INVENTION, INNOVATION AND CREATIVITY MANAGEMENT IN EDUCATION FOR SUSTAINABLE DEVELOPMENT TOWARDS ATTAINMENT OF VISION 2030

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Citation:
Mwangi, J., Mwangi, J. G., Wabore, J. N. and Maingi, N. W. (2015). Invention, Innovation and Creativity Management in Education for Sustainable Development Towards Attainment of Vision 2030. In: Isutsa, D. K. (Ed.). *Proceedings of the First International Research Conference held from 29th to 31st October, 2014 in Chuka University, Chuka, Kenya, 238-244 pp.*

ABSTRACT
Ideas, inventions and innovations are like butterflies. They are transient, fleeting and often incompletely formed. Unless we invite them to stay by having innovation management skills they tend to wander off. The myriads of Annual High School Science Congresses and student innovation conferences in universities reveal abundance of "ideas people", who unfortunately fade off to obscurity due to lack of management skills. Since these are not products of necessity but curiosity it calls for innovation and creativity management for sustainability by incorporating patenting of innovation in curricula to be taught just like printing, publishing and copyrighting is taught in literature. This research was pegged on John Dewey theory of education which integrates the school with the society, and the process of learning with the actual problems of life by a through application of the principles and practices of democracy. It adopted the descriptive survey research design, data was collected using interviews, phones and emails conducted to 2013 National Science Congress presenters, researchers of 2014 at the Laikipia University 2nd International Conference and Kabarak 4th International Conference, which also incorporated students' innovation. There is no coordination of research activities among the various institutions to ensure synergy and to avoid duplication. Proven technical knowledge produced in high schools, tertiary institutions, including universities has been going down the drain with failure to transform into technologies and protect it as intellectual property in patents which are sources of information for new inventions, technology transfer to encourage research and development. Thus, educational curricula should be reviewed to include educational leadership and management of innovation and creativity with the process of protecting proven technical knowledge as intellectual property rights becoming heuristic.
Key words: *Education, Management, Intellectual Property Rights*

INTRODUCTION
Kenya Vision 2030 is the new long-term development blueprint for the country. It is motivated by a collective aspiration for a better society by the year 2030. The aim of *Kenya Vision 2030* is to create "a globally competitive and prosperous country with a high quality of life by 2030". It aims to transform Kenya into "a newly-industrializing, middle-income country providing a high quality of life to all its citizens in a clean and secure environment". Simultaneously, the Vision aspires to meet the MDGs for Kenyans by 2015. The Vision is anchored on three key pillars: economic; social; and political governance. The economic pillar aims to achieve an average economic growth rate of 10% per annum and sustaining the same till 2030 in order to generate more resources to meet the MDGs and vision goals. The Vision has identified a number of flagship projects in every sector to be implemented over the Vision period and to facilitate the desired growth rate. The identified flagship projects directly address priorities in key sectors such as agriculture and education. The social pillar seeks to create a just, cohesive and equitable social development

in a clean and secure environment. The political pillar aims to realize an issue-based, people-centered, result-oriented and accountable democratic system.

Foundations for Kenya Vision 2030

The economic, social and political pillars of Kenya Vision 2030 will be anchored on a number of foundations among them being: macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; science, technology and innovation (ST&I); and human resources development.

Macroeconomic Stability for Long-Term Development

A stable economic environment also works in favour of the poor who stand to lose the most in periods of high inflation. All the projects proposed under Vision 2030 will, therefore, be implemented subject to the parameters set under the macroeconomic stability framework.

Enhanced Equity and Wealth Creation Opportunities for the Poor

No society can gain the social cohesion predicted by Vision 2030 if significant sections of it live in abject poverty. To that extent, Kenya Vision 2030 includes equity as a recurrent principle in all its economic, social and political programs. Special attention has been given to investment in the arid and semi-arid districts, communities with high incidence of poverty, unemployed youth, women, and all vulnerable groups.

Science, Technology and Innovation (S, T and I)

Vision 2030 proposes intensified application of science, technology and innovation to raise productivity and efficiency levels across the three pillars. It recognizes the critical role played by research and development (RandD) in accelerating economic development in all the newly industrializing countries of the world. The Government will create the STI policy framework to support Vision 2030. More resources will be devoted to scientific research, technical capabilities of the workforce, and in raising the quality of teaching mathematics, science and technology in schools, polytechnics and universities.

Human Resource Development

Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy. This will be done through life-long training and education. As a priority, a human resource data base will be established to facilitate better planning of human resources requirements in the country. Furthermore, steps will be taken to raise labour productivity to international levels. Other steps will include the establishment of new technical training institutions, as well as the enhancement of closer collaboration between industry and training institutions.

Continuity in Governance Reforms

Kenya remains fully committed to continuing "a society free from danger and fear". The Government is determined to improve security in order to attract investment, lower the cost of doing business and to provide Kenyans with a more secure living and working environment. Specific strategies will involve: improving the practice of community policing; reducing the police to population ratio to recommended UN standards; adopting information and communication technology (ICT) in crime detection and prevention; enhancing police training and use of modern equipment in law enforcement. All these measures will be supported by accelerated reforms in the judiciary. The country will also implement reforms in the prison service, starting with reduction of the number of suspects in remand homes, improved training and working conditions for prison staff; and a reorientation of the service to correctional activities.

Public Service

An efficient, motivated and well-trained public service will be one of the major foundations of the vision. Kenya will build a public service that is citizen-focused and results-oriented, a process whose achievements so far have received international recognition and awards. The Government will intensify efforts to bring about an attitudinal change in public service that values transparency and accountability to the citizens of Kenya. Results based management and performance contracting will be pegged to the implementation of the Vision's goals, making it easier to reward public servants on merit and performance. Reforms in the public service will further enhance strategic planning in government, continuous improvement, and stakeholder engagement. A Kenya School of Government will be established to provide research and training for transformative leadership to the highest international standards. This

is where critical and creative thinkers and civil servants like chief Kariuki should be the first in the faculty of e-governance and in particular security where he has demonstrated how to fight crime digitally by twitter.

Economic Pillar
Moving the Economy up the Value Chain. After a comprehensive analysis of Kenya's global competitiveness, six key sectors have been identified to deliver the 10% economic growth rate per annum are: tourism; agriculture; manufacturing; wholesale and retail trade; business process outsourcing (BPO); and financial services.

Social Pillar
Investing in the People of Kenya. This quest is the basis of transformation in some key social sectors, namely: Education and Training; Health; Water and Sanitation; the Environment; Housing and Urbanization; as well as in Gender, Youth, Sports and Culture.

Education and Training
Under education and training, Kenya will provide a globally competitive and quality education, training and research. Kenya aims to be a regional centre of research and development in new technologies. This will be achieved through: (i) integrating early childhood education into primary education; (ii) reforming secondary school curricula; (iii) modernizing teacher training; (iv) strengthening partnerships with the private sector; (v) developing key programs for learners with special needs, (vi) rejuvenating ongoing adult training programs; (vii) revising the curriculum for university and technical institutes to include more science and technology; and (viii) in partnership with the private sector, the Government will also increase funding to enable all these institutions to support activities envisaged under the economic pillar.

Statement of the Problem
The transient, fleeting and often incompletely formed; butterfly-like characteristic of ideas inventions and innovations to wander off leaves us with no option apart from invite them to stay by having innovation management skills. The appropriate invitation is what this research brands as incubation. Incubation refers to the gradual development**:** the slow development of something, especially through thought and planning by activities similar to those of a hen when it broods over the eggs in line with nature which calls for production of fine chicks by hatching and not by smashing. The myriads of annual High School science congresses, the students innovation conferences in universities together with research conferences reveal abundance of skilled "idea people" who unfortunately fade off to obscurity for lack of ideas management skills. Since these are not products of necessity but curiosity it calls for innovation and creativity management for sustainability by incorporating patenting of innovation in our education curriculum to be taught just like printing, publishing and copyrighting is taught in literature. If the citizenry of every civilized country looks up to the education planners and implementers for thought and concepts leadership in clarifying the nation's development agenda and keeping the records straight; then education sector (especially higher education) fits well in its role of helping to attain this since it provides quality teaching, research and consultancy and community service in ensuring that the satisfaction of their stakeholders exceeds their expectations. This research amongst similar others posit that the days of the all-powerful manufacturing industry are dwindling as service industries are becoming saturated and knowledge workers commoditized. The begging question which follows is: 'what values, beliefs and attitudes need to be embraced by the next generation to prosper in the future?'

Objectives of the Study
The specific objectives of the study were to;

1. Establish need for missing link of invention, Innovation and Creativity Management Education for Sustainable Development
2. Assess the effectiveness of invention, Innovation and Creativity Management Education for Sustainable Development
3. Ascertain assess the place and profitability of establishing invention, Innovation and Creativity Management Education for Sustainable Development in form of ideas incubators.

Limitations
Although the research was limited to the 2013 National Science Congress presenters, researchers in year 2004 at the Laikipia University 2nd International conference and Kabarak 4th International conference it captures the wider picture on the landscape of the Kenya field of research for invention, innovation and creativity.

Assumptions

The study was based on the following assumptions since there has been paradigm shift in the definition of resources from the natural to information the problem in the developing nations is tied to its education system whether it is current with the global modern trends. The developing nations education is not programmed to be lead by stimulation for innovation and invention but rather by needs and lack as the old adage goes that "necessity is the mother of invention" since necessities enough are in this nations in disproportional levels compared to solutions by innovation. The developed nations have the management of the inventions ideas in the incubators from where they are brought to hatching and not smashing according to the lessons of nature.

Justification of the Research

Every developed nation today began as a developing nation and for every developing nation to get there it must pass through the same way to get there. The wealth trends have changed from natural resources to information resource which announces this as the age of information which is ushering in a transition for the coming imagination age when whatever imaginable by man will be workable. The path for this progress is well marked as beginning at the invocation for the new ideas that lead to redefinition of things, rearrangement of processes, innovations and creativity. Critical thinking is the precursor for creative thinking. Critical thinking entails the development of the innovation and creativity management education which helps to crystallize the unique ideas and the development of incubation centres which midwife the realization of ideas.

Theoretical framework

The research was pegged on various Interpersonal as well as intergroup theories. Firstly, it was pegged on **John Dewey theory of education** which integrates the school with the society, and the process of learning with the actual problems of life by application of the principles and practices of democracy. Secondly, the research was pegged on the Mead's (1934) **theory of social roles**, which states that people engage in human-helping roles; they gain a greater capacity to set aside their ego, thereby improving their ability to look at problems from multiple perspectives. When thinkers are brought together to form think-tanks, the experience is more effective than other exchange initiatives at encouraging empathic, perspective-taking learning that is required for mutual understanding. In this sense, the means to this end begins with education planners and curriculum developers instituting innovation and creativity management skills education for the gifted students. Thirdly the research was pegged on (1982) **Social identity theory** which posits that greater exposure to any group widens opportunities for self-integration into external group membership, ultimately leading to greater understanding, acceptance of out-group differences, and re-identification with previous out-groups. Pettigrew (2006) **contemporary contact theory** and social learning theories stress that the more time people spend interacting, the greater likelihood they will converge on superordinate shared goals, and the greater the likelihood that they will experience cognitive dissonance, which is necessary to stimulate reflection and ultimate intergroup understanding which fosters synergy.

METHODOLOGY

The research adopted the descriptive survey research design data being collected by interviews, phones and emails conducted among the 2013 National Science Congress presenters, researchers in year 2004 at the Laikipia University 2nd International conference and Kabarak 4th International conference which also incorporated the students' innovation.

LITERATURE REVIEW

The secret of shifting from being a developing nation to a developed nation is hidden in a nations education it is still the traditional one according to what Heidegger (1972) posited as 'memory testing based' to what the one based on critical thinking which refers to the thinking before the thinking begins so as to make the thinking of the unthinkable clear. Razeghie (2008) in his masterpiece the riddle models the process of establishing an incubator by an by enumerating the different forms of creativity and innovations namely:

(i) Artistic creativity,
(ii) Conceptual creativity
(iii) Process of scientific discovery,

Artistic creativity (consists of the ability to render things that attract attention for their inherent beauty this may not solve a problem like the sculptures and paintings of Michelangelo. The myriads of annual High School science congresses and the students innovation conferences in universities reveal abundance of "idea people" in what Razeghie (2008) terms as conceptual creativity. This form of invention and innovation is guided by a goal which is to solve any

particular problem, or fill unmet need, want or desire. The universities research conferences are basically structured in the mode of the process of scientific discovery which according to Razeghie (2008) mostly deal with nature in attempting to unearth the laws that govern its operation with the intent of aligning humanity to them to reduce friction or manipulate them to make life better. This involves absolute truth and so scientific discover involves discovery (truth) whereas conceptual creativity involves bringing something into being (ideas).

The problem why new ideas fail in the market place creeps up when there is a mixture between inventing unique things and solving problems too many individuals and organizations fail at innovation by focusing too much on artistic creativity while in the process of introducing new ideas to solve problems. Razeghie (2008) quotes Andrew Hargadon who revealed that Henry Ford's real creative genius was revolutionary because its origins drew on existing technologies. Our modes of examination should have a course work on creativity exercise where students are expected to look around and pick a familiar object, and study it. Touch it, pick it up, smell it. Keep studying it until they have learned something about it that you didn't know before. The innovation management skills begin with understanding what thinking outside the box means. This is what it means to think outside the box. The box is what you know. When you get through that wall, those new ideas will come easier. You'll come up with things you never thought of before. This is the process which is popularly termed as breakthrough! They are the obvious things you already know. When you get to the end of those, it will suddenly get very hard. That's the wall of the box. This is the place where you must press on. Think outside the box. When you get through that wall, those new ideas will come easier. You'll come up with things you never thought of before. The ideas management education comes to a close but not an end by ensuring the new ideas and knowledge is patterned as intellectual property to secure them against manipulation and undue exploitation.

A witty way might be to give children the tools and experiences that encourage them to think the unthinkable. This is the mid-wifely process which creates new working knowledge. If the next generation will not be disadvantaged in their role to enhanced the advancement of the course of humanity on earth in the context of the times when things are constantly changing and evolving making almost all the tricks in the good old books obsolete in solving mutating problems which require dynamic critical thinking for innovation and creativity or improvising solutions to not only the known problems but also to the unknown problems the world will be facing. The future is happening all around us as we are already in the transition phase from the information age towards the imagination age. This means if this generation continues look only straight ahead, in the direction that conventional wisdom and 'futurists' suggest you look, you will never see it coming. Currently in the competitive global village when everything is on the first lane these skills have become so wide spread that one cannot make a good living without expanding one's horizons beyond these basics.

Current trends indicate that the knowledge based and creative economies calls for individuals with values, beliefs and attitudes that foster a creative reinvention of how meaning will be defined in our world. Developing creative individuals takes a society that values and promotes curious, proactive qualities, interdependence, responsibility and accountability. The process of building these well-rounded citizens starts with kindergarten level of education and is advanced to the higher institutions of learning where more is learnt from less and less and this is catalyzed to continue throughout life, constantly disseminating and transferring learning to the next generation. Innovation and creativity management begins with fostering a right environment which makes plain according to Razeghie (2008) that necessity in practical life is the mother of invention while from the root of the word school as used in the universities (school of education, medicine, business studies etc) Curiosity in schools of learning is the mother of invention where curiosity is an intrinsic motivation. The motivation is a hidden factor at play; it was not the pursuit of being prominent and important which was Henry Ford's driving force but his desire to answer a bothering problem on how to make cars which were better, faster, and affordable.

In the field of creativity intrinsic motivation is required. A premium is placed on passion. You must care and seem be hurting with others to want to find a solution and solve a problem. It is one knows which matter but how much one cares with what he knows and this is empathy or the ability to seem to be hurting with others to with the desire to find a solution and solve the problem. There is evidence both scientific and anecdotal to suggest that people are more creative when intrinsically motivated (am on this path and project because I care and I love it; I care to solve this problem) more than those who are on it by being extrinsically motivated (I am on this path because of the incentives and profits I can bank on) It was the founder of Honda motor who well said that "People work harder and are more innovative if working voluntarily compared to a case when people are compelled to do something" He believed

creative innovation was tied to intrinsic motivation that he promoted free-rein experimentation and banned organizational hierarchies his business.

Concepts are idea systems. Although the individual components of the concept may not be new, the combination of ideas – what could not be seen earlier until then. Henry Ford for instance envisioned the invisible (assembly line) He combined three different ideas he had observed I other industries and throughout history, ford created a concept that was both unique and relevant; the modern automobile manufacturing plant. Conceptual creativity demands that an idea performs on three levels,

(i) the idea must be aligned with a well fined problem,
(ii) the idea must be unique in its response to the problem, (the idea may not be new to be innovative but it must be unique only to the situation)
(iii) the idea must be relevant to the intended audience.

The creative combination key can be summarized by a phrase as; a unique and relevant to an existing problem. Prior information and creativity. Current trends reveal that innovation and ideas management is an improvement and an advancement in education from memory based mode to thinking the unthought-of pre-think in order to solve the unknown problems. Thinking in the box entails knowing well all that is in the box and it is what provokes the urge to think outside the box. Archimedes had a problem to solve; how to compute the volume of an irregular object, namely, the king's crown, since the king was unsettled whether his royal helmet or crown was made of pure gold or of the fool's variety, a mixture of silver and gold. The King's question and concern was whether the smith who made his crown had cheated him. Cognitive tricks inform of prior knowledge exist in form of precursors.

CONCLUSIONS

The findings of this research revealed that Kenya in investing to its people under the social pillar has the right focus in *Education and Training:* Under education and training, Kenya envisages to give its citizenry a cutting edge that will position them as a globally competitive in their individual capacities as well as multinational companies by reason of quality education, training and research. Kenya aims to be a regional centre of research and development in new technologies. This will be achieved through: (i) integrating early childhood education into primary education; (ii) reforming secondary school curricula: (iii) modernizing teacher training; (iv) strengthening partnerships with the private sector; (v) developing key programs for learners with special needs, (vi) rejuvenating ongoing adult training programmes; (vii) revising the curriculum for university and technical institutes to include more science and technology; and (viii) in partnership with the private sector, the Government will also increase funding to enable all these institutions to support activities envisaged under the economic pillar. Moving to a middle income economy is hitting the road running and where the rubber meets the road is in advancing the education system's operation principle from memory based to thinking outside the box which is critical and creative thinking as the operation principle for managing the ideas of knew knowledge generated by innovation researches. The commencement power in documenting the development vision 2030 is very recommendable; the continuing power should be revived while the completion power should be reinvented as enumerated by this research's recommendation.

Recommendations

This research makes the following recommendations for Kenya to realize it's national development Vision 2030

(i) move swiftly and turn its good ideas to good actions beginning with the establishment of the Kenya school of government (which is a step in the right direction) as the incubation centre for Creativity Management Education for reforms in government, security and the public service for Sustainable Development towards attainment of Vision 2030. This research's first recommendation to have at the helm critical and creative thinkers like chief Kariuki of Lanet who has shown himself to be thinking globally and acting locally by combating crime digitally by the use of the commonly abused social media the twitter.
(ii) On the social pillar if Kenya will realize her position for collaboration in global competition on the substructure of Science, Technology and Innovation (STI) Kenya education planners and curriculum developers must entrench the innovation, talent and creativity education in its education system right from the Early Childhood education to the higher institution of learning which shall culminate establishment of ideas incubation centres.
(iii) Education concerning the process of protecting proven technical knowledge as intellectual property rights should made heuristic right from high school to the technical schools and universities.

(iv) With Vision 2030 proposing intensified application of science, technology and innovation to raise productivity and efficiency levels across the three pillars the government to increase its budgetary allocation towards research and development as well as grants.

(v) It recognizes the critical role played by research and development (RandD) in accelerating economic development in all the newly industrializing countries of the world. The Government will create the STI policy framework to support Vision 2030. More resources will be devoted to scientific research, technical capabilities of the workforce, and in raising the quality of teaching mathematics, science and technology in schools, polytechnics and universities.

Education planners should incorporate the element of inspiration for innovation going by the secrets of the inventors and innovators trail blazers who attributed their achievements to the Bible inspiration since religion and science have been proven to complement each other. for instance George Washington Carver who discovered three hundred products from sweet potato and one hundred and eighty products from peanut which were the main products of the African American after the emancipation proclamation the south.

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