

Digital Education in Global Context – S2 2017/18

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Title: ***Are Open Source or Proprietary platforms more suitable for digital education in Africa?***

Which has worked better and what challenges remain?

Introduction:

Africa has been at the receiving end of the ongoing proprietary vs. open source software debate for years due to the relatively weak ability of continent to develop its own homegrown software solutions or contribute its part to the F/OSS ecosystem at a globally recognisable level. What little resources available, educational sectors in each country have been provided, have been spent initially on either purchasing and maintaining North American and Euro centrically developed solutions that don't necessarily fit with the profile or the African university. Doubly, these solutions are not sensitive to the needs of the historically excluded African learner who is beset with all manner of challenges relating to access, technology and basic, qualifying skill sets for effective online study.

Openness therefore, as posited by Farrow (2015), has been increasingly turned to, to meet the learning needs of the formal educational institution. The opportunity to obtain and apply open-sourced, freeware solutions is surely the answer to the financially constrained institution? Unfortunately, however, as much as the originators and ardent purveyors of open source solutions would have liked this appears not to be the case. Sadly, the digital revolution, although gathering pace, has not yet fulfilled much of its promise to bring the majority of African institutions of learning up to the level of their Western (and rapidly catching up Eastern) counterparts in respect of their technology adoption and digital teaching maturity.

Why is this the case and what are the particular challenges with respect to sources of digital solutions for education that are perhaps common to both F/OSS and proprietary solutions which prevent the more effective use of eLearning to help African universities achieve greater success in this field? Have African universities been at the mercy of the worst kinds of open washing? (Pomerantz & Peek, 2016).

Of all the most recent headlining earning open source experiments, the MOOC, which was meant to provide much vaunted entry to those less privileged enough to access a top (or even medium or low) flight university education have not proven to be a universally popular as envisioned. Its generally agreed that, certainly within the developing world, they are a work in progress (Wildavsky, 2015)

Maybe African problems are still too mired in the dilemmas associated with poverty, hunger, ill health and violence to prioritise this issue? Adding corruption into the mix and it makes for a virulent combination of issues to resolve. But, developing countries simply have to take their own lead in terms of planning and predicting change in technology enhanced learning. (Ng'ambi et al, 2016)

Dominant discourses with regard to the digital divide have always been embedded in the deterministic idea that information and communication technologies will automatically lead to

a more harmonious and egalitarian society (Cammaerts & Van Audenhove, 2003). But does it matter that it is bought in dollars or downloaded for free? Africa, with its vast, primarily, resource-based opportunities and unique challenges, has often been cast, incorrectly, as a singular location within which a heterogeneous solution involving digital education at a sub level, and consisting of overarching empirical and theoretical viewpoints, has been applied (Wasserman, 2017). Simplifying the argument to the point of just applying free or paid for solutions to resolve the digital education conundrums is likely, just not possible.

Promisingly however, the four thematic phases as identified and labelled in Ng'ambi et al. (2016), indicate that maturity in the approach taken by university's in parts of the continent is maturing and this can be brought to bear on the question at hand. At the very least it could add to a contextualised narrative that other institutions in developing nations could reference in making their choice between proprietary or F/OSS

Open Source vs Proprietary Debate

In the opening gambit of Sullivan's 2011 article premised on the placing of the F/OSS movement as an agent for social justice the author states that "Free, open source software (F/OSS) advocates have countered the market dominance of closed, proprietary software systems by developing and/or encouraging the distribution of alternatives to these closed systems". While this and socially just utilitarianism of software may be the primary goal of the most radical and active of the open source protagonists, it is not necessarily these ideals that are cherished foremost by developing nation actors who pay lip service to the movement in order to meet their own developmental goals within the economic reality in which they find themselves. Indeed, many developing nation universities may even only consider an open source solution once it shows some signs of 'proprietaryness' that sprouts from the formalisation of the particular solution as its influence and levels of adoption grow (Coleman, 2009 in Sullivan, 2011). Given the prolific use of LMS's such as Moodle and Sakai, whose solutions bear a striking resemblance to the aforementioned formalisation, it would seem that the function and support of the digital platform is respected more than the ideals associated to freedom and social justice.

Additionally, as Farrow (2015) states, the proliferation of OER, MOOC based and open licensing format resources to help provide cheaper alternatives to the closed, paid for access options has been, possibly, less successful than envisioned. This is particularly stark given the consensus that, as stated previously, devices like the MOOC lack the attributes required to enhance access to recognised, quality education.

The Peripheral Digital Educational Challenges in Africa

The Afrikaans language has a saying, "Goedkoop is duurkoop". This roughly translates to "Buying cheap can end up being very expensive". This can certainly hold true when it applies to open source solutions, particularly LMS's, when less well-resourced institutions envision that F/OSS will enable them to achieve more for less.

In Andersson and Grönlund (2009) the authors name the cost of technology as a the second most relevant factor within technological challenges identified as part of their studies literature review of over sixty papers that deal with implementing digital education in developing

countries. Their paper also addresses the questions of skills and resources as part of the contextual factors within the same study.

Technical administration and trainer skills are all too often overlooked when the decision on what technology platforms to adopt are taken. This oversight often later incurs costs for the institution related to expensive training of internal resources or the recruitment and retention of scarce skills, regardless of the proprietary or open source nature of the software. But, encouragingly, recognition of the economic realities of funding for digital education is at least recognised at policy level by some African based institutions as revealed in a recent study by Czerniewicz & Rother (2018) on how selected South African and UK university strategies prioritise and address inequality.

Mutisya & Makokha's 2016 review of challenges affecting the adoption of elearning at public universities attests to this point too where they identify 'infrastructural technical incompetence and attitudinal challenges as the major factors limiting the full-scale adoption of e-learning and not the ultimate ownership or copyright of the software.

This raises the secondary question of whether African settings for open education and F/OSS are capable of taking full advantage of the bazaar model described in Raymonds (2000) essay on the two models of software access. Without the requisite skills, resources & competencies to develop the potential that the bazaar model holds, African institutions of learning may not be well positioned enough to achieve success through it and should rather make use of the 'ready-mix' possibilities instilled in cathedral like proprietary solutions instead until such time as they do.

What does the evidence show and where could the solution lie?

Interestingly, however, Mutisya & Makokha's 2016 study does not list an explicit inability to acquire proprietary or open source solutions as one of the main obstacles to digital education in Kenya where their particular study was carried out. Rather, limited internet accessibility and lack of usable devices featured high on the priorities of both lecturers and students. By implication this could imply that F/OSS would have been favoured foremost to fulfil the needs of institutions before tackling the question over whether paid for software and material is better or not. With the critical highlighting of major financial constrictions for all public universities as part of the study, this could be a strong point for the case.

This argument could be extended to the use of OER type and Creative Commons teaching materials as well. It stands to reason that a lack of resources for larger institution wide solutions would be secondary to the need of individual course outcomes and digital artefacts for teaching.

Of all of the references researched in answering the title question Ssekakubo, Suleman & Marsden's (2011) paper on the issues affecting LMS adoption and potential in developing country institutions is the most telling. While the choice between proprietary or open source LMS solutions was based more on initial setup cost and ongoing maintenance fees this is about as far as the question on which type (F/OSS or proprietary) served as a better system extended. Of the five separate factors identified, the third one (LMS Selection and Usability) focuses most pertinently on our question. The authors find that, in many of the cases, an ill-conceived, self-comparison with a developed nation university modelling process was adopted

to base the selection of their LMS. The university's in the studies were generally of the opinion that 'because X prestigious university chose X system we should be able to do that same'. Referencing Ludevine et al (2009) and Minović et al (2008) the study posits that by not considering their specific contexts the selection process is thus flawed and, ultimately, did not prove the technology's worth. One of the main elements of the Ssekakubo paper finds that 'failure of the LMS-supported eLearning initiatives in developing countries has little to do with the technology and more to do with how the institutions are using the LMS'

Contrastingly, however, Ssekakubo et al does concede that 'a stable learning management system can be a prerequisite for making advances in learning' and that if the LMS contains usability problems, or is not stable, and suffers from performance or up-time failures, then the sought for positive development may be unattainable. On this particular facet then, proprietary systems may have a slight lead as they, at least partly, satisfy the skills onboarding, support, maintenance and updates requirement required to support any universities digital education adoption and proliferation goals better than the DIY approach of F/OSS.

Conclusion

Ultimately, the research for this project shows that superficially there is little difference in the preference for proprietary over F/OSS, or visa-versa, with respect to educational software solutions in the developing and innovating continent that is Africa. The real issues it seems are embedded in access to connectivity, infrastructure, resources, skills (both technical and for teaching) and the seeking out of a regional narrative that best aids the development of more specific, localised solutions. Bhuasiri et. al (2011), in their comprehensive literature review, also note the lack of political will and cultural concerns as a significant barrier to technology adoption for education in developing nations.

However, by digging into the various studies (including the TAM model) cited in the same Bhuasiri paper for one, it is clear that technical competence, performance, service support, perceived usefulness, course design and structure as well as plain old access and system quality remains an issue. Many of these (including those highlighted in that paper under eLearning environment Infrastructure and system quality which highlights learner satisfaction) may well have their genesis in the poor application of the basic technical architecture that constitutes the core of the digital teaching delivery mechanism which, when using Raymonds (1999) model of the 'help yourself' bazaar of F/OSS, sets a poorly resourced institution far back from a trouble free or workable resolution. Proprietary options then, although they come at a premium and not considered even as a qualifier, may offer a better answer through their greater assurance of quality and associated deployment skills and capability long term.

Further research on this differential, referencing comprehensive studies and methodologies such as those by DeLone & McLean, (2003) is undoubtedly warranted and may partly reveal the causes behind some of the greater reasons for the slow pace of digital learning adoption across African contexts.

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