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Education and training for work: A comparative study of Kenya and Australia

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Abstract

This paper is a review of the steps followed in the proposal design for a doctor of philosophy degree by research. It includes the main proposal sections with emphasis on the experiences and insights that I have developed in this first section of the research journey. The paper will use simple language to discuss, some aspects of a research proposal, which prospective research students may find useful in developing a research. Additionally the paper will seek reactions from a variety of stakeholders involved in Vocational Education and Training (VET) research as a way of ensuring the validity and reliability of knowledge developed via this research. A brief description of the research is follows.

The research seeks to answer the question, “What lessons can Kenya and Australia learn from each other about the interrelationship between institution-based training and work performance within the automotive Retail, Service and Repair (RS&R) industry?” This study is propelled by the fact that world interrelations are getting more and more complex, with the emergence of an ‘information economy.’ It is the order of the day that information and technology interchanges are taking place between two extreme ends of the world at the click of a mouse. The automotive industry is one of the fastest growing industries with the need for style, speed, and power impacting on design and manufacture. Vehicles being designed have high technology inputs. It is now the order to have sensotronic brake controls (SBC), electrohydraulic braking systems which incorporate convenient functions such as ‘tailback assist’ and ‘anti stall assist’ as well as load adaptive self levelling rear suspension. Other options available are air suspension, command control and thermotronic four zone climate controls. These new designs in turn are calling for more sophisticated skill in the repair industry. The two countries in this study have different educational systems, are culturally different and are at different levels of economic development. This study then will expose a wide range of comparisons that will go a long way towards facilitating global information.

Some of the data already obtained from the study by the time of the conference will be discussed during the presentation of this paper. The researcher and author of this paper is an automotive teacher educator in Moi University, Kenya. The political dynamics and elections that took place in Kenya towards the end of December 2002 will surely influence the way forward for education and training in Kenya. This research will serve as a direction indicator on the way forward in the reforming of education and training.

Introduction

Background information

Kenya is a country in the eastern part of Africa with a total population of about 31 million people. The current education system within the country is in the order of eight years of primary education, four years of secondary education and at least four years of university education (8-4-4). It is referred to as the 8.4.4 system of education. This system describes education for those who progress up to the university level. However, within the education

system, there are other institutions, which provide education to the students who do not necessarily go through to the university. These are the National polytechnics, which offer ordinary, and higher national diplomas, the institutes of science and technology, and the technical training institutes which offer ordinary diplomas and certificates.

Kenya has had several proposals (Ramani, 2002) in her educational system within a span of approximately 40 years. We have had the Ominde (1964), the Gachathi (1976), the Mackay (1981), Kamunge (1988) and the Koech (2000) Commissions. This has been partly (Eshiwani, 1990; Obagi et al, 2000), due to the emphasis the government and the people of Kenya have given to education and partly the way education has failed to respond to the various national needs. All the commissions pointed at the issue of relevance in education. Specifically the Kamunge (1988) and Koech (2000) reports suggested that education in Kenya should place emphasis on the relevance and the quality to enhance development. As a result, the government of Kenya's policies and objectives on education and training as contained in the sessional paper No. 8 of 1988 based on the Kamunge Report stated:

The future policies in education and training should lay emphasis on and give priority to; the quality and relevance of education and training, the eradication of illiteracy, the development of science and technology, the vocationalization of education, research, management and entrepreneurship training, the development of the handicapped, and the development of centres of excellence (Kamunge,1988)

Quality, relevance and vocationalization of education, which are the concerns of this research, came out boldly. Up to now they still are precious goals to go for. However not much can be claimed to have been achieved since the time of the report and next one.

In Australia, VET is offered in both the state owned and run Technical and Further Education institutes (TAFE), Registered Training Organisations (RTO) and at the universities. The VET policy in Australia is quite elaborate and involves most of the significant stakeholders. The system enables providers to operate and issue qualifications that are nationally recognised. The mode of teaching and examination is through the training modules. The modules are organised in the form of training packages that specify the competencies that must result from the provision of the learning services. They also specify industry requirements for the assessment and the qualification that result from the competence. This self paced learning is learner centred and is called Competency Based Training (CBT).

The commonwealth state and territory governments provide the policy and regulatory frameworks for VET system. The governments implement the National Training Frameworks (NTF) to enable consistency, and national recognition of provider services. Governments also provide about half the funds required for the system, while the learners and the system provide the other half. For example Australian National Training Authority (ANTA, 1998) outlines five objectives that the ANTA Ministerial Council has identified to underpin the mission statement as equipping Australians for the world of work. These are enhancing mobility in the labour market; achieving equitable outcomes in vocational education and training; increasing investment in training; maximising the value of public vocational education and training expenditure. Further (ANTA, 1998) emphasises the importance of VET by saying that it enhances Australia's wealth and improves the lives of Australians. It plays a vital role in the economy, labour market and society.

In stressing the need for more efforts in making VET relevant, (ANTA, 1998) states that while a lot has been done in Australia, still more is required of the vocational education and training sector. Reform must continue as complex economic, technological and social changes continue to impact on people's daily lives and pose new challenges and opportunities for Australian enterprises. Further some of the main forces of change highlighted by ANTA which are in line with this study are the growth in global markets, accompanied by intensified international competition, and the emergence of service and knowledge-based industries as important sources of employment; the impact of new information and communication technologies on the community in general, and on Australian enterprises in particular; changes in the ways in which work is organised within enterprises such as the use of flatter business structures and an emphasis on teamwork and multi-skilling. These direction indicators emphasised by ANTA show that Australia is in constant review of the VET system.

Australia can serve as a role model in VET because it is a leader in the implementation of industry driven CBT form of training and qualification. It is also claimed to be responding to the challenges of economic globalisation and developing technologies (ANTA, 1998; Keating et al, 2002). VET is playing an important role in ensuring that industry and the community have the skills and knowledge to compete in this changing environment. However the question still remains, how well is the institutionalised automotive training compatible with the very fast moving world of work?

Statement of the problem:

This study will examine how the needs of the automotive industry can be met more effectively by an institution based training system. This in turn will open ways of establishing a structure within the training system that promotes positive collaboration with the world of work. The focus for this study is the automotive, Repair Service and Retail (RS&R) industry. The needs of the automotive industry will be obtained from the current world trends and the present day experiences of the repair and service section of the industry. The current institutions' offerings will be found out by looking at what the TAFE institutes in Australia and the Technical training Institutes in Kenya are offering. The school offerings will be broken into knowledge, skills and attitudes. A comparative analysis of the data obtained will be done with a view of designing a better collaboration format for school and industry for the developing country, Kenya. This study will also form a basis for the lessons a developing country can draw from an already developed country. The training offerings and the industry challenges in general will be gauged against the theories of learning its transfer. Specifically, theories on learning at the work place will also be considered. It is expected that through these theories, preparedness for transfer of learning and relearning from the school to the world of work will be exposed. A comparative analysis will be presented to highlight the differences and similarities between a developing country and an already developed country in terms of education and industry.

The main general question that this research addresses is, "How Effective at the work place are the skills, knowledge and attitudes that Post Secondary technical institutions in Kenya and Australia teach in automotive training? From the answers to this question, lessons will be drawn for the two countries taking into consideration the variations in culture, demography and the trends in technology. The two countries in this study have different educational systems, are culturally different and are at different levels of

economic development. These differences will not hinder the drawing of lessons that can be learnt for each of the countries. In fact this study will be source of information that is missing in the world today about diversity in the offering and orientation of VET. Similarities, differences and the cultural grounds behind the accepted settings will be highlighted in this study. This study forms a basis for understanding international relationships, which will provide lessons and alternative applications within the VET sectors. It will expose a wide range of comparison that will facilitate global information. Lessons for this study will partly be based on the criteria used by Choi, Misko, Kang and Phan (2001) while reporting on the linkages between vocational education and training providers within industry. Details will be provided of the training organisation, the structure, existing and desired industry links, and types of existing and desired pathways together with responsibility for training and delivering of qualifications. In addition to these, the rationale and the philosophy behind each education system will be analysed.

Research thesis

A thesis is an argument; a proposition justified by research findings, readings, observations and even personal convictions. A thesis however must be supported. This research set out to find the link between institution-based learning and real work. Some of the thesis questions are: Does institution based learning enhance work performance? Is there transfer of learning from institution-based learning to the work place? What are the requirements for effective job performance in the automotive industry in this era of knowledge explosion and globalisation? Are training arrangements for collaboration between training and work transferable from one country to another? What are the existing relations between institution-based training and work in the automotive industry? Does the assessment emphasis affect the transfer of learning from institution based training to work situations?

Objectives of the study

The main objectives of the study are to (i) Investigate knowledge, attitudes and skills requirement for Australia's automotive industry. (ii) Investigate current knowledge, attitudes and skills requirement for Kenya's automotive industry. (iii) Investigate the knowledge, attitudes and skills empowerment of the Kenyan school students and their applicability to the world of work. (iv) Investigate the knowledge, attitudes and skills empowerment of the Australian school students and their applicability to the Automotive Industry. (v) Investigate the knowledge, attitudes and skills applicable to the automotive Industry in Australia. (vi) Investigate the knowledge, attitudes and skills applicable to the Automotive Industry in Kenya. (vii) Document evidence, if any, for the emphasis of transfer of knowledge acquired within the school system to the world of work. (viii) Design a model for constructive collaboration between school and industry. (ix) Design a workable format for collaboration in education and training between a first and third world country. (x) Propose a workable network for implementing the proposed models for collaboration. (xi) Outline the lessons that the two countries can learn from this study.

Research questions

This study is aimed at getting answers to the question, "What lessons could Kenya and Australia learn from each other about the interrelationships between school based training and work performance within the Automotive repair industry". Derived from this major question, the subsidiary research questions to this study are: What are the major differences between Kenya and Australia in the organisation of Technical education and

training? What are the major differences between Kenya and Australia in the organisation of the automotive Industry? To what degree is there transfer of learning from education and training in Kenya to the world of work? To what degree is there transfer of learning from education and training in Australia to the world of work? How applicable in the world of work are the skills, knowledge and attitudes gained from school in Kenya? How applicable in the world of work are the skills, knowledge and attitudes gained from school in Australia? What is the emphasis for transfer of learning between school and industry in Kenya? What is the emphasis for transfer of learning between school and industry in Australia? What model best describes a facilitating relationship between school and the world of work in Kenya? What model best describes a facilitating relationship between school and the world of work in Australia? What model of learning and its transfer can facilitate education and training transfer between two different world countries in education and training? What theory of learning can facilitate education and training transfer between two different world countries in education and training? What are the lessons for each of the two countries?

Purpose of the Study

Kurt Lewin (cited in Cohen et al 2000) remarked that research, which produces nothing else but books alone, is inadequate. It is important that research contributes to change as well as providing understanding and interpretation to the world. In connection to Lewin's view, besides the academic award for which this research is aimed, it will form a basis for making the industrialisation dream in Kenya a reality. The study will also serve as a guideline for restructuring the school system to suit the current trends in technology. In addition, the research will give focus to the processes which must be put in place if there is to be collaboration in VET between ant two countries, but in particular those with such differing levels of economic development as Kenya and Australia. This will particularly suit the IMF/world bank funded projects, UNESCO-UNEVOC and other parties interested in skill transfer. There will be several lessons drawn from this research. They are lessons for Kenya from Australia; Australia from Kenya; Kenya from Kenya; Australia from Australia; The rest of the world from Kenya and Australia. Although the major implication of the findings will inform the development of VET in Kenya, there will be cross cultural benefits about the nature and processes of work place learning for both countries. Indeed, it is anticipated that other countries, both developed and developing, will benefit from this study in relation to global issues outlined in the paper.

Theoretical Framework and Epistemology of the Study

Theoretical perspective is the philosophical stance informing the methodology and thus providing a context for the process and grounding its logic and criteria (Crotty, 1998). The theories in direct connection with this research are the theories of learning and its transfer. Theories, which support learning in the school, work place and as a life long activity, will be emphasised on. This research will tend to apply Piaget's perspective on general cognition and learning in addition to Billett's (2001) perspective of work place learning. The study will be inclined towards the constructivists' philosophical view. Out of the study findings the researcher will develop further the theoretical framework and make claims about the benefits of the cross cultural transfer of Vocational knowledge and related issues.

The study is inclined towards the constructivist school of thought. This is a stand, which states that there is no objective truth waiting for us to be discovered. The guiding principle for this school of thought is that truth and meaning come into existence from our

engagement with the realities of our world. The emerging truths then inform our experiences and influence the continued engagement with the world's realities. In this view, there is no meaning without mind. Further it states that meaning is not discovered but constructed (Crotty, 1998). This view takes the cultural differences into consideration. As a result, it acknowledges that different people may construct meaning in different ways even in relation to the same phenomenon. This is precisely what happens when we move from one era to another and especially from one culture to another. The subject and the object emerge as partners in generating meaning. It's an integrationist's view of the truth.

Research Design and Methodology

The Research Design

The design type under which this study falls is the survey design of a comparative research. This design is appropriate because it allows for the factual, perceptual and attitudinal data (Farmer and O'Lawrence, 2002) to be collected from the industry practitioners, the TAFE and institutes students and their trainers (Fowler, 1993; Henderson et al, 1987). Scholars and researchers consider the survey method (Ary et al, 1996 and Gall et al, 1996: cited in Farmer and O'Lawrence, 2002) appropriate for systematic data collection. This study is a causal comparative research that looks at the conditions that already exist. Besides, it attempts to determine reasons, or causes for the current status of the phenomena under study. According to Gay (1996), causal comparative or ex post facto (after the fact) research is that research in which the researcher attempts to determine the cause, or reason for existing differences in the behaviour or status of groups of individuals.

Research methodology

Research methodology is the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of particular methods to the desired outcomes (Crotty, 1998). A methodology justifies the authenticity of the research set up. It is a philosophical inclination towards which a research is weighted. For this study, the heuristic methodology is adopted. This is a derivative of phenomenology inquiry that brings to the fore the personal experience and insights of the researcher. The question that this kind of enquiry seeks to answer is, "What are my experiences of the phenomenon and the essential experience of others who also experience this phenomenon intensely?" This is a methodology in which the experience of the researcher before the enquiry is taken into consideration. This kind of methodology is based on two premises. The first one is that the researcher must have a personal experience with and intense interest in the phenomenon under study. The second premise is that all others involved in the study must have the experience and interest in the phenomenon. Thus heuristics focus on (Douglas & Moustakas, 1984 cited in Patton, 1990) intense human experiences and is a combination of personal experience and intensity that yield understanding of the essence of the phenomenon. The researchers are concerned with meanings not measurements, with essence not appearance, with quality not quantity and with experience not behaviour (Patton, 1990).

Further Patton (1990) cites Craig (1978) arguing that heuristic inquiry affirms the possibility that one can live deeply and passionately in the moment, be fully immersed in the mysteries and miracles and still be engaged in the meaningful research experience. Douglas & Moustakas (1984) in Patton (1990) on the same issue comment that the power of heuristic inquiry lies in the potential for disclosing the truth. Through exhaustive self-search, dialogues with others and creative depictions of experience, a comprehensive knowledge is generated. This then begins a series of subjective understandings and

develops into a systematic and definitive exposition. Heuristic research can be summarised to be distinct on the following four points: First it emphasises connectedness and relationship; second it leads to depictions of essential meanings and portrayal of the intrigue and personal significance that imbue the search to know. Third, heuristics conclude with creative synthesis that includes the researcher's intuition and tacit understanding and lastly the research participants are not lost in the descriptive process of data analysis since they continue being displayed as whole persons. The essence of the person is retained in the heuristic research (Patton 1990).

After reviewing all the details of a heuristic research, I felt that it squarely suits the research at hand. This is because the researcher has been involved in almost all the aspects of the research as a student, teacher and a worker in the four categories being focused on in the research. In this light then my reflections and experiences come in handy in explaining the situations especially in Kenya.

The study area

The research will be conducted in two countries, Kenya and Australia. Programs for improvement in Australia will serve as direction indicators for present and future reforms in Kenya. In Kenya the study will involve both technical training institutes and automotive industry while in Australia TAFE institutions and automotive industry will be involved. In Australia the study will mainly be conducted in the state of Victoria. The reason for the choice of Victoria is that most of the Australian automotive industry is centred there. As a result, it is expected that more repair services take place and more advanced skills requirements are on demand.

The sample and sampling methods

Training institutions: At least six automotive training institutions will be included in this study. There will be at least three institutions from each of the countries of study. In Kenya, the study will target at least one national polytechnic, one institute of science and technology, one technical training institute while in Victoria, Australia, the study will target at least three TAFE Institutes. **Industry:** The study will involve at least five workstations in each of the countries involved. There will be highly structured work places and less structured work places for this study in Kenya. This is so because the industry involves a lot of self-employed "jua Kali" artisans who have temporary sheds for their workstations. 'jua kali' literally means 'hot sun'. These are small-scale business proprietors who work under trees and other non-permanent shades. They are common in Kenya and perform tasks well beyond what would be expected judging from the capacities of their work place. In Australia, the study will involve company owned work places and privately run repair centres.

Trainees: The students taking automotive training will be supplied with questionnaires by the researcher. There will be no sampling involved in the choice of who will be given the questionnaires. As long as they will be willing, they will be supplied with the questionnaires. This will reduce the undesired aspect of breaking intact groups, which may have problems. These trainees will be sourced from the Training institutions or through the work place apprenticeships. **Interviews:** Interviews will be conducted to a smaller portion of the population to confirm their opinions. Willingness to participate will determine who will be included in the interview. Not more than ten of each of the study categories will be interviewed. **Documents:** Only the latest samples of the documents (examinations and syllabus/ training packages) will be analysed with due considerations of the history and the

change drivers. The textbooks that are recommended for the institutions will be analysed. **Case studies:** At least one technical training institution in each of the countries involved will be selected for detailed case study. This will serve to clarify the issues that may not have been observed clearly in the surveyed institutions. A detailed analysis of the skill requirement for one industry practitioner will be done.

The availability of the targeted course and accessibility of the institution will govern the degree of participation in the study, hence purposive or theoretical sampling will be used. This is a type of sampling, which targets information rich cases for in-depth study. It is used in case study work where design is considered to be emergent (Scott and Usher; 1999). The sampling decisions within the case are made in terms of developing the theory. However all institutions with an existing link with a particular industry will all be part of this particular study.

The data collecting instruments and procedures

Several methods will be used to collect data for this research. They include: researcher designed questionnaires, observation, document analysis, and interviews guided by interview schedules. These four data collection strategies will promote triangulation. This involves the combination of methodologies in the study of the same phenomenon or program. This can mean using several kinds of methods or data, including both qualitative and quantitative approaches. Denzin (1978) has identified four basic types of triangulation. They are: data triangulation- use of a variety of data sources in a study; theory triangulation- the use of multiple perspectives to interpret a single set of data; methodological triangulation- the use of multiple methods to study single problem or program; and investigator triangulation - The use of several different researchers or evaluators (Patton, 1990; Denzin and Lincoln, 1998). In addition to these four Denzin and Lincoln (1998) added a fifth type of triangulation the list. It is interdisciplinary triangulation, which is a way of viewing issues of research from more than one perspective.

The first three in the original listing and the new type of triangulation are employed in this study. The justification for triangulation is based on the premise that it is an ideal method because it is a means of controlling the extraneous variables. The study is interdisciplinary in that it is looking at the educational arrangements of an engineering discipline with a view of understanding some of its psychological underpinning. The psychological aspects are learning and its transfer from the institution based-learning to the work place.

Data analysis procedures

Data will be analysed by use of different methods. Both quantitative and qualitative methods of data analysis will be applied. Statistical methods will be applied to the relevant data and the rest of the findings will be discussed. Some of the statistical methods that will be used in this study are the chi-square for non-parametric data and the analysis of variance (ANOVA) and t-test for the parametric data. The 0.05 level of significance testing will be used where applicable. The data will be analysed by use of Statistical Package for Social Sciences (SPSS).

Model for discussion and visual representation of the systems involved

The findings will be discussed on the basis of a model. The researcher will advance a model based on a polygon. Each of the polygon sides will represent a significant aspect in the discussion. The polygon will be viewed as a dynamic object to depict the dynamic

nature of education. Comparing the polygon's aspects of position, shape and even orientation based on the focus will bring about the comparative nature of the study. This will be used to model transfer of learning from one part of the world to another. The polygon is adopted for the discussion framework because of the following reasons. The polygon depicts multi sidedness and a variation in orientation. It can either be regular or irregular depending on the sides or the angles. The dynamics of a polygon will feature prominently in the discussion and recommendation stages of this research's findings. It will also depict parts of the way forward. The design and purpose of automobile is all dynamics anyway. The study therefore will be taking home knowledge to the practitioners and students in their cultural language.

Insights

While conducting the research within Australia, at the TAFE institutes and the RS&R industry, some of the insight building issues so far raised are related to the responsibility of training, funding, lack of involvement/understanding of expectation by some stakeholders, The issue of training workers not focusing on the skill development (when will the learners be creators or innovators?), The driving force for the training, profit or development of capabilities? Finally the link between knowledge boxes (standard) and the real individual development.

Conclusion

The need for a co-existence between school and industry can't be overemphasised. According to the UNESCO-UNEVOC (2001) revised recommendations concerning technical and vocational education, the need for collaboration between education in school and industry is emphasised. Specifically, recommendation number seven states:

Technical and vocational education should begin with a broad base which facilitates horizontal and vertical articulation within the education system and between school and the world of work... and should be designed so that it is an integral part of everyone's basic general education in the form of initiation to technology, the world of work, and human values and standards for responsible citizenship. (p.29)

The report goes on to state that an initiation to technology and the world of work should be an essential component of general education. It recommends collaboration with specialists from industry, teachers and educational architects, when designing educational programs. Finally it underscores the need for due regard to the purposes, the facilities, prevailing local factors and relevant research, a criteria that this study fulfils.

I draw my concluding remarks by evaluating this piece of work based on the views advanced by Marshall & Rossman (1989) that a proposal should develop an argument, have a substantive focus, be sound in design and take into consideration the researcher's competencies. I have tried to develop an argument by highlighting the significance of the study, putting into consideration the current trends in the world today. The study is appropriate because in the era of globalisation and life long learning, all people are learners and VET is gaining the attention and concern of industry, governments and unions. This study will focus only on the automotive industry which is the field of my expertise both as a practitioner and a teacher educator. The design part of the study has encompassed several approaches in the name of triangulation, taking into consideration the extraneous variables to reduce contamination and increase validity, consistency and reliability in the whole process. I would hope that this study will be able to yield data,

recommendations and thoughts, and that will help in shaping the future of VET in both Kenya and Australia.

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