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'From Cradle to Grave': Transforming South Africa's Learning Ecologies

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Abstract

This article examines key organizational principles that underpin responsive transformation strategies that have the potential to create spaces for critical engagement with South Africa's basic education post the 1994 democratic elections. The article deploys various metaphors like the 'ants, ecology, London Tube and bridge construction' to unravel the deeper elements for transforming schools into sustainable learning ecologies. It concludes with an articulation of plausible interventions that the country may deploy to improve educational quality and the system's efficacy.

Résumé

Cet article examine les principes organisationnels clés qui sous-tendent les stratégies de transformation réactives ayant le potentiel de créer des espaces pour l'engagement critique dans l'éducation de base en Afrique du Sud après les élections démocratiques de 1994. L'article déploie diverses métaphores comme «les fourmis, l'écologie, le métro de Londres et la construction de ponts» pour éclaircir les éléments plus profonds en vue de transformer les écoles en environnements d'apprentissage durables. Il conclut par une articulation des interventions plausibles que le pays pourrait déployer pour améliorer la qualité de l'éducation et l'efficacité du système.

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Introduction

In his State of the Nation Address to Parliament on 24 May, 1994, the former President Nelson Rolihlahla Mandela implored South Africans to 'Seize the time to define ourselves, what we want to make of our shared destiny'. It was a poignant call for a country that was at a political 'border crossing'. It was a requisite stance to affirm a new political dispensation and potential endeavours to deepen democracy and improve socio-economic livelihoods. Mandela's call was also a symbolic gesture by the head of government to give the ordinary citizenry much needed impetus to actively influence governance in a new democracy. A new dispensation was born amidst chasms in social justice, socio-economic development and sustainable growth for all citizenry requiring further engagement and interrogation.

Tumultuous years of the apartheid regime and highly institutionalized racial segregation policies curtailed South Africa's socio-economic development and global acceptance. The country was a 'black sheep' of the global village with dire socio-economic consequences. The new political order under the African National Congress (ANC) led government promised to address challenges of reconciliation and social cohesion.

Mandela's national call for exigent action to political matters resonates with the theme of the colloquium, namely, 'Sustainable Rural Learning Ecologies: Border Crossing'. Years of segregated educational provisioning fossilized the rural-urban divide with dire socio-economic consequences including unsustainable rural-based ecologies.

The notion of 'Border Crossing' invokes the ideals Mandela implored South Africans to embrace and practice. At the intellectual (philosophical) level the colloquium challenges educational practitioners, researchers and academics to interrogate educational provisioning in South Africa. It is expected that such dialogues will shed more understanding on, inter alia, clarity of vision, resource efficacy (staffing and infrastructure), governance, leadership, school performance and achievement, and so on. It is hoped that the by-product of such discourses will draw evidence from research and implement appropriate interventions to change the trajectories of learning ecologies.

Rethinking Learning Ecologies: A Metaphorical Landscaping

Transforming learning ecologies into competitive spaces challenges learners to breach knowledge boundaries. It is complex due to intertwined factors at play and their causal effect. The Global Competitiveness Report 2014–2015, for instance, enumerates (i) institutions, (ii) infrastructure, (ii) macroeconomic environment, (iv) health and primary education, (v) higher education and training, (vi) good market efficiency, (vii) labour market efficiency, (viii) financial

market development, (ix) technical readiness, (x) market size, (xi) business sophistication, and (xii) innovation as the key pillars for global competitiveness. The prevalence of these pillars does not automatically guarantee success and competitiveness. It is their strategic alignment and integration into governance systems that might adapt the trajectories of learning ecologies to twenty-first century challenges.

Transforming learning ecologies is dialectically linked to infrastructure functional management and efficacy. Years of apartheid regime curtailed the country's optimal growth in infrastructure development. And the impact was more evident in the provisioning of educational facilities for black communities during the apartheid regime. The new regime still grapples with redressing the backlog. The Global Competitiveness Report 2014–2015 observes that South Africa' competitiveness dropped in key areas of development such as goods and services, financial market development, technical readiness, and innovation. Regression in these key areas also impacted on governance and operational efficacy. A stable economic environment stimulates economic growth, innovation and technology. It can influence the provision of quality education through intelligent utilization of research and equitable allocation and use of resources in rural-based ecologies. It will take some decades to achieve complete social redress across governance spheres.

The Global Competitiveness Report 2014–2015 also recognizes South Africa's incremental growth in infrastructure development, higher education and training, and labour market efficiency. These three identified growth areas play a crucial role in the transformation of education by providing requisite physical structures, qualified personnel and a buoyant labour market for strategic partnerships in education and economy. Twenty years on, South Africa still grapples with seismic growth in poverty. Youth unemployment and underperforming education are of concern. The socio-economic conditions require urgent interventions. Research-linked approaches would create a base for future socio-economic development. Perhaps, robust transformation entropy would suffice.

Entropy as a principle in physics states that when systems are not continuously maintained they collapse with unintended consequences. Thermodynamic systems illustrate intricacies of entropy at play. Entropy does apply to natural contexts, when nature self-regulates to align with ecological changes. Given its historical challenges, South Africa's basic education could do with some robust entropy for sustainable rural-urban learning ecologies. To unpack plausible transformation modalities for sustainable learning ecologies, (a) ecology, (b) ants, (c) London Tube/Underground trains, and (d) bridge construction will be used as metaphors for amplification.

The Wikipedia definition of ecology is 'the scientific analysis and study of interactions among organizations and their environments, such as the interactions organisms have with each other and their biotic environment'. Understanding the chasms of ecology creates better planning and deployment of effective conservation interventions for sustainable biodiversity. The symbiotic relationships between species and their environment illustrate the nimble balancing (entropy) act required for sustainable ecology and biodiversity. Learning ecologies share fundamentals of natural ecologies in terms of stakeholder relationships that impact on the provisioning and quality of education.

Recently, I was left speechless when watching a documentary about a colony of ants executing an audacious 'border crossing' of the Amazon River for sustainability. It is plausible that ecological degradation forced the ants to review their survival. Their mission was simple: 'cross the Amazon River without drowning the Queen and her eggs' to a more sustainable ecology. It was a daring expedition that could have easily ended tragically. Were the plan to fail, the entire colony would be wiped out.

Equipped with nothing more sophisticated than tiny brains, the ants hatched a plan – using only tiny legs, they formed a floating raft to transport the Queen and her eggs to a more sustainable ecology (environment). At face value, the ants' plan appears simple and risky; however, closer scrutiny confirms that it was based on very sound strategic and organizational principles, namely:

- clarity of vision and mission (purpose) of the colony's survival and sustainability
- requisite skill sets and capacity
- innovative change management strategies
- professionalism
- organizational efficacy
- excellent work culture and ethos.

Environmental (ecological) changes forced the colony of ants to think strategically about how to reorganize themselves for survival and sustainability. Armed with a clear vision, careful selection and integration of skill sets and shared work culture (responsibility), the border crossing of the Amazon River was accomplished. The ecology and ants metaphors offer crucial lessons on plausible interventions, shrewd planning and organizational execution of plans. Similarly, transforming learning ecologies requires careful planning and meticulous application of research intelligence and organizational principles to achieve the envisaged mission – the complexity of the ants' plan and potential risk factors to successfully cross the Amazon River. Requisite planning and

sharing of tasks were followed to the letter and the audacious expedition was accomplished. Bringing radical changes to learning ecologies requires more than just tinkering with the obvious – implementing recursive curriculum changes. South Africa to date has had numerous and recursive curriculum changes post-1994, for instance, the adoption of the Outcomes Based Education (OBE), Curriculum 2005, the Curriculum Assessment Policy Statement (CAPS), and so on. Regrettably, this experimental mode and approach has not enhanced the quality and creation of sustainable learning ecologies for the twenty-first century.

The transformation juggernaut must garner speed to reach the destination – the provisioning of quality education and sustainable learning ecologies. Twenty-one years on, significant transformation progress has achieved policy formulations as evidenced by:

- The Employment of Educators Act (1998)
- The National Strategy for Further Education and Training (1999–2001)
- The Education White Paper on Early Childhood Development (2000)
- Action Plan to 2014: Towards Realisation of Schooling 2015
- White Paper 3: A Programme for the Transformation of Higher Education (1997)
- Annual National Assessments Results (2011 and 2014)
- The Education White Paper 6 on Inclusive Education (2001)
- The Delivery Agreement for the Basic Education Sector (2010), and so on.

Exponential learner enrolment increases in the foundation phase (Grade R) and improved national pass rates for grade 12 learners indicate a steady progress in changing the education landscape (Monyooe et al. 2014).

Implementation of the education policies listed above illuminates glaring gaps in creating a balance between policy proliferation and rolling out effective implementation mechanisms. The need for expediency (overseeing instant policy changes to pacify public anxiety) did not engage strategic modalities to address historical and systemic chasms. Having secured policy frameworks, it was assumed that historical and systemic challenges would be covered by policy directives. Both state and institutional capacity to implement policy directives was given scant emphasis. The ramifications for endorsing political expediency continue to stifle transformation endeavours.

When Minister Angie Motshekga announced the 2014 Annual National Assessment (ANA) results, deeper systemic challenges were reflected through poor learner performance across grades. South Africa's poor learner perfor-

mance also applies to local assessment tests. For instance, the 2011 Annual National Assessments (ANA) for grades 1 to 6 confirm that 'In Grades 3, the national average performance in Literacy stands at 35 per cent. In Numeracy our learners are performing at an average of 28 per cent. Provincial performances in these two areas is between 19 per cent and 43 per cent, the highest being the Western Cape, and the lowest being Mpumalanga'. Furthermore, the sixth graders' 'national average performance in Languages is 28 per cent. For Mathematics the average performance is 30 per cent. Provincial performance in these two areas ranges between 20 and 41 per cent, the highest being the Western Cape and the lowest being Mpumalanga. Reflecting on below par performance, Minister Motshekga reminds us that 'to improve the quality of our education – classroom teaching must improve so that learners can receive quality knowledge at the requisite level'.

South Africa's performance in international assessment tests such as the Trends in International Mathematics and Science Study (TIMSS) is of great concern. Our fifteen-year-olds lag requisite proficiency in literacy and numeracy when compared with top performing nations like Finland and Singapore. Learner performance is dialectically linked to the state's management of educational activities in terms of resource allocation, distribution and utilization. Most developing nations struggle with infrastructure backlogs, politically hostile learning environments due to teacher union activities and poorly aligned policies and implementation and monitoring mechanisms. South Africa still grapples with these challenges.

Failure to manage curriculum changes and operational interfaces may impact on learner throughput and enrolment at tertiary institutions for higher studies. Low university enrolments diminish the creation of a stable human capacity development value chain. It also accentuates youth unemployment and depletion of the fiscus. Fullan (1993: 84) avers that 'learning organizations are a part of a greater complexity that requires a holistic view to survive and develop'.

Fullan's (1993, 2009) views resonate with South Africa's political transition and ability to understand contextual factors and concomitant change drivers. An over-zealous proliferation of education policies ignored the OECD Education Policy Outlook 2015: Making Reforms Happen, which sets out 'investing in teaching and teachers; setting high standards for all students and using data to follow student progress'.

Regrettably, South Africa has institutionalized a very low pass mark requirement for grade 12 learners. For instance, a learner must achieve '40 percent in home language, 40 percent in two other subjects, and 30 percent in three subjects'. Monyooe et al. (2014: 185) argue that South Africa's practice

does not favourably compare with continental practices where the minimum pass rate is set at 50 per cent. It suffices to observe that political expediency has led to a deviation from international performance norms and benchmarks.

While setting low pass requirements may resonate with public sentiments in terms of creating an opportunity for increased grade 12 passes, it however, has serious long term consequences for academic progression in higher education institutions. Low numbers of eligible students enrolling at tertiary institutions undercuts future research development trajectories and human capacity development endeavours. South Africa needs a balanced and effective plan to improve learning ecologies for the future. The ants' metaphor may provide valuable lessons for interventions.

The ants' successful plan to cross the Amazon River was anchored on sound organizational principles such as a culture of shared responsibility, commitment to vision, intelligent use of change management skills, and a passion to transcend into the unknown with confidence. Lapses in organizational leadership have compounded systemic deficiencies and undermined efforts to promote sustainable learning ecologies and quality education. South Africa's inability to create what Leclerc et al. (2012: 2) term 'a set of social relations that create a culture of shared responsibility' has further accentuated the challenge. To circumvent organizational deficiencies from spiralling out of control, learning ecologies must be staffed with courageous and visionary leadership that comprehends the chasms of rethinking and transforming learning ecologies into sustainable spaces for scholastic excellence. South Africa needs to invest substantially in organizational human development, if it is to compete with top performing nations.

Another metaphor that resonates with educational transformation discourse is what Smith (2005) terms the 'London Tube', commonly known as 'Underground trains' in Britain. The London Tube is acclaimed for its ability to connect different cities, its efficiency as a mode of transportation, its reliability, and for inspiring new ventures. In addition to providing multiple entries and exists, the London Tube has a unique inscription (warning) on all the platforms – 'Mind the Gap'. This is a space between the train and platform, where no human beings should be when the train pulls out, lest they lose their legs.

The 'London Tube' metaphor shares facets of a well-organized and successful education system that offers citizenry multiple and fulfilling opportunities. Through the London Tube, citizenry criss-cross geo-city borders with utmost ease and in real time. Regrettably, South Africa's educational provisioning does not match the savviness of the London Tube in many respects, for instance, the inherent disconnect between the official curriculum and its requisite responsiveness (educational goals). South Africa's approach to educational

transformation and policy overzealousness, has failed to robustly engage the 'Mind the Gap' conundrum created by policy proliferation and ineffective implementation strategies (Darling-Hammond 2010; Sahlberg 2011; Hopkins 2007; Monyooe 2005). While the 'Mind the Gap' inscription on the London Tube continually flares the passengers to affirm dangers lurking should they misstep when boarding the trains, South Africa has not sufficiently paid attention to the system's flares of deficiencies.

South Africa's socio-economic history underlines another 'Mind the Gap' challenge, namely, disparities between rural and urban contexts. Poorly developed rural and urban contexts influence quality education and socio-economic livelihoods. As reported in the 2014–2015 Global Competitiveness Report, agile economies influence development and allow states to invest substantially in education. Economic stability allows for better management of governance structures.

Consequently, in the same way nature self-regulates to maintain ecological equilibrium and sustainable biodiversity, learning ecologies require robust entropy to match the twenty-first century technological imperatives. South Africa needs to invest substantially in social justice to address historical and systemic imbalances. Part of the approach should be to counter Bolin's (1989: 88) warning that 'Schools will never change as long as teachers clock in and out of school without thought of what it is they are trying to accomplish. Teachers who aspire for excellence in teaching and expect excellence from students are concerned about their craft'. Failure to redefine educational obligations will undermine envisaged transformation endeavours.

In a nutshell, the three metaphors used in the article communicate one powerful message, namely that strategic organizational changes are vision driven, anchored on robust research intelligence and shared responsibility. South Africa needs a more coherent approach to turn school environments into sustainable learning ecologies.

Engaging Learning Ecologies: Whose Narratives Matter the Most?

When President Zuma declared education the 'apex of government', this changed and invoked nuanced narratives about education. It created a platform to interrogate South Africa's capacity to provide quality education and sustain international competitiveness. The declaration also raised public expectations about learner performance and achievement given South Africa's dismal performance in international assessment studies (TIIMSS). Regrettably, the presidential declaration has not turned schools into competitive learning ecologies as evidenced by results and performance at matriculation and across grades.

The need to transform schools into hubs for excellence is aptly captured by *The Economist* (2014: 55) which posited that 'Education ministers across the globe quake in the run-up to the publication, every three years, of the OCED's International Student Assessment (PISA), which rates 15 year-olds academic performance in dozen countries'. South Africa tends to favour political expediency over robust international benchmarking regimes. In an article entitled 'Preschool quick fix sets bar too low', I have argued that:

> [ext] Political narratives tend to obfuscate the vital connections and empirical evidence that underpin the optimal implementation of envisaged policy changes. The lofty promises the manifesto enunciated lack important details on the kinds of strategic processes and modalities that would need to be deployed if specific outputs and milestones are to be tangibly achieved. (Monyooe 2014) [ends]

A more coherent approach would unravel inherent organizational chasms, and create an efficacious educational system.

There are potentially five possible narratives that underpin discussion on learning ecologies and performance, namely (a) official, (b) public, (c) critique, (d) 'lived', and (e) silent/unamplified narratives. The epistemological essence of these narratives is summarized as follows:

a) *Official narratives* – represent deftly crafted statements of approval by the officialdom in recognition of the system's performance. When the Minister of Basic Education described the 2013 matric national pass rate of 78.2 per cent as an 'exceptional performance over the years', it glossed over what Ayers (2010) terms 'yeasty' nuggets about the quality of results and the system's efficacy. South Africa's tendency to prioritize political expediency over stringent quality regimes undermines the ideals Mandela implored the citizenry to embrace in his address to parliament.
b) *Public narratives* – take cue from official announcements and tend to embrace sectorial celebrations without interrogating uncomfortable nuggets of the system. The stage-managed like reactions often obfuscate systemic deficiencies such as learners dropping out of the school system.
c) *Critique narratives* – represent robust and holistic analysis of learner performance and the system's efficacy. The critique approach to educational issues allows for robust interrogation of the deeper layering of the system.

d) 'Lived' narratives – represent the actual educational experiences (stories) as lived by learners, teachers and other relevant stakeholders. Documentation of these personal data offers possibilities and insights to crucial nuggets of the system for future planning. As Fredrickson (1997: 12) opined, 'We all have stories to tell. In times past, people seemed to understand that stories are the way we make sense of our lives, pass long knowledge and traditions'. The 'lived' educational narratives in real time unmask those salient aspects of the system that the officialdom tends to censure from the rigours of public discourse.
South Africa commemorates National Youth Day (16 June) every year in recognition of the valiant school children that challenged the apartheid regime. The young lions of the 1976 uprisings were an epitome of fearless commitment against the most brutal regime. The brazen acts of apartheid forces could not break their resolve to protest the imposition of Afrikaans as the medium of instruction. Unlike the renowned engineers that designed the greatest wonders of the world (bridges, skyscrapers, medical technologies), theirs was a unique engineering of the mind couched in the doctrines of Pan-Africanism, Black Consciousness and so on. Their narratives were about reclaiming their bona fides. That definitive walk down the streets of Soweto which culminated in the death of Hector Pieterson has been immortalized for generations.
The current cohort of students lacks that effervescent passion and commitment to amplify the diversity of student needs. The downward spiralling of learner performance both in national and international assessment tests has not rekindled the valiant foresight that drove the 1976 young lions to march down the street to affirm their rights. It would seem that the democratic transition has created a *laissez-faire* mentality towards the provisioning of quality education, even when the deficiencies are so glaring.

e) Silent – unamplified narratives – represent well-considered views by disillusioned stakeholders about educational issues. The silent narratives often bear 'bleeding' scars from somewhat intolerant governments. To avoid the wrath of officialdom, silent narratives embrace reclusion and consign their unamplified narratives to footnotes about educational systems that are often missed by officialdom.

Creating spaces for critical thinking allows systems to interrogate those uncomfortable elements about quality and efficacy. It also allows for meaningful calibration of perspectives on efficacious modalities to create sustainable learning ecologies for South Africa.

Proliferation of Policies and Implementation Conundrum

The South African Constitution (Act 108 of 1996) under Section 29 (1) boldly states that every person has the right to: (a) a basic education, including adult basic education, and (b) further education, which the state, through reasonable measures, must make progressively available and accessible. It further commits the government to uphold the principles of equality and non-discrimination across the education sector. To realize constitutional directives, South Africa has invested substantially in the policy formulations envisaged to deepen democracy.

Educationally, South Africa boasts policies such as the Education White Paper 1 on Education and Training (1996); Higher Education Act (1997); South African Schools Act (1997); Adult Basic Education and Training Act (2000); National Policy on Whole School Improvement (2001); Revised National Curriculum Statement Grades R–9 (2001), to mention but a few. Over the years, new policies such as the Action Plan to 2014: Towards Realisation of Schooling 2025; Plan action – improving access to free and quality basic education for all (2003); the Delivery Agreement for Basic Education Sector (2010) and the National Development Plan 2030 have come off the policy production line without much success.

It is envisaged that the policies alluded to above will fulfil three constitutional principles, namely to heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights; improve the quality of life of all citizens and free the potential of each person; and lay the foundation for a democratic and open society in which government is based on the will of the people and every citizen is equally protected by the law. While incremental success is noticeable, the proverbial 'elephant in the room', is South Africa's inability to translate policies into tangible transformation gains that improve sustainable learning ecologies.

Proliferation of policies is not a reliable indicator for transformation successes as it obfuscates reality about the system's efficacy and performance quality. A policy weakness in the South African context, is the noticeable disconnect between policy directives and implementation strategies. Mismatches between policy directives and implementation are not uniquely peculiar to South African. Harris (2000: 1) argues that:

> [ext] In most Western countries the pressure for change has manifested itself through government policies aimed at generating the impetus for school development. In reality, however, such policies have often proved counter-productive to innovation and change. The current dichotomy facing schools is one of greater central accountability and control, with an increased responsibility for self-management and development. [ends]

Harris's postulations resonate with South Africa's educational challenges post-1994. While policies have numerically tripled, they have not led to substantive gains in terms of the system's efficacy and quality. Twenty years on, South Africa's educational performance in international assessments studies remains dismal despite an avalanche of formulated policies. Internationally, Finland is among a small percentage of countries that have successfully integrated policy and implementation strategies. Consequently, Sahlberg (2011: 39) writes that:

> [ext] The key success factor in Finland's development of a well-performing economy with good governance and a respected education system has been its ability to reach broad consensus on major issues concerning future directions for Finland as a nation… Educational policies that are based on the ideal of equal educational opportunities and that have brought teachers to the core of educational opportunities have positively impacted the quality of learning outcomes. [ends]

In order for South Africa to transform learning ecologies into the mould of the Finnish system, robust paradigm shifts at policy and praxis levels must prevail. This view is also supported by Christie (1997) who writes that 'change [should] not only [be] in relation to shifts from one state to another, but also in terms of engaging with practices and rationalities of government in a continuing process'. A requisite paradigm shift must also be underpinned by what Darling-Hammond and Wentworth (2010: 3) term 'intensive investments in teacher education and major overhaul of curriculum and assessment system'.

The literature on educational transformation advocates a more balanced infusion of interventions that substantially enhance the system's efficacy and quality (Sahlberg 2011; Darling-Hammond 1994; Darling-Hammond and Wentworth 2010). South Africa's ability to manage competing demands at the National Treasury in terms of equitable resourcing might just unlock the jam of systemic deficiencies and unleash possibilities for enhanced and sustainable learning ecologies.

Proliferation of policies is not a reliable indicator of system's efficacy and quality of service provided. If that were the case, South Africa, given its litany of policies, would have radically changed learning ecologies into competitive hubs for breaching knowledge boundaries. South Africa's performance in international assessments studies and tests would be comparable with top performing nations.

Building Bridges for Sustainable Rural-urban Learning Ecologies

The notion 'from cradle to grave' invokes key principles about the genesis and sustainability of entities such as ecology, infrastructure and other creations that dominate human lives. These entities rely on the application of entropy as a physics principle to affirm existence and sustainability. It is an intelligent calibration of requisite pillars into versatile entities of national significance. Commenting on the processes of bridge construction, Monyooe (2012: 2) writes:

> [ext] When geotechnical engineers construct bridges, they spend enormous time on design and foundation (piling, drilled shafts, spread footing, aerodynamics, cables and so on) to ensure that the bridges are quality-assured. When deciding where to construct a bridge, the engineers must reflect on the environmental impact, natural hazard mitigation, economic efficiency and sustainability. (Monyooe 2012) [ends]

The same way geotechnical engineers plan connecting cities through bridges and rolling out meticulous and research driven operations that enhance life and global competitiveness, curriculum planners go through an arduous interrogation of feasibility studies (data) to decipher plausible curriculum models that resonate for instance, with South Africa's ecologies.

The often slow-paced approach to educational transformation has not fully connected rural and urban ecologies to versatile educational nodes linked to sustainable livelihoods. Unlike the state-of-the-art bridges created across the globe that effortlessly connect geo-cities, the South African education system has not attained its national mandate, for instance, learners' rights to quality education and infrastructure have been severely compromised.

The dastardly conditions under which some learners are taught are aptly delineated by Monyooe (2014: 58–60) in a poem entitled 'A Classroom':

> [ext] *Yes that's me*
> *The now dilapidated structure you call school*
> *I once had soul and integrity*
> *I had best and worst of times*
> *The torturous lifestyle that left me bloody scarred*
> *I remain dilapidated and hollow*
> *I can only reminisce at the youthful years gone by*
> *The once exquisite interior designs have gone to waste*
> *Hollow, sullen and soulless*
> *I am physically embarrassed to accommodate the inquisitive minds*

The colourful decorations that adored the walls have gone amiss
Leaving only remnants of once comfortable space
The chairs and desks have metamorphosed into hardened wood
Gnawed by decades of torturous forces of nature
I am though, in sync with nature
Like twins we cuddle for affection
Every rain drop drowns my zillion sorrows of inadequacy
I have lost the spark to challenge the young minds in my care
That's me, a dilapidated and hollow space called classroom
Whenever rain touches our hood
I get drenched and metamorphose into puddles
And the young minds that reside with me scatter for safety. [ends]

The interrogative discourse that foregrounds bridge construction processes shares robustness that can be deployed to re-engineer education and create sustainable learning ecologies. Insightful analysis of cohorts of research data allows educational planners an opportunity to calibrate an efficacious system that connects and challenges learners to breach knowledge boundaries.

The use of bridge construction as a metaphor to unravel the chasms of educational change and transformation serves many purposes. Firstly, at the intellectual level, it affords us the much needed transcendental engagement with deeper conceptual theorizations about transformation and how its modalities can be harnessed to turn schools into sustainable ecologies. Secondly, at the operational level, it allows for the coalescence of ideas into tangible and functional plans that can transform ordinary bridge pilings, shafts, cables and so on into awesome bridges that give sense to geo-space. And thirdly, it also allows for robust analysis and validation of the plausibility of the envisaged transformation interventions. In this way, the 'Mind the Gap' conundrum alluded to by Smith (2005) would have been sufficiently interrogated and addressed.

Creating sustainable learning ecologies goes beyond curriculum changes and infrastructural development. It should incorporate classroom narratives that form the daily teacher-learner interface and the often taken-for-granted delivery of curriculum and embedded assessment methodologies. Consequently, Ayers (2010) writes that learning environments should be 'inviting spaces for critical thinking' where learners unravel official curriculum. Ayers' (2010) postulations resonate with critical pedagogy discourse robustly embedded in the authoritative writings by Giroux and McLaren (2004), Giroux (2003), Knight and Collins (2010) and Waghid (2004).

Critical discourse encourages the transformation of learning ecologies into sites of critical engagement and questioning of the curriculum to unravel

deeper elements of the system in terms of national responsiveness. South Africa's incremental gains achieved through educational transformation have not fully been embedded to develop graduates with sufficient skills to penetrate the knowledge economy.

Furthermore, South Africa's systemic imbalances described above undermine what Ayers (2010) terms the requisite role of schools as 'laboratories for discovery and surprise, spaces where children can be active'. Consequently, Smolleck and Nordgren (2014: 2) write that 'Allowing students to be inquisitive within their learning provide experiences that are memorable as well as educational'. In addition to sound educational policies, South Africa needs entropy for infrastructural development to transform learning ecologies into what Ayers (2010) terms 'inviting spaces' for quality education where teachers 'teach to make a difference'. The presence of mind and intelligent integration of engineering skills led to the construction of the engineering wonders of the world – Africa's pyramids, the Taj Mahal in India, and Kansai airport in Japan. These engineering marvels were anchored on quality education and solid engineering skills.

South Africa's endeavours to transform rural and urban learning ecologies can be attained through an eight point strategy summarized below.

Political Will and Decisiveness

Top-performing nations perceive education as a key driver to economic development and often match this view with requisite resources to penetrate the knowledge economy. Policy directives without a firm political goal remain mere rhetoric unless they are fully integrated into the locus of power and decision making. Political will goes beyond political rhetoric and should be anchored on firm strategic investments. South Africa must transcend the policy proliferation phase and focus on refining implementation strategies.

Civic Engagement and Advocacy

Creating vibrant social engagement and robust articulation of educational issues deepens public commitment to social justice endeavours and creates what Armaline (2010: 159) terms 'Civic and political engagement [that] becomes something immediately relevant, rather than an alien practice only understood and realized at adulthood'. South Africa's approach to transformation is heavily reliant on bureaucratic and technocratic principles with limited success and this creates disconnect between policy directives and reality (implementation). Civic engagement gives credence to what Armaline (2010: 160) terms as 'having some significant stake, and meaningful voice'.

Accountable Leadership

Darling-Hammond (2010) reminds us that effective leadership demonstrates accountability through effective systems that recognize collaborative partnerships. Such partnerships engender a culture of high-quality performance by all the stakeholders through an agreed performance matrix. Values of meritocracy are engendered across the system and continually monitored for sustainability.

Staffing Schools with Professionally Qualified Teachers

Deploying highly qualified personnel to manage learning ecologies can counter Bolin's (1989: 88) notion that 'Schools will not change as long as teachers clock in and out of the school without thought of what it is they are trying to accomplish. Teachers who aspire for excellence in teaching are concerned about their craft'. Elsewhere, Monyooe et al. (2014: 187) write that 'In Finland, teaching is a high premium profession because of stringent recruitment, selection criteria and teacher education programmes'. A view which is further emboldened by Sahlberg (2011: 125) who writes that the Finnish educational successes emanate from 'well-prepared teachers, pedagogically designed schools, good school principals'.

Creating Versatile Internal Governance Structures

Managing educational institutions has evolved with notable complexity which puts a strain on school internal governance structures. Consequently, Dankelman (2003: 17) writes,

> [ext] [g]ood governance not only includes transparency, democracy and respect for human rights, institutional capacity and resources, but it also has major gender implications. Among these are equal participation of women at all levels, their access to education, training, employment and benefits… Gender mainstreaming is not simply a question of women in decision making… It also means that institutional mandates, policies and actions are shaped by gender perspectives. [ends]

Performance variances across learners' grades reflect deeper administrative and governance challenges within the system. The current South African School Governing Bodies (SGBs) need further upskilling to meet complex governance issues. The literature (Darling-Hammond 2010; Sahlberg 2011) confirms that schools entrusted to well-qualified teachers and administrators perform better in academic and related activities.

Managing Highly Unionized Learning Ecologies

The South African education landscape has fundamentally changed in terms of union activities. According to Letseka et al. (2012: 1197) teacher unionization in South Africa has stronger links with political affiliations, for instance:

> [ext] The largest union, the South African Democratic Teachers Union (SADTU) is affiliated to the Congress of South African Trade Union (COSATU). The latter is a partner in the ruling tripartite alliance that includes the National African Congress (ANC) and the South African Communist Party (SACP). World-wide public-sector unions are known to prop up left wing political organizations. SADTU is no exception. [ends]

While labour laws allow workers to unionize, it is the union's modus operandi that attracts negativity, particularly when such alliances lead to unintended consequences such as undermining the quality of education through disruptive acts. Consequently, Monyooe et al. (2014: 190) argue that 'unionized teachers in South Africa spent far less time teaching learners than their international counterparts'. Literature suggests that successful educational systems have managed to create a balance between teachers' occupational requisites and obligations to provide quality education (Ayers 2010; Hargreaves and Fink 2004; Darling-Hammond and Sykes 2003; Heystek and Lethoko 2001). South Africa needs to explore international trends on the harmonization of alliance politics and quality education. Unless sustainable solutions are found to improve teachers' occupational conditions, industrial actions (strikes) will continue to undermine quality education, particularly rural-based learning ecologies.

Creating Versatile Learning Ecologies

According to Darling-Hammond and Wentworth (2010: 2) quality of education involves an application of 'project-based, inquiry-oriented learning… mapped to syllabus' that allows learners to explore knowledge boundaries. A view supported by Smolleck and Nordgren (2014: 4) who remind us that 'Children are innately inquisitive about the world around them; therefore, allowing children to investigate their own questions instils a lasting love of learning. Inquiry gives students the ability to find answers, which gives them a sense of empowerment in their learning'.

Consequently, Armaline (2010: 151) writes:

> [ext] …in order to build sustainable democratic societies and communities, pedagogical space must be created and protected where students and teachers might safely engage with democratic concepts and praxis. [ends]

Forging Strategic Partnerships for Poverty Eradication

Rural learning environments continue to experience bald inequalities in terms of access, quality and infrastructure. Although the Education White Paper 6 (2001: 5) boldly promised to 'enable all learners to participate actively in the education process so that they could develop and extend their potential and participate as equal members of the society', regrettably, this undertaking remains a distant dream for some children in South Africa. Providing access to quality education remains a huge challenge that must be negotiated with the National Treasury in terms of prioritizing developmental interventions.

Evidence gleaned from the Global Competitiveness Report 2014–2015 indicates that developing nations can leverage more successes if they invest aggressively in infrastructure development and technology advancement. Partnerships between higher education institutions and the private sector can contribute towards creating sustainable learning ecologies that have the capacity to enhance South Africa's competitiveness in spheres of knowledge economy.

Leveraging Higher Education Expertise to Transform Learning Ecologies

South Africa's higher education sector comprises twenty-three public universities, eighty-seven registered private higher education institutions and thirty-one provisionally registered institutions, and two national institutes of higher education and science councils. All are tasked with enhancing the quality of higher education provisioning and social development. Transforming learning ecologies is a partnership project that requires versatile leadership, intelligent fusion of policies and actionable implementation mechanisms. Strategic leveraging of higher education expertise (governance, research, teaching methodologies etc.) has the potential to influence the trajectories of changing learning ecologies. The interface between the higher education sector and basic education must be strengthened to collaborate more on areas of interest.

South Africa's Education White Paper 3: A Programme for the Transformation of Higher Education (2007) lists amongst its objectives a commitment to 'deliver research and human capital'. Universities and independent agencies prepare and train teachers for South African schools. The basic education department offers bursaries for eligible students through the Funza Lushaka Bursary Scheme. The Funza Lushaka aligned curriculum is limited in scope

because it covers for instance orientation to the curriculum and assessment policy (CAPS), short course interventions, and qualification-programme and unit standard interventions.

The success of these partnerships depends largely on revamping current teacher training and development programmes to infuse new trends in teacher education for the twenty-first century. We could draw valuable lessons from the Finnish education system that requires all teachers to possess a masters' degree to be licenced to teach across grades. According to Darling-Hammond and Wentworth (2003: 2) 'Qualified teachers are a critical national resource that requires federal investment and cross-state coordination'.

In her attempt to redefine the transformation agenda, South Africa has adopted a National Development Plan 2030 (Vision 2030), with the following key objectives for education:

- high quality, universal, early childhood education
- quality school education, with globally competitive literacy and numeracy standards
- further and higher education and training that enables people to fulfil their potential
- an expanding higher education sector that can contribute to rising incomes, higher productivity and the shift to a more knowledge-intensity economy
- a wider system of innovation that links universities, science councils and other research and development players with priority areas of the economy (p. 38).

The plan sends the right messages that resonate with public perspectives. If the plan were to be executed intelligently, it would translate the somewhat lofty objectives into tangibles. Similarly, provisioning of quality higher education would contribute towards the training and development of qualified teachers and education administrators that would manage and capacitate learning ecologies. Well-resourced learning ecologies improve learner performance and fulfil what Ayers terms 'inviting spaces' that change human lives for a sustainable future. South Africa needs a knowledgeable workforce to harness opportunities presented by the knowledge economy.

Conclusion

Historical and systemic imbalances remain South Africa's achilles heel across all sectors of governance. The education sector, especially in rural and urban settings is characterized by poorly resourced learning ecologies that compro-

mise good policy formulations. There is a lack of state of the art classroom infrastructure and deployment of well qualified teachers to manage learning ecologies to contribute to national mandates. The current policy proliferation, regrettably, does not match or correlate with learners' performance across grades. South Africa's performance in international assessment tests has been dismal which was also the case in national tests as evidenced by poor numeral skills and competences by grade 9 learners who were assessed through the Annual National Assessments (ANA) tests in 2014. The below par educational performance across grades and the setting of low performance requirements for passing grade 12 impact on the future human capacity development value chain and our ability to compete in knowledge economies.

Perhaps, through critical narratives and/or engagement, South Africa would find meaningful balance between policy frameworks and implementation mechanisms. Strategic interventions would equally harmonize socio-economic gaps and encourage partnerships for social justice. Through a shared vision and versatile collaborations, South Africa's learning ecologies would be transformed to match international norms and benchmarks (skill sets) for sustainable education and economic development.

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