

Postcolonial technoscience at a university campus: ICT as catalyst of change for postcolonial education in Papua New Guinea

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Abstract

Papua New Guinea (PNG), like other developing countries, is adapting to changes inspired by Information Communication Technology (ICT). Among other heralded potentials, ICT is widely acclaimed to be driver and vehicle of change in the educational sector. Institutions of higher education (IHEs) in PNG are distinctive places where ICT and its global impact, traditional cultures and postcolonial heritage join to create a unique environment. This paper explores postcolonial themes and uses them as theoretical basis for discussion of issues in contemporary PNG higher education.

Keywords: Information Communication Technology; higher education; developing country; postcolonialism; postcolonial technoscience

Introduction

Papua New Guinea (PNG), as with other developing countries, is joining global trends in adapting to changes inspired by Information Communication Technology (ICT). Among other heralded potentials, ICT is widely acclaimed to be driver and vehicle of change in the education. Higher education institutions (IHEs) in PNG are distinctive places where ICT and its global impact, traditional cultures and postcolonial heritage join to create a unique environment.

This paper explores postcolonial themes that form the theoretical framework for discussion of contemporary higher education (HE) in PNG, including changes driven by ICT. The data presented in this study come from the qualitative strand of mixed methods research that studied the gender related issues in access, application and attitudes toward ICT in higher education institutions in PNG. In the qualitative strand of the study, twenty four faculty members from six institutions of higher education were interviewed. Collected data were analysed with thematic networks. The study adopted a constructionist paradigm because the researcher's stand was to reconstruct existing reality as effectively as possible and provide participants with a platform from which they could be heard. The constructionist paradigm also allowed participants to reconstruct and interpret the meaning and dynamics of interactions taking place in technology application within educational context.

Postcolonial themes for the PNG educational context – literature review

For PNG, as for many other developing nations, HE had not emerged as part of the cultural processes within indigenous society. Instead, colonial power imposed Western-style education. One way to understand and appreciate changes within HE is by making postcolonial theory a theoretical canvas for the discussion of current issues in PNG education.

Postcolonial theory embraces a complex array of issues that include identity, gender, race, ethnicity, and racism. The theory is explored through discussion of concepts of knowledge and power, hybridity and identity, postcolonial education and postcolonial technoscience. The paper employs postcolonial theory and its analytical power to discuss issues pertaining to the study reported in this paper.

Knowledge and power

In diverse postcolonial studies, the role of power as determinant in the process of identity and subjectivity formation, and the relationship between knowledge and power remain of central importance. Postcolonial association of power relations and knowledge draws from the thinking of Michel Foucault, the philosopher of real history “told in terms of conflict and power” (Flyvbjerg, 1998, p. 211) and “a seminal thinker of discourse analysis” (Harald & Lie, 2008, p. 120). Foucault's discourse paradigm explored systems of knowledge without appealing to objective categories of truth and ethical standards. It was constituted by knowledge, meaning, and power viewed in terms of relationship – as shared by people.

Rooted in Foucauldian discourse of power and knowledge, postcolonialism “rejects the conceptualization of power as being held by individuals or groups and as being used to dominate others” and assumes that “power circulates between individuals and that individuals both undergo and exercise power simultaneously and become individuals through the effect of power” (Mehta & Ninnes, 2003, p. 247). Thus, power is “productive and creative of subjects” (Abrahamsen, 2008, p. 673). Power remains connected with knowledge to produce truth and rationality.

Postcolonial identity

The concept of identity remains at the heart of postcolonial discourse. One cornerstone of an inquiry into postcolonial identity is the writings of Franz Fanon, a black psychiatrist in the Antilles and in Algeria. Drawn from his personal experience and using a psychoanalytic approach, Fanon (1986) outlined the racial identity of colonised people in his first book, *Black Skin White Masks*. Against the background of a colonial environment, he explored the formation of colonial identity:

Every colonized people - in other words, every people in whose soul an inferiority complex has been created by the death and burial of its local cultural originality - finds itself face to face with the language of the civilizing nation; that is, with the culture of the mother country. The colonized is elevated above his jungle status in proportion to his adoption of the mother country's cultural standards. He becomes whiter as he renounces his blackness, his jungle. (p. 18)

'Identity', as proposed by Fanon, is not a fixed idea or culturally authored definition. It is a production – always in process and constituted within colonial subjects. "Superimposed on the black man's experiential self is a racial stereotype that creates a disorienting gap between the self-image and the white ideal" (Bergner, 1995, p. 78). In this way, formation of identity comes with conceding a lack of desired qualities of "the white ideal" (Rizvi, Lingard, & Lavia, 2006, p. 251). Even Independence will not bring freedom from colonial complexes: "the colonial subjects remain colonized internally, psychologically" (p. 251) in their desire to become white.

Because identity formation emerges in the context of culture, postcolonial identity discourse talks about cultural identity. Hall (2003) discussed two approaches of enunciating cultural identity. The first approach views it "in terms of one, shared culture, a sort of collective 'one true self', hiding inside the many other, more superficial or artificially imposed selves, which people with a shared history and ancestry hold in common" (p. 223). The second approach recognises cultural identity as "a matter 'becoming' as well as of 'being'. It belongs to the future as much as to the past" (p. 225). The former view of cultural identity played an important role in postcolonial struggles becoming a powerful force in rediscovery of one's own identity by retelling the past.

A concept of postcolonial identity finds refinement in the discourse on postcolonial hybridity, which the next section addresses.

Hybridity

The postcolonial concern with hybridity and identity reflects its understanding of power as a product of subjectivities. In her discussion of cultural hybridity in the context of education in Kenya, Maeda (2009) assumed that contemporary postcolonial societies see imperialism consolidating the worldwide amalgam of cultures and identities, with all cultures involved with each other. Western and traditional cultures are enmeshed so deeply that it is difficult to identify what aspects of them are parts of the colonial legacy and may be separated from their endogenous analogues. "Even if one manages to isolate some of them, one is sometimes so deeply shaped and molded by them as to be unable to reject them without rejecting parts of oneself" (p. 339). This denotes a condition called "inescapable hybridity" (p. 339) where one cannot identify the pure form of culture, and all cultures influence each other.

Postcolonialism attempts to elucidate the East-West relationship by deconstructing orientalism that blends Eastern and Western cultures through dialogue between them. The concept

of hybridity supports the argument against Western cultural hegemony. However, postcolonialism does not aim to replace one cultural hegemony with another one, but to blend them together so they may co-exist (Yang, Zhang, & Wang, 2006).

Postcolonial discussion of education

The postcolonial nexus of knowledge and power includes also education, “both as an institution where people are inculcated into hegemonic systems of reasoning and as a site where it is possible to resist dominant discursive practices” (Rizvi et al., 2006, p. 257). In such a context, the relationship between education and postcolonialism is ambivalent. On one hand, education is criticised in the postcolonial discourse for its complicity with neocolonial tendencies and practices. On the other hand, education is seen as the only possible venue to reveal and resist “colonialism’s continuing hold on our imagination” (p. 257). It is also seen a site where “legacies of colonialism and the contemporary processes of globalisation intersect” (p. 257).

Although contested, the globalisation paradigm is increasingly used for comparative analysis. Associated with global capitalism and its expansion through the world, the theory has become a manifestation of interconnectivity and interdependence of the world unconstrained by time zones and national boundaries (Lunga, 2008).

The role of education in the global economic order remains contradictory. Elites have access to prestigious private education that prepares them to become participants in the global economy, but a majority of the population attend local, state schools that make them “marginally competitive for low-skill jobs” (Tickly, 2001, p. 161). Such inequities resemble colonial education, which aimed at organizing the structure for power and control, and was a platform where colonized internalized and adopted as their own the interests and beliefs of colonizers (Lavia, 2007). The exploitative practices of colonialism and neo-colonialism are responsible for the poor resourcing of education systems in postcolonial countries, as well as for “asymmetries and exclusions based on social class, race and gender, and the hegemony of mono-cultural curricula” (Hickling-Hudson, 2006, p. 214). Results of colonialism are also seen in “a poor pedagogic technology, with excessive dependence on textbooks, examinations, authoritarian teachers, mentalities of dependence, and inability to make connections between texts and experiences” (Majumdar & Kumar, 2003, p. 3049).

Culture plays important roles in postcolonial discourse and postcolonial education. Education has been seen as contributing to spread of Western culture during the time of colonial rules. It is also seen a consolidating element of Western hegemony in contemporary globalisation with colonisers’ languages as significant legacies of colonialism in education. The control over language is seen as one of the main features of colonial oppression. The colonial education system “installs a ‘standard’ version of the metropolitan language as the norm, and marginalizes all ‘variants’ as impurities” (Ashcroft, Griffiths, & Tiffin, 2002, p. 7). The postcolonial literature provides examples of different responses to the issue of hegemony and subsequent globalisation of the languages. On the one hand, there is a concern about the under-use and underdevelopment of indigenous languages. On the other hand, the spread of colonisers’ languages, especially English, to the extent that they become an implicit part of the linguistic landscape in former colonised countries is seen as “inescapable hybridity” (Maeda, 2009, p. 342).

Postcolonial technoscience

The title of this section is taken from Warwick Anderson’s (2002) article Postcolonial

Technoscience. As the author argued, postcolonial technoscience provides a new platform to explore “political economies of capitalism and science” (Anderson, 2002, p. 643), the ongoing changes in global restructure of the world’s economic, political, and social relations, and international movement of people and technology. Thus, the term postcolonial technoscience refers both to new configurations of technoscience and to the critical approaches that analyse and identify them.

One way to initiate analysis of postcolonial technoscience is through review of the history of technology in the context of postcolonial countries. Arnold (2005) proposed three stages in this relationship. During the first stage, industrial technologies created in Europe and dispersed around the world by European agency almost without significant local input, when established in Africa and Asia, were seen as a legacy of colonial intervention. They were considered “modern, progressive and largely benevolent” (p. 86). The second stage coincided with nationalist movements in the South and with growing technological skepticism within the West itself. Technological intervention was seen as motivated by greed and physical and epistemological violence. Consequently, first-stage characteristics of Western technologies were replaced with aggression, arrogance, and greed. The third stage is called postcolonial. Drawing from postcolonial criticism, “the history of technology becomes less an investigation of origins and inventions (a history that has long privileged Europe) than an enquiry into uses, meaning and effects” (Arnold, 2005, p. 87). This phase recognised the limitations of imported technologies and the need “to understand and utilize local conditions as well as securing local cooperation, even by incorporating indigenous traditions and practices” (p. 100).

Deeply embedded in postcolonial theory, the ideas of knowledge and identity provide essential theoretical insights to postcolonial study of science and technology. Postcolonial attempts to challenge the assumption of the objectivity, authority, and universal applicability of Western knowledge, lead to suppositions that “all knowledge traditions, including Western technoscience, can be compared as forms of local knowledge so that their different power effects can be compared without privileging any of them epistemologically” (Anderson, 2002, p. 650). Thus, “technoscience, like any other practice, always has a local history and a local politics, even as the actors involved claim to be ‘doing global’” (p. 650).

Rapid spread and accommodation of ICT in developing countries is seen to offer opportunities for development and at the same time to raise concerns that it may follow existing patterns of social and economic inequalities. Postcolonial theory with its strategies to oppose colonizing and centralizing proclivities provides a platform to address technoscience analysis and make it more receptive to indigenous cultures and epistemologies.

ICT as Catalyst of Change for Postcolonial Education in Papua New Guinea

Contemporary PNG higher education – wider perspective

Of the 30 institutions of higher education (IHE) (as of 2013), six are universities. Four universities are public, and two are private institutions run by church agencies. In 2010, the Office of Higher Education reported that enrolment to IHE “has remained stagnant at 2% of the estimated 600,000 of the college age population of 17-24 year olds” (Tagis, 2010, para. 2).

The HE sector is seen at present as mixed and disorganised in structure with each of six universities based on separate enabling legislation (Papoutsaki & Rooney, 2006). The recent (2010) university review reported, “Papua New Guinea’s universities made a significant contribution to the

nation in its early years. They can do so again but, right now, the quantity and quality of graduates is far short of what is needed – due to inadequate resources and a range of governance and general service quality issues” (Garnaut & Namaliu, 2010, p. 1). Outdated curricula, inadequate ICT, poor library resources, lack of equipment and teaching resources is symptomatic of HE in PNG and its “near-terminal condition” (MacWilliam, 2012, para 4). In addition, as pointed by Rena (2011), while the entire HE sector suffers lack of an adequate funding, public institutions are especially handicapped by low remunerations and demoralized staff, and local brand of nepotism called wantok system which leads to corrupted practices in all aspects of an educational management.

However, despite unhappy picture of contemporary IHE, signs suggest changes are underway. Following the recommendations from 2010 PNG Universities Review, the PNG government initiated steps to reform the HE sector. In recent years a national guideline was developed for institutional accreditation, the policy was developed to ensure gender balance of students and diversification of academics programs. At the institutional level, twinning projects were developed in which academics from Australia and other neighboring countries have been assisting academics in PNG IHEs to improve teaching, learning and research through innovative and collaborative programs.

PNG contemporary postcolonial higher education

PNG inherited the colonisers’ educational systems (Papoutsaki & Rooney, 2006) with alien conventions, operating principles and traditions of the wider world (Kerry, 2007). One consequence of such an education system is the low importance assigned to HE in government policies and lack of financial support to develop institutional infrastructure. PNG higher education’s fragile physical infrastructure impedes teaching, research, and student learning. Participants in this study indicated a number of encumbrances that hinder their professional performance.

In the context of ICT listed impediments were related to access and usage of computers and the Internet. For the majority of staff at other institutions of higher education (OIHEs) and students at all institutions¹, the first issue was the inadequate number of computers and lack of, or very limited, access to the Internet. They also pointed to the lack of maintenance, leading to breakdown of physical resources placed in institutions. One of the OIHEs had nine computers in the staff computer room, but only five were functional; the other four had not functioned for months and there was no one to rectify the problem.

An important characteristic of education systems inherited from colonial powers is the concept of dependency. Outlined by Altbach (1998) elements reinforcing the dependency of HE in developing countries are present in HE in Papua New Guinea. The academic system is based on a predominately Western knowledge framework; there is strong pressure to comply with Western international HE standards; dependency on foreign “experts” reinforces Western models of academic research, the curriculum, and other functions of HE (Papoutsaki & Rooney, 2006). Westernisation of HE in Papua New Guinea is exemplified by the PNG Universities Review (Garnaut & Namaliu, 2010), an audit report prepared at the request of the PNG and Australian prime ministers. Although an important document providing an overview of the current state of PNG HE and valuable recommendations for rehabilitation and improvements of IHEs, the report

¹There was a huge discrepancy in terms of expose to technology between universities and OIHEs participating in the study with universities much more advanced than OIHEs.

has remained tied to the Australian government's aid program and has taken into consideration numerous international development commitments to which PNG and Australia have agreed.

Postcolonial dependency manifests itself at different levels. One is a handout mentality that permeates all levels of PNG society, including IHEs. Although the issue is complex, two factors contribute to the handout mentality:

- (1) traditional and still very strong politics big-men, leaders, do handouts in cash and kind to their followers (Rynkiewich, 2000).
- (2) the handout mentality results from continued aid from foreign governments and development organisations (Togolo, 2006).

This research uncovered deep roots of dependency in the educational system. One common phrase used by participants was "the government must." They indicated the government was responsible for the low computer and Internet penetration within PNG, especially in education, and they expected the national government to improve their situation.

In addition to expectations that government should provide necessary resources, this research revealed a deeper level of dependency in that authority should also provide solutions to interpersonal relations. Women were found to experience various obstacles in their access to computers in all IHEs. Some hindrances were related to the traditional subordination of women in society. All participants expressed that women should have equal access to technology, but their suggested solutions called for government intervention rather than autonomous social change, such as raising awareness of gendered obstacles.

Globalisation of postcolonial education

Called neocolonialism by some writers (Altbach, 1998, 2005; Collins, 2011; Quy, 2010), globalisation brings a new dimension into the discussion about HE in developing countries. Globalisation has seemed to promise international collaboration in knowledge production and easier access to borderless knowledge (Uvalic-Trumbic, 2004); yet, the academic world of the new millennium is characterised by centres and peripheries stronger than ever. PNG institutions of HE are at the periphery of world academia. All IHEs in Papua New Guinea are teaching institutions depending on more powerful academic centres "for research, the communication of knowledge, and advanced training" (Altbach, 2006, p. 126).

Altbach (2006) further argued that one of the factors in globalisation of HE is the dominance of English, which remains central to communicating knowledge and education worldwide, even in countries without English as the language of HE. Placed in the context of technology, English and other Western languages are seen to efficiently express ideas of modern technology. Within the complex PNG linguistic scene, English remains a language of education. Participants in this research considered English part of their educational landscape and generally did not take issue with it; however, one OIHE female lecturer (OF02) acknowledged the alien character of English. She saw a problem at the nexus of computer use and mastering English:

Computer does all checking with grammar and all this, so it is not really helping them. English is not our language, so they have to learn proper grammar, sentence structure first (OF02).

English as a language of technology was also seen as a barrier in using computers in rural areas, as observed:

One problem of people not using computers in the village is the electricity. The other, because of the culture, the languages and all this; you see, we have seven hundred languages and it is really difficult (UF10).

The other significant aspect of globalised HE, relevant to the PNG context, is the Northern export of curriculum and incorporation of some general education in first-degree programs. Although some research interpreted the export of academic models, curricula, and programs as a new form of colonialism – the union of unequals (Altbach, 2006) – academic staff participating in this research were rather enthusiastic about it. One participant observed:

In terms of what we are teaching as well as how we actually imaging the tangible aspects of education, I think it has to be with what is happening globally as well (UF12).

In practice, close to the export of curricula and programs is increasing global use of common course materials. Access to electronic databases and multinational publishers stimulates the influence of academic materials originating in the large academic systems of the North (Altbach, 2006). With very limited research done within PNG academia to inform teaching and learning at IHEs, easy access to knowledge and research resources from academic centres was eagerly embraced by academic staff participating in this study. “Access to valuable study/ research literature” (UML/OQ) and “access information on the courses I am teaching” (UF10), were seen as great advantages of being part of globalised education.

With the limitations of local academia discussed earlier, poor physical infrastructure and limited resources, fascination with resources available through the Internet extends to deep dependency on the Web’s content.

I am trying to find out what is happening in my own field, which is curriculum...I am just searching for the information...and everything that I am doing is mostly depending on computer’s findings through the Internet. And I found it a very useful way what we are trying to use here [information from the Internet]...even to build our own expertise in our own areas, in teaching specialization. It makes me feel confident and it makes me feel that I am in tune with what is happening around the world when I am teaching students here (UM11).

Information communication technologies, a transformative force of globalisation, is reinforcing and shaping HE worldwide. The following sections further examine ICT through the lens of postcolonial technoscience and the presence of technology within PNG HE.

Postcolonial technoscience in the PNG context

Postcolonial technoscience recognises the limitations of technologies developed in Western countries and imported to a postcolonial and developing countries. Promoted as an important means of bridging social and gender digital divides, contemporary technology in fact re-establishes existing inequalities. Too expensive for the majority of people living in rural areas depending on subsistence farming, computers and the Internet are affordable only to rich, urban residents. The digital gap is widening as observed by one of participants:

Students who are in the village, they don’t know a computer; even grade 11 and grade 12. But those who have access in the city, they know. It is like, in this Papua New Guinea there are two parts of the world: I can say $\frac{3}{4}$ does not know how to use a computer. Probably $\frac{1}{4}$ knows because more population comes from the remote places like in the village so they do not have access to computers (OM15).

Technology is heralded as a bridge between the North and the South by fostering economic growth in developing countries (Flor, 2001; Kodakanchi, Kuofie, Abuelyaman, & Qaddour, 2006; Kuofie & Hackney, 2006). However, the advocated potentials of ICT might be realised and utilised

in the context of developing countries only when technology is properly adapted to local circumstances (McNamara, 2003). This study revealed that educated and urban individuals saw technology as a sign of global development reaching Papua New Guinea. They believed that ICT provides the means to do business in new, more efficient ways as well as creating previously unknown business opportunities; technology puts Papua New Guinea on the world map.

Computers are used at homes, used in the schools, at universities. They are used in business and in government – almost all sectors of the society. People are beginning to see it [computers] not as an aid but as a tool or as an important medium where things can be done (UM09).

However, though perceived by the majority as a sign of development, global technology meets with opposition from the local realities in PNG development. People consider something as a sign of development only if they understand it and see real benefits for themselves. For technology to be enhanced and utilised at the grassroots level for development purposes, it has to be recognised as valuable by local communities. With numerous hindrances affecting ICT proliferation in rural areas, the majority of rural people see no practical application for computers in their daily life. Global expansion of technology clashes with the local reality of life; Westernisation of lifestyles supported by technology, especially through the Internet, is confronted by traditional beliefs. As a consequence of a clash between global and local meanings of development, people often resolve to engage supernatural forces to have things done their own way. Reported by one of participants' story about supernatural forces moving a telecommunication tower illustrates that local people have to comprehend the benefits of global technology to cooperate and to accept it. Local communities' involvement and indigenous beliefs have to be factored into implementation of global technology at all levels, including in the educational context.

Postcolonial identity

To explore the issue of postcolonial identity as revealed in the research, two issues are under scrutiny: cultural identity and the impact of ICT on the development of postcolonial identity.

Cultural identity is a significant subject in postcolonial discourse as discussed earlier. Papua New Guinea's many cultural identities are far beyond the scope of this research; however, culture and cultural identity surfaced in the course of discussion about the impacts of technology on society.

In the context of computers and the Internet presence in his home village, a participant shared:

The life style of these villagers has changed; many of the traditional ways of doing things have been kind of forgotten, if you like (OM 22).

Bad influence coming from the Internet was one of the most common issues raised in relation to Internet usage at IHEs. One participant observed:

I can see a lot of misuse. And this is where computers are bad to the society in Papua New Guinea. And I see the bad influence on people, in the way people see things, and cultural beliefs, such as sex education. Access to the pornographic images, all these things is taboo in our culture and the Internet can break that. And it will have a lot of impact on the lives of people, young people, especially males. After you access to all kind of images, it will directly got impact into social problems like rape, all other things, early marriages, and all kinds of experimentations of what they see on the Internet which is bad for the young in PNG (UM11).

Technology, especially the Internet, is perceived as a threat to traditional values and beliefs. Despite a voracious desire to be connected to the global world, and to be a part of a global society,

people realise that access to the Internet can initiate negative, as well as positive, changes in society, especially among young people. Participants called for setting up some measures, for example, Internet censorship, to protect the young generation from unwanted influence.

The confrontation of the traditional with the global culture realised in the course of this study revealed the formation of postcolonial and cultural identity that is a cornerstone of postcolonial theory. The identification process comprises three conditions, as described by Bhabha (1986): 1. “to exist is to be called into being in relation to an Otherness”; 2. the identification process takes place in the “space of splitting”, in the inner aporia of a native’s fantasy to occupy the master’s place while sustaining this place in “avenging anger”; 3. identification is always “the production of an ‘image’ of identity and the transformation of the subject in assuming that image” (1986, pp. xv-xvi). The conditions of postcolonial identification were realised in this research at the nexus of technology, culture, and education.

Technology and HE constitute the framework where the confrontation with Otherness takes place: confrontation of the Local with the Global. The awareness of one’s own identity is realised when faced with the Other.

To the culture there is hardly any relation to it [computers and the Internet] because this is a foreign idea that was created somewhere out there and has been introduced and it is part of making work easier when it goes with education (OF05).

Although some participants saw technology as alien, and some saw it as a threat to traditional beliefs, they simultaneously and enthusiastically embraced it. There is a clear desire to possess what is available in other places, to live the lifestyle of people in Western countries.

It [Internet] really influences the way they are living, their life style. Using Internet, they get to check out what’s new and go to shop and ok., this is what I found on the Internet and this is what I want to get so I will look like those people whom I’ve seen on the Net, I want to be like them. So, it’s kind of changing life style in that way. It is influencing their way of doing things. Because they know that with the computer they can download music, they can watch movies. It really changes their kind of attitude (UF20).

Cultural identification, seen as a process, is negotiated at the trajectory of a desire to possess technology and become part of a global movement, and the rejection of technology as a threat to traditional values and beliefs. As result, a hybrid cultural identity is created where the new forms and models of life negotiated with technology are to be balanced with traditional values and beliefs, as one participant (OM 19) described. He talked about the changes caused by technology in the way people communicate at their workplaces. People use email or telephone, and meet less, to discuss issues. He concluded:

In PNG we are going at speed with the changes, we are changing very fast, so we should at least balance these kinds of things – with the way we take the new technology plus our old way of doing things. We have to balance them out (OM19).

The sense of being part of a global community, although realised in the context of local realities, creates appreciation of the change that is taking place.

Papua New Guinea is no longer isolated from the outside world. You can be able to connect with your neighbouring countries or with the world at large....When you are exposed to the outside world your perception of issues that are affecting a community is broadened. So you are able to think globally; think that I am a regular Papua New Guinean but for as long as I am a human being, the same way with this information that I have read and digested and understood. We can think more globally; it will affect me because of my culture and my environment (UF07).

Bowker (2008) argued that “learning to use the Internet is integrally about learning to accept the categories of Western knowledge....Key to our universality is our particular knowledge/power nexus: scientific knowledge and technological prowess marching hand in hand today as did the missionaries and the merchants in the nineteenth century” (p. 252). Being part of the global village, Papua New Guinea remains, like other developing countries, within the transformative power of technology.

Potential of ICT for higher education

Technology is seen as a driver and a vehicle of change for HE (Knight, 2008; Loxley & Julien, 2004; Oh, 2003; Oliver, 2002). This study revealed wholehearted acceptance of technology within HE in Papua New Guinea. Staff and students acknowledged the importance of ICT in different aspects of tertiary institution functions – teaching and learning, research, community outreach, as well as for personal development. One participant summarised:

You can see the computer playing a major role in terms of the education area, building the mind, enabling people to have not just a narrow view of this is where I am from, but it enables you to have the widest scope. I feel it is really important that hopefully more computers go out to rural areas with satellite dish so the kids are able to have the software and have tools in place so they can actually be educated in that way and have links outside. And I think the technology is one of those things where it makes you feel inspired that there is something beyond what you know, this life, this country, or it makes you feel that there are more good things (UF12).

In the context of postcolonial discourse on education, it is important to recognise also the potential of ICT in the context of the education and knowledge society. If the role of HE is to prepare citizens to live within, and to contribute back to, the society in meaningful ways, changes in society become challenges for HE. The graduates in a knowledge society must acquire “a strong intellectual framework for accessing information to create new things effectively” (Adeogun, 2006, p. 45); they should be able “to access, synthesise and build information into new knowledge” (p. 46).

The PNG government’s Mid-Term Development Plan 2011-2015 acknowledged the importance of the HE sector in nation building in the past as well as its leading role to prepare a workforce needed for the country’s prosperity in the future. Practitioners of current HE must reassess its role and its structure to face the challenges of a knowledge society. According to the plan, one way to achieve the goal is by improving access to, and the quality of, the Internet and other communication technologies (Department of National Planning and Monitoring, 2010). Providing future graduates with ICT skills contributes to their employability in a competitive job market.

Looking at the workplace, when a person finishes a college, a lot of employers require that they would be computer literate. To introduce computers in higher education is beneficial to the employers as well. Because when students are graduated and they go to work, they already know what to do, it increases their chances to get a good job and increases their efficiency there (UF20).

While postcolonial discourse views education as one contributing factor in spreading Western culture during the colonial epoch and a consolidating element of Western hegemony in contemporary globalisation, education may at the same time be a platform to maintain and celebrate traditional culture. Confronted by the influx of foreign artefacts, alien ideas and values, HE in Papua New Guinea has investigated ways to preserve the distinctive aspects of indigenous cultures and to absorb useful information and participate in the sharing of global knowledge. ICT may contribute to the process in meaningful ways. Anastasia Sai, a senior lecturer at a PNG university,

shared her experience of employing modern technologies for safeguarding traditional heritage with digital technology:

In 2009 in the unit Issues in Oral History students recorded stories told in their own languages. 29 languages were recorded.... A copy of their work was deposited in the National Archives in Port Moresby. Last year [2011] the students in Oral History started working with the Madang Haus Tumbuna² to record stories of the Madang artefacts there. We started on the balangut canoe from Rivo village. This is a big vessel used for trading with communities in Raicost, Karkar Island, Bagabag Island and along North Coast communities all the way to Unlingan villages. We went to Riwo village and interviewed this elder and recorded the stories with the digital recorders and then transcribed and written up. This will be presented in the Haus Tumbuna for the story of the miniature balangut trade canoe'. (personal communication, March 25, 2012)

Conclusion

The importance of ICT in the context HE cannot be overstated. The reported study revealed wholehearted acceptance of technology within PNG educational institutions. It also demonstrated a threefold function of technology in its capacity to support program delivery, the teaching/learning process and research. Indeed ICT has a potential to become a catalyst of change for postcolonial PNG education. However, enduring the consequences of its postcolonial heritage, there is a need to clarify how institutions see their cyber presence in the contemporary academia and how it will be manifested through research and teaching, learning and administrative practices appropriate to changing demands of a knowledge-based society and at the same time with respect to unique PNG cultural environment.

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²Madang Haus Tumbuna [House of Ancestors] is a local museum and tourist centre located in Madang.

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