



A Call for Lifelong Learning Models in the Digital Age

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The Education Challenge

In today's knowledge economy, students experience a disconnect between the knowledge and skills they are equipped with during their time in the formal education system and the knowledge and skills they require to make a difference for themselves and their families as well as for the organizations that they set out to build or work for. The rapid evolution of knowledge challenges the fundamentals that existing education systems and learning models are built upon and severely complicates the reliable supply of skilled human capital. Designers of effective formal education systems mandated to prepare next generations of students for the future economy are faced with a seemingly irresolvable challenge. That is creating relevant curricula and educational content — in short transferring the adequate knowledge and skills — without having certainty on which jobs that are in existence today will still require human capital input in the future compounded by the uncertainty of which jobs that are not yet existing but will demand specialized human capital input. The timely transfer of state-of-the-art “know-what” of science-based discoveries and codified knowledge and the required “know-how” of applied skills to put codified knowledge into action is at risk of being outdated by the time it is ratified and rolled out.

The backdrop of this development is the unprecedented speed with which industries evolve, giving rise to professions that did not exist 10 years ago (Hallett & Hutt, 2016). Also, the ushering in of a future of work that is heavily influenced by artificial intelligence in which not only entirely new jobs will continuously emerge, but also previously existing jobs will continuously become obsolete (WEF 2016). On a global level a drastic mismatch between supply and demand of human capital becomes apparent — “approximately 25,000 new workers will enter the labor market in the developing world every day until 2020, and more than 200 million people globally continue to be out of a job; yet, simultaneously, there is an expected shortage of some 50 million high-skilled job applicants over the coming decade” (WEF 2016: 1).

The demographic dividend leading to a staggering supply of human capital in the next decades lifts African economies onto the center stage of this education challenge: “How to design learning models that prepare and re-train the existing and future workforce to reap the benefits of a rapidly evolving and increasingly global labor market?”

This education challenge seems even the more daunting in economies in which the educational system is still heavily reliant on the “listen, memorize and repeat” logic and has not yet embarked on a transition to the “out-of-the-box” logic that emphasizes critical, abstract and creative forms of thinking for continued learning and knowledge creation through collaboration, recombination and continued iteration. Why does this transition matter? Seymour Papert, an MIT scholar and one of the artificial intelligence pioneers, provides the rationale: “The skills that you can learn when you’re at school will not be applicable. They will be obsolete by the time you get into the workplace and need them, except for one skill. The one really competitive skill is the skill of being able to learn. It is the skill of being able not to give the right answer to questions about what you were taught in school, but to make the right response to situations that are outside the scope of what you were taught in school. We need to produce people who know how to act when they’re faced with situations for which they were not specifically prepared” (Papert, 1998).

We posit that a strategic move towards promoting an inclusive learning economy which focuses the core of its developmental efforts on the advancement of continuous learning models and knowledge creation (Lundvall, 2016) by employing the manifold digital tools currently available will provide a feasible alternative to tackle the current education challenge. The outcome is a learning society in which a multitude of actors — from the public sector, the civil society and the private sector — create a web of mutually reinforcing institutions that make continuous learning an attainable and socially desirable good for the many rather than the few. In this scenario the uncertainty that dominates the various future of work scenarios is met with a sufficiently adaptive, locally grounded and multi-actor education system that equips learners to draw on a local and global resource pool to acquire, newly develop and test knowledge and skills that will be indispensable to seize the opportunities that technological change and the rapid evolution of knowledge avail.

The Learning Economy in the Digital Age

Turning a learning economy into a feasible future is predicated on the exploitation of recent technological advances and infrastructure solutions that permit the rapid scaling of education efforts across vast distances, equally covering rural, peri-urban and urban areas. In other words, the learning economy is unimaginable without a comprehensive digital transformation agenda as “technology can only yield its promise in the frame-

work of cultural, organizational, and institutional transformations” (Castells, 2004: 42) that in turn enables the implementation of information- and communications technologies (ICTs) for the improvement of social, public and economic life.

Ndemo (2015, 2016) details from the perspective of a Kenyan civil servant the policy interventions that were necessary to accelerate the transformations of which a comprehensive infrastructure including both undersea cables and terrestrial networks, developing incentive packages for students to acquire enabling devices (for assistive technology); subsidizing broadband for all higher learning institutions (public and private), the removal of taxes on enabling devices, the certification of operators to develop last-mile infrastructure in rural areas and the creation of digital centers in rural areas (for a comprehensive overview on the various transformations access Ndemo and Weiss, 2016). These transformations were important ingredients in reaching a mobile phone penetration that was measured at 5% in 2009 to 81% in 2017 (IWS 2017). Similarly, Weiss & Weber (2017) detail the ongoing cultural transformation precipitated by appropriating and anchoring technology entrepreneurship — the commercialization of ICT advances — in Kenya’s economy which has given rise to a variety of organizational approaches that seek to translate the benefits of technological and cultural change into broad based economic action. These preceding changes provide a fertile ground to envision a learning economy that can draw on a global pool of existing learning solutions to imagine new, context-specific education solutions (for examples see Larson & Munger, 2016).

Productive Tensions in a Learning Economy

A learning economy in the digital age comes with many important tensions in allocating scarce resources which require context-specific resolution. We will briefly consider a short selection of four tensions:

Inclusivity versus exclusivity. Adaptation challenges to new tasks are unequally distributed among demographics which requires not only the constant evaluation and revision of educational programs but also the disproportionate allocation of resources to those that face higher barriers to prepare for novel careers and embark on re-training initiatives. The risk is that resource allocation in a learning economy promotes the already highly educated. In consequence, variations based on pre-existing skill set and knowledge levels need to exist to enroll individuals in lifelong learning models.

Context-specific versus context-independent learning. Particularly in African economies, education is a contested field. In a learning economy, a thorough understanding and grounding in the context-specific historical complexities of African economies (pre-colonial, colonial and postcolonial) is actively promoted (Mazrui, 1993) and sought after in order to re-activate linguistic and cultural memories (Thiong'o, 2016) that impact how the learner views the world and her place within it. A fine balance between an “African” and universal, context-independent knowledge needs to be negotiated.

Local versus global work. Embedded in the digital narrative are hopes of progress, rapid economic development and the democratization of information to the masses (Mosco, 2005). Endorsing the agenda can lead to a momentous disconnect between local work realities and global imaginaries of the future. Undoubtedly the global labor market promises high paying employment opportunities, yet this powerful lure needs to be balanced by incentivizing local innovations and inventions that can anchor local economies triggering employment benefits for those that do not yet have access to a digital skill set.

Broad-based education efforts versus existing employment opportunities. A fatal trap in the learning economy is the broad-based promotion of learning efforts which runs the risk of disjointing labor supply from demand. Preventing the overproduction of specialized human capital for limited employment opportunities requires resource allocation and timely adaptation.

Interventions – National Policy, Education Organizations & Individual

In the learning economy, lifelong learning models are not produced by a centralized entity alone but rather in conjunction with state actors and private sector and civil society actors — hereafter subsumed under the umbrella term “education organizations” — requiring comprehensive incentive packages and coordination mechanisms.

Interventions for National Policies

At the national level, a number of interventions can promote the shift to a learning economy. Among those are the elaboration of a national learning economy agenda that focuses on the creation of a multi-actor coordination platform equipped with a political mandate and a research arm that informs policy making. In the foreground of such a body is a demand-oriented and in international forecast grounded promotion of a diverse set of scientific disciplines among them STEM, the promotion of poly-technical colleges to retrain learners, the introduction of an apprenticeship model for highly practical professions, the removal of taxes and import duties for educational content, the promotion of open-access publications, the significant reduction of connectivity costs and ICT equipment costs for education organizations, the creation of incentive structures for education organizations to develop low-cost continued and decentralized education solutions and the promotion of basic and applied research and development efforts in all sectors through specific grant and tax incentive packages.

Interventions for Education Organizations

A diverse set of local and international education organizations can provide robust life-long learning models with online and offline components tailored towards a diverse set of demographics and a variety of domain experiences. Digital technologies, for example, can foster basic knowledge diffusion (see Eneza) or the assemblage of individualized curricula (see Mozilla badges). Similarly, fab-labs, maker spaces, co-creation spaces and startup labs (see Gearbox, iHub or Rail lab) can provide decentralized low-cost environments in standalone organizations, private companies or universities who catalyze knowledge diffusion and applied knowledge testing and creation. Similarly building digital literacy and instigating the acquisition of sophisticated digital skills can be achieved through applied and curated lectures in rural and urban areas (see Akirachix for female coding), apprenticeship models (see Andela for developers and analysts), the boot camp model (see Moringa School) or in a continued and long-term education model for demographics who face disproportionately high entry barriers (see Tunapanda or the Somo Project). Similarly, private sector companies can endorse lifelong and cross-sector learning models amongst their employees and in collaboration with externals (see the ImpactHub model).



Interventions for Learners

The learning economy is predicated on the idea that developmental policy interventions need to promote learning and learners. Internalization of learning amongst citizen as a desirable good, in turn, fosters the creation of a learning society — societal norms and values reinforce the importance and centrality of learning for progress. Tax incentives packages and promotional activities on the county level can be instrumental in fostering the participation in educational efforts (e.g., conferences and online and offline classes) and turning learning into an attainable good.

This selected list of interventions needs to be accompanied by a systematic research program at all intervention levels to discern the intended and unforeseen consequences that arise once a learning economy agenda is developed.

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