in substantial detail and then examine its implications for ethical issues related to development, equality and social justice.

Theoretical issues

There is no question that IT has altered the world economy in many ways (see Sassen, 2006). International capital flows, global trade and the exchange of electronic information have changed the way that companies and individuals conduct business. Distance and place are becoming increasingly less important factors, as ITs facilitate connections between people and companies, regardless of their geographic location. The problem, of course, is that not everyone has access to these technological resources. Lack of

access to computers, the Internet and other forms of electronic information makes it virtually impossible for some countries – and their citizens – to participate fully in the global economy (Britz et al., 2006). Moreover, because information technology is associated with better health and overall quality of life, the many countries with low levels of IT are at a distinct disadvantage relative to economically developed nations (Bradshaw et al., 2005).

A number of scholars argue that information poverty is an ethical issue – a moral issue – precisely because it is correlated with other types of poverty (Capurro, 2000; Britz, 2004; Britz & Blignaut, 2001). Remediating the global digital divide is, according to this perspective, a matter of social justice. IT is part of the “formula” for developing poor regions, a process that is hampered by the fact that rich and powerful countries control the global information system.

Interestingly, this view is consistent with both the “cyber-optimist” and “cyber-pessimist” theories outlined by Pippa Norris in her book, *Digital divide: Civic engagement, information poverty, and the Internet worldwide* (2001). On the one hand, cyber-optimists assert that IT is a positive force in the world today, associated with economic growth, health, democracy and other features that typically characterise societal development. On the other hand, although cyber-pessimists do not disagree with these sentiments, they assert that rich countries maintain control over IT and ensure its unequal distribution globally. Thus, rich countries utilise IT for their own benefit, at the expense of poor countries.

Below, we discuss an innovative project that has the capacity to create greater equality of access to educational resources through the use of IT.

Background

In October 2002, Johannes Britz attended a conference on “Ethics of electronic information” at the University of Memphis in the US. At the time, he was a Professor in the Department of Information Science at the University of Pretoria. One of his major research and teaching interests focused on information poverty as an issue of social justice. During the conference, Prof. Britz met York Bradshaw, Chair of the Department of Sociology at the University of Memphis. One of

Prof. Bradshaw's research and teaching interests examined the impact of IT on development and quality of life in poor countries. Over the next few months, Profs Britz and Bradshaw continued a dialogue that ultimately expressed a desire to initiate the following:

- Connect classes at the two universities through the use of IT.
- In the classes, examine the effects of IT on various social, political and cultural issues. An important question would be whether inequalities in access to IT are correlated with inequalities in development.
- Examine all of these inequalities in an ethical context. For example, "information poverty" represents an ethical challenge because it translates into a poorer quality of life in the developing world.

During January to March 2003, Profs Britz and Bradshaw began talking to colleagues about these issues. Prof. Britz enlisted the collaboration of Prof. Theo Bothma (Chair of Information Science at the University of Pretoria) and Mr Coetzee Bester (Executive Director of the Africa Institute of Leadership, Research and Development and a former Member of the South African Parliament). Prof. Bradshaw enlisted the collaboration of Dr Wanda Rushing, an Associate Professor of Sociology at the University of Memphis. The larger group began to work together to outline a curriculum for a course that would accomplish the objectives noted earlier.

The group decided to launch its first "global classroom" during September 2003. From May to August, the following was accomplished:

- Two courses were identified as the ideal for the new initiative, namely "Information and development" at the University of Pretoria (taught by Prof. Britz and Mr Coetzee Bester) and "Globalisation, culture, and information technology: Is 'place' still relevant?" (taught by Profs Bradshaw and Rushing).
- Profs Bradshaw and Rushing travelled to Pretoria to work with their South African colleagues on the course content and objectives. The group decided that the two classes would share about 60% of the overall course content. In other words, both sides would collaborate on 60% of the "global classroom" course and keep 40% of their courses separate. This was necessary because their respective academic calendars are different. The Pretoria courses

begin and end nearly a month before the Memphis courses do.

- Pretoria students enrolled in the "Information and development" course and paid local fees to the University of Pretoria, whereas students in Memphis enrolled in the "Globalisation" course and paid local fees to the University of Memphis.
- The faculty members worked out common readings (for the 60% of the course that would be shared), course assignments and assessment guides. The group also decided on a web design for the course, which was hosted at the University of Memphis. All students from both universities who were enrolled in the global classroom course were given full access to the course website. Because WebCT was widely used on both campuses, it was selected as the course platform.

After ten months of dialogue and about six months of intensive planning and curriculum development, the Universities of Pretoria and Memphis were ready to launch their first truly global classroom initiative.

Early lessons learnt

Even before the course officially commenced, we had already learnt several valuable lessons that have endured through the years. We consider these issues a "must" for a successful global classroom experience that relies heavily on modern technology:

- Both sides should have at least one "champion" who will "sell" the course to colleagues and upper-level administrators; collaborate with others to work out details for the course (including all substantive, logistical and technical issues); and troubleshoot when challenges occur (and they will!). Profs Britz and Bradshaw served this role in the beginning.
- The "champions" must have the support of key administrators to accomplish course and programme objectives. Administrators can provide crucial resources and support, and they can open doors (or close them!) when troubles emerge. Prof. Britz had the strong support of his department chair (Prof. Bothma), who enlisted the support of his dean. As chair of his department, Prof. Bradshaw enlisted the support of his dean. Great ideas, strong "champions" and excellent adminis-

trative support are “musts” when organising global classroom experiences.

- Although champions are vital, team effort is important, especially as the project continues. Each side needs its own team and the respective teams need to work with each other to function as a “global team”. The teams need not be large, but they do need to have clear objectives and work well together. We have already discussed how the teams worked together to plan the course and develop the curriculum.
- Part of the team effort includes strong support from the IT departments at both institutions. Equipment between institutions must be compatible and the “academic” part of the course must be coordinated with relevant “technical” issues. For example, if part of the course is Internet based, several questions must be answered. For instance, what platform will be used – WebCT, Blackboard, or something else? Which institution will host the site? Who will design the website? Who will upload photographs and other materials that might be used? And, if part of the course utilises video conferencing, several additional issues need to be addressed: Does each institution have an adequate video conferencing facility? What type of connection can the institutions make (ISDN, IP, etc.)? Can the institutions work around the large time differences in the two locations? Who will pay for ISDN connections, which are expensive?

First global classroom: University of Pretoria and University of Memphis

The global classroom course occurred primarily in September and October 2003. For two weeks, students focused on various theoretical issues related to the effects of IT on development. For four weeks, students examined whether “place” (i.e. local history and culture) still matters in an increasingly global society. And for two weeks, they studied ways to increase IT around the world, especially in countries that lack adequate resources.

A major part of the course not only studied information technology, but also used IT to connect the students across nearly 8 500 miles. Throughout the course, two different asynchronous discussion rooms were available. One

was an “open chat room”, where students could talk about virtually any topic. Most of the discussion revolved around non-course material, such as popular music in South Africa and the US, sports, leisure activities, types of parties that the students attended, and so on. The other discussion room focused on the video conferences that were a vital part of the course. Prior to the video conferences, one or more of the instructors would post a set of questions or a short lecture that outlined the main issues pertaining to the conference. Following the video conference, the students continued their discussion online. These discussions were frequently more intense than the actual video conferences and lasted for several days – sometimes longer!

An interesting example of inequality of access to IT emerged early in the course. The Memphis students sent frequent messages to their colleagues in Pretoria, and it was often several days before they received a response from most of them. This frustrated the Memphis students, who initially saw this to be a sign of apathy on behalf of the Pretoria students. But, as they would soon learn, this conclusion was incorrect. During a video conference, the instructors asked: “How many of you have a computer at home that is connected to the Internet?” The hands of more than 70% of the Memphis students went up, but fewer than 20% of the Pretoria students.¹ To communicate with their counterparts, students in Pretoria had two options – either go to an Internet café and pay for a connection (which is not feasible for many students who are on a tight budget), or send messages from a campus computer lab during class time. Recognising the challenge, Prof. Britz and Mr Bester gave students an opportunity to respond during regular class time. The computer labs were over-subscribed and therefore students were seldom able to use the labs outside of class time.

Although students enjoyed communicating via the Internet, it paled in comparison to the popularity of the live interactive video conferences. Four times during the course (about every two weeks), the students would talk to each other for 75+ minutes on a wide range of topics

¹ Fortunately, in 2007, the instructors conducted a similar poll, and nearly 80% of hands in both classes were raised.

associated with the course.² The instructors would determine the primary topic well before the video conference and would post a question or two on the discussion board in advance.

Each video conference also began with a short "lecture" of about 10 minutes by one of the faculty members. The first video conference addressed the theoretical issue, "Are you a 'cyber-optimist' or a 'cyber-pessimist' (i.e. is IT good for the world, or not)? The second video conference examined the role of "place", seen in global perspective. The third looked at the effects of IT on health, education and overall quality of life. The fourth focused on possible solutions to the global digital divide.

Prior to the video conference, it was very important for instructors on both sides to have their students thoroughly prepared for the day's theme. Students needed an understanding of the content as well as the technology being utilised. For example, we talked about the different technologies that can connect video conference partners (ISDN, IP, etc.), along with the pros and cons of each approach. If students are not prepared for such technology, they may "freeze" due to the "wow factor" that video conferencing brings to first-time users, who are often surprised by the real-time reality of the experience.

Following the short lecture that started each conference, the faculty member would normally ask an initial question (or questions), to which each side would respond. The faculty member on the other side would then have the opportunity to respond and ask a question (or questions), to which each side would again respond. Once the discussions begin, it is essential to have good leaders on both sides. The leaders must work together to give both sides an equal opportunity to speak, and they must take advantage of the impromptu topics that enrich the discussion. They must also allow students to ask each other questions, which can lead to very interesting discussions.

A particularly valuable and moving segment occurred during the final 20-25 minutes of the last video conference. All the students were given an opportunity to express their sentiments about

what the video conferences meant to them. Students on both sides said that the conferences had opened their eyes, reduced stereotypes (such as "Americans are all rich and arrogant" and "South Africans are unsophisticated and live in the bush"), enhanced intercultural understanding and made them much more interested in visiting each other's country.

Moreover, and importantly, the course "forced" each side to look more intensively at its own challenges. For instance, upon learning more about apartheid and race relations in South Africa, the Memphis students observed (primarily during private class sessions) that Memphis still suffers from some of the same challenges. Racial tension is very real in Memphis, a reality associated with history, poverty and violence. One Memphis student commented, "We still have our own apartheid right here", whereas other students disagreed with this view. The point is that the video conferences prompted an excellent discussion of race relations in the "other place".

In addition to video conferences and Internet discussions, the students used one other form of IT to work together. Specifically, for their final assignment, they completed a photo essay that required good-quality digital photographs. The classes were divided into five "global teams", each of which had students from the University of Pretoria and the University of Memphis. Each team decided what topic it wanted to investigate - a task accomplished through intense email negotiations! The Pretoria students then took relevant photographs in the Pretoria region and the Memphis students took photographs in Tennessee. The photos were exchanged over the Internet and each student was required to write his or her own essay from the topics. Topics included "The fight against HIV and AIDS", "Providing healthcare to poor communities", "The role of religion in society", "International cuisine as an expression of culture" and "Popular culture and society".

In conclusion, students were assigned a grade (or mark) for each section of the global course (Internet discussions, video conference participation, and photo essay). The Memphis students were graded only by their instructor (Profs Bradshaw or Rushing) and the Pretoria students were graded only by their instructors (Prof. Britz and Mr Bester). Although instructors from both sides

² At that time, the connections were made via an ISDN connection that cost about US\$500 per conference - the two universities split the costs.

shared comments about the students' overall performance, there was never a desire for one side to grade the other side's students.

Broadening the scope: Subsequent global classrooms

Following the success of the initial global classroom, the project has been repeated and expanded in three ways.

Continued projects

First, the global classroom concept has continued at the University of Pretoria and the University of South Carolina Upstate (USC Upstate). Mr Coetzee Bester assumed primary responsibility for the course at the University of Pretoria (after Prof. Britz moved to the University of Wisconsin-Milwaukee) and Prof. Bradshaw assumed primary responsibility for the course at USC Upstate (when he moved there). The two universities held a global classroom in September–October 2005 and again in September–October 2006. Although the topics and themes have changed slightly since the initial course in 2003, the overall organisation and format have remained the same. Moreover, the same information technologies (Internet discussions, video conferences and digital photography) have been utilised in all three courses.

Interestingly, the global digital divide made the video conferences more challenging over time. As mentioned earlier, ISDN connections were used during the initial global classroom project in 2003. Both sides utilised this technology. In recent years, however, most US universities (including USC Upstate) have moved away from ISDN technology because it is usually not needed – instead, IP connections are the norm and are essentially free! Unfortunately, however, IP connections are problematic when, as in the case of the University of Pretoria, there is insufficient broadband capability to utilise this technology. Thus, the only way the University of Pretoria and USC Upstate could establish reliable interaction was for the former to utilise an ISDN connection to a “bridge” that converted the transmission and made an IP connection with USC Upstate possible. The University of Pretoria normally used a bridge in the Netherlands, and the cost of a 90-

minute video conference typically came to about US\$385. In other words, lack of broadband capability was financially costly to the University of Pretoria.

Participation by high schools

Second, and very exciting, the global classroom has moved successfully to the high school level. For several months in 2006, USC Upstate worked closely with both the Pretoria High School for Girls and Spartanburg High School to initiate a very successful project that has run much of the 2006–2007 academic year. Since October 2006, the two schools have engaged in three video conferences and exchanged more than a dozen photo essays. The three topics investigated thus far are: “Is information technology a positive force in the world?”; “Is popular culture uniting the world?” and “War: when (if ever) is it justified?” The students have also exchanged hundreds of emails over a dedicated discussion board on WebCT.

By all accounts, the global classroom for high school students has been enormously successful. The students have taken the project very seriously and participated at an impressive level. The successful interaction also resulted in an invitation to the headmistress of the Pretoria High School for Girls to participate in an international conference in Spartanburg, South Carolina in March 2007, as well as an invitation for two students and a teacher from the Pretoria High School for Girls to attend a Youth Leadership Institute on the USC Upstate campus in June 2007. Moreover, an exchange programme from USC Upstate would visit the school in Pretoria in June 2007.

It is important to point out that global classrooms at high school level face special challenges, most of which ultimately relate to issues of equality and ethics. We mention a few here:

- High schools normally do not have video conferencing facilities or software packages like WebCT. Thus, they must partner with institutions that do, or pay substantial rental fees. In the case of our high school global classroom, the Pretoria students used the video conferencing facilities at the University of Pretoria and the Spartanburg students used the facilities at USC Upstate. A grant awarded to USC Upstate from the US Department of

Housing and Urban Development covered the costs associated with the video conference. Moreover, USC Upstate hosted the WebCT site for the global classroom, and students at both high schools were given passwords to the site, which could be accessed at no charge.

- High schools also need partners who bring expertise in technology and curriculum issues. In this case, the two high schools had extensive assistance from both USC Upstate and the University of Pretoria on such issues. Prof. Bradshaw coordinated the effort at USC Upstate and Prof. Theo Bothma provided crucial support at the University of Pretoria. All the lessons learnt in the university-level global classrooms were applied to the high school classrooms.
- Although external support is important, nothing is more important than having committed teachers and administrators in the high schools. Just as with global classrooms at the university level, both sides must have at least one “champion” who will advocate for the project at all times. They need to be outstanding teachers who have the support of their respective administrators and who can work well with people at different institutions. Ms Janis Haynes (Social Studies teacher at Spartanburg High School) and Ms Jeanne Cyrus (English teacher and debate coach at the Pretoria High School for Girls) were true champions of the global classroom – and kept it going at all times. They also had strong support from the principals at each institution.

In the end, global classrooms will need human, capital and technological resources to succeed. Schools in poor areas will have difficulty in securing access to such resources.

Occasional conferences

Third, in addition to formal classrooms, the global classroom concept can be used for occasional events. For example, in October 2005, we used video conferencing at an international conference held on the USC Upstate campus titled, “Using information technology to globalise the curriculum”. During a session at the conference, a panel of South African experts (led by Mr Coetzee Bester) talked via interactive video with conference participants about a number of social, political and economic factors influencing

South Africa. The panel broadcast from the video conferencing facilities at the University of Pretoria. And, in June 2007, 50 high school students at a Summer Youth Leadership Institute on the USC Upstate campus would hold a video conference with youth leaders in South Africa, again using the facilities of the University of Pretoria and USC Upstate.

Conclusion and recommendations

Based on case studies, this chapter has discussed the use of global classrooms at the university and high school levels. In our view, the success of these international initiatives is due to two common characteristics:

- They rely on committed and well-trained professionals who know how to create and sustain such projects.
- They possess the financial and technological resources to make the projects possible.

Unfortunately, there are relatively few institutions across Africa and the rest of the developing world that have the resource capacity to launch similar initiatives. The impediments to widespread use of these global classrooms are related to issues of inequality. On the positive side, however, this also means that global classroom initiatives could be much more prevalent if several key constraints are overcome. We put forward three recommendations here.

First, teachers in the developing world (and, for that matter, the economically developed world) need intensive training in how to incorporate information and communication technology into the classroom. Although the acquisition of new computers, new servers and new satellite hook-ups would be a positive step, they are not particularly useful without trained teachers who can use them in an effective and creative manner. It is not just a matter of understanding the technical use of equipment; instead, it is about devising a curriculum that incorporates the new technology in a creative learning environment.

Training programmes for teachers need to include several components:

- Teachers need intensive training over several weeks at institutions that have innovative programmes in the area of teaching with technology. It would be an invaluable opportunity for teachers to see the programmes in action;

receive instruction in relevant pedagogical and technical issues; talk to students and instructors; and build networks that will serve them well into the future. These training opportunities could take place at a venue anywhere in the world with the requisite facilities and programmes.

- “Onsite” training is also important. Visits by teachers and technology experts to schools with new technology would also be valuable. It would enable teams of educators from the local school and from outside the local school to work together on a variety of issues.
- Online resources are also a crucial part of (continuous) training for educators throughout the world. Good online resources can be used for “basic” training in technology and curriculum issues, and also for a wide variety of ongoing “advanced” discussions. Sophisticated discussion boards on teaching with technology, incorporating indigenous knowledge in a digital age and a myriad other topics would be an outstanding resource for teachers in all regions of the world.

Second, institutions in the developing world need access to computers, servers, video conferencing equipment and other electronic resources. It follows that if they acquire these resources, they need assistance maintaining them. The value of many donations of equipment has eroded over time because little or no provision was made for maintaining and repairing the equipment. Moreover, as was already mentioned, the lack of broadband access remains a difficulty that slows connectivity and increases the cost of doing business. Greater resources, combined with well-trained “human capital”, would go a long way towards resolving some of Africa’s most intractable IT challenges.

It would be enormously beneficial if international and regional actors could provide the human, financial and technological resources to help local actors develop creative solutions to the digital divide. In Africa, for example, the New Partnership for Africa’s Development (NEPAD) has launched a very exciting “e-schools” initiative designed to connect 600 000 schools across the continent through IT. NEPAD has already supplied many schools with computers, satellite hook-ups, television monitors and video conferencing equipment. The challenges ahead are the following:

- To provide the necessary resources in order to maintain the equipment and train technicians to repair it
- To train teachers how to use the equipment and, perhaps most importantly, to integrate technology into the classroom in an effective manner

Third, partnerships are essential in building global classrooms. Partnerships expand human, capital and technological resources. In our case, the relationships among the universities and the high schools (and the key players at each institution) made possible a unique global learning experience. It is also important to point out that some partnerships did not work out along the way. This project attempted to recruit several other institutions and, for various reasons, they opted not to be a part of the initiative. Several expressed great interest initially but then, when hard work and resources were required, they dropped out. This again underscores our primary argument that global classrooms are extremely valuable and require great commitment on the part of all partners.

Global inequality has maintained a serious digital divide that places developing countries at a distinct disadvantage. Addressing this inequality is a matter of ethics and social justice, precisely because information poverty maintains other types of poverty. We hope that our initiatives will play a small role in reducing poverty.

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