STRATEGIC THINKING AND STRATEGIC LEADERSHIP FOR CHANGE: LESSONS FOR TECHNICAL UNIVERSITIES IN GHANA

Alexander Kyei Edwards (PhD), Kolawole Raheem (PhD) &
Dandy George Dampson (PhD)

University of Education, Winneba , GHANA.

Corresponding Author:
University of Education, Winneba , GHANA.
Email:
dgdampson@gmail.com

ABSTRACT

Global competition is forcing tertiary institutions to excel in knowledge-creation that are relevant and innovative. Innovations bring solutions to societal problems. Perhaps a new system of thinking will enhance the relevance and sustainability of Ghana's new Technical Universities (TU) that were established by PNDC Law 321 to provide technical leadership, entrepreneurial solutions, and support of industries for its national development. For strategic thinking, the TUs are advised to avoid the Polytechnic traditions and be transformed by 'lessons' from other institutions such as Germany's University of Applied Research. The purpose of this study was to examine institutional leadership and policy practices of an African institution, (herein referred to as PaceSetter Institute or PSI) to serve as lessons for Ghana's Technical Universities towards sustainable development. Qualitative data came from field notes during interviews, interactions, observations, and desk reviews. Using an act of serendipity approach to case study, data revealed lessons such as: (i) Strategic thinking and leadership, (ii) Excellence in scholarship of engagement, (iii) Change in professionalism and specialization, and (iv) Entrepreneurship. The researchers urged TUs to consider strategic thinking for sustainable development of their institutions to bring social enterprise to academic pursuits, making profit by applied research, and consider scholarship of engagement with the Ghanaian society and change. The recommendations also focused on each TU envisioning on how to become a "Centre of Excellence" in Ghana by showcasing faculty and students' work, setting high standards of scholarship and professionalism, and entrepreneurship that brings solution to social problems.

Keywords: Strategic Thinking, Leadership, Professionalism, Technical Universities, Tertiary Education, Ghana.

INTRODUCTION

At the global frontier of knowledge-creation is the need for change forced by internal and external factors, competition, and demand and supply of tertiary education. Institutions of higher learning are advised to examine their institutionalized systems in order to innovate for the 21st century (C21st) emerging market and the global competition by thinking strategically (Appiah-Adu & Anning, 2012; Edwards & Sam, 2014). Strategic thinking is different from strategic planning that most institutions are noted for (Stringham, 2012). Strategic thinking is the construction of "ideas, processes and tools; of finding new and innovative approaches to problem solving and using policy initiatives and approaches that allow for effective implementation, monitoring and refining" (Appiah-Adu & Anning, p. 259), which strategic planning is not (Stringham, 2012).

Strategic thinking is more crucial at the time when Ghana's tertiary education landscape is changing. Since 1992, there has been a policy and a gradual implementation of recommendations from the Ministry of Education's (MoE) Technical Committee report (1992) on the conversion of Ghana Polytechnics to Technical Universities (TUs). As expected, such policies are subjected to the scrutiny and critique of many who are wondering on the readiness of the Polytechnics to assume TUs and how successful this policy would be for Ghana's national development. Fortunately, Ghana's government and National Council for Tertiary Education (NCTE) have decided to kickstart this policy with only five Polytechnics. However, success of such a policy has a tremendous impact on tertiary education in the country and hence, became a matter of concern for stakeholders. The policy outlined strategies and plausible changes that will facilitate the growth of these institutions that are mandated to provide:

a) Tertiary education in the fields of manufacturing, commerce, science, technology, applied social science, applied arts and any other fields approved by the Ministry of Education.

b) Opportunity for skills development, applied research and publication of research findings (NCTE Technical Report, 2015).

A review of the policy objectives shows that there are likely challenges in the policy's implementation. There is the need for strategic planning, strategic management, a dyadic relation between ideals and actual performances, and the need to bring expected results in the policies and implementation framework (NCTE Technical Report, 2015). The purpose of this study is to examine institutional leadership and policy practices of an African institution to serve as lessons for Ghana's Technical Universities toward sustainable development. Furthermore, as wider objectives, the researchers sought to (i) Suggest strategic integration of good practices, (ii) Create innovative model as quadrant elements that would emerge from the case's success stories, and (iii) Recommend lessons for policy and implementation consideration.

LITERATURE REVIEW

Strategic Thinking, Strategic Leadership and Change

What is known in literature as strategic thinking is different from strategic planning or strategic management, particularly when it comes to organizational or institutional advancement (Appiah-Adu & Anning, 2012; Graetz, 2002; Stringham, 2012). Literature is silent when it comes to strategic thinking and that of higher institutional advancement. According to Graetz (2002), strategic thinking is a creative endeavour fused with "dynamic, responsive, and often intuitive" (p. 456) influence on an enterprising goal. In strategic thinking, the inputs, throughputs, and outputs are expected to feed into what to change in a system to ensure efficiency within a *SMART* goal (Stringham, 2012, p. 79) – where a SMART goal means Specific, Measurable, Achievable (Aligned with goals/or Indicators), Realistic, and Time-bound.

Edwards and Sam (2014) made an attempt to encourage a *Feedback* in strategic thinking loop, whether positive or negative, on whereby its effects are cumulative in an appreciative enquiry. They urge that strategic thinking in higher institutions must be guided by the *"Brain Powers"* of the institution. Their collective *"Brain Power"* in strategic thinking will impact results if solicited systematically and efficiently. What is missing in literature is how institutions can encourage "the engagement of people in such a way that leaders and followers raise one another to higher levels of motivation and morality" (Nicholson II, 2007, p. 267), through the process of strategic thinking for institutional change (Edwards & Sam, 2014, p. 59). In effect, faculty and staffs need to contribute and own the ideas, and to provide inputs into the processes of change.

Strategic leadership influences activities and the thinking behind ideas in order to 'move people' to accomplish change. Strategic leadership when it comes to policy implementation is all about moving people with minimal efforts and maximum resources to accomplish expected goals (Kouzes & Posner, 2012; Stringham, 2012). Leadership becomes strategic with much thinking about relations and tasks, not just directing, especially in higher education, but ownership to the processes (Morrill, 2007). Strategic leadership is a vehicle for controlling systems, planned changes, and moving people to buy-into ideas, following willingly, and sharing a common vision (Morrill, 2007; Stringham, 2012).

Therefore, when it comes to a whole system change in a tertiary institution in Ghana, for example, there is a gap in literature on the application of leader-follower's interactions. But it is significant for the dynamic interchange of "thinking" and "influencing". First of all, every vision must be shared, communicated, and spread with a passion that becomes contagious (Kouzes & Posner, 2012). An institutional leadership has to think of ways to demonstrate passion and commitment to a dream for others to believe and yield to any systematic change. Whereby strategic change can only take place when people are ready and looking forward to a better alternative (Balogun & Hailey, 2008). According to the Balogun and Hailey, when it comes to strategic change, leadership plays a vital role: systems will remain, individuals are comfortable, and groups will come to inertia, if leadership does not focus on the alternative change. Where leadership is not content with traditions, they provide alternatives and "strategic management methodologies can be a stimulant to strategic thinking" (Appiah-Adu & Anning, 2012, p. 262) devoid of rituals and "sacred" traditions that inhibit creativity and innovations.

Entrepreneurship and Scholarship

Entrepreneurship is based on the premises of providing solutions to human problems. In an attempt to define entrepreneurship based on reviews, Sharma and Chrisman (1999) identify *"two distinct clusters of thought on the meaning of entrepreneurship. The first … characteristics of entrepreneurship (e.g., innovation, growth, uniqueness, etc.) while the second group focused on the outcomes of entrepreneurship (e.g., creation of value)* (p. 12). This means that entrepreneurship is viewed as both characteristics and resultants. In each case, entrepreneurship involves innovations, peculiar to creating value for new products and services, and the "creation of organizations" that result in employability (self or otherwise) (Sharma & Chrisman, 1999). However, this definition falls short on mentioning the object of entrepreneurship, which should always result in solving social or human problems (Murphy Jr, 2010). Baumol (2006) however believes that entrepreneurship is more significant when it is conceived as productivity rather than activities. He contests that private enterprise is more towards profit and not necessarily innovations (*that to him is not entrepreneurship*). He argues against the conventional understanding of entrepreneurial roles when it comes to growing the economy. According to Baumol (2006), some entrepreneurship leads to "parasitical existence that is actually damaging to the economy" (p. 894). Therefore, the notion is that strategic thinking about entrepreneurship should lead to the social enterprise especially socioeconomic development policies in Africa (Edoho, 2015).

For strategic thinking in entrepreneurship, Murphy- Jr. (2010) also establishes ten rules in regards to it. These 10 rules are practical, productive, and evident. They include full commitment, a search for solutions, creative thinking, acting with others (teams), acting alone (uniqueness), managing risks, learning to lead, and selling ideas (marketing), perseverance, and above all, a passion to "play the game for life". This is where strategic thinking enhances entrepreneurship to solve socioeconomic problems with dedication and commitment. According to Murphy Jr. (2010) thinking, entrepreneurship has to bring about value added and an improvement for the good of the society. Entrepreneurship without a sense of socio-moral obligation, a "*Preference for Others*" to reach attainable success can possibly lead to what is prevalent in the modern business world – *Greed* (Murphy- Jr. , 2010). Perhaps it is this sense of socio-moral obligation, accountability, societal benefits that lead itself to a scholarship of engagement to the public good.

Scholarship is the ability to produce knowledge that can stand any academic scrutiny and general attention (Paludi, 2008). Here scholarship connotes a personal or a group attention to the creation of sound knowledge which are original and transferable. According to Paludi (2008), scholarship aside from knowledge creation it allows any vigorous interrogation. In academia, scholarship is a significant way to bring new ideas, inventions, creativity, and originality by encouraging academic attainment. Scholarship is therefore evident in research, experiments, and investigations that advance theories, professional abilities, and life skills. Scholarship, methodologically leads to professional acumen, aptitude and behavioural change resulting from and through learning.

Thus, entrepreneurship augments scholarship, which then leads to improved lifestyle, solutions for life problems, innovations through critical thinking, and socio-moral development, all of which culminate professionalism among citizens. Professionalism becomes more of an individual development that is associated with meaningfulness in human capital and socio moral obligation to the diversity of a given society (Edwards, 2009). Edwards (2009) opines that professionalism brings a sense of belongingness, institutionalization of moral reasoning that usually impact on the provision of tangible solutions for the good of 'others' without a sense of discrimination (Edwards, 2009; Wilkins, 1996). However, literature has yet to establish significant association between moral development and scholarship of engagement in a wide perspective when it comes to benefits to society. The few researches available show a nexus between moral obligation, individual self-development and that of institutional accomplishments (Wilkins, 1996). In other words, there is a demand for literature to show how institutions of higher learning may exert much more influence on society based on their relevant acquisition of knowledge, skills and abilities, contribute to scholarship of engagement for strategic development.

This is a normative conception that resonate socio-moral responsibility of public and statutorily established institutions. Normative in the sense that society expects such institutions to give back for the socio-economic development. But when the society that overlooks such normative conception scholarship is affected, the application of scholarship in terms of relevance became deluded, and the attraction of scholarship in the society becomes illusive. The concept of scholarship of engagement is a term that captures the relevance of scholarship in the areas of teaching, research, and/or service. It engages academics to bring relevant solutions to community needs.

Technical Universities and Sustainable Development

The concept of Technical Universities (TUs) in Ghana is borrowed from many developed countries such as Germany, United States, and United Kingdom (NCTE Technical report, 2015). The TU committee set up by the National Council for Tertiary Education (NCTE) reviewed several practices and frameworks for the conversion of Polytechnics to Technical Universities (TUs) and wrote: "We envision the transformed Polytechnics to Technical Universities that have not merely assumed new names but a new culture and character with more purposeful social contract with the taxpayer" (NCTE Technical Report, 2015, p. 1). The emphasis is on the blend of academic

and practice in the world of work where having a PhD is not enough to be a professor in a Technical University (according to the NCTE Technical report, 2015).

The Ghana government and NCTE agreed to start with an initial five Polytechnics, namely: Accra, Koforidua, Kumasi, Sunyani, and Takoradi (and later added Ho Polytechnic). As a policy, this is highly recommendable by the general public. A government document was produced after stakeholders meeting, consultative brainstorming, and framing the TUs with 15 key characteristics. A report indicates a very viable and sustainable implementation plan. A Presidential Representative is quoted saying "the President has noted that the Technical Universities would serve as a bridge between the world of science and industry…. a symbiotic relationship with the industry by utilizing the resources of industry for innovation and the technological advancement of the country" (NCTE Technical Report, 2015).

For sustainability in Ghana there is the need for strategic thinking in the whole establishment of TUs in Ghana. Historically, TUs are generally research-intensive universities, which focused on science, technology, engineering, and mathematics (STEM) back in United States since the 18th Century. However, the degree of academic rigour in these TUs varies. It is the content of innovations and a quest for excellence that is going to elevate TUs in Ghana to world-renowned institutions. The example of a quest for *Centre of Excellence* has been demonstrated by the institute in Ouagadougou, Burkina Faso and its significance as a case is paramount. The World Bank complimented *PaceSetter Institute* (PSI) for their approach to applied research, social engagement, and their work for sustainable development .

According to the institute's website, PSI is considered by the World Bank as a *Centre for Excellence* in sustainable research and development. This is achievable in sub-Saharan Africa, precisely at Ouagadougou Township – a place with sub-Saharan African harsh climatic conditions. Burkina Faso is known for water issues, and water conservation is a national concern. The place has assumed an international research site for water conservation and a reputation for research into climate change in Africa. On PSI website it reads: "PSI trains entrepreneurial engineers specialized in the areas of Water and Sanitation, Energy and Electricity, Environment and Sustainable development, Civil Engineering and Mining, and Management and [business] entrepreneurship". According to PSI's website, their institute in 2013 alone attracted 7081 students and researchers from sub-Saharan Africa, 24 students from North America (USA & Canada), 35 from EU countries, and one each from India, China, and Japan. Emphatically, the website states that institutionally, PSI exists to solve national and the wider African problems with water, sanitation, and food.

For sustainable development agenda, TUs in Ghana have started at a point when there is a global anticipation for successful implementation of Sustainable Development Goals (SDGs). SDG spells out 17 goals aiming at eliminating poverty, providing energy for all, sustainable economy and so forth by 2030. Ghana Government is poised to engage TUs to set up road maps on applied research for national development (NCTE Technical Report, 2015). Sustainable development simply means a sense of obligation to develop society first before profit. This has social and environmental leadership causes that resonate with the existence of PSI (www.PSI.org): "For this purpose, [our] curricula are developed and delivered in close contact with the business world". The integration of TUs in the tertiary arena must lead to a 'life' application of relevant knowledge to bring innovation products and services to the doorpost of industries for the sustainable development of Ghana's economy. This can be achieved by applied research, vigorous academic scholarship, and a quest for quality and excellence in teaching and learning.

METHOD

Research Design

The research design assumed a case study, qualitative approach on a multi-site but one dominant institution (Bogdan & Bilken, 2003). This approach was appropriate because as a tertiary institution, PaceSetter Institute (*a pseudo name adopted for ethical reasons*) has different sites and multiple subjects or content areas were considered significant during the gathering of the qualitative data. Even though initial survey questionnaire was emailed as promptings the face-to-face interview yielded more effects. The ripple or logic effect was to follow up cases that are oriented towards developing a framework for capturing interesting epiphanies as a case study. The research design that originated from the dynamics of researcher-participants interactions and observations was revealing as a case study (Creswell & Plano Clark, 2011; Maxwell, 2005). The design became more of an analytical induction, whereby "specific problem, question, or issue becomes the focus of research" (Bogdan & Bilken, 2003, p. 70), which yields to the tendency for the researchers to rethink inductively with any interrogation that brought about a certain natural flow and new discoveries.

Study Population Selection

In a qualitative design, the term "sampling" can be problematic in the sense that it is difficult to sample as in "representing" (Bogdan & Bilken, 2003). However, a purposeful selection was used to have three main actors in leadership and seven other staffs who participated in a focus group discussion (making a total of 10 participants in all). The purposeful or criterion-based selection was appropriate to gather data from the three main interviewees and with semi-structured, unarranged and informal group interactions at PSI campuses in Ouagadougou. An act of serendipity made the researchers to reach for artefacts and informal secondary data. Based on the criterion of top management, the institution leadership is led by the Deputy Director General (DDG), who happens to speak both English and French fluently. The DDG led the researchers to the selected interviewees and the focus groups for interactions throughout the three days of the study. The ten (10) participants were all carefully selected because they have the information relevant to this study. Those in institutional leadership and management were featured prominently and the supporting evidences came from others selected to participate in group discussions.

Data Collection and Analysis

At first, because the project was externally sponsored, a contact was established through an electronic mail/communication with the case study's institutions. The email communication included an attached semi-structured, open-ended questionnaire survey with a cover letter explaining the intent of the study to the PSI authorities. This initial communication was directed from the Communication Director of Association of African Universities, Accra (AAU) office. With this approach, a gateway was opened and "the first few interviews result in the formulation of the questions or the problem rather than in specific propositional statements" (AAU SAHEL Report, 2012). A follow up of researcher's developed interview protocols were given face validity at the AAU office and other SAHEL project team or experts outside Ghana. This interview protocols were agreed on and made available to researchers to facilitate a coherent and focused interactions. It was also translated to adopt an appropriate use of language (i.e., translation from English to French) during on-site visits.

For triangulation purposes, the data of the initial questionnaire was keyed into word processing software and manually analysed for epiphanies, themes, and categories. The survey questionnaire had semi-structured items coded and categorized into institutional governance, successive leadership, gender issues, scholarship development, and innovations for change manually. This process made it easier to develop interview protocols along those lines. Responses from the survey questionnaire were then analysed along with the interviews.

Whilst on the field, some institutional documents, referral websites, libraries, laboratories, and other designated classrooms and lecture halls were visited and observed by the researchers. Some of the documents studied included reports from government institutions, international organizations, and contractual arrangements.

During the analysis, the desk reviews of relevant documents authenticated the claims of strategic goals and change that were evident from historical documents in the library and some of the pictorial displays at designated lecture halls. There were many visual evidences of the awards won for sustainability water and sanitation innovations and social developments. Some displays were critically observed and descriptions detailing the change and innovations chalked by the PSI were also captured. All these literature and visual documentaries as well as artefacts were triangulated with the interview data to consolidate the claims of excellence and exemplified achievements in PSI, adding to the trustworthiness of the data integrity.

In all, there were two-day PSI campuses visits and tours, with one of them being seeing an informal office/classroom interaction, and a sit-down group interaction in a form of informal focused group that consisted of both lecturers and students (Focused Group Discussions (FGD)), which lasted between 45 and 60 minutes. We had translators accompanying the research team, led by the Director of Communications at AAU. Data were in the form of field notes, digital recordings using both iPad and digital recorder, and observations of artefacts. These were all made available for translations from French and English and vice-versa. Transcripts were later analysed thematically.

Coding and analyses were significantly influenced by the lead questions: *What is PSI doing right in their specialized areas? And what can other higher institutions in Sub-Saharan Africa learn from PSI?* For example, the code *'innovations'* was influenced by the fact that the word appeared severally among the interviewees. With such an epiphany an interesting direction emerged, and an act of serendipity expected, and therefore resulting in further ply into the lessons of what is behind their *'Spirit of Excellence'*.

RESULTS AND DISCUSSIONS

Some of the emerging themes were leadership, academic excellence, entrepreneurship, and a systemic change for recognition. These are discussed henceforth.

Leadership, Entrepreneurship and Innovations

First, when interviewees were asked: *What is unique at PSI*? Most interviewees responded affirmatively that PSI has a unique leadership culture that is institutionalized to foster collaboration and excellence in research. For instance, an interviewee revealed that "*the Leadership in PSI turns desperation into reputation on a global scale*" (Interviewee #2).

A group interaction confirmed or emphasized this by agreeing that:

"*Institutional leaders must lead academically … and in solving social problems … leave those politicians … [if] they [politicians] create problems, …. We [academicians] must be there to solve them". (FGD participant#2). "Our institutional leadership's commitment [is to] be solving societal problems rather than talking and lamenting with the rest of the society …. People need solutions from our research and academic activities*" (DDG, Interviewee#1).

According to the interviewee, most of their responses reflect the idea that as an institution of higher learning, they have led to further entrepreneurship and innovations. There is a culture of competitive search for ideas.

Additionally, when interviewees were asked: *How do you as an institution generate ideas among staff at PSI?* Various themes then emerged including creative leadership, institutional governance engagement, and innovations among staffs and student's collaborations, and also there was a sense of ownership prevalent as a culture. The DDG, who happens to be our interviewee #1 mentioned that "*at PSI desperate situations call for everybody on board*". He continued:

"*We … PSI as an HE institution … we document every new idea from among ourselves especially the students … engage with all people … [with the intention] to improve institutional strategic leadership. There are sections where we just think of new ways to solve new or impending problems*".

Another group discussion participant stressed on situations that compelled innovations and a scholarship of excellence. "*At a point the choice of mediocrity was no option … we had to innovate [to survive]*" (FGD participant #2).

"*Before the turning point in this university, we in PSI was at a point of desperation … our climatic conditions in Burkina were troublesome and agriculture was dying … these were challenging years for any Burkina government* (DDG, Interviewee#1).

It emerged that at a crucial point, the only desirable outcome was creativity, research and innovations. Further interactions with others showed such a decisive curriculum, "*then the management saw the challenges of HE in a developing world as overwhelming but decided to take their destiny in their own hands … of which I commend their leadership*" (DDG, Interviewee#1). He continued:

"*We decided to come out with our [own] context of scientific ways of inventing technology… our technology has to be relevant to the people … for years the French taught us how to be proud of our citizenry … a good thing from colonial era*" (DDG, Interviewee#1).

The response from Interviewee#1 confirms that the readiness of leadership or institutional management to resist mediocracy and trying their own new technology to get solutions. This is tantamount to '*Modelling the Way*' and '*Challenging the Process*' as in leadership practice (Kouzes & Posner, 2012).

Specialization, Scholarship of Engagement and Professionalism

One could see the pride of belongingness and institutional scholarship of engagement as:

"[We] *the PSI community felt a moral commitment to engage in academic research … that brings dedication and commitment to solving Burkina problems*" (Interviewee#1).

He continued:

"*Our research has to focus on bringing social relevance which has also resulted in inventions, techniques, … and we are socio-culturally responsible for conservation and innovations as higher education community*".

Burkina Faso has a climate that result in acute water shortage, dry seasons and sanitary problems especially in the capital Ouagadougou where the case study institute is situated.

"*So, see, at PSI we specialized*". "*Academic excellence will come when you specialize in what you can do best*" (Interviewee#1).

And at a group interaction other secondary data from artefacts showed PSI has specialized in water and sanitation's study and technology since the 1990s.

"Our country Burkina is known for droughts, water shortages, and their effect on cattle ranging due to the climatic conditions. … So, in PSI we decided about 10 years ago to solve our problems locally by our ways [what we know best]. So, we decided that we need government to give us the freedom to create our own technology for water conservations and waste management. Initially it was difficult but … it is now great (Interviewee#1).

From the data, the emerging theme was that it takes a new paradigm thinking to bring a social cultural relevance to applied technology. This is what Stringham (2012) says it's the product of strategic leadership, where inputs, throughputs, and outputs result in solving problems. An intelligent entrepreneur is the one with skills that result from thinking over how to provide solutions for gainful reward.

Entrepreneurship as an Institutional Culture

From the field data, PSI institutional leadership and management, faculty/staff and students saw academic activities as social enterprise of which their research and innovations play a vital role in national development. According to the interviewees, the driving force behind the PSI attaining a *Centre of Excellence* is entrepreneurship and industry partnership.

 "We at PSI organized several meetings with private companies, government   representatives, to showcase what are possible solutions for the people" (FGD   Participant#2).

Moreover, when interviewees were asked: *What helped PSI as an institute to create opportunities for innovative ideas, which are not easily available to other African institutions?* The responses from interviewees and FGD showed that research and innovations always result in enterprise. For instance, Interviewee#1, said:

"Research in African universities should not be only academic exercises alone. Research should be for development [in Africa]. What do I mean by development [is that] research should bring solutions to problems".

Other artefacts observed and studies indicated a strong culture of entrepreneurship. Other secondary data also confirmed research and innovations institutionally. Culturally, unlike most public institutions, PSI is semi-autonomous; they do not necessarily wait for subventions from the Burkina government, they generate businesses and attract subsidies from the industry. As one of the leadership interviewees said:

"As an institution we agreed that by going far away from government controls … so we had to sensitize our colleagues to think more on business styles, approaches, and fund raising. The idea was sold based on the fact that politicians are failing in providing solutions, but the community are yearning for social responsiveness in applied research and innovations… and our staffs believe we have the capacity to provide the solutions".

The next question was on sustainability: *How can PSI sustain such achievements as in future succession?* One of the interviewees in a group was quick to showcase PSI achievements by mentioning the culture of research in technology, and more importantly, their skilful entrepreneurship. Interviewees (in a group interaction) pointed out to artefacts [posters], the observable room arrangements [classroom seating], and so forth as their "non-traditional" culture.

"In PSI here, look at my table … paperless … right? I do believe in getting things done, on time, every time. Three things happen to paper: either to be worked on … filed away … or trashed out. Many academicians have tables full of papers. Why? So apart from scientific innovations, we here in PSI believe in hard work, administrative excellence,

performance driven initiatives, and making sure everything is time bound. African leaders should avoid waste … for sustainable development" (Interviewee#2).

Furthermore, at PSI institutional leadership level, there are systems and administrative procedures in their respective places that are jeered towards excellence in applied research and science. The Deputy Director General, Interviewee#1 emphasized:

"Performance is driven by promptness; performance is inspired by excellence, and enterprise should be timely … and for good returns". He continued: *"we proudly focus on excellence and generating businesses".*

Lessons for Ghana's Technical Universities

As recommendations, as a recognized World Bank *Centre for Excellence* in Water Conservation and Sanitation Engineering, PSI highlighted several lessons. These lessons are categorized thematically as strategic thinking for leadership, scholarship of engagement, and entrepreneurship in research.

First lesson, *Strategic Thinking:* PSI provides a road map for an institutional systematic change 'lesson' that is chartered by *Strategic thinking*. In terms of leadership, good governance, and the prudent management of scanty resources have been placed as premium on institutional success. Most higher education institutions can do with a systematic approach to strategies by bringing "Brain Powers" to appreciate thinking, ownership and solutions to turn around desperate situations. At PSI, they turned the water crises into water conservation centre. Most successful institutions have a culture of *Strategic Thinking* that focus on solutions (Morrill, 2007). Many academic activities can be counterproductive if all that remains is just academic exercises.

TUs in Ghana can institutionalized strategic thinking that evolves around formal and informal brain storming to emerge from competition (Appiah-Adu & Anning, 2012). Also, strategic thinking will allow issues to be identified, relative strengths and weaknesses to be assessed, and a process can be undertaken to bring tangible implementation. For Technical Universities in Ghana, this is a lesson that can be undertaken timely, promptly and more dynamic for "strategic management methodologies [that] can be stimulating into strategic thinking" (Appiah-Adu & Anning, 2012, p. 262). As at PSI, management held meetings to 'think' with 'brain power' of how the system can be re-calibrated and made socially relevant and provide solutions to the industry. They did not entirely wait on Burkina government; they provide solutions innovatively irrespective of government subsidies.

Second lesson, *Strategic Leadership and Governance*: Strategic thinking thrives in strategic leadership and good governance (Morrill, 2007; Stringham, 2012). Leadership is key to everything. Globally, tertiary institutions are led by visionaries, risk-takers, those who will challenge the process, and seek to lead by example (Kouzes & Posner, 2012; Northouse, 2013). Strategic leadership was eminent during the interview data from PSI, leader-follower's relationship was evident at all institutional levels.

It takes good governance to manage new directions. They were ready to "recalibrate" PSI and re-organize curriculum with a new focus on excellence, they specialized in what they know best, and went against the 'grain' of traditional public institution culture of over-dependency on government subversion. Institutionally, PSI went into semi-autonomy, sold the vision and created a survival kit for sustainability. The survival kit in the knowledge creation world is dependent on who is ready to stand tall, become different, and take risk in different venture.

Third lesson, *Scholarship of Engagement*: Academic excellence will lead to specialization in any renowned area within the academy. However, it depends on the high-level scholarship of excellence. Tertiary institutions benefit by insisting on "doing what they are good at" and create originality, a niche and a 'new knowledge'.

As part of the technical report recommendations, the TUs can take advice on not just being a cosmetic change in name but "should carve a *niche* for themselves as vocational-oriented, career-focused higher education institutions producing highly-skilled personnel to support economic growth and national development" (NCTE Technical Report, 2015).

Most institutions that remain focused are notable for a specialized area that they tend to gain the respect and nobility associated with the academia. This goes for all higher institutions: *What are you known for?* PSI specialized in water and sanitation; it does not mean other areas are out of their reach. What it means is that, the world should respect PSI in solutions to Water and Sanitation issues. And they engage their community in this respect of relevance and solutions to water problems – i.e., the spirit of scholarship of engagement.

The rest of the world may be far ahead of sub-Saharan African in the business of knowledge-creation, but there is certain indigenous knowledge that are purely and naturally African. For instance, it is right for PSI Ouagadougou to claim to know "Burkina problems" and therefore remained authentic in providing the solutions. Like PSI, TUs in Ghana should have claims to original ideas, regional solutions, and social-cultural relevance to the technical and vocational skills of the country. TUs can be the focus of Ghana's innovations and creativity within the spheres of technology and technical know-how. As institutions of higher learning in applied research, TUs can stand tall on what they traditionally are best known for. The lesson is for TUs to give attention to details, discover new knowledge, and showcase what they originate in defence of their socio-economic relevance and sell their original ideas to industries.

Fourth Lesson and most importantly, is E*ntrepreneurship*. Entrepreneurship grants a bona fide bragging right to a sense of socio-moral obligation. It gives a "*Preference for Others*" to reach attainable success that can possibly lead to what is prevalent in the modern business world, yet with profit (Murphy Jr. 2010). In a competitive world, those who create solutions for the benefit of others are the world changers (Murphy- Jr, 2010). Entrepreneurship is a passionate commitment for finding solutions that will solve problems or add value for profit and for gainful engagement (Murphy Jr, 2010). The lesson of entrepreneurship from PSI, Ouagadougou is therefore the results of critical thinking processes through scholarship of engagement and leading passionate learning.

In other words, at PSI, there is enough field data to show that entrepreneurship is high on the agenda and has become an institutional catch-phrase. At the institutional level, PSI has taken entrepreneurship beyond the classroom to rake in profits from daunting issues, problems that had persisted in sub-Saharan Africa and PSI has become an agent for strategic thinking. The emergence of profit from solving problems is for the *'good of the whole'*. With TUs already established by law and as an educational policy in Ghana, applied research and excellence in scholarship must become the cornerstone for Ghana's human capital development. Perhaps Tus' example may be a social enterprise that necessitates academic activities with very good returns.

Further Discussions

Firstly, to compare with the previous studies (Appiah Adu & Anning, 2014; Murphy Jr., 2010; Stringham, 2012), strategic thinking always results in entrepreneurship. Once an organization or institution cleaves for innovations, the paradigm shift is to orientate its community to think about relevance and solutions to problems. The product of strategic leadership is solving problems, and PSI has demonstrated that intelligent entrepreneur emerges from thinking of solutions for gainful reward.

Secondly, Technical Universities (TUs) are expected to envision the transformed Polytechnics to TUs as a new culture of emerging scholarship with social enterprise and creative use of knowledge purposely and relevant (NCTE Technical Report, 2015). The lesson from PSI confirms that relevant research and academic work by institutions are providing solutions.

This is termed scholarship of engagement in most texts. So, the TUs in Ghana will advance by emphasizing practical use of knowledge and skills for development. This would be in accordance with the NCTE Technical report (2015).

Thirdly, leadership especially during change is crucial especially when it comes to implementation of policies. Institutional leadership implies building relationships within the entire community, communication skills, moving people, and skilfully creating conducive ecology for change. TUs are urged to move people and resources to accomplish expected goals. According to leader's studies (Kouzes & Posner, 2012; Stringham, 2012), leadership and proper governance are crucial in higher education, just like that of PSI, to ensure institutions can create ownership to ideas, inputs, and processes (Morrill, 2007). In most African institutions of higher learning, the challenge is in leadership to bring the necessary change and relevance (AAU SAHEL Report, 2012). However, lesson from the present case institute, PSI, TUs would benefit strongly from changed leadership resulting from the government policy and development.

Finally, in terms of significance, the study emphasizes the need to learn and stand on the shoulders of those who have achieved in sub-Saharan Africa typical conditions. These lessons from an African institute is significant to cause a resolute that irrespective of the conditions and challenges, higher educational leadership is about strategic thinking, innovations, resourcefulness, and ensuring that academic/faculty engagements are relevant and beneficial to the society. This is true only if the new TUs in Ghana come up with a collective resolution that their establishments are crucial to effect industrial needs and values for learning. The stories from Ouagadougou espoused by this study are equally relevant as TUs thrive to assume a position of influence on knowledge creation, skills for development, and application of science and research from social enterprise.

Implications for Policy

The lessons from PSI imply that there should be a policy designed to augment the status of TUs in Ghana to concentrate on applied research and innovation towards industries. The marriage between academic research and industry should be exemplary. The policy should spell out financial incentives for research and entrepreneurship within the TU and a strong collaboration among academics and students. Policy wise, the Ghana government should promote advanced technical education at the higher learning level to bring practical innovations, entrepreneurship, and change in public mindset regarding technical education. There should also be a strategic plan to encourage synergy between academic researchers and industries in Ghana.

Part of the policy is to award scholarship and reward innovations among TU institutes. Practicable policies should be developed to encourage technical training, vocational competencies, and non-traditional academic pursuits among children right from the basic level of education. At the moment, education in Ghana is skewed towards the acquisition of English, Mathematics, and Science with other areas being marginalized. The policy should spell out that secondary education which is the traditional grammar and science schools and it should run parallel with technical and vocational education and they are all compulsory and same but are different pathways to tertiary education in Ghana.

This policy should also encourage incentives from employability content among TUs. Tertiary education has become very expensive in Ghana, notwithstanding the lack of guarantee of employment after tertiary education. The government should therefore design educational pathways for technical universities to be attractive and the curricula content jeered towards strategic thinking skills, entrepreneurial ventures, and innovations development agenda with industries. There should be content relevant in the area of applied science and technical skills. Without such a policy, the National Educational Agenda 2030 will remain to be conceptual and technical, rather than practical and solution oriented.

The concept of technical universities in Ghana must be seen as an alternative for a rigorous academic liberalization where grammar schools do not dominate. The policy should guarantee the alternative pathways from secondary education towards technical and vocational education and training (TVET), so that after basic and secondary education parents and teachers and/or even the children themselves can look out for alternative route in higher/tertiary education. This implies that the Ghana's National Education Agenda 2030 should encourage education towards gainful employment by equally emphasizing, technical and vocation skills whereby such competency-based and soft skills are required. This must be backed by national budgetary allocation and a systematic whole system change process in the Ministry.

CONCLUSION

This study is based on a qualitative research paradigm where data came primarily from interviews with leadership and the institutional community of PSI (a pseudo name) at Ouaga in West Africa. The intent is for finding lessons to enhance the establishment of Technical Universities in Ghana. The researchers examined the strategic leadership in PSI as a tertiary institution within sub-Saharan Africa that has so far attracted the World's attention was a significant attraction. Interviews revealed that the recognition of PSI as a *Centre for Excellence* was achieved through excellence in strategic thinking, strategic leadership and good governance, coupled with a scholarship of engagement and an ingrained sense of entrepreneurship. Four 'lesson' are highlighted for the new TUs in Ghana to advice on practice and policy.

As a policy, the government of Ghana established TUs to serve as a place for emergence of applied science, research, and innovations for industries. Yet it should be emphatically stated that unless TUs start thinking on how to develop Ghana's technical skills by standing on the shoulders of giants of leaders of institutions such as PSI in Africa and globally, the idea of TUs would repeat flaws and wastage that permeate old 'traditional' universities in Ghana. Furthermore, TUs should possibly seek to appropriate their innovations, knowledge and skills to real life solutions in order that they do not engage in awarding mere academic degrees.

In addition, TUs should aim at high standards of institutional leadership, good governance, and management, as a lesson from PSI that focus on the spirit of excellence in research and ideas. In other to surpass the older universities TUs should promote socio-moral accountability in administration, moral and ethical practices in entrepreneurship, and a sense of socio-culturally responsiveness beyond the classroom. Just as one said: *"At PSI, the focus was on socio-cultural relevance of research and innovations … we stay away from 'normal' classroom teaching methods and copying others [foreign materials] in order to bring cultural relevance to our research and development agenda"* (Interviewee #2). The new TUs should lead in elevating tertiary institutions in Ghana to a high moral standard, a type of scholarship that resonates with real world of work and practice, and live to an accountability to social expectations, which means TUs should *Model the Way* of scholarly relevance (Kouzes & Posner, 2012).

Thirdly, TUs can gain a world-renowned image of excellence in knowledge creation if their academic products can be made to exceed the 'normality'. At PSI, doing things anyhow is never a culture nor even an option. According to the interviews, the leadership target was excellence in the academia and it was recognized by the World Bank. Issues of credibility do affect academic achievements and excellence. Credibility, once it is lost may result in an institutional respect going down the drain. Like PSI, TUs should not compromise on standards and rather develop an institutional culture of excellence in research and development.

Finally, Ghana's TUs should specialize in income generation activities, raising academic balance between theory and practice, and practical lessons of entrepreneurship: i.e., solutions for profit without compromising values (Murphy Jr, 2010).

The nation awaits solutions to manpower, innovations, industries, and technology. The agribusiness, water problems and sanitation issues in our urban cities are all waiting. TUs should consider examples from institutions in Germany when it comes to products of applied research, and imitate more importantly, a close by PSI's results in excellences with credible evidence for a sustainable development in sub-Saharan Africa.

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