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The Jamaican Internet:
Supply, Demand and Education

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The Jamaican Internet: Supply, Demand and Education

Abstract / This paper describes the presence of the internet in Jamaica. It attempts to outline and understand the way that the internet has (and has not) taken shape throughout the country, with particular attention to the role of the government, corporations as well as NGOs have structured the possibilities for the internet and how, in turn, Jamaicans have responded to the availability of internet and computer resources in schools, free and NGO sponsored sites as well as public cybercafes. These findings are intended to provide the backdrop for the more focused concern with the lack of demand and its implications for policy that are outlined in the second working paper in this series (Miller and Horst 2005).

Keywords / Internet, Infrastructure, NGOs, Education, Jamaica.

Introduction

In considering the overall impact of ICTs on low-income Jamaica, there is a rather remarkable contrast between the rapid appropriation of the cell phone — where in the space of a few years the country reached its current subscription rate of two million out of a population of 2,600,000 — and the internet, which appears to remain very much in the background to the story of modern Jamaica. An extended recent survey by JAMPRO, a Jamaican government agency established to encourage international trade allows a reasonably accurate portrait to be drawn largely of the failure of the internet to gain much headway. According to the Jamaican government export agency JAMPRO (2003), there are only 70,000 internet connections in Jamaica; private connections account for less than 3% of the population. Half the connections are with Cable and Wireless, the main incumbent telecommunications company in Jamaica and most of the Caribbean, and the rest of the subscriptions are registered with half a dozen smaller companies. It may well be the level of usage in Jamaica in 2004 is still less than that reported by Miller and Slater (2000) for Trinidad in 1999. This is notwithstanding the 45 licences held for Internet provision and 14 ISPs (Internet Service Providers), which include five that offer broadband.

A report by the Allen consultancy group (Allen 2002) attempted to assess the potential for e-commerce within Jamaica. The report suggests that only 9% of companies had internet access and less than 2% possess websites, which implies that commercial access is not much greater than private access. These figures are similar to the more recent JAMPRO report. Not surprisingly, the most developed sector by far is the tourist industry with accommodation, travel, and transport readily on-line and considerable opportunity for on-line booking. Similarly areas that cater to the tourist industries typically provide cybercafes and other public access portals set up largely for tourist use. They also stimulate greater local usage. But just as there is a general question of how much of the profits of this sector are retained in the country, it also is relevant that most of the Jamaican web-sites are hosted outside of Jamaica. Still, since tourism provides 13% of GDP, or 45% of foreign earnings and 8% of employment, the web presence is an important one. There is a similar situation with regard to the Jamaican music industry, apparently buoyant with considerable interest and enthusiasm coming from abroad. By our calculation there are at least 750 websites in operation which concentrate on the Jamaican music industry, but as yet little capitalization by Jamaican companies. The Allen Group report suggests that the financial services sector has been particularly conservative and unadventurous, even by comparison to other Caribbean countries due in part to a banking system that makes it difficult for businesses to facilitate the cross-currency and credit card payments that would allow greater international trade based on the internet. While there are credit cards which now can be used in Jamaica, the sector has rallied little support for Jamaican dollar based credit cards that can be used internationally.

In effect, surfing the `Jamaican' web is often in effect surfing the presence of the Jamaican diaspora, though the distinction is a blurred one. To illustrate, Top5Jamaica was developed by Sandor Panton who left Jamaica in 2001 and currently works for a small internet marketing company in Canada. Panton (pers. com.) began the site as part of a MSc. Programme at UWI (University of the West Indies) in 1997 and decided to post it live) on the internet at the end of 1998. By mid 1999 the website was generating such serious traffic that Panton decided to register it and develop the site further. Much of this enterprise involved, searching for sites on Panton's own time and money. By 2004, the site wielded approximately 8,000 unique visitors per day, although most of the traffic was

derived from Jamaicans living abroad and foreigners seeking information about Jamaica. Approximately 70% of Top5's visitors are from North America (USA and Canada) and the United Kingdom. Notably, Top5 now attracts enough advertising to pay for itself.

Cable and Wireless (henceforth C&W) are the dominant ISP. Both C&W and Infochan (the oldest ISP in the country) have points of presence in every parish which allow local rate dialing. A report cited by another consultancy group Marengo (2004) suggests that with regard to private subscriptions, 45% of users are men and 55% are women, which our sparse ethnographic data would seem to support. But what our ethnography makes clear is the remarkable difference between Jamaica and many countries of significantly lower income levels. While even quite impoverished developing countries seem to have internet cafés at every street corner, in Jamaica they are comparatively non-existent. There are perhaps six in the main areas of Kingston either established by NGO's or mainly patronized by visitors. In Portmore, a dormitory suburb of Kingston (and one of our two fieldwork sites) there are three commercial and one NGO based internet cafes for a population of 200,000. Outside of Kingston, most internet cafés exist only in parish capitals, such as Mandeville, and tourist resorts.

Blame for this lack of development is often laid at the door of C&W and more specifically their pricing structure. The most cited cause of the lack of private internet access is quite simply that C&W continue to charge users a per minute telephone charge for dial up access in addition to the flat rate internet charge. One report in the IADB document (2002) suggests that someone wanting extensive use of a dial up service could well end up with a bill of over US$100 per month for the privilege. Those who desire broadband could pay much more. In 2004 C&W radically reduced its monthly ADSL charges for access. These now range from $US60 for a private 265k connection to US$500 for a business connection of 1,544k. Even by international standards these remain prohibitive. Perhaps more problematic is the difficulty of making a business plan for ISPs and cybercafés. As one cybercafé owner noted, "when companies are paying C&W $US800 for an IP address that would cost US$8 in the US, it is not surprising that the common name for C&W amongst its competitors is `rape and pillage'."

Indeed, it seems the whole country is waiting for the completion of the promised new cable in 2006 (the license was issued in 2005). Currently all access is via a fibre ring constructed by C&W, which has been continually enhanced since 1992, but which in 2004 C&W itself stated to be operating at full capacity. While Jamaicans patiently wait, a current alternative might be the provision of service through the many cable TV operators, which have a strong presence throughout the island. The cable television companies could take their broadband directly from satellite and deliver service via their own cable, which enables the cable companies to bypass C&W altogether. Unfortunately this is not cost effective from their perspective, since according to operators taking broadband from satellite can cost twelve times that of deriving broadband service from cable. For example, Entertainment Systems offered broadband between 2002 and 2003, but discontinued their service after one year due to limited subscribers and infrastructure problems. Others cable operators are contemplating such schemes at present.

Another problem is the overall structure of cable TV provision. The Jamaican government divided the island into quite small areas and each area is serviced by two competing licensees. As a result, the companies that operate cable TV suggest it is almost impossible to make any kind of profit from such small units given the constant undercutting by rival companies. There is a sense that there has to be some consolidation in the industry. Only then do economies of scale make commercial sense and place one or two companies in a position to make more of both cable TV and internet provision in the future. Today there are said to be some 52 licensed companies involved, although cable TV itself has grown by 120% from 1998-2002.

Media professionals have been proclaiming the potential for voice over telephony for years. A device called a Yapjack promises to facilitate voice over telephony (VOIP), allowing calls to be made at a fraction of the cost of using a cell phone. To date, the subscription to this service remains very limited, which is admittedly confounding the companies offering voice over telephony; they cannot understand why a device costing $US125 which drastically reduces the expense of the 150 million minutes of calls that Jamaicans make abroad each year is not more popular. This may reflect the reluctance to take up the internet more generally in Jamaica. On the other hand, Jamaica is hardly unique in terms of the lack of appropriation of such innovations like Yapjack. At the time of writing, the phenomenon of SKYPE has emerged as a presence on the international scene and may be fulfilling something of this promise that VOIP has been beckoning for many years. The impact of SKYPE in the first instance builds upon a backbone of ubiquitous presence of computers, i.e.

relatively wealthy countries. By contrast, for a country such as Jamaica, the impact would have to be the other way around. Here it is a question of whether SKYPE will drive demand for computer purchase, rather than ride of the back of a previous distributed hardware. Although with marked differences between the US, UK and Japan in the take up of such technologies, it is hard to predict the impact on Jamaica.

NGO Activity

In order to develop some sense of demand for the internet as separate from the issue of high costs of access, the best evidence comes from the activities of various NGOS who have been providing either free or heavily subsidized internet access as part of development programs. These are limited. Although there have been a number of NGOs which have helped schools in Orange Valley (our rural fieldsite) obtain computers, there was no evidence of any sustained NGO activity in the Orange Valley with respect to ICTs. In Portmore, however, there was a cybercafé that had been funded by UNICEF in the Edgewater area which opened in July 2003. In its first month, the free cybercafé attracted 308 users. By July 2004, visits had grown to 1160 users and the site was close to capacity. The cybercafé was housed in temporary building, similar to a container or the back of a trailer. It contained 8 computers all with broadband internet connections for general access and one for the three staff workers. The cybercafé was open from 0900 to 1800 Monday through Saturday and users were permitted to remain on a machine for one hour. If at the one hour point there were others waiting to use the machine, users were required to give up their machine. If there was no one waiting, they could continue. Officially, users were required to be between the ages 8 and 34. Although the age limitation was probably not being monitored carefully, most of the users were within the age parameters. An important part of the success of the site was the free training offered on Saturdays as part of several youth training schemes based on this site and there were usually around sixteen people at each training session. Even though many students received some exposure to computers and the internet at school, most children needed this additional training to feel comfortable about going on-line. The cybercafé was never advertised publicly, but news had spread by word of mouth and although most users were quite local some were from more distant parts of Portmore.

Compared to a commercial cybercafé, usage was quite restricted in terms of content. The computers were arrayed on the sides of the room in such a manner that anyone there could see the activity on any of the screens. A side-effect of this layout was that users had little privacy. The rules stated clearly that there could be no visiting of pornography sites, no downloading of music and no playing games. As a result, the main use made of the machines was for emailing. After email, users used the computers for research, including homework and looking up courses and scholarships abroad. The staff strongly encouraged such worthy usage. For example, they guided users in formulating their CV's, which were printed out for free and they also provided material for courses at US colleges.

This particular Portmore cybercafé was the only example found of an entirely free internet resource in Jamaica, even including free training and free printing. Two main lessons emerge from this experiment. First, even an entirely free internet site was not flooded immediately by young people able and wanting to use the facility. It has taken nearly a year to reach its capacity and much of that involved training and giving people gradual confidence to make best use of the internet. On the other hand, it certainly demonstrated that over time demand could rise and that even machines which did not allow for the most popular surfing topics and did not provide possibility of downloading these widespread features, could still sustain capacity usage for what are generally seen as useful activities such as writing CVs and general emailing. But what this example cannot tell us is whether this usage would be sustained if the access was not free.

Limited NGO activity also exists in Kingston. The cybercafé established in Half Way Tree, one of the most important transport connections in all of Kingston, is a commercial project, but is supported by the Sustainable Jamaican Development group. In addition, Zinc Link which has been developed by a catholic priest Hugh O'Reilly under an international NGO program called Mustard Seed, targets low income areas near another central transport junction called Three Mile. This is primarily directed at children in some of the most difficult and dangerous areas of downtown Kingston and includes some innovative additional ideas, such as virtual `counseling' between Ireland and Jamaica as well as educational games. But again such programs work with intensive and sustained support, additional personnel and external finance. As a result, it would probably be completely misleading to try and extrapolate from these sites. Indeed, as we mention below, these NGO based projects need to be set

against other experiments, before reaching conclusion on the basis of their impact and we therefore do not see these as a guide to the prospects of `stand alone' internet development in the future.

The Jamaican Government

The Jamaican government has developed a number of initiatives in the ICT sector over the years, particularly under the reign of the current Minister of Science, Commerce and Technology Philip Paulwell who has taken a personal interest in this sector and invested something of his own reputation in the success of failure of these ventures. An important part of Paulwell's movement has been the Telecommunication Advisory Council, which has responsibility for the development of the legislative element of this program and the formulation of the wider strategy. In 2001 the government established CITO (the Central Information Technology Office) as the body responsible for implementing its' ICT program. In this instance, the government (rather than commerce) remains at the forefront of the push for internet development, including the negotiation of international credit card and electronic payments in suitable sites (post offices) and ensuring the necessary background legislation according to international standards (Ministry of Commerce, Science and Technology 2003 Electronic Transactions Policy). CITO is also trying to deal with macro issues such as standards for government websites and security

One of the key drivers for the current move to expand public access is e-government, which CITO has been keen to promote. For example in 2004, as part of the inter-American Development bank loan initiatives, the Jamaican government developed a system for payments on-line, which included tax payments, traffic tickets, consumption tax, taxes for betting and property and several fees relates to cars and licenses.There are a number of current initiatives, for example Jamaica Customs, the Tax Authority and the Office of the Registrar of Companies, which are attempting similar e-government programmes. Perhaps the most successful of these is Customs Brokers, which brought together the various clearance forms online. This streamlined the entire process, which included payments to be carried out remotely, and is now credited with almost doubling revenues within twelve months of the scheme's introduction. A trade point service launched by JAMPRO is also simplifying the many forms required for export and import.

The potential for cell phone involvement in e-commerce was also being considered. For example, an agreement was made with the three mobile providers to allow the government to send text messages with `tax alerts' to the public. Certainly irrespective of anything to do with ICTs, there are grounds for reform here. The ethnographic encounter with individuals who deal with government bureaucracy, personal experiences of this bureaucracy over the years as well as interviews with individuals working in and with the Jamaican government suggest that these encounters are something of a nightmare -- forms needing stamps, signings and counter-signings and people who have made long journeys from rural areas where the transport is a problematic cost, being told to come back in an unspecified number of days to check on the next stage in the processing of some form or other. There are some grounds for thinking that computers may start to look quite attractive.

Most of the government initiatives to provide better facilities and training have been collaborative projects with either the private sector or aid institutions. USAID has assisted with the formulating of new legislation and DFID helped develop the Office of Utility Regulation which has had a particularly active and critical role in the development of telecommunications in Jamaica. UNDP established the JSDN (or Jamaican Sustainable Development Network), which was prominent in establishing plans for `community' computers. In general terms however, one has the impression that government is starting to perceive a general split, where the private sector is seen as having created universal voice access through the sales of cell phones thereby leaving the government with responsibility for developing data, such as through the Universal Access Fund.

ICT Employment

The direct potential of the ICT related industries for furthering employment has been one of the main planks upon which Minister Philip Paulwell has attempted to justify the claims that a significant percentage of government revenue should be spent in this area. It is likely this was helped somewhat by the very large sums of money raised through the auction of licences, for example, for the cellular systems. A major plan by INTEC promised that there would be 40,000 jobs created in this sector by 2003. This turned out to be something of an oversell. One of the more obvious examples of this push was the rise of ICT based service industries in export processing zones (EPZs) geared to data processing, call centers and the like in places such as Montego Bay and Portmore, although the

success of these industries have been patchy. Some EPZs failed over high rentals and two companies, Netserve and Pathway, went bankrupt after establishing their businesses in these preferential facilities. But others, such as E-services, Bay telemarketing and Caytech, appear to be developing. Actual job figures vary hugely. The most quoted in this sector is 13,500 (*Gleaner* 11/2/04), but according to Datamonitor a more accurate figure may be around 11,500 for the whole ICT industry (IADB loan document 2002), with around 5,000 in this export zone call centre area (Observer 13/8/04). There are approximately 1,000 jobs in Portmore itself. While this may not look like a success compared to the original plans, 5,000 is a high proportion of the 13,000 quoted for the entire Caribbean. In 2004 the government announced some 200 new licenses for various new ICT facilities and services (Gleaner 13/1/04) and they continue to see this as a major source of new employment. The CEO of the E-Services group based in Montego Bay and serving clients in the US claimed to have made profits of more than J$1.2 billion from its operations, and has increased its workforce to 1,200 following a US$5.3-million investment, and plans once a Kingston development is complete to expand to 1,600 employees (*Observer* 11/02/04).

As the Allen Group report notes, there are actually few grounds for optimism with regard to employment in the core ICT sectors of hardware or software development. This is mainly because of the sheer level of competition posed by countries with significantly lower labour costs for skilled personnel, such as India on the one hand, and the proximity to the US which can offer much higher salaries to skilled personnel from Jamaica. The government has tried to establish relevant training mainly through the Caribbean Institute of Technology which began teaching in 1999 in Montego Bay, although there has been an initial struggle to have the resultant qualifications recognized and some of the early graduates have found in difficult to find employment (*Gleaner* 23/06/04). The University of Technology (formerly CAST, College of Arts, Science and Technology) is also expanding teaching and degree programmes in this area.

The Plans for the Internet

The Jamaican government had already attempted to provide public access to the internet through collaboration with private companies. Grace Kennedy together with Western Union set up facilities in 44 public libraries and C&W set up kiosks in 30 Post Offices. We have not been able to find a report on the use made of these facilities, but our own ethnographic data suggests that they have completely failed to realise their intentions. Indeed, a post mistress reported that she had only seen one person attempt to use the kiosk the local post office in Marshfield since it had been installed. The local library, which housed three computers and charged for internet access at a rate of JA$50 per half hour (JA$60=US$1) , remained more optimistic. The library noted that the computers tended to sit fallow in the day but were used frequently in the two hours it stayed open at the end of the school day. However, few members of the community we worked in knew about the computers. Overall, the distribution of internet in public institutions has been particularly ineffective, with most of the machines lying disregarded and unused. Of course it is possible that this simply represents the excessive cost imposed by C&W on the use of the internet (and most individuals complained that the kiosk service was too slow and the cost too high). Yet, when combined with the evidence from the NGO experience which had difficulty in developing demand even in free sites and the lack of commercial cybercafés, it suggests that we must question the assumption that demand is simply there and waiting to be met (see Miller and Horst 2005).

Despite this presumption, the government is now heavily committed to a further attempt to create major expansion in the ICT sector. There has been discussion for some time concerning the possibility of taxing the telecoms companies in order to provide for a Universal Access Fund. Since the advance of the mobile has almost covered the entire voice sector even for very low income households, it is the internet that has been targeting for further development to be funded by such a tax. Discussion suggests that the tax should be between 2% and 5% of profits, but there has also been disagreement as to what this money might be used for, with groups such as the Telecoms Advisory Council and the Office of Utility regulations making different suggestions. In 2004 these plans started to concretize. The OUR (2004) released a document which, argued that `unlike single line voice telephony services, the Office is of the view that there is a clear need for regulatory intervention in the provision of internet access to public institutions'. The OUR favored priority for schools and suggested libraries and post offices should be supplied with equipment but be allowed to recover their costs. The bulk of the money should be garnered from a maximum 5% revenue taken from the telecommunications industry for the first two years.

Under a plan developed by the Ministry of Commerce in collaboration with the Ministry of Education, this money would be spent on revamping the education system to include a new system of textbooks and the broadcasting of best practice teaching through the cable system. The plan certainly reflects the reality of a Jamaican crisis wherein the school system is generally regarded as a failure and the single main priority for those concerned with the future of the country. Yet the link back to telecommunications is somewhat tenuous and their claim that this diversion of funds from commerce to the state as part of the development of ICT has really been transformed to simply a `windfall' tax proposal on the sector, which is therefore likely to meet considerable resistance. Elsewhere we have argued (Miller and Horst 2005) that it might be possible to create a more genuine dovetailing of the needs of telecommunications and education. Specifically, we argue that `virtual' teaching is probably not best suited to the primary and secondary school sector, but rather as part of the development of adult education for a particularly prominent category of individuals who possess a strong regard for career and other responsibilities in their late twenties. Because these individuals have missed out on basic universal educational provision, they would very likely be keen consumers of a virtual educational system. As such, it is possible to use anthropological work on the specifics of Jamaican social processes to argue for a specific policy targeting telecommunications to education.

In the meantime, the single most important venture entails an agreement with the Inter-American Development Bank (loan agreement 2002). This would include a loan of US$17 million plus a contribution from the Jamaican government of US$6 million. The terms of the agreement are now available online. The documents suggest that the loan was granted with little formal appraisal of previous projects. Furthermore, some of the statistics used to support the loan also look rather suspect, for example the claim that there were 100,000 internet users in 2002 and 600,000 in 2003. It is clearly worrying that lenders can commit such large sums, and governments can take on such large debts on the basis of such limited grounding and consideration of the likely effects and effectiveness of such initiatives.

There are three main elements in this proposal. The first and largest is in line with the programme being instituted by CITO to improve general e-government. Plans range from the provision of all land registration documents to the completion of on-line customs regulations and the feasibility of further e-procurement. The second element of the loan is directed training and the current focus is the development of a programme based in Montego Bay at the Caribbean Institute of Technology. This is one of the areas where money from the sale of cellular licences is intended to go into scholarships for students. The plan is to train 900 individuals over the course of five years, with the emphasis being upon high-school graduates who (generally) have lower incomes that the university graduates. In recognition of the critical problem of the brain-drain, trainees will post a bond to guarantee they stay in Jamaica for a period of two years upon the termination of their degree.

The smallest segment of the loan, but the one most relevant to this project, is intended to increase internet access and use within low income populations and thereby address the general digital divide. As the document states, `community access program provides connectivity but also training to the communities in their use of technology and funding to develop local, relevant content and will increase community access to the Internet in low-income areas by establishing 60 community access point sites throughout the country' (ibid: 2). There is provision for at least five computers per site, expanded to facilities such as desktop publishing and local training. The details show an ambitious programme wherein each centre must agree to 40 hours of operation per week of which 20 hours must be in evening and weekends. The facilities must demonstrate how they serve local community needs and incorporates local contribution and the plan predicts at least 1,200 users of these sites of relatively equal gender proportions. The plan predicts that at least 40% of users will have incomes below the poverty line and at least 35 of the 60 centres located island wide will be operationally self-sufficient after three years of operation. They also envisage a community outreach portal which is user driven.

There are some impressive sounding demands here, but the writing certainly suggests that these are intended as performance targets for auditing the scheme once in place. The ideas come across as very much a `supply-led' document, and as with so much of NGO driven policy, are based on a concept of `community' that bears little relation to the realities of Jamaican society or indeed aspiration. There is nothing in the ethnographic component of this work that suggests such community focused ICTs are desired or would work. The evidence for preference for cell phone over fixed line is just one of many circumstances that mitigate against any such conclusion.

Meanwhile it is sobering to read the five year strategic information technology plan for Jamaica that was revised in March 2002. This document also envisaged a rapid transformation in Jamaica's relationship to the internet and computing more generally, with a focus on the results of a decade of investment into computers at school, but also the widespread implementation of an early scheme for community access based on the libraries and post offices. But as already noted, the evidence for past performance of those sites that were created by this scheme does not bode well for the impact and implementation of future schemes.

Despite the evidence to the contrary, most government reactions to these facts highlight that the previous experiments do not properly test the waters because of the considerable cost of internet use. The government seems to have expected school access would be relatively affordable, but in general C&W still demand dial up access, often at a commercial rate. This is prohibitively expensive on current school budgets and the same may be true of the post office kiosk scheme. Similarly, even the cable companies are uncertain as to whether there is a business model that would justify the investment in internet through the cable. As noted by a Ministry media release, broadband cost US$93 per month in Jamaica but only US$12 in some Asian countries and there is uncertainty whether if the price was lower there would suddenly be the kind of demand that would justify the further expenditures. Another way this is being thought through is through predictions of the situation two or three years down the road. It is assumed that either through changes in legislation that bypass the current C&W bottleneck or though new cable company and wireless telecommunications infrastructures that can bypasses C&W in other ways, there will be considerable increase in available broadband. As a result, the government envisions a radical reduction in the entire pricing structure. Presently, access to a T-1 line costs many times the price of the same access in the United States. In other words, even if a test bed for such provision does not exist now, it is worth putting the infrastructure in place to be ready for when the demand and price make its presence worthwhile.

The other factor that might make a difference is greater attention to attitudes in the public and the actual usage, as opposed to the ideal of usage presented by government and the telecommunications industry. As an officer of the telecom advisory council put it, `We know the problems at the micro end, with the fibre cable and so forth, but we cannot understand why there isn't this great push or demand in terms of internet use on the micro end'. The question is whether better knowledge of current usage can direct and inform future provision.

The Impact—Education

During the 1990s there were two main programmes to try and develop computer usage and training in the school system. The first, called Ed Tech 20/20, was targeted at primary and secondary schools. The second, Jamaica 2000, was focused on secondary school and tertiary education. It also included a J$10 million loan to deal with Y2K which in Jamaica as in most countries may have been a global myth of millennial doom, but had the secondary virtue of updated infrastructure. In addition Cisco Systems provided support for private training in collaboration with the Jamaican computer society, a programme which was reasonably active at first but appears to have declined more recently.

Unlike the cell phone, where there has rarely been any particular claim that it would make a positive contribution to education, the Internet has been widely perceived as not just an instrument but also an educational aim in its own right -- that is to say that a child is not considered fully educated if they cannot use the internet or a computer. This seems reasonable not just because of the centrality of computers and internet to later entry into the work force and therefore a form of skills training, but also because it is becoming integral to the process of education itself. For example, it is replacing encyclopaedias and reference books as a primary source of information as well as a form of information technology becoming a recognized school discipline.

At present, however, unless a student is taking a typing or word processing course at the vocational level, many in Jamaica complete their education without ever taking a typing course. This includes students who take the information technology CXC exams. Rather, it is generally expected that students will learn typing skills by default during the course of their education as they type papers or participate in their annual computer course now mandated by the Department of Education. Interestingly, at Orange Valley Comprehensive High School students were discouraged from turning in final reports and papers typed on computers as teachers feared that there would be a significant degree of cheating and they could not be certain if it was the students themselves completing the papers. In effect, this is the same sorts of policies practiced in the United States and the United Kingdom where computer access is considerably more established. However, and has been reported

in studies of poor areas in the US where performance scores are consistently lower, this places students without access to computers in their homes at a severe disadvantage. In Jamaica, computer ownership per household is quite low and therefore students have precious little access to computers outside of the school yard. This is particularly the case in the rural outskirts of Orange Valley. As a result, students must rely upon the time they are provided in the computer class room as well as completing assignments by a particular deadline to learn vital typing and other computer skills. If then one argues that students need more access to computers, then this provides a clear argument for schools, the Ministry of Education and NGOs to make attempt increase the number of computers in the schools. But this only solves one problem.

In the early 1990s, the comprehensive high school in Orange Valley received assistance from Peace Corps, numerous alumni and the Ministry of Education to build and furnish a computer lab with 25 computers, an air conditioner and surge protectors. The computers were provided to facilitate the implementation of an innovative programme to reduce illiteracy in the schools by teaching students to read through the computer. The experimental programme and the progress of the students involved was meant to be shared and compared with other schools in the Caribbean. Later, more computers were added and Internet access was provided for the computer lab. However, in our interviews with students, only 10% of the students who were preparing for their CAPE exams had used the computer lab more than once in the past three months. In almost all the cases, their usage involved coursework in computers where teachers taught students how to turn on the computer as well as how to open up MS Word and Internet Explorer. Once on the internet, students were told what to type so that they could see what the internet looked like. However, none of the students reported that they ever spent time 'surfing' the net or that they were they allowed extend their computer knowledge beyond the few websites recommended by the teacher. In fact, their time on the internet was in some cases less than an hour over the past year, their time on the computer in a year less than two hours.

In fact most students who needed to have something typed preferred to pay certain students known for typing (or their skills writing papers) rather than venture onto the computer to type on their own. Given the small number of student time on the computers, one might 'explain' this lack of access to the small ratio of computers per student (80 computers to over 2,000 students). However, most days the computer lab remained locked and, outside of the formal class time, students were not allowed access to the lab before school, during lunch hour or after school for fear that "they would mash dem up" as one teacher explained. The computer lab remained in tact and relatively pristine. Students in our Portmore site also revealed that this was not atypical. In other words, the mere provision of computers is not enough to integrate computer knowledge and education. Students need more time working with computers to become proficient.

There are two ways that one can deal with this particular issue. On the one hand, greater access to computers in the form of reasonably priced internet cafes and library access is often proposed as a viable option for students and other computer users to have greater access to and gain knowledge of the workings of the computer and the Internet. Indeed, Miller and Slater's (2001) work in Trinidad reveals a widespread acceptance of internet cafes among squatting communities. Visitors to many developing countries with much lower incomes than Jamaica can also see the widespread acceptance and popularity of the Internet cafes for job seekers and individuals keeping in touch with family members abroad.

The other potential resolution to the lack of computers in close proximity was the idea of a small, private internet café organized by a member of a household who managed to acquire one or two computers and s/he could therefore hire out the additional computer for neighbours and others who lived in the area. This meant that there would be no transport fee to the café and it would be a relatively logical business proposition for people who were 'stuck' at home with children or without employment. In fact, and given the number of small shops, barbers and hairdressers that have been configured into the verandas and front rooms of people's homes in Portmore, we thought that the creation of an 'ends café' might be a viable alternative to the large scale internet café in the middle of Portmore. However, the idea was met with great pessimism.

Individuals who acquired computers in Portmore (often with the help of family members abroad) were sceptical of hiring out their computer for an hour or so to neighbours and friends for fear that they would 'mash dem up'. In addition, they felt that they did not want people coming into their homes and potentially getting mixed into their private business. In addition, they did not think that people would necessarily want to use the computer either out in the open on the veranda (in plain view) where other people could potentially see what they were doing. Rather, people with and without

computers preferred to have the person with the computer knowledge look up the needed information and print it out for the person rather than training them to look after information themselves, a regular practice in the neighbourhoods where families had acquired a computer. In other words, and unlike in Trinidad where people might gather around one computer to search the internet or music, Jamaicans did not view the computer or the Internet as a potentially community oriented activity.

There are a few aspects of Jamaican's relationship to the computer that may well explain this reluctance. In the first instance, Jamaica is an autocratic society the practice of shaming plays a large role in the educational system. Even in 2004 teachers return papers to students with such comments as "Adrian Bailey you dunce you. Where is page five?" or "oonu av no fadda?" (don't you have a father?) when a student forgets to put their name on their paper. This fear of shame and humiliation also informs their relationship with education and new things generally. For example, in the primary school classroom students who were not given the opportunity to go to the board or answer questions preferred to have students identified as 'the bright ones' perform in front of the class and this pattern of allowing the person who knows how to do things to continue to act on a person's behalf.

Even when they had the opportunity to use a computer, people talked about not wanting to break something or make a mistake and others mentioned that they did not want to look like a fool. In fact, one of the young men in Portmore we interviewed reported that he had approximately 15 persons who he looked up information for within the past year and of those 15 he admitted that he would only allow about three of his friends (fellow students at his tertiary institution) to use the computer when he was not monitoring their activities. The individual receiving the information is expected to receive the information graciously and without question. No one asks if the computer monitor looked in all of the relevant sites and only in the case of a family member or close friend might one suggest that they will teach the person how to use the computer or the Internet. In effect, the proficiency at the computer is more about performance and looking knowledgeable rather than a proven proficiency and those without computer skills could describe the way that those who were comfortable with the computer just sat up right to it and started using it. These same sorts of comments were made by adults watching their children used the cell phone or upper and middle class Jamaicans marvelling at know-how of the uneducated to use the cell phone. The public computer could result in others become aware of your lack of knowledge and proficiency, opening the person to a world of ridicule and criticism. Even in a semi-private location, such as the bedroom of a friend, it was assumed that your friend would gossip about one's inefficiency.

It is not therefore the inability of students to be able to use a machine perceived to be difficult or complex. Indeed, the cell phone itself is not a simplistic device and students appear to be well versed in the complexities and intricacies of cell phone use and, aside from adults who admitted to 'fearing' the technology and had their children and grandchildren 'teach' them to use the cell phone, students and young people often 'played around with' the cell phone without use of a manual. There is no apparent reason that the same could not be achieved with the computer and the Internet. The question is, however, how do we address the particular issues that dominate Jamaican attitudes to the internet, computers and learning more generally?

Conclusions

We started this paper with the contrast in the rapid acceptance of the cell phone as against the apparently sluggish development of the internet. Focusing upon the impact on education, it seems that in many respects the internet proved to be less than it seemed while the cell phone is actually so much more than it appears to be. While the cell phone can look like an innocent instrument for retaining effective communication, in practice it becomes a toy that is also the hub of incessant social relationships, the girl and boyfriend relationships that are themselves best regarded as `playing' relationships, even though they sometimes have very serious consequences. But the vast network of gaming, flirting, status claiming and texting is belied by this little implement the phone. With the internet we have almost the opposite effect. The internet looks like it is promising the whole world, suddenly made instantly accessible to the enquiring pupil sitting there and desiring to be educated. It looks like every encyclopaedia, reference manual, textbook, interactive medium tailored to the precise speed of knowledge acquisition of each individual student. It looks like a teacher's perfect support and helper.

No doubt under the right regime with sufficiently experienced and appraised teachers present the internet can live up to at least some of the potential. But the critical point is the distinction between legitimation and actuality, between what it appears to be and what as a result of everyday practice it has become. In practice, the internet at school is none of the things it is purported to be. Indeed, the regime of computer use at school probably does a great deal to make sure it will never realise most of these possibilities thereafter. Because the `culture' of computer use, that is the attitude of the educational authorities, is such that the computer becomes assimilated into the more general form of highly conservative school pedagogy. This derives from an old more hierarchical and authoritarian tradition based on shaming and inculcating knowledge, such that the computer instead of being facilitating becomes intimidating. The computer does appear like a teacher, but rather a traditional Jamaican teacher, where knowledge has become authority and the pupil is largely exposed as ignorant.

The students experience the computer and internet as a privileged instrument they are lucky enough for the school to be in possession of and that must be guarded, secured and kept pristine as a kind of treasure trove. They are given access for short periods and under careful instruction that more or less mitigates against the single most important quality of the internet which is actually its unpredictability as a source of information and the way it leads us naturally down channels of enquiry we didn't expect to follow because we didn't know they existed or were possible. The internet is incredibly seductive, a click of the mouse sends us hurtling down strange unexplored paths, but these qualities requite an initial freedom to search and follow, and this is not permitted under the regime of control that makes the computer into the Jamaican teacher of old. So if the cell phone is transformed by practice into being so much more than it seems, the internet is transformed by practice into being much less than it seems.

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