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Editorial

I am happy to welcome you to volume six of Makerere Journal of Higher Education. Please note that this and subsequent volumes of the journal will be numbered according to calendar and not academic years. Accordingly, issue one has moved from August to February while issue two will now come out in August.

The thematic scope of the articles in this issue is diverse. From Malawi, Shawa attempts to conceptualise a model of critical pedagogy useful in enhancing critical citizenship in the country. Shawa argues that although key higher education policy documents in Malawi aptly emphasise the role of quality in higher education for development, they don't articulate a philosophical foundation on which to ground university pedagogy to produce critical citizens who are able to produce knowledge and advance civic values. Thus, in this paper, Shawa attempts to articulate a model of critical pedagogy for universities in the country. As concerns for the relevance of higher education to development take centre-stage in discourse on higher education, readers from other countries may be interested to examine the applicability of the model to their own settings.

Amasuomo investigated the factors influencing students' choice of occupational area in the Nigeria Certificate of Education Technical Programme. This study reports that interest in study area; perceived availability of job opportunities related to area of specialization; simplicity of area in training and in employment; and perceived affordability of equipment for self-employment influence choice of occupational area.

In the third paper, Ddungu delves into the attrition of academics from universities in Uganda. Taking cognizance of the fact that attrition of academics staffs has been a problem for a long time and, subsequently, attracted notable scholarly and policy attention, Ddungu addresses the problem from the point of view of professional empowerment of the academic staffs, an area which hadn't attracted significant scholarly attention. The findings were that the level of professional empowerment is low and that this has contributed to the problem of attrition. Hence, the paper urges university managers to promote the academics' professional empowerment.

Grounded on review of past studies and theories on innovation adoption, Bakkabulindi makes a case for returning to Rogers' Innovation Diffusion

Theory. A key argument advanced is that the peculiarities and contribution of the *new* theories of innovation adoption notwithstanding, Rogers' theory is the original from which the more recent theories have been derived. Thus, the paper contends, future research on innovation adoption should be guided by the theory. Hence, the paper suggests a research framework based on the theory for the verification of 14 hypotheses that it develops from the literature. I hope we see articles applying this framework and verifying these and related hypotheses in the near future.

Ayonmike discusses the challenges in implementing the Technical and Vocational Education and Training (TVET) curriculum in technical colleges in Southern Nigeria. She reports that poor funding, obsolete facilities and inadequacy of instructional materials are affecting implementation of the curriculum. It is particularly noteworthy that similar studies conducted in other geopolitical zones of Nigeria and in other parts of Sub-Saharan Africa report similar constraints. Ayonmike suggests a synergistic approach—integrating the efforts of regional and national governments with those of local and international organisation—to the resolution of these challenges.

Finally, Neema-Abooki and Kitawi examine the impact of e-learning strategies on students' academic performance at Strathmore University. They report that the e-learning strategies adopted at the University are positively impacting on students' academic performance albeit a digital divide is cutting back on the effectiveness of e-learning as a mode of higher education delivery and learner support. Grounded on these findings, they discuss recommendations for improvement.

Editor

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Towards a Model of a Critical Pedagogy in Malawian Universities

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Abstract. Quality university education is important for achieving national aspirations as stated in higher education policy frameworks in Malawi. The major education policy documents in Malawi: The Policy and Investment Framework and the Malawi National Education Sector Plan recognise the importance of university education for knowledge production and its dissemination and for the facilitation of a culture of peace that is conducive and critical for socio-economic, political and industrial development. In an attempt to align policy to achieving these goals, the policy documents outline the following policy directions: improving access, achieving equity, enhancing quality, improving financial management and improving the management and planning of the university sector. This paper shows that what is lacking however is a philosophical foundation on which to ground university pedagogy so as to train critical citizens able to produce knowledge and advance civic values. Thus, this paper conceptualises a model of critical pedagogy useful in enhancing critical citizenship in Malawi. The paper is conceptual other than empirical in its approach.

Keywords: Quality assurance; Critical pedagogy; Critical citizenship.

1   Introduction

In Malawi, university education policy direction is enmeshed within two major documents: The Policy and Investment Framework and the National Education Sector Plan. These two documents argue that education is important for knowledge production and the development of the country. The National Education Sector Plan states:

> Education is a catalyst for socio-economic development, industrial growth and an instrument for empowering the poor, the weak and the voiceless. Education enhances group solidarity, national consciousness and tolerance

of diversity. It facilitates the development of a culture of peace which is conducive and critical for socio-economic, political and industrial development. Hence education is critical and necessary for the economic and industrial growth and development goal (Malawi Government, 2006: 6).

To achieve the mentioned goals within the university sector, the documents suggest that there is a need to address the following constraints: limited and unequal access to university education, declining educational quality, poor curriculum, poor planning and management and inadequate financing (Malawi Government, 2000). While these policy prescriptions are pertinent, this paper argues that there is lack of a philosophical grounding of pedagogical practices within universities to train critical citizens capable of producing knowledge and enhancing citizenship values as outlined in the documents. The contention is that only critically trained citizens are able to use education for socio-economic and industrial development, as an instrument for empowering the vulnerable and in enhancing group solidarity, national consciousness and tolerance of diversity. The Policy and Investment Framework (Malawi Government, 2000: 34-38) outlines the main policy prescriptions and strategies for achieving them as follows:

Access: Access to university education in Malawi is very limited. For a long time, only 0.5% of the population aged 18 to 23 was enrolled in the whole tertiary education sub sector. With the introduction of off-campus students' access mode in the two public universities, access has slightly improved. The key goal has been to increase the number of Malawians in tertiary education generally.

Equity: In the tertiary sub-sector, only approximately 28% of students are females. The situation of female under representation in higher education institutions is compounded by their under representation in science and other professional degree programmes. The key goal is to increase the proportion of female students.

Quality: The government recognises the dwindling quality of university education. To solve this problem, the key goal is that tertiary institutions shall in collaboration with the government take appropriate measures to improve the motivation of the teaching staff.

Relevance: The government argues that in addition to the provision of relevant physical and human resources, the quality of education provided by Malawi's educational institutions should be enhanced by a thoroughly revised curriculum. The key goal is that tertiary institutions shall review their teaching and research programmes to promote institutional responsiveness to the needs of Malawian society.

Management: The key policy is that the government shall initiate appropriate legislation to promote the decentralisation of public university administration. In this line, the government proposed amending the University of Malawi Act to enable the University of Malawi's colleges obtain independent status. The government also envisaged that a National Council for Higher Education be established and also that there be an involvement of stakeholders in institutional governance.

Planning: The major educational planning challenge relates to the strengthening of relevant capacities for the collection, analysis, storage and use of educational data. The university sector requires an effective information retrieval system that can be used as a planning and policy tool. The key goal is that institutions shall take appropriate measures to strengthen their institutional capacities.

Finance: Providing education is expensive as such the key goal is that tertiary institutions shall promote cost-effective use of available resources, diversify their revenue resources and introduce appropriate cost-sharing measures as a way of reducing the government's subvention on higher education.

While these policy prescriptions and their suggested strategies are important in improving the university sector, it is clear that the policy landscape is largely silent on how pedagogical practices could help train critical citizens capable of knowledge production and its dissemination and the facilitation of a culture of peace that is conducive and critical for socio-economic, political and industrial development. The situation is exacerbated by a lack of university level teaching and learning polices in Malawi. The aim of this paper thus, is to offer a philosophical grounding of pedagogical practices required within Malawian universities. The paper conceptualises and proposes a model of critical pedagogy that might enhance quality university education in Malawi.

The paper has three sections. Section one briefly describes the meaning of pedagogical practices, section two describes proposed constitutive meanings of a critical pedagogy and explains how the constitutive meanings can be utilised by lecturers. Section three offers a conclusion.

2   What are Pedagogical Practices?

In this paper, pedagogical practices are those activities a lecturer employs in the classroom in order to construct knowledge (Banks, Leach & Moon, 1999). The way lecturers view and understand their lecturing commitment, determine the way they construct knowledge in the classroom. For example, if a lecturer sees students as lacking knowledge he/she resorts to the telling method while if

he/she sees students as thinkers and capable of reasoning, he/she engages them in 'a learning together' model of teaching and learning (Bruner, 1999). In this paper, the argument is that pedagogic practices at university level in Malawi ought to instil a critical mind in students so as to produce critical citizens able to produce knowledge and appreciate citizenship roles.

3   Constitutive Meanings of a Critical Pedagogy

For a critical pedagogy to be successful in Malawian universities, lecturers ought to adhere to the following constitutive meanings of critical pedagogy proposed in this paper: being able to understand and delineate parameters of the notion of quality, being rational in the classroom, being inclusive in classroom activities, being a granter of freedom in the classroom and being responsive to equal treatment in the classroom. These proposed 'principles' are explained in turn.

3.1   Understanding and engaging with the notion of quality as a constitutive meaning of a critical pedagogy

For a successful critical pedagogy in Malawian universities, lecturers ought to understand and engage with the notion of quality for if they do not, they may lack necessary pedagogical skills to achieve quality teaching. However, the concept of quality is abstract and elusive and requires participants to delineate a common approach (Mayhew, Patrick & Dean, 1990). Mayhew et al.., (1990) argue that from several quality considerations, there are three generalisations that one can make: First, that quality is a receding horizon in that there are no static, acceptable norms of performance. Second, that in spite of theoretical considerations, if quality is to be improved, it must be defined with enough specificity so that its attributes are at least suggested if not clearly delineated. Third, that quality improvement is inexorably bound up with assessment and feedback. The authors (Mayhew et al., 1990) posit a working definition of quality in higher education as follows: "Quality undergraduate education consists of preparing learners through the use of words, numbers, and abstract concepts to understand, cope with, and positively influence the environment in which they find themselves" (p. 29). Quality in university education, they argue, must be related to the central purposes of higher education and how these are translated into programmes and activities (Mayhew et al., 1990). Pirsig, on her part, highlights the elusive nature of quality as follows:

> Quality…you know what it is, yet you do not know what it is. But that's self-contradictory. But some things are better than others; that is, they have more quality. But when you try to say what quality is, apart from things

that have it, it all goes poof! There's nothing to talk about. But if you can't say what quality is, how do you know what it is or how do you know it even exists? If no one knows what it is then for practical purpose it doesn't exist at all. But for all practical purposes it does really exist. What else are grades based on? Why else would people pay some fortunes for some things and throw others in the trash pile? Obviously some things are better than others…but what's "betterness"? So round and round you go, spinning mental wheels and nowhere finding any place to get traction. What the hell is Quality? What is it? (Pirsig, 1974:163-164).

The difficulty in pin-pointing what the notion of quality means is in itself a call for delineating its parameters if lecturers would like to achieve quality education in Malawian universities. Harvey and Knight (1996) argue that we can no longer take quality for granted in university education and presume we all know what we mean by quality university education. In moulding critical citizens, lecturers ought to have delineated quality parameters that they want to achieve using their pedagogical practices. For the purposes of understanding and engaging with quality university education, this paper utilises five positions advanced by Harvey and Green (1993). Sections 3.1.1 through 3.1.5 produce a slightly edited discussion of these positions by the author published in an earlier study (Shawa, 2008).

Harvey and Green (1993) present the following quality positions: quality as *exceptional*, as *perfection* or *consistency*, as *fitness for purpose*, as *value for money* and as *transformation*. Relying on their categorisation, the paper offers different ways of thinking about quality that are necessary for a critical pedagogy in Malawian universities. In delineating quality parameters for a successful critical pedagogy, this paper rejects the notions of quality as *exceptional* and *perfection* and proposes a holistic quality approach that summarises notions of *fitness for purpose*, *value for and [of] money* and *transformation*. The notions are discussed in turn.

3.1.1 Quality as exceptional in relation to a critical pedagogy

In Malawian universities, lecturers ought to understand problems associated with the notion of quality as exceptional if they are to instil a quality critical pedagogy. This notion holds that quality is special and it embodies three variations: first, that quality is distinctive (traditional view), second, that quality embodies excellence (that is exceeding very high standards) and third, that quality means complying with a set of required (minimum) standards (Harvey & Green, 1993). All these three dimensions have their own implications to pedagogical practices and expectations.

The traditional concept of quality as exceptional contends that quality is distinctive or something special and of high class. Within this aspect, quality is not based on assessing what is available but is based on an assumption that something of high standard exists. For example, the limited access to some universities is viewed as an example of quality (Harvey & Knight, 1996). This view becomes useless in assessing quality in education because it lacks definable means of ascertaining quality (Harvey & Knight, 1996). Lecturers who adhere to this thinking often think of making learning difficult and have an idealised marking scheme that tends to mark down students. This view of quality ought to be avoided within a critical pedagogy in Malawian universities.

The other concept pertaining to quality as exceptional is that it embodies excellence (exceeding high standards). Although this is similar to the traditional view, this concept identifies the constituents of excellence while at the same time ensuring that these are difficult to attain (Harvey & Knight, 1996). While the traditional aspect of quality is assumptions, here lecturers set extremely high standards that can only be achieved by very few students (Green, 1994). The excellence view of quality is thus elitist and problematic when it comes to the model of critical pedagogy proposed in this paper.

The third concept pertaining to quality as exceptional is that quality is about passing a set of quality checks to achieve the standards set. If the standards are met, something is of quality. According to Harvey and Knight (1996), with this view, quality is attributed to all items that add up to the minimum standards set by a monitoring authority. Quality is thus the result of scientific quality control. This notion is problematic in achieving a critical pedagogy in Malawian universities since quality education is not about just passing minimum standards in a scientifically controlled environment. Lecturers employing a critical pedagogy ought to avoid making students simply pass quality checks but encourage them to critically engage with the subject matter.

3.1.2 Quality as perfection or consistency in relation to a critical pedagogy

Harvey and Green (1993) argue that quality as perfection sees quality as a consistent or flawless outcome and if consistency can be achieved, quality can be attained by everyone. They argue that this approach demands conformity with specifications and owes its origins to the notions of quality control in the manufacturing industry. It is thus associated with a quest to zero defects and a quality culture (doing things at the right time as in the manufacturing industry). Thus, there is no need to check the final output, for at each stage there are those responsible for quality assurance. This concept is problematic for teaching and learning in a critical pedagogy in Malawian universities since it assumes that learning is about delivering specifications, rigidly. Yet, critical pedagogy ought

to be about encouraging the analytical and critical development of the student as a rational being capable of questioning and re-engaging with the subject matter (Harvey & Green, 1993). Harvey and Knight (1996) argue that although a quality culture is essential for an effective responsive quality improvement process, it is a culture of continuous improvement rather than a culture dedicated to producing a consistent product that is vital. Lecturers employing critical pedagogy ought to encourage students to be able to questions their standpoints continuously within a learning culture.

3.1.3   Quality as fitness for purpose in relation to a critical pedagogy

Proponents of the quality as fitness for purpose approach argue that quality has meaning only in relation to the purpose of the service. Quality is judged in terms of how it meets its stated purposes (Green 1994). According to Harvey and Knight (1996), fitness for purpose offers two alternatives for specifying the purpose. The first depends on the customer and takes the customer's specifications as supreme. In this way, a quality product is one that conforms to customer-determined specifications. In the university sector, this would mean that students would determine what it means by quality education and lecturers would provide quality education if it conforms with students expectations. This may be problematic in that students may be able to identify their short-term needs but may not have enough knowledge and experience to know what they need in the long term (Harvey & Green, 1993). Thus, in a critical pedagogy, students' views ought to be balanced with lecturers' specifications.

   The second aspect of quality as fitness for purpose approach puts the onus on the provider. In this way, a quality product is one that conforms to providers' determined specifications. In the university education sector, this would mean that lecturers would determine what it means by quality education. The notion is important as it allows the lecturer to adhere to delineated quality parameters to be enhanced with pedagogical practices. This notion is useful as it allows re-evaluation of purposes and a continuous process of their examination. Consequently, the notion is appropriate to teaching in Malawian universities in that it encourages analysis of purposes of learning and allows for re-evaluation of purposes to respond to current issues. As such, the notion allows lecturers to evaluate whether a particular course provides the intended knowledge, skills and understanding (Harvey & Green, 1993). By re-evaluating purposes of education, lecturers adhering to a critical pedagogy avoid positing subject matter dogmatically. This notion is in tandem with quality assurance in universities as it assists universities to see how quality is achieved as set out in the mission statements. However, to achieve a critical pedagogy the notion of fitness for purpose needs to be complemented by fitness *of* purpose (Coetzee & Roux, 2001). Lategan (1997) argues that in the notion of fitness for purpose, the

issue is whether the objectives are met whilst in the notion of fitness *of* purpose, the issue is whether lecturers have chosen the right objectives. Fitness *for* and *of* purpose demand balancing students' concerns with lecturers' objectives and allowing lecturers to continue questioning their objectives and pedagogical practices in a process of learning and re-learning.

3.1.4 Quality as value for money in relation to a critical pedagogy

Harvey and Green (1993) hold that quality as value for money defines quality in terms of return on investment. If the same outcome can be achieved at a lower cost or a better outcome can be achieved at the same cost, the customer has a quality product or service. In the education sector, it means that students begin to opt for courses that will in turn provide them with jobs. While this market view is problematic in that education ought not only to focus on training for the job market, lecturers ought to consider inculcating skills that could be used for the job market. Thus, while this notion of quality has merit when one looks at accountability, it fails when the system over-emphasises measurable indicators that in most cases do not hinge on quality learning. Lecturers ought to balance this view so as not to side-line critical aspects of learning at the expense of producing leaners for the job market.

3.1.5 Quality as transformation in relation to a critical pedagogy

The concept of quality as transformation entails that there must be qualitative changes in the student. In which case, education is seen as doing something to the student as opposed to something for the consumer. Education becomes a participative process and students are not products, customers, service users or clients but participants in an on-going process of learning and re-learning (Harvey & Knight, 1995). Education as transformation includes the concepts of enhancing and empowering. Lecturers ought to realise four ways of empowering students: "via student evaluation, guaranteeing students minimum standards of provision, giving students more control over their own learning and developing students' critical ability" (Harvey & Knight, 1995:8-9). This notion captures the core business of the university and is core in understanding critical pedagogy in Malawian universities. This notion entails professional relationship between the academic and students.

  As advanced in this paper thus, for a critical pedagogy to be successful in Malawi in relation to understanding the notion of quality as a constitutive meaning of a critical pedagogy, the following parameters could be helpful: fitness *for* and *of* purpose, value for money and transformation. Fitness *for* and *of* purpose will guide lecturers to plan considering both their specifications and students', value for money will encourage lecturers to balance critical aspects

with students' requirements to get jobs and transformation will encourage lecturers to see their students as participants in an on-going learning process.

3.2   Being rational as a constitutive meaning of a critical pedagogy

In order to facilitate a critical pedagogy, lecturers require not only delineated quality parameters but ought to be rational in their classroom approach. Lipman (2009: 11) contends that rationality in institutions is about producing students as educated persons or "persons who are as knowledgeable as they need to be and as reasonable as they can be helped to be". Like Burbules (1993), Lipman (2009:11) views rationality as meaningful if connected to the notion of reasonableness. He argues as follows: "reasonableness is not pure rationality; it is rationality tempered by judgement. The schools, like the courts are under a mandate of rationality, but in a democratic society we need reasonable citizens above all". Burbules (1993) on the other hand posits that rationality entails four aspects: *reasonableness, accepting fallibility, embracing pragmatism, and employing rational judgement*. In advancing rationality as a constitutive meaning of a critical pedagogy in Malawi, this paper utilises these aspects. They are discussed in turn:

To enhance a critical pedagogy, lecturers require being reasonable. Reasonableness requires lecturers to be objective in the classroom. As such, they ought to embody an attitude of tolerance (the capacity to regard alternative positions without a rush to judgement) and to be pluralistic (having a regard for other views) (Burbules, 1993). In so doing, they will better understand the 'situatedness' of their students and facilitate learning objectively.

Being rational also entails accepting fallibility (Burbules, 1993). This means that lecturers realise that as human beings, they are prone to and make mistakes. With such a realisation, lecturers have the opportunity to continuously re-engage with their teaching and general pedagogic practices to enhance critical pedagogy.

More so, lecturers need to embrace a pragmatic approach in the classroom (Burbules, 1993). This means being open and willing to face failure as a learning process on the part of lecturers. A pragmatic approach then shall help lecturers to accept their limitations with an open mind so as to be able to learn even if it means learning from their students.

In employing rational judgement as a way of advancing critical pedagogy, lecturers in Malawian universities shall require to understand the context in which learning takes place. For example, the prevailing situation is most important in the choice of particular pedagogic practices in the classroom. In employing rational judgement, lecturers are called upon to be prudent and sensitive to the environment so as to enhance learning at all times in the classroom. Being rational thus entails that lecturers realise that the classroom

situation reflects open discussion. In this way, they assume a role that facilitates learning by being ready to share the subject matter in an environment that allows students to question and be ready to be questioned (Miller, 2000).

3.3 Being inclusive as a constitutive meaning of a critical pedagogy

A lecturer ought to be inclusive in his pedagogical practices. Inclusivity means involving all students by giving them chances to exercise their intellectual capabilities. In such an environment, students ought to be free to participate in their learning. In this way, the classroom becomes a place in which both students and lecturers advance relevant arguments that facilitate the learning process in an inter-subjective manner. This process is pertinent in assisting students to develop abilities to make reasoned arguments, work in teams and appreciate and tolerate diversity of viewpoints (Enslin, Pendlebury & Tjiattas, 2001). These abilities are important for critical citizens who are expected to use their knowledge to enhance group solidarity, national consciousness and tolerance of diversity as stipulated in the higher education frameworks in Malawi.

3.4 Being a granter of freedom as a constitutive meaning of a critical pedagogy

To achieve a critical pedagogy, lecturers ought not to impose their own ways of thinking but give learners a chance or freedom to learn together (Waghid, 2006). In this way, learners are given a chance to participate in their learning without any interference (Habermas, 1984; 1987). Granting freedom to learners to participate in their learning together with peers and the lecturer helps to avoid instrumental reasoning in the classroom. Instrumental reasoning means using knowledge for social control (Habermas, 1984; 1987). Classrooms ought to be liberating places and not environments for social control.

3.5 Being responsible to equal treatment as a constitutive meaning of a critical pedagogy

In advancing a critical pedagogy in Malawi, lecturers need to treat learners in the classroom equally. No student should be seen as better than others or given more learning opportunities than others in the classroom. Treating learners equally, allows all students a chance to work hard and be involved in their learning process. In this regard, all learners ought to be respected and be given a chance to develop their critical reasoning capabilities that are required for citizens to enhance group solidarity, national consciousness and tolerance of diversity as stipulated in the higher education frameworks in Malawi.

4   Conclusion

This paper presents the argument that while university education policy prescriptions and their strategies in Malawi are pertinent, there lacks a philosophical grounding of pedagogical practices within universities to train critical citizens capable of producing knowledge and enhancing citizenship values as outlined in the documents. The lack of a philosophical grounding of pedagogical practices is also due to a lack of learning and teaching policies within the universities. The paper thus conceptualises and proposes a model of critical pedagogy for Malawian universities. The proposed model of critical pedagogy has the following constitutive meanings required by lecturers in the classroom: being able to understand and delineate parameters of the notion of quality, being rational in the classroom, being inclusive in classroom activities, being a granter of freedom in the classroom and being responsive to equal treatment in the classroom.

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Factors Influencing Choice of Occupational Area among Technical Education Students with Differing Entry Qualifications

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Abstract. This study investigated the factors that influenced choice of occupational area of two groups of students admitted into the Nigeria Certificate in Education (NCE) Technical Programme who had Senior Secondary School Certificate (SSSC) and National Technical Certificate (NTC) respectively. Third year Technical Education students of the Federal College of Education (Technical), Omoku, Nigeria comprising 40 and 30 students with SSSC and NTC respectively were used for the study. Arithmetic mean and t-test were used to analyse the data. Reliability of the t-test results was ascertained by the use of f-test of homogeneity of group variance. Interest in study area; perceived availability of job opportunities related to area of specialization; simplicity of area in training and in employment; and perceived affordability of equipment for self-employment were found to influence choice of occupational area among the two groups.

Keywords: Technical Education; Career guidance; TBVET; Entry qualification.

1   Introduction

In Nigeria, two groups of students with different but equivalent entry qualifications are admitted into the NCE Technical Programme. The two groups of student are those with either the Senior Secondary School Certificate (SSSC) or the National Technical Certificate (NTC). The SSSC is awarded by either the West African Examination Council (WAEC) or the National Examination Council (NECO) to students who passed and graduated from the secondary schools. This certificate is equivalent to the Ordinary Level (O'Level) Certificate. The NTC is awarded by the National Business and Technical Examination Board (NABTEB) to students who passed and graduated from the technical colleges or the science and technical colleges.

This certificate is equivalent to the London City and Guilds Intermediate Certificate.

The Nigeria Certificate in Education (NCE) Technical programme is a three years postsecondary training offered in the colleges of education aimed at producing technical teachers with the intellectual and professional background adequate for teaching technical subjects and to make then adaptable to any changing situation in technological development not only in the country but also in the world at large (NCCE, 2008). Therefore, students admitted into NCE Technical Programme offer all the courses listed in the first and second years to acquire knowledge of Basic Technology components to enable them teach Basic Technology either in Junior Secondary Schools or Junior Technical Colleges before they are allowed to choose an occupational area in the third year to enable them fit into an industry based on the training acquired in the NCE technical programme. Also choice of occupational area in third year is based on performance of the student in the related courses leading to the occupational area. It is in realization of this that, the National Commission for Colleges of Education (NCCE) stipulated that every student for the NCE Technical Programme will offer all the courses listed in the first and second years of the programme before choosing an area of specialization in the third year (NCCE, 2008). The areas of specialization are automobile, building, electrical/electronics, metalwork and woodwork technology education respectively. These areas of specialization also form the student's occupational areas.

This study attempts to investigate the factors that could influence the choice of occupational area in third year of the NCE Technical Education students with different entry qualification.

2   Literature Review

With the increasing diversity in a complex world of technology and work; the variety of occupational paths offered for a young person has also increased and become complex. It is therefore pertinent for students to obtain necessary information in occupational areas and acquire the necessary skills to be successful in the future occupational plans. Any individual making a decision in occupational choice is influenced not by their development but also by the context in which they live, their personal attitudes and educational attainment (Chen, 1997; Bandura, Barbaranelli, Caparara & Pastorelli, 2001). For an adolescent who has graduated from post primary school, the major turning point in his or her life involves the occupational choice they will make in their post-secondary school training. These career selections according to Borchert

(2002) is one major important choices students will make in determining future plans and this decision will impart them throughout their lives.

Studies carried out on some of the factors that influence occupation choices include: parents and family, teachers and counsellors as well as the media such as newspapers, television etc. (Eccles, 1997; Epstein, 1992; Haverman & Wolfe, 1995; Windham, 1996; Howe, 1997; Davies, Spencer & Steele, 2005; Walton & Cohen, 2007. Thus, occupational decisions taken by young people is therefore a combination of both personal (those originating within the individual) and situational factors (forces enabled from social context) (Amani, 2013). The personal factors are those that include cognitive and mental processes which dictate career decision making such as attitude, self-concept, self-efficacy and knowledge (Sharf, 1992). The situational or environmental factors which include social or external factors from the society may influence ones career decisions. These social pressures which are valuable to the students may come from parents, relatives, teachers, friends, peers and the society in general which partly determines the decision of a person whether to join a career or not (Amani, 2013). In addition, the interdependency of family, school and community culture plays a critical role in shaping the youth's occupational choice. The young adults through interaction with the context of family, school and community learn about and explore careers that ultimately lead to career choice. The economic and social circumstances of the broader community colours and influences the youth's perception of appropriate career choices (Ferry, 2006).

Personality also has an important role in influencing student's occupational choice because some careers demand that you have the personality to match the qualities of the occupation (Borchert, 2002). Splaver (1997) was also of the view that personality plays an important role in the choice of right career. Thus, a student's personality must be a self-motivated type so as to investigate career possibilities from early in their lives and not the procrastinating type that will wait until they are compelled to decide. In essence, it is important for you to have a good understanding of yourself and your personality if you are to make intelligent career plans.

However, factors considered in this study as influencing students' choice of occupational areas are: interest, parental desires, future job opportunity, understanding the related courses in the occupational area, availability of adequately equipped workshops and laboratories, teachers instructional methods and competency, peer group influence, high social status attached to the occupational area, occupational area is less tedious during training and also during employment, information on career prospects, finance to procure equipment and tools for self-employment, previous background knowledge of occupational area, and the imposition of occupational area based on student's performance.

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A student's personal interest in an occupational area is very important in occupational choice. Many students try to fit in a course based purely on personal interest (Reynolds, 2013). Davison (2003) and Amani (2013) also reported that among the several deciding factors in choosing a career was self-interest in the department within the academic environment and this was the major factor which influenced student's choice of degree programmes. Therefore, for students to choose an occupation there must be interest for such student to derive job satisfaction in the future (Olayinka, 1983; Giachino & Gallington, 1977).

The parent's desire for a child to choose a particular occupation influences students' choice of occupation. In this regard, Agarwala, (2008); Hines, (1997); Lee, (1984); Leong, (1995) reported that parents especially the father and other family members were the most influential determinant of their children's career choice intentions, occupational aspirations and occupational expectations. Thus, even if schools had resources with which to meet young people's career guidance needs, neither the teachers nor the counsellors can replace the influence parents have on their sons and daughters' career plans because the parent's career aspirations aid children in selecting occupational goals, influence their knowledge of occupations and familiarize them with occupational roles and requirements (Otto, 1989). And whether the child internalizes those aspirations is greatly determined by numerous values found within the home. That is, the occupational orientations of the parents familiarize children with occupational roles, while the value orientations of parents provide the learning environment that motivates the aspirations of the children (Hairston, 2000; Lee, 1984). In addition, parents were found to have key roles in shaping career choices of their children through educational expectations and perceptions of occupational opportunities as well as providing early exposure to vocational matters thereby aiding in the discovery of aptitudes related to vocational subjects (Ferry, 2006; Hairston, 2000).

Role models and the intervention of relations can also influence students in choosing an occupation. A role model a student saw on television or a lecturer, professor or a relation can be the role model that influences a student's occupational choice (Borchert, 2002; Amani, 2013; Akinjide & Sehinde, 2011).

Students also choose occupational areas where they are sure of possible future job opportunity. Borchert (2002) stated that job opportunity is another factor that may shape career choices for students which may also influence how they have perceived their future in terms of the reasonable probability of a better future in a particular career field. Ferry (2006) also posited that occupational choice is not a mere matching process but it is a choice made in a context of many influencing factors. The perception of ideal job acts as a filter for appropriateness and this in turn influences the choice process.

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In addition, students choose occupational area while in training because the related courses leading to the occupational area are easier to understand (Reynolds, 2013). Further, students prefer to choose occupational areas from departments with adequately equipped workshops and laboratories for effective practical training as against only theory because proper skill training is very important in future occupational engagements. According to Taiwo (1974), the workshop and farm enriches general education and the experience a student gets in the school workshop is what the student utilizes in the related industries after graduation.

Another factor that may influence student's choice of occupational area is the teacher's instructional methods and competency. Competency is the ability to do something well when measured against a standard. It is the ability acquired through experience and training. Therefore, it is not unusual for students to try to get into a course because of the reputation of the professor teaching it. This may be because of an outstanding performance of the professor in his/her field or because the professor is regarded as a fine teacher (Reynolds, 2013). The competence of the teacher in influencing the student's choice of occupational area becomes more pertinent since the teacher constitutes the single most important fabric upon which hangs the success of the whole educational edifice (Adesina, 1977).

Peer groups also influences students in choosing an occupational area. Friends and the mentoring relationship with a teacher in a particular discipline can foster a sense of social belonging which impacts on choice of area of specialization (Davison, 2013; Hall, Sullivan, Kauffman, Batts & Long, 2009)

The high social status attached to some occupational areas influences students' choice. The choice of occupational area by a student is bound to be affected if low prestige is attached to the particular occupational area. Some occupations have social status and prestige attached to it and hence high esteem. For this reason, most young people scramble for them (Olayinka, 1983).

Students may not like to choose an occupational area that is tedious during training and thereafter during employment because they do have the stamina to withstand the rigours of such occupations. Most students would therefore prefer occupational areas that are less tedious during training and during employment (Amasuomo, 2000).

Availability of information on occupational prospects in most cases influences occupational choice by students. Occupational information helps students to have a self-evaluation of their characteristics, preferences and capabilities (Barango-Tariah, 1999). Further, encouragement from teachers and information from someone at the school level that was knowledgeable about different career options can influence students to consider various career options (Hall, Sullivan, Kauffman, Batts & Long, 2009).

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The amount of capital required to establish workshops for self-employment may also influence student's choice of occupational area. One of the objectives of technical education is for the recipients to be self-employed after training (NCCE, 2008). Students may not choose some occupations which require huge amount of money to establish workshops for self-employment.

Previous background knowledge of the occupational area to a large extent influences the choice of occupational area. According to Amani, (2013), there was a positive relationship between occupational knowledge and intents of some students to join their careers upon graduation. While students who come into occupational training from the secondary schools may not have previous knowledge of the occupational area they are choosing but students from the technical and vocational colleges already have an occupational path and therefore are work-bound. The occupational goals of work-bound youths are identified because they already know what they are going to do when they get out to choosing a major for training. Thus, the choice of occupational area for those students at the post-secondary level is more direct. Their choice of occupational area is less influenced by extraneous factors since their occupational objectives and plans are already put in place and the choice of an occupational area has already been made. The students from the secondary schools who do not have previous occupational knowledge have career trajectories that are future oriented and are only exposed to occupation choice at the post-secondary school level (Ferry, 2006).

Academic performance of a student may also influence the student's choice of occupational area in situations where the choice is dependent on performance in the related courses that lead to the occupational area. An above average performance in specific related courses may therefore be required for a student to be allowed to choose an occupational area. In cases like this, an occupational area may be imposed on the student irrespective of the interest of the student in a particular occupational area since the student did not perform better in the area of interest. According to Gesinde (1986), these category of students were forced by circumstances influenced by a powerful stimulus.

Previous studies indicated that various factors influenced students' choice of occupational areas. It became pertinent to find out whether theses factor that influenced occupational choices will differ among students with different entry qualifications. Specifically, the study shall find answers to the following research questions:
1. What are the factors that influence occupation choice among students with different entry qualifications?
2. Will the factors that influence occupation choice among students with different entry qualifications differ?

A null hypothesis using the second research question was formulated thus: There will be no statistically significant difference in the factors that influence occupation choice among students with different entry qualifications

3   Methodology

The study population was made up of seventy 300 Level NCE Technical Education students of the Federal College of Education (Technical), Omoku, Nigeria during the 2011/2012 academic session. The population which constituted the sample is comprised of forty and thirty students with Senior Secondary School certificates (SSSC) and National Technical Certificates (NTC) respectively.

   The research instrument was a questionnaire containing thirteen (13) items that tried to elicit the factors that influence students' choice of occupational area in NCE Technical Education programme. The answer options were: High influence, Moderate influence and Low influence and were accordingly rated (3), (2) and (1) respectively on a three-point scale. The questionnaire was administered by the researcher and the students were given a week or the next lecture period to submit the completed questionnaire. The entire administered questionnaire was completed and personally retrieved by the researcher.

   Data was analysed using arithmetic mean in the response scores categories. On a 3-point scale, mean responses above 2.00 indicated that the assessed factors influenced the students' choice of occupational areas while mean responses below 2.00 was an indication that the assessed factors did not influenced them. The Z-test of two independent groups' means was used to test for significance difference in the choice of occupational area among the two groups. The f-test of homogeneity of variance of both groups used the Hartley's F-Max test with the greater variance as numerator and smaller variance as denominator (Gravetter and Wallnau, 2005). The tests were two–tailed and conducted at the 0.05 level of significance

4   Results

The results presented in Table 1 revealed that interest, future job opportunity, the occupational area is less tedious during training and during employment; and finance to procure equipment and tools to set up workshop for self-employment influenced both the SSSC and the NTC groups of students in choosing an occupational area. Parental desire, understanding the related courses leading to occupational area, availability of adequately equipped

workshops and laboratories, high social status attached to the occupational area and information on occupational prospects only influenced the SSSC students in the choice of occupational area. Previous background knowledge of occupational area only influenced the NTC students.

Table 1: Factors influencing students' choice of occupational area

Influencing factors	Senior secondary school certificate group (n=40)						National Technical certificate group (n=30)					
	HI	MI	LI	X	SD	Decision	HI	MI	LI	X	SD	Decision
Interest in occupational area	35	2	3	2.80	0.61	There was influence	18	3	9	2.30	0.92	There was influence
Parental desire	18	17	5	2.33	0.69	"	8	4	18	1.67	0.88	No influence
Future job opportunity	31	2	7	2.60	0.78	"	15	6	9	2.20	0.89	There was influence
Understanding the related courses leading to occupational area	19	9	12	2.18	0.87	"	11	2	17	1.86	0.97	No influence
Availability of adequately equipped workshops and laboratories	18	16	6	2.30	0.72	"	6	12	12	1.80	0.76	"
Teacher's instructional methods and competency	15	2	23	1.75	0.97	No influence	5	14	11	1.80	0.76	"
Peer Group Influence	18	14	8	2.2	0.76	There was influence	5	15	10	1.83	0.70	"
High social status attached to the occupational area	22	13	5	2.43	0.71	"	7	12	11	1.87	0.77	"
The occupational area is less tedious during training and during employment	19	14	7	2.30	0.76	"	20	4	6	2.46	0.82	There was influence
Information on occupational prospects	21	15	4	2.43	0.68	"	6	14	10	1.87	0.73	No influence
Finance to procure equipment and tools to set up workshop for self-employment	18	18	4	2.35	0.62	"	16	12	3	2.50	0.69	There was influence
Previous background knowledge of occupational area	17	1	22	1.88	0.99	No influence	13	9	8	2.15	0.92	"
Choice occupational area was imposed because the student performed better in that area	6	0	34	1.30	0.72	"	3	0	27	1.20	0.61	No influence

Df = 64; P>=0.05; Expected t-Value =2.00; No. of SSSC Group (N) =40; No. of NTC Group (N) =30; S= Significant; NS = Not significant.

Table 2: Z-test for significance of difference

Assessed influencing factors	Entry qualification	Mean	SD	Z-value	
Interest in occupational area	SSSC group	2.80	0.61	2.54	S
	NTC group	2.30	0.92		
Parental desire	SSSC group	2.33	0.69	3.35	S
	NTC group	1.67	0.88		
Future job opportunity	SSSC group	2.60	0.78	1.89	NS
	NTC group	2.20	0.89		
Understanding the related courses leading to occupational area	SSSC group	2.18	0.87	1.45	NS
	NTC group	1.86	0.97		
Availability of adequately equipped workshops and laboratories	SSSC group	2.30	0.72	2.75	S
	NTC group	1.80	0.76		
Teacher's instructional methods and competency	SSSC group	1.75	0.97	0.23	NS
	NTC group	1.80	0.76		
Peer group influence	SSSC group	2.20	0.76	2.08	S
	NTC group	1.83	0.70		
High social status attached to the occupational area	SSSC group	2.43	0.71	2.90	S
	NTC group	1.87	0.77		
The occupational area is less tedious during training & in employment	SSSC group	2.30	0.76	0.82	NS
	NTC group	2.46	0.82		
Information on occupational prospects	SSSC group	2.43	0.68	3.41	S
	NTC group	1.87	0.73		
Finance to procure equipment and tools to set up workshop for self-employment	SSSC group	2.35	0.62	0.43	NS
	NTC group	2.50	0.69		
Previous background knowledge of occupational area	SSSC group	1.88	0.99	1.17	NS
	NTC group	2.15	0.92		
Choice occupational area was imposed because the student performed better in that area	SSSC group	1.30	0.72	0.6	NS
	NTC group	1.20	0.64		

Df = 64; P>= 0.05; Expected t-Value = 2.00; No. of SSSC Group (N) =40; No. of NTC Group (N) =30; S= Significant; NS = Not significant.

The Z-test results presented in Table 2 indicated that there was significant difference among the SSSC group and their NTC counterparts in the following assessed areas: interest, parental desire, availability of adequately equipped workshops and laboratories, peer group influence, high social status attached to the occupational area and information on occupational prospects. Hence the null hypothesis was rejected because the Z-test values for each of the influencing factors were more than the expected table value of 2.00 at $P >= 0.05$

However, there was no significant difference among the SSSC and the NTC groups in the following factors: future job opportunity, understanding the related courses leading to occupational areas, the teacher's instructional methods and competency, occupational area is less tedious during training and during employment, finance to procure equipment and tools to set up workshop for self-employment, previous background knowledge of occupational area and choice of occupational area was imposed because the student performed better in that area. Thus, the null hypothesis was accepted since the calculated Z-test values were less than the table value of 2.00 at $P >= 0.05$.

Table 3: Test of Homogeneity of Group variances

Assessed influencing factors	Entry qualification	Mean	Variance (S^2)	f-value
Interest in occupational area	SSSC group	2.80	7.84	1.48
	NTC group	2.30	5.29	NS
Parental desire	SSSC group	2.33	5.43	0.97
	NTC group	1.67	2.79	NS
Future job opportunity	SSSC group	2.60	6.76	1.40
	NTC group	2.20	4.84	NS
Understanding the related courses leading to occupational area	SSSC group	2.18	4.75	1.37
	NTC group	1.23	3.46	NS
Availability of adequately equipped workshops and laboratories	SSSC group	2.30	5.29	1.63
	NTC group	1.80	3.24	NS
Teacher's instructional methods and competency	SSSC group	1.85	3.42	1.06
	NTC group	1.80	3.24	NS
Peer group influence	SSSC group	2.20	4.93	1.47
	NTC group	1.83	3.35	NS
High social status attached to the occupational area	SSSC group	2.40	5.90	1.69
	NTC group	1.87	3.50	NS
Occupational area is less tedious during training and during employment	SSSC group	2.30	5.29	1.14
	NTC group	2.46	6.05	NS
Information on occupational prospects	SSSC group	2.43	5.90	1.69
	NTC group	1.87	3.50	N S
Finance to procure equipment and tools to set up workshop for self-employment	SSSC group	3.34	5.52	1.13
	NTC group	2.50	6.25	NS
Previous background knowledge of occupational area	SSSC group	1.88	3.53	1.31
	NTC group	2.15	4.62	NS
Choice occupational area was imposed because the students' performed better in that area	SSSC group	1.30	1.69	1.17
	NTC group	1.20	1.44	NS

P > = 0.05; Expected f-Value = 1.84; Numerator = 39; Denominator = 29; NS= Not Significant; S= Significant

The results of the f-tests presented in Table 3 revealed that, the calculated f-value of the factors that influenced students' choice of occupational areas was less than the expected table value of 1.84. Based on this result, the variance of the SSSC and the NTC groups in each of the assessed influencing factors were not different, and the homogeneity assumption of the variances of both groups was therefore valid. Thus, the calculated Z-values were reliable.

5   Discussion and Conclusion

In determining the factors that influenced students' choice of occupational areas, interest in the occupational area influenced senior secondary school certificate (SSSC) and National Technical Certificate (NTC) groups of students in choosing an occupational area. This finding was consistent with David (2003); Amani (2013); Olayinka (1983); Giachino and Gallington (1977) who reported that before a student will choose an occupation, there must be self-interest in the occupational area for such student to derive job satisfaction in the future. Thus a student's personal interest in an occupational area is very important in occupational choice.

Parental desire for the occupational area influenced only the SSSC students. In this regard Parham and Austin (1994); Otto (1989) also observed that family members particularly parents are the most influential determinant of career plans, occupational aspirations and occupational expectations. The findings also agreed with Ferry (2006); (Hairston, 2000) who stated that through educational expectations and perceptions of occupational opportunities, parents were found to have key roles in shaping career choices by aiding in the discovery of aptitudes related to vocational subjects and students' decision to prepare for a career. Therefore, parental influence on students' choice of occupational area will be very strong, especially where most parents would want their children to pursue a particular profession for the sake of prestige or they may want children who will step into their professions when they grow old (Olayinka, 1983, Gesinde, 1986). The influence of parents and relations or role models to a great extent therefore influenced the child's preferences in the choice of career. However, the NTC group of students were not influenced by parental desires. This could be attributed to the fact that such students already had a certificate in a vocational area at the post primary school level from a technical college. Therefore, they could not have chosen any other profession apart from the one they know best. Further, education was only an avenue to enhance their status in the job place.

Job opportunity influenced both groups of students in the choice of occupational area. This implies that, after the NCE Technical Programme, there

is an assurance of a better job in the future, high income, social influence, improved condition of living and advancement in the job place (Olayinka 1983, Okon 1986 and Gesinde 1986). Borchert, (2002); Davison (2013); Ferry (2006) also concurred that job opportunity influenced how students have perceived their future in terms of the reasonable probability of a future in a particular career field and that occupational choice was not a mere matching process but it is a choice made in a context of many influencing factors. Thus, no student would want to choose an occupational area that is not assured of quick and good employment. Also no parent would want to spend huge amounts of money in training a child in occupational areas that do not have job opportunities. Okon (1986) also reported that it is a fact that young people and their parents do not want education principally as an end in itself but as a means of getting better employment and improved condition of living.

The ability of the student to understand the related courses that are listed in the first and second year of the programme influenced the SSSC students in the choice of occupational area. This means that interest, parental influence and job opportunity alone are not the only criteria for choosing a carrier, but the necessary aptitude for the courses that may lead to that occupational area is also required (Olayinka 1983, Gianchino, Gallington 1977 and Miller 1985). However, this factor did not influence NTC students since the curricula for the NCE Technical Education programme were like the vocational training at the post primary level. It was only enlarged and more elaborate in nature and the training the students get at the NCE Technical Education programme is a continuation of vocational training at the post primary level.

The availability of adequately equipped workshops and laboratories influenced the choice of occupational area of the SSSC students. That is, adequately equipped workshops and laboratories for effective skill training was very important for them in their future occupational engagements. According to Taiwo (1974), the workshop and farm enriches general education and the experience a student gets in the school workshop is what the student utilizes in the related industries after graduation. However, this factor did not influence the NTC students. The reason was that they already had an occupational path at the post primary vocational level. Further vocational training at the post-secondary level was only to improve their skills and enter into the job market at a high level with more responsibilities and higher salary.

The teachers' instructional methods and competency did not influence any of the two groups of students in choice of occupational area. The implication was that the various departments had adequate supply of qualified and competent teachers. Therefore, the students do not have any reason to change occupational area in their third year after the transition period of the occupational training. The few students who had contrary opinion may have done so because a

particular teacher was a fine and outstanding instructor in the field through the acquisition of experience and training (Reynolds, 2013.)

The SSSC students were mostly influenced by peer groups in the choice of occupational areas. The impact of peer group influence on students' choice of occupational area was very strong. The peer group influence is likely to occur in the NCE Technical programme because no student specializes in an occupational area in their first and second years of the training programme. Therefore, the two years in-between before a student chooses an occupational area in the third year is enough time for the student to change occupational areas different from the one he/she originally intended especially where they could not withstand the peer group pressure. Davison (2013); Hall, Sullivan, Kauffman, Batts & Long (2009) therefore reported that friends were the most influential in the choice of area of specialization. The peer group factor did not influence the NTC group of students. The simple reason was that whatever peer group influence they had was in the post primary vocational training. The NTC group of students already had an occupational path to follow from the training they had in their post primary vocational training in the technical colleges.

The social status attached to an occupational area influenced choice of occupational area among the SSSC students. This report agreed with Olayinka, (1983) who reported that social status and prestige attached to the career such as the type of esteem for the workers demand careers and other prospects for social influence and advancement. For this reason most young people scramble for occupational areas with high social status and prestige. For the NTC students, the social status attached to the occupational area did not influence their occupational choice at the NCE Technical training programme because occupational choice has already been made at post primary vocational level.

Most students were influenced in their choice of occupational areas because such occupations were less tedious during training and also during their working life. Therefore, students who do not have the required stamina to persevere in such occupational area may not want to choose such occupations (Amasuomo, 1996).

Information on occupational prospects influenced most students to choose occupational areas among the SSSC group of students. In this regard (Barango-Tariah, 1999; Hall, Sullivan, Kauffman, Batts & Long (2009) opined that students make occupational choices based on their self-evaluation in terms of their own characteristics, preferences and capabilities. This also involves information on career and occupation, characteristics of range of jobs, risks of future unemployment and job. Information on occupational prospects did not influence the NTC students in choice of occupational area. This group of students had chosen occupational areas in their vocational trainings at the post primary school levels.

The SSSC and NTC students all agreed that finance to procure equipment and tools to set up workshops for self-employment influenced their choice of occupational areas. It will be a frustrating exercise for an NCE technical student who after acquiring training in an occupational area later discovered that the chosen occupational area requires large amount of capital to be self-employed. Where this happens, the objectives of the NCE Technical Education programme where graduates are also expected to be self-employed in the occupational area after training (NCCE, 2008) will not be achieved.

Previous background knowledge of the occupational area only influenced the NTC group of students in occupational choice. This is because the curriculum of such students was tailored towards a vocation at the technical school level. In the same vein Amani, (2013) posited that there was a positive relationship between occupational knowledge and intents of some students to join their careers upon graduation. The students from the technical and vocational colleges already have an occupational path and therefore are work-bound. Their choice of occupational area is less influence by extraneous factors since their occupational objectives and plans are already put in place. However, this factor did not influence the SSSC students since their curriculum was general. These students were only exposed to occupational choice at the post-secondary school level. Therefore, factors such as parental, peer group, the teacher, interest, future job opportunities, social status of the occupation, etc. could influence them in their choice of occupational area.

The two groups of students were of the opinion that imposition of the occupational area did not influence their choice of occupational area. There were few cases where students' choice of occupational area was dependent on performance of the student in the related courses that led to the occupational area. In cases like this, an occupational area may be imposed on the student irrespective of the interest of the student in a particular area. The finding was consistent with Gesinde (1986) who observed that this category of students are likened to an individual who did not deliberately plan to enter into any particular job, rather circumstances forced it on the individual, and he only succumbed to the influence of a powerful stimulus.

It was concluded from the findings that factors such as interest in occupational area, future job opportunity, the occupational area is less tedious during training and during employment, finance to procure equipment/tools to set up workshop for self-employment influenced the choice of occupational areas among students in the NCE Technical programme whose entry certificates were different. Other factors such as parental desire, understanding the related courses leading to occupational area, availability of adequately equipped workshops/laboratories and previous background knowledge of occupational area that individually and severally influenced the two groups of

students in the choice of occupational area sometimes varied. Further, whether any significant difference existed or not in the extent of influence of the assessed factors among the senior secondary school certificate and the National Technical certificate students in their choice of occupational area also varied.

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University Lecturers' Professional Empowerment and Turnover in Uganda

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Abstract. Many universities in Uganda are grappling with the challenge of academic staff turnover. While research conducted so far has established different factors explaining the problems of turnover, many of which have been addressed, this challenge has not been resolved. Hitherto, attention has not been paid to whether professional empowerment of the lecturers explains this phenomenon and whether it can help to curb it. Therefore, this study was conducted to analyse the level of professional empowerment provided to the lecturers and the way it relates to their turnover. Data was collected from 384 lecturers using a structured questionnaire, and analysed using the descriptive, Chi Square, correlation, and regression techniques. The findings were that the level of professional empowerment is low and that this has contributed to the lecturers' turnover. Hence, the paper urges university managers to promote the lecturers' professional empowerment.

Keywords: Academic staff; Retention; Human Resources Management.

1   Introduction

The increasing level of voluntary academic staff turnover is one of the main challenges facing universities in Uganda today. The number of lecturers leaving both public and private universities is increasing at a pace much higher than that of their replacement. For instance, 68 lecturers left Makerere University between 2008 and 2012 (Mubatsi-Asinja, 2012). Ten senior lecturers left Gulu University between 2010 and 2012 (Oyat & Aleni, 2013). During the same period, 15 dons left Kampala International University (Edabu, 2013), 17 left Ndejje University (Kayongo, 2013), and 19 left Kyambogo University (Jaramogi, 2013). Over 26 lecturers left Mbarara University of Science and Technology (MUST) between September and October 2011 (Turyakira, 2013)

While presenting a report to the Parliamentary Committee on Science and Technology, the Academic Registrar of MUST noted that, "The increasing trend of lecturers leaving… or giving up on teaching is worrying…brain-drain of trained personnel…has left…the university incapacitated...There is need to move fast and ensure retention of good lecturers…and [provision of] quality education" (Turyakira, 2013, p.1). Therefore, the need to mitigate voluntary turnover behaviour displayed by lecturers cannot be overemphasized. This is especially so when it is taken into account that lecturers are leaving the universities at a time when most of the universities have not even filled their staff establishment. For instance, Makerere University is supposed to have 2,491 academic staff members but the audit conducted by the office of the Auditor General found out that it had only 1,262 (51%) (Mubatsi-Asinja, 2012). The staff establishment is only 70% filled in Gulu University, 55% at MUST, 56% at Kyambogo University and 85% at Ndejje University (Asiimwe & Steyn, 2013).

Several studies (e.g. Asiimwe & Steyn, 2013; Jaramogi, 2013; Kayongo, 2013; Oyat & Aleni, 2013; Ndagire, 2011; Katusiime-Muhwezi, 2010) have been conducted to establish the cause of the turnover. Review of these studies reveals that they attribute the problem to many factors. These include weaknesses in the universities' governance, ill-facilitated work environments, inadequate remuneration, and rising competition for the dons arising out of both mushrooming universities on the local scene and rapid internationalization of university education. Addressing the concerns raised by the studies cited above may be a step in the right direction, but may not offer a sustainable solution to the problem of turnover. Herzberg's Two Factor Theory suggests that factors like work conditions, remuneration, and corporate policies do not offer enough explanation for an organization's ability to mitigate employee turnover (Zeynep & Huckman, 2008). This means a sustainable solution to the problem of turnover requires additional remedies. Beairsto and Ruohotie (2003) suggest that professional empowerment could prevent staff attrition because it equips employees with the psychological and technical capacity that improves their intrinsic motivation, commitment, engagement, interest and love for their jobs to the extent of not desiring to leave (Boglera & Somech, 2004).

This study undertook to examine the applicability of this proposition to the problem of lecturers' turnover in universities in Uganda. The specific objectives of the study were to examine:

1. the perceived level of professional empowerment provided to the lecturers
2. the voluntary turnover behaviour displayed by the dons
3. whether there is a difference in the level of professional empowerment and voluntary turnover behaviour displayed by lecturers in private and public universities in Uganda, and

4. the relationship between the level of provided professional empowerment and voluntary turnover behaviour displayed by the dons.

The measures used to meet these objectives were identified from the literature presented in the following sections.

2 Related Literature

2.1 Professional Empowerment

The concept of professional empowerment is derived from the general notion of empowerment (Ciulla, 2004). According to Fracaro (2006), the notion of empowerment comes from the term 'empower', which refers to the process of facilitating individuals to develop, gain or acquire power or the ability needed to influence what is happening around them. Empowerment is itself defined as a process of increasing the cognitive and emotional capacity of individuals to make choices and to transform the choices into desired actions and outcomes (The World Bank Group, 2011). This definition suggests that empowerment involves facilitating a person to develop both a thinking and feeling that he/she is able to make effective and efficient choices in the context of what is desired. Effective empowerment is that which is provided at a level that makes a person feel internally capable and externally competent (The Centre for Effective Philanthropy, 2012). The internal capability is felt in form of a person's sense or belief that he/she has the capacity to make valued decisions and to solve his/her own problems. This capability is externally displayed in form of competency involving practicing the knowledge, the information, the skills, the capabilities and other resources acquired during empowerment (Hayes, 2003). These definitions are general and do not indicate how the degree at which an employee such as a lecturer is empowered affects voluntary turnover behaviour. They are however useful in that they provide lenses through which the level of professional empowerment can be visualised and measured.

In fact, some scholars have used the rationale of the above definitions as a basis for defining professional empowerment as a process involving continuous improvement of a certified person's proficiency and effectiveness in making and implementing choices related to his/her job (Seidel & Shavelson, 2007; Meirink, Meijer & Verloop, 2007). They also define the level of empowerment as the degree to which this improvement takes place (Meirink *et al.*, 2007). In the context of educational institutions like universities, the level of professional empowerment is reflected by the scale of efforts put in to design teachers' capacity enhancement policies and the degree to which these policies are implemented to create an environment that enables teachers to engage in

activities that enhance their teaching, research and innovative abilities, skills, knowledge, expertise and attitude (OECD, 2009; Boglera & Somech, 2004). Believing that the initial certification of teachers is only the beginning of professionalism, other scholars argue that the level of empowerment connotes the extent to which this professionalism is improved on a continuous (Baumert *et al.,* 2005, 2010). However, these scholars fell short of elaborating how the provision of this knowledge affects staff turnover behaviour.

Professional empowerment is regarded as a process by which teachers are facilitated, particularly in terms of preparation for teaching, teaching, time management, and job innovativeness (Darling-Hammond, 2009). According to Boglera and Somech (2004), the essence of professional empowerment is to enable teachers release and utilize their experience, initiative, knowledge, and wisdom. The process involves actions and programmes which build teachers' capacity to improve their own proficiency and outcomes as well as the efficiency and effectiveness of their schools (Clement & Vandenberghe, 2008). Such programmes include training of trainers through internal workshops, tutorials, case studies, seminars, and apprenticeships (Rivkin, Hanushek & Kain, 2005). These observations describe how professional empowerment for teachers takes place, but they do not explain how it affects staff turnover. Moreover, they approach the capacity gained from empowerment as though it is one general concept, yet this is not the case.

According to Beairsto and Ruohotie (2003), professional empowerment has two dimensions: the psychological and technical. They defined psychological empowerment as a state of intrinsic motivation felt by an employee in terms of cognitive constructs which include meaning, competence, self-determination, and impact. They defined meaning as the degree to which the requirements of an employee's job match his/her individual beliefs, values, and behaviour. They defined self-determination as an employee's regulation of his/her actions based on choice and autonomy to decide on the initiation and continuation of work, effort, work methods, pace of work, and so on. They viewed impact as the extent to which an employee feels able and inclined to influence strategic, administrative, and operative results at work. These scholars defined competence as the ability and skill of an employee to perform his/her job. Employees' competence is empowered through on-job and off-job training and capacity enhancement programmes such as employee evaluation and feedback, long and short courses, workshops, seminars, apprenticeships, mentoring, tutorials, attitude shaping talks, case studies, and self-development initiatives like online and other professional learning activities (Sleegers, Bolhuis & Geijsel, 2010; Supovitz, 2009; Meirink, Meijer & Verloop, 2007; McLaughin & Talbert, 2006). Beairsto and Ruohotie (2003) noted that although these cognitive constructs improve an individual's orientation to work in a much more useful, committed, satisfied and engaged way, they tend to be neglected

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in the empowerment programmes of most organizations. This suggests that psychological empowerment can encourage employees to stay on rather than leave their jobs. However, the extent to which this empowerment is provided is low in most organizations. It is for this reason that the level of psychological empowerment given to lecturers in private and public universities of Uganda needed to be investigated following the universities' low retention levels.

Most organizations neglect psychological empowerment believing that it is enough to empower staff technically (Clarke & Hollingsworth, 2002). They thereby concentrate on what they perceive as sufficient levels of employee empowerment provided in form of greater responsibility and commensurate autonomy, resources and rewards (Eurydice, 2008). Beairsto and Ruohotie (2003) have, however, observed that although technical forms of empowerment are necessary, they do not offer employees with adequate opportunities to feel psychologically empowered. These scholars observed further that when employees do not feel psychologically empowered, they cannot engage in empowered actions and work styles such as self-management and teamwork. Employees who are not psychologically empowered cannot make, implement, and do not feel accountable for any work-related decisions. It is not enough to empower employees by promoting their access to work-related information, giving material resources and rewards. Effective professional empowerment should combine the psychological and technical dimensions and should be extended by providing employees with adequate levels of job-meaning, knowledge, skills, work resources, authority, opportunity for self-determination and for feeling intrinsically responsible and accountable for the outcomes of their actions (Geijsel, Sleegers, Stoel & Krüger, 2009). In fact, research has shown that educational institutions that promote this type of professional empowerment register high levels of staff retention (Hendriks *et al.*, 2010; Fulton, Lee & Yoon, 2009; The State Educational Technology Directors Association (SETDA), 2008). This is however, just an implication, which needs to be proved empirically; for it is based on research conducted about staff retention (not turnover) and in Europe, not in universities in Uganda.

2.2   Staff Turnover Behaviour

The concept of staff turnover behaviour delineates the manner in which employees leave and get replaced in an organization in a given period (Society for Human Resource Management, 2012). Typically, this concept connotes the way employees leave their jobs either voluntarily or involuntarily (Tett & Meyer, 2006). Involuntary turnover behaviour takes place in form of forced resignations, interdictions, terminations, dismissals, forced leaves, non-renewable or not renewed employment contracts, due retirement, incapacitating illnesses and death (Sullivan, 2003). Since this turnover behaviour is

involuntary, it is not the concern of this paper. The concern of this paper is about voluntary turnover behaviour because it is the type with which universities in Uganda are grappling.

Voluntary turnover behaviour takes place in form of discretionary actions carried out by employees in form of deliberate staff resignations, prolonged or extra leave requests, absconding from duty, unexplained and prolonged absenteeism, and failed return-to-work discussions (Imran-Malik, Zaheer, Mehboob & Khan, 2010; Lambert & Hogan 2008; According to Zeynep and Huckman, 2008). Voluntary turnover behaviour is also reflected by its consequences such as incurring of unexpected staff replacement costs, extra workloads to the remaining staff members, overtime payments, missed deadlines, interruptions to the flow of work, higher levels of stress-related absence, low staff morale, declining staff productivity, and unsatisfactory services to customers (Shaw, 2010; Zeynep & Huckman, 2008). This behaviour is further reflected by turnover intentions (Kyomuhendo, 2012). Thus, asking employees to indicate whether they have intentions to leave their organizations or not is one way of measuring the staff turnover behaviour. Indeed, employees with intentions to leave indicate that they will eventually leave (Tett & Meyer, 2006). The intentions are expressed in form of buying and/or reading newspapers to find advertised jobs, making job applications to other organizations when still holding the current job, and making online and other enquiries about whether there are vacant posts in other organizations (Kyomuhendo, 2012). It has been observed that employees develop intentions to stay or leave an organization basing on various reasons ranging from personal reasons to those related to how they are treated by their organizations (Imran-Malik *et al.,* 2010). This paper focuses on how organizations, particularly universities in Uganda, treat their academic employees in terms of professional empowerment.

3   Methodology

This paper is compiled from a study designed as a descriptive cross-sectional survey complimented by a correlational design and some aspects of a comparative research design. The descriptive cross-sectional was used to facilitate the collection of first-hand quantitative data in a short time using questionnaires administered to a relatively large population of lecturers selected from different institutions, which included private and public universities. The study population size, expected sample size, which was determined using Sloven's formula, and the actual sample size were as summarised in Table 1.

Table 1: Population and Sample

Category	Population*			Sample			Respondents		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Universities	7	24	31	4	12	16	4	12	16
Lecturers	3070	4606	7676	128	256	380	134	250	384

Source: National Council for Higher Education (2010).

Universities were selected using simple random sampling to give each university an equal chance of participating in the study, since they all witnessed the problem of staff turnover. All the lecturers were selected using convenience sampling, a non-probability sampling technique that was deemed appropriate to facilitate their selection according to their availability, accessibility in their respective offices, and willingness to participate in the study. Data was collected using a structured questionnaire. A copy of this questionnaire was administered to each lecturer after seeking their consent. The questionnaire's Cronbach Alpha coefficient was 0.876, implying that its items were reliable since the Alpha was greater than 0.7, the minimum acceptable threshold (Amin, 2005). The data was analysed using descriptive, correlation, regression and Chi Square techniques.

4   Findings

The first objective was to establish the perceived level of professional empowerment provided to the lecturers. This objective was met by asking the lecturers to rank their level of professional empowerment. The ranking was done on a scale with five options: "Strongly agree", "Agree", "Neutral", "Disagree" and "Strongly Disagree". The findings are summarised in Table 1.

Table 1: Level of Professional Empowerment provided to Lecturers

Attributes	Dimensions	Indicators	N	Mean	SD
Technical	Capacity	The university has policy for enhancing lecturers' professional capacity	384	4.35	.483
		The university is equipped with ICT facilities that lecturers can use to become more knowledgeable about how to do their work better	384	4.22	.486
		The university has equipment which lecturers can use to enrich their ability to perform assigned work	384	4.13	.248
		The university has information centres like libraries from which lecturers can learn how to improve their ability to work	384	4.34	.464
	Responsibility	The university has a system of increasing the teaching workload assigned to lecturers	384	4.14	.913
		The university has a system of increasing the non-teaching workload assigned to lecturers			
	Autonomy	The university gives lecturers the autonomy that is commensurate to the work assigned to them	384	3.74	.606
	Rewards	The university remunerates lecturers for doing assigned work	384	3.56	.911
		The university extends non-financial rewards to lecturers for purposes of encouraging them to feel motivated to do assigned work	384	2.21	.834
Psychological	Competence	The university organizes capacity enhancement workshops for lecturers.	384	4.35	.031
		The university organizes capacity enhancement seminars for lecturers.	384	3.53	.868
		The university organizes talks for shaping lecturers' professional attitude	384	2.04	.089
		The university sponsors lecturers interested in pursuing further professional training	384	4.32	.871
		The university has a system of using long-time serving lecturers to mentor less experienced lecturers	384	4.41	.821

Attributes	Dimensions	Indicators	N	Mean	SD
		The university evaluates lecturers for purposes of identifying how to help them improve their competency	384	4.04	.993
		The university gives lecturers feedback on how they can teach better	384	4.14	.863
		The university's timetable allows lecturers to have time for self-development through individually initiated online or other professional learning activities.	384	4.17	.767
	Meaning	The university has a system that encourages lecturers to align their personal values with the requirements of their jobs	384	1.13	.601
		The university ensures that lecturers' beliefs are aligned their personal values and beliefs with the requirements of their jobs	384	1.13	.041
	Self-determination	The university gives lecturers an opportunity to make choices regarding how they can best do their jobs	384	2.13	.909
		The university gives lecturers an opportunity to exercise autonomy	384	1.35	.982
		I feel free do what I think is best for the university	384	2.16	.942
		The university has made me feel that I can work effectively without supervision	384	1.35	.928
	Impact	I feel free to advise the university's management about how my job can be carried out to yield better results for the university	384	2.16	.956
		I feel free to suggest ideas that can influence my university's strategic decisions	384	2.43	.766

Scale: 1= Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

The standard deviations in Table 1 were all numerically small, suggesting that the responses obtained from lecturers as individuals did not deviate much from their average response pattern as reflected in the mean values. A careful look at these means indicates that they were close to '4', '2' or '1'. While '5' stood for high levels of empowerment, '4' meant low and therefore unsatisfactory levels of empowerment, and both '1' and '2' meant no professional empowerment. These mean values in Table 1 indicate therefore that professional empowerment provided to the lecturers varied, on average, between no empowered and unsatisfactory levels of empowerment. A closer scrutiny of the mean values reveals that those that were close to '4' corresponded to the indicators of technical empowerment and competence. The mean values that corresponded to the indicators of meaning, self-determination and impact were close to '2' or '1'. The findings suggest therefore the professional empowerment the lecturers were given in terms of remuneration was low and unsatisfactory (Mean = 3.56, Std. = .911). They felt un-empowered with respect to the non-financial rewards (Mean = 2.21, Std. = .834). Lecturers were not provided with psychological professional empowerment. They, for instance, felt not empowered in terms of developing meaning concerning how their personal values were aligned with the requirements of their jobs (Mean = 1.13, Std. = .601). lecturers further felt un-empowered in terms of self-determination such that which takes the form of freedom to do what they thought was best for the university (Mean = 2.16, Std. = .942). They also felt not empowered in terms of causing impact like that which would occur in form of, say, being free to suggest ideas that could influence their university's strategic decisions.

The second objective was to establish the voluntary turnover behaviour displayed by lecturers in public and private universities in Uganda. The findings are shown in Table 2.

Table 2: Description of Voluntary Turnover Behaviour Displayed by Lecturers in Public and Private Universities in Uganda

Academic staff turnover behaviour Dimensions	Specific indicators	N	Mean	Std.
Turnover actions	At least one member of the academic staff resigned deliberately in the past 12 months	384	4.53	.039
	I know of at least one lecturer who left preferring early retirement	384	4.59	.877
	I am aware of a lecturer who absconded from duty	384	4.62	.809
	I am aware of lecturers who have been absent from work without any explanation	384	4.64	.893
	I am aware of return-to-work discussions that failed to bring back the involved lecturer	384	4.51	.221
Turnover consequences	We have been experiencing interruptions as a result of some lecturers leaving willingly to take up jobs in other organizations	384	4.45	.867
	I am stressed because of doing extra workload as a result of some lecturers leaving the university	384	4.66	.667
	Deadlines are now missed because some lecturers left	384	4.13	.603
	I get overtime payments as a result of being asked to stand in for a lecturer who left.	384	4.19	.048
	I know of at least one lecturer who was replaced a few months ago	384	4.74	.903
	I feel demoralized because my colleagues have left	384	4.32	.907
	My productivity has declined because my colleagues left	384	3.53	.628
Turnover intentions	I know of a lecturer who reads newspapers to find advertised jobs	384	4.66	.666
	I am aware of at least one lecturer who is making job applications to other organizations	384	4.78	.886
	I know of at least one lecturer who makes enquiries about whether there are vacant posts in other organizations or not	84	4.79	339

1= Strongly Disagree   2=Disagree 3=Neutral   4=Agree 5=Strongly Agree

The magnitudes of standard deviations in Table 2 were small and therefore, pointing to low dispersion in the sample. Therefore, responses obtained from individual respondents showed no much difference from the average response pattern as depicted by the mean values. Most of these values were close to '4' or '5'. The findings therefore, show that lecturers' display of voluntary turnover behaviour varied, on average, between low and high levels. An analytical look at the mean values reveals that those which corresponded to indicators of turnover actions and intentions were close to '5'. This suggests that the universities witnessed high levels of voluntary staff turnover behaviour that occurs in form of turnover actions and intentions. The mean values corresponding to indicators of turnover consequences were close to '4', except those corresponding to the stress felt by lecturers because of doing extra workload resulting from some of their colleagues leaving (mean = 4.66, Std. = .667) and to replacement of lecturers (mean = 4.74, Std. = .903). This implies that the selected universities witnessed a low level of turnover consequences. The exceptions were the stress felt by lecturers and the replacement of lecturers whose level was high.

The third objective was to establish whether there was a significant difference in the level of professional empowerment and voluntary turnover behaviour displayed by lecturers in private and public universities. This difference was established using the Chi Square method after reducing the various indicators of the two variables into their significant measures using factor analysis. The findings are summarized in Table 3.

Table 3: Difference in level of professional empowerment and voluntary staff turnover behaviour between Uganda's public and private universities

Variables	Proprietorship	N	Mean	χ^2_{obs}	Sig.
Technical empowerment	Public	134	4.36	1.483	.309
	Private	250	4.23		
Resources	Public	134	4.36	1.758	.231
	Private	250	4.06		
Responsibility	Public	134	4.34	0.868	.493
	Private	250	4.13		
Autonomy	Public	134	4.01	1.876	.201
	Private	250	4.34		
Rewards	Public	134	4.30	1.911	.169
	Private	250	4.18		
Psychological empowerment	Public	134	1.31	.993	.483
	Private	250	1.03		
Meaning	Public	134	2.42	.601	.763
	Private	250	2.44		
Competence	Public	134	4.04	.909	.473
	Private	250	4.14		
Self-determination	Public	134	2.42	1.942	.153
	Private	250	2.06		
Impact	Public	134	1.06	1.956	.160
	Private	250	1.23		
Level of professional empowerment	Public	134	3.51	1.766	.183
	Private	250	3.53		
Turnover actions	Public	134	4.72	3.919	.006
	Private	250	4.39		
Turnover intentions	Public	134	4.68	3.337	.007
	Private	250	4.06		
Turnover consequences	Public	134	4.43	1.109	.367
	Private	250	4.39		
Displayed staff turnover behaviour	Public	134	4.63	3.284	.009
	Private	250	4.15		

1= Strongly Disagree   2=Disagree 3=Neutral   4=Agree 5=Strongly Agree

From Table 3, the observed Chi Square values corresponding to the level of professional empowerment (χ^2_{obs}= 1.766, Sig. = .183 > .05) was not significant yet the Chi Square value corresponding to displayed staff turnover behaviour (χ^2_{obs}= 3.284, Sig. = .009 < .05) was significant. These findings imply that while there was no significant difference in the level of professional empowerment provided by private and public universities, there was a significant difference in the turnover behaviour witnessed in the two categories of universities. The

mean values corresponding to the level of staff turnover behaviour indicate that the difference favoured private universities. Indeed, the last row of Table 3 indicates that the level of displaying staff turnover behaviour was high in public universities (mean = 4.63) and low in private universities (mean = 4.15). Further scrutiny of the Chi Square values in Table 3 indicates that the value corresponding to turnover intentions (x_{obs}^2= 3.337, Sig. = .007 < .05) and turnover actions (x_{obs}^2= 3.919, Sig. = .006 < .05) were significant. This suggests that lecturers in public universities displayed more turnover intentions and actions, thereby causing the significant difference in the overall level of staff turnover behaviour demonstrated in the two types of universities. The mean values show that lecturers in public universities reported higher turnover intentions (mean = 4.68) yet their counterparts in private universities reported a low level of these intentions (mean = 4.06).

The fourth objective of the paper was to analyse the relationship between the level of professional empowerment provided and voluntary turnover. This relationship was established using the Pearson Correlation coefficient method and the findings are presented in Table 4.

Table 4: Relationship between level of professional empowerment and voluntary academic staff turnover behaviour

Variables	Level of professional empowerment	Psychological empowerment	Technical empowerment	Turnover intentions	Turnover actions	Turnover consequences	Displayed turnover behaviour
Level of professional empowerment	1						
Psychological empowerment	.989**	1					
Technical empowerment	.919**	.636**	1				
Turnover intentions	-.743**	-.751**	-.561**	1			
Turnover actions	-.634**	-.764**	-.587**	.899**	1		
Turnover consequences	-.503**	-.510**	-.506**	.898**	.898**	1	
Displayed turnover behaviour	-.753**	-.733**	-.655**	.967**	.977**	.936**	1

** Correlation coefficient (r) is significant at the .01 level (2-tailed).

Table 4 shows that the correlation coefficient between the level of professional empowerment and the displayed staff turnover behaviour (r = -.753) was negative and significant at the .01 level of significance. There was therefore a strong, negative and significant relationship between the level of professional empowerment and level of staff turnover. After establishing this relationship, it

was deemed necessary to determine whether the relationship was predictive. This was carried out using linear regression analysis. Findings are summarized in Table 5.

Table 5: Prediction of level of academic staff turnover behaviour by the level of professional empowerment

Predictor (Level of professional empowerment)	Predicted Statistics on the Level of staff turnover							
	Std Error	Beta	t	Sig.	R. Square	Adjusted R-Square	F	Sig.	Std. Error of the Estimate
(Constant)	.135		12.533	.000	.871	.867	197.355	.000	.326
Psychological empowerment	.026	-.537	-7.833	.000					
Technical empowerment	.023	-.429	-3.555	.003					

From Table 5, the standard errors and of the overall error of estimate were numerically very small, implying that the linear regression method was largely suitable to estimate the model. The predicted statistics indicate that the level of professional empowerment provided to lecturers predicted staff turnover faced by the selected universities by 86.7% (Adjusted R-Square = .867, F = 197.355, Sig. = .000 < .01). The beta coefficients, their corresponding t-values and levels of significance reveal that psychological empowerment (Beta = -.537, t = -7.833, Sig. = .000 < .01) and technical empowerment (Beta = -.429, t = -3.555, Sig. = .003 < .01) were both significant and negative predictors of staff turnover. The magnitudes of the beta coefficients show that psychological empowerment negatively predicted 53.7% of staff turnover and was therefore a more critical predictor when compared to technical empowerment, which predicted 42.9%.

5 Discussion

Findings indicate that holding other factors constant, the level of professional empowerment provided to lecturers can reduce the turnover behaviour displayed by lecturers in Uganda's public and private universities by 86.7% (Table 5). These findings suggest that professional empowerment can help mitigate the academic staff turnover behaviour that is threatening to incapacitate the ability of Uganda's public and private universities to provide the desired quality of education. There is thus need to promote this empowerment in the universities. This need cannot be ignored in the light of the

fact that all the universities still grappling with high levels of lecturers' display of turnover behaviour. Indeed, the levels at which lecturers displayed turnover intentions and actions were high (Table 2), especially in public universities (Table 3). Even the turnover consequences like frequent staff replacements and lecturers feeling stressed because of doing extra workload added when their colleagues leave were also still high in the universities (Table 2). Lowering these intentions, actions and consequences makes it imperative for the universities to promote the professional empowerment of their dons.

Such promotion is needed owing to the fact that the level at which all the selected private and public universities provided professional empowerment to their lecturers varied between no empowerment at all to low and therefore unsatisfactory empowerment (Table 1). The universities provided lecturers with low and unsatisfactory teaching resources, responsibility, autonomy, rewards and competence. In addition to being unsatisfactory, the empowerment given focused on mainly the technical dimension. The psychological empowerment provided focused on competence alone. The provision of psychological empowerment in the cognitive constructs of meaning, self-determination and impact was negligible. The findings therefore, support the observations made by Clarke and Hollingsworth (2002) and Eurydice (2008) that most organizations neglect the psychological empowerment of their employees and concentrate on providing technical empowerment.

However, as Beairsto and Ruohotie (2003) warned, when lecturers are not psychologically empowered, they may not engage in empowered actions, even when they are technically empowered. Based on Boglera and Somech (2004) argument, the failure to engage in empowered actions implies that the lecturers do not display intrinsic motivation, commitment, engagement, interest and love for their jobs. This state of affairs makes it easy for them to develop a desire to leave their jobs. The situation becomes worse when the level of provided technical empowerment is even low and therefore, not sufficient as the case is in the universities studied. This effectively suggests that efforts to promote the professional empowerment of lecturers need to improve the technical dimension while at the same time putting emphasis on psychological empowerment. Therefore, it is recommended that the managers of Uganda's universities should provide lecturers with psychological empowerment in all the cognitive constructs of job meaning, self-determination and felt impact on the universities' strategic direction. They can promote these empowerment by providing lecturers with freedom to think strategically and innovatively for the university, and to make creative contributions to the development of the university.

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A call for Return to Rogers' Innovation Diffusion Theory

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Abstract. This paper argues that Rogers' Innovation Diffusion Theory (IDT) is the original theory for guiding research on innovation diffusion and/ or adoption, from which the more recent theories have been derived. Hence, the paper suggests a framework based on the IDT, and derives 14 hypotheses for future research, basing on a review of recent literature. The framework divides the correlates of diffusion and/ or adoption of innovations into three categories: individual adopter characteristics, perceived innovation characteristics and social system or organizational characteristics. In terms of individual adopter characteristics, it is hypothesized that interaction with change agents, training and cosmopolitanism positively relate to the adoption of innovations, while age and income are negatively and positively related to the adoption of innovations respectively. Gender is related to the adoption of innovations in a way that males are more apt. Regarding perceived innovation characteristics, the perceived relative advantage, compatibility, user friendliness and 'observability' are postulated to be positively related to the adoption of innovations. On organizational characteristics, it is postulated that each of organizational readiness for change, culture, size and leader's change management style is positively related to the adoption of innovations. Gaps in the studies reviewed are highlighted.

Keywords: Innovation Diffusion Theory; Everett Rogers; Adoption.

1 Introduction

Rogers (2003) conceptualizes an innovation as an idea, practice, or object perceived as new by an individual. According to Crossan and Apaydin (2010), definitions of the term "innovation" abound, with each definition emphasizing a different aspect of the term. They assert that the first definition of "innovation" by Schumpeter in the late 1920s stressed the novelty aspect. According to Schumpeter (cited in Crossan & Apaydin, 2010, p. 1155), innovation is

reflected in novel outputs: a new good or a new quality of a good; a new method of production; a new market; a new source of supply; or a new organizational structure. Thus an innovation of interest in a given study can be an ICT such as a smartphone (e.g. Putzer & Park, 2010). The innovation could be an application of the Internet in a specific area such as the library (e.g. Nov & Ye, 2009); government (e.g. Gupta, Dasgupta & Gupta, 2008); social communication (e.g. Kelleher & Sweetser, 2012); or learning (Lee, Yoon & Lee, 2009).

The innovation of interest can even be a new managerial technique such as Customer Relations Management, CRM (e.g. Hung, Hung, Tsai & Jiang, 2010) or Evidence Based Practice (Aarons, Sommerfield & Walrath-Greene, 2009). Thus as Rogers (2003) observes

> …it matters little, so far as human behaviour is concerned, whether or not an idea is 'objectively' new as measured by the lapse of time since its first use or discovery. The perceived newness of the idea for the individual determines his or her reaction to it. If an idea seems new to the individual, it is an innovation (p. 12).

Adoption, according to Rogers (2003) is preceded by the diffusion of an innovation. He goes on to define "diffusion" as a "process in which an innovation is communicated through certain channels overtime among members of a 'social system'" (p. 5), where a 'social system' is a "set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members or units of a 'social system' may be individuals, informal groups, organizations and/ or subsystems" (Rogers, 2003 p. 23). In other words, a social system is an organization of interest.

Rogers (2003) asserts that "diffusion is as special type of communication in which messages are about a new idea. This newness of the idea in the message content gives diffusion its special character" (p. 6). He further stresses that "diffusion is a kind of 'social change', defined as a process by which alteration occurs in the structure and function of a social system. When new ideas are invented, diffused, and adopted or rejected, leading to certain consequences, social change occurs" (p. 6). "Adoption" according to Rogers (2003), is the "decision to make full use of an innovation as the best course of action available. Rejection is a decision not to adopt an innovation" (p. 177).

Given that the process of diffusion and/ or adoption of innovations is always slow (Rogers, 2003, p. 61), one goal of diffusion and/ or adoption research is to try to expedite the process. One way to expedite the process is to identify its correlates, that is the factors affecting it, which correlates can be manipulated to positively influence the diffusion and/ or adoption of the innovation in question (Rogers, 2003). In deriving the correlates of innovation diffusion and/ or adoption, several frameworks are available. Of these frameworks, this paper

was intended (i) to give a full account of the Innovation Diffusion Theory (IDT); (ii) to critique the more recent technology adoption models, namely the Technology Acceptance Model (TAM), the Technology-Organisation-Environment (TOE) Framework and the Unified Theory of Acceptance and Use of Technology (UTAUT), and to argue that all of them are derivatives of the IDT.

Hence the third and last objective of the paper was, (iii) to make a call for a return to the IDT as the original theory for guiding research on innovation diffusion and/ or adoption by suggesting a framework based on the IDT, and to derive 14 hypotheses for future research, basing on a review of recent empirical literature. This is an answer to Crossan and Apaydin (2010) who lament that "fragmentation of the field [of innovation diffusion and/ or adoption] prevents us from seeing the relations between these facets and ultimately impedes the consolidation of the field" (p. 1154). It is in line with Everett Rogers (1931-2004) who always argued that diffusion, and hence adoption, was a general process, not bound by the type of innovation studied, by who the adopters were, or by place or culture (Rogers, Singhal & Quinlan, 2009).

2   Theoretical Review

2.1   Innovation Diffusion Theory

While there are several frameworks for guiding innovation diffusion and/ or adoption studies, it is argued in this paper that most of them are derived from Rogers' Innovation Diffusion Theory (IDT), which is dealt with in this Subsection 2.1. And although referred to as Rogers Innovation Diffusion Theory (IDT) in this paper, the theory proposed by Rogers in 1958 after his doctoral studies in the diffusion of agricultural innovations (Rogers, 1957) at Iowa State University, US, is officially termed the "Paradigm of Innovation-Decision Process" (Rogers, 2003). It is also variously known as the Classical Innovation Theory (Hung et al., 2010); the Diffusion of Innovations (Kelleher & Sweetser, 2012); and the Diffusion Theory (Kelleher & Sweetser, 2012), among others.

According to Rogers (2003), the IDT relates innovation diffusion and/ or adoption to three categories of correlates, namely the characteristics of the individual potential adopter, how the adopter perceives the innovation, and the characteristics of the social system or organization where the potential adopter is. Regarding the individual characteristics of the potential adopter as correlates of innovation diffusion and/ or adoption, Rogers stipulates that an individual's

propensity to adopt or use any innovation such as ICT, depends on the individual characteristics of that person.

Such individual adopter characteristics include the extent to which that person interacts with the change agents of relevance to the innovation in question; the level of training of relevance to the innovation the person has received; how cosmopolitan (i.e. urban influenced or non-conservative) the person is; how old the person is; the gender and the income level of the person. If the person interacts much with the change agents of relevance to the innovation in question, then that person will have a high propensity to adopt the innovation. If the person has a high level of training of relevance to the innovation, then that person will have a high propensity to adopt the innovation. If the person is cosmopolitan, then that person will have a high propensity to use the innovation. The older a person becomes, the less that person will be attracted to adopt innovations. In terms of the gender, the males are usually more apt to use innovations than the females. The wealthier a person becomes, the more able that person will be to acquire and hence to adopt innovations.

With respect to the perceived characteristics of the innovation as correlates of innovation adoption, Rogers' IDT stipulates that an individual's propensity to adopt or use any innovation, depends on the way that individual perceives the innovation in terms of such issues as its relative advantage, compatibility, user friendliness and 'observability'. If the individual perceives the innovation to have relative advantage over similar products or services say in terms of speed of performance, then that individual will have a high propensity to adopt the innovation. If the individual perceives the innovation to be compatible with the individual's work and interests, then that individual will have a high propensity to adopt the innovation. If the individual perceives the innovation to be user friendly, then that individual will have a high propensity to adopt the innovation. If the individual perceives the innovation to be observable, that is to have observable impact on the work of colleagues, then that individual will have a high propensity to adopt the innovation.

Lastly, on the nature of the social system or organizational characteristics as correlates of innovation diffusion and/ or adoption, Rogers (2003) stipulates that an individual's propensity to adopt or use any innovation, depends on the organization where that individual is. That is whether the social system or organization is ready for change; whether the social system or organization has a good culture that facilitates change; whether the size of the social system or organization is fit for change; whether the leader of the social system or organization is for change and facilitates change. The more positive the answers to these questions, the easier it will be for an individual in that organization to adopt change. Several researchers have used the IDT as the theoretical basis for their studies, having categorically stated that they were doing so (e.g. Kelleher & Sweetser, 2012).

Other researchers have used the IDT as the theoretical basis of their empirical studies without explicitly saying so (e.g. Norton, 2012). Others (e.g. Buabeng-Andoh, 2012) have used the IDT as the basis for their theoretical/ conceptual papers. Several researchers have used the IDT in combination with other theories as the theoretical basis of their empirical studies after categorically saying that they were doing so (e.g. Hung et al., 2010 combined it with the Technology-Organisation-Environment, TOE – detailed in Section 2.3). Clearly then, the IDT is very popular except that it has several names and some researchers who suggest that the TAM is far more popular than the IDT, seem to discount the fact that the IDT is used under several aliases.

2.2 Technology Acceptance Model

Apart from Rogers' Innovation Diffusion Theory (IDT), many other theories have been advanced to serve as frameworks for innovation diffusion and/ or adoption studies. Such theories include the all popular Technology Acceptance Model (TAM). The TAM was developed by Davis (1989) after his doctoral studies at the Sloan School of Management, Massachusetts Institute of Technology (Davis, 1986) to provide an explanation of the determinants of user acceptance of technology such as computers and the Internet. Herein lies the first major weakness of the TAM in comparison to the IDT, in that the TAM purports to deal with technological innovations only, yet not all innovations are technological. Crossan and Apaydin (2010) put it very well when they observe that innovations take three basic types, namely product, process or business model. In the TAM, Davis proposed that the perceived ease of use (PEU) and the perceived usefulness (PU) of a technology, are the two factors that affect an individual's behavioural intention (BI) to use the technology, which in turn affects the actual use.

Davis (1989) defined the PEU of a technology as the degree to which a prospective user expects the technology to be free of effort. He also defined the PU of a technology as the prospective user's subjective probability that using the technology will increase the user's job performance. In short, the TAM postulates that the PU and PEU affect the BI to use a technology, which in turn affects the actual use. However as explained in Sections 5.1 and 5.3 of this paper, the reality is that in the TAM, Davis simply postulates what Rogers stipulated, to the effect that the perceived relative advantage (PRA) and the perceived user friendliness (PUF) under different names namely, the perceived usefulness (PU) and the perceived ease of use (PEU) affect the behavioural intention (BI) to use a technology, which in turn affects the actual use.

Thus Davis simply extracted a very parsimonious theory from Rogers IDT. Then, who takes the primary credit for the TAM? The one extracting (Davis, 1986; 1989) or the one (Rogers' IDT) from whom the TAM was extracted?

Despite being a derivative of the IDT, the TAM is so popular that many papers on technology adoption, both theoretical and empirical will not forget to heap praises on it. For example, Putzer and Park (2010) observe that the TAM is probably the most popular theory explaining user acceptance and behaviour related to new technologies. Thus there is a large number of studies that have used the TAM as a theoretical basis explaining the diffusion and/ or adoption of different innovations (e.g. Lule, Omwansa & Waema, 2012). Others (e.g. Awa et al., 2012) have carried out literature reviews of empirical studies that used the TAM as their theoretical basis.

But why is the TAM so popular? According to Korpelainen (2011), the advantage of focusing on TAM is that it is a simple and parsimonious model, which has encouraged researchers to apply it widely. Ironically the TAM's major strength of parsimony, is its major shortcoming at the same time as per critics. For example, Awa, Ukoha and Emecheta (2012) contend that "although TAM has received empirical validation, applications, and replication…, the model provides less meaningful information on users' opinions about adopting specific systems by narrowing its constructs to only [perceived usefulness] PU and [perceived ease of use] PEOU…." (p. 573). Awa et al. (2012) go on to summarise their critique of the TAM thus, "TAM is accused of… technological determinism, and techno-centric predictions…." (p. 575). But as a sign of fear to fully critique the all-powerful TAM, instead of calling for a return to the IDT that the TAM abstracted, they called for expansion of the TAM, thus, "hence the need to expand the factors [in TAM] or integrate [it] with other IT acceptance models to improve TAM's explanatory and predictive utilities" (pp. 573-574).

They further called for the use of "strengths of Rogers' … Diffusion of Innovations [Theory of Rogers]… to enrich TAM by… placing premiums on specific settings and external variables that influence a technology's adoption process" (p. 574). But surely, does enriching the TAM not simply mean a return to the IDT? Other critiques of the TAM include Gupta et al. (2008) who observe that by "only focusing on PU and PEOU… [TAM] may not be enough" (p. 145) to explain innovation diffusion and/ or adoption. Hence despite its popularity, most studies have not used the TAM in isolation. On the contrary, they have used modifications of the TAM or the TAM in conjunction with other theories as the theoretical basis explaining the diffusion and/ or adoption of different innovations (e.g. Putzer & Park, 2010 triangulated it with the IDT).

Others (e.g. Awa et al., 2012) have reviewed empirical studies that used both the TAM and the TOE as their basis. In summary, it may suffice to observe that many researchers have suggested that the TAM needs to be given additional variables to provide an even stronger model. But to be more truthful, instead of calling for extension of the TAM, the thesis in this paper is that, they should be

calling for a return to Rogers' Innovation Diffusion Theory (IDT) which goes beyond the TAM's perceived usefulness (PU) and the perceived ease of use (PEU), by adding other perceived innovation characteristics such as the perceived compatibility (PC) and the perceived 'observabilty' (PO) of an innovation. Rogers' IDT also adds individual characteristics and organizational characteristics as correlates of innovation diffusion and/ or adoption.

2.3   Technology-Organisation-Environment Framework

The Technology-Organisation-Environment (TOE) Framework is one of the many other theories than the Innovation Diffusion Theory (IDT) and the Technology Acceptance Model (TAM) that have been advanced to serve as frameworks for innovation diffusion and/ or adoption studies. The TOE was developed by Tornatzky and Fleischer (1990) to provide an explanation of the determinants of user acceptance of technology such as computers and the Internet. Like the TAM, the TOE has a shortcoming in comparison to the IDT, namely that the TOE is biased toward the technological innovations only, yet not all innovations are technological (Rogers, 2003). The TOE relates innovation adoption to three categories of correlates, namely the characteristics of the technology (read innovation) being adopted, and the characteristics of the organization where the potential adopter is, plus the characteristics of the environment, where the potential adopter's organization is.

Regarding the characteristics of the technology or innovation being adopted, the "technological context" of the TOE stipulates that the "adoption depends on… perceived relative advantage (gains), compatibility (both technical and organizational), complexity (learning curve), 'trialability'… and 'observability'" of the technology (read innovation) (Awa et al., 2012, p.574). Clearly then, in the "technological context", the TOE is restating what Rogers' IDT stipulates as the "perceived characteristics of the innovation" being correlates of innovation diffusion and/ or adoption. Who then takes the credit for this assertion? The one originally suggesting it (Rogers) or the ones just modifying the names of the variables in the assertion (Tonatzky & Fleischer, 1990)? With respect to the "organizational context", the TOE stipulates that the diffusion and/ or adoption of an innovation depends on an organisation's "top management support, organizational culture, complexity of managerial structure…, and size" (Awa et al., 2012 p. 574) among other correlates.

Again here, in the "organisational context", the TOE (Tornatzky & Fleischer, 1990) is restating what Rogers' IDT stipulates as "organisational characteristics" as correlates of innovation adoption. Again, who takes the credit for this thesis? It is argued in this paper that credit should go to the one who originally suggested it (Rogers) and not the ones who just modified the names of constructs in it (Tonatzky & Fleischer, 1990). Regarding the

organizational environment as a correlate of innovation diffusion and/ or adoption, the "environment[al] context" of the TOE relates to the "facilitating and inhibiting factors" in the area of operations. Significant amongst them are the competitive pressure, the trading partners' readiness for the innovation in question, socio-cultural issues, government encouragement, and technology support infrastructures such as the access to quality ICT consulting services (Awa et al., 2012).

Thus the only difference between the TOE and the IDT is that the former omits the "individual characteristics" of a potential adopter, while also separating the "environmental characteristics" from the "organizational characteristics". But in dropping the individual adopter characteristics, the TOE is thus inferior to the IDT as a framework for guiding researchers in identifying potential correlates of innovation diffusion and/ or adoption. Nevertheless, several studies have used the TOE framework as their theoretical basis, as summarized by Oliveira and Martins (2011). However the ones that the author of this paper has so far come across, have used the TOE framework in combination with other theories, some having categorically said that they were doing so. For example, Hung et al. (2010) combined it with the IDT.

2.4 Unified Theory of Acceptance and Use of Technology

One of the latest frameworks for innovation diffusion and/ or adoption studies is Venkatesh, Morris, Davis and Davis (2003)'s Unified Theory of Acceptance and Use of Technology (UTAUT). Like the TAM and the TOE framework, the UTAUT has a shortcoming in comparison to the IDT, namely that it (the UTAUT) is biased toward the technological innovations only, yet not all innovations are technological (Rogers, 2003). According to Williams, Rana, Dwivedi and Lal (2011), the UTAUT was developed through the review, mapping and integration of eight dominant theories and models. The theories and models considered were the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behaviour (TPB), a combined Theory of Planned Behaviour/ Technology Acceptance Model (C-TPB-TAM), the Model of PC Utilisation (MPCU), the Innovation Diffusion Theory (IDT) of Rogers, and the Social Cognitive Theory (SCT).

The UTAUT relates innovation diffusion and/ or adoption to four core constructs, namely the "performance expectancy" (PE), the "effort expectancy" (EE), the "social influence" (SI) and the "facilitating conditions" (FC). The UTAUT also assumes that the effect of the core constructs is moderated by the gender, age, and experience of a potential user and the voluntariness of use of the innovation. It should be noted however, that the UTAUT's "performance expectancy" (PE) construct, as explained in Subsection 5.1 in this paper, is just

another term for Rogers' "perceived relative advantage" (PRA) of an innovation. Similarly as explained in Subsection 5.3, the UTAUT's "effort expectancy" (EE) construct, is just another term for the opposite of Rogers' "perceived complexity", namely the "perceived user friendliness" (PUF) of an innovation. Also as explained in Subsections 4.1 and 5.2 respectively in this paper, the UTAUT's "social influence" (SI) and "facilitating conditions" (FC) constructs, are respectively synonymous with Rogers' "interaction with change agents" and "perceived compatibility" (PC) of an innovation.

In short, in postulating performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC) as correlates of innovation diffusion and/ or adoption, the UTAUT is simply restating what Rogers' IDT postulates, namely that the extent to which a potential user perceives an innovation to have (perceived) relative advantage (PRA) and user friendliness (PUF); plus the fact that the potential user's extent of interaction with change agents of relevance and the extent to which the user perceives the innovation to have (perceived) compatibility (PC), are all correlates of the diffusion and/ or adoption of the innovation in question. Thus the UTAUT is a very parsimonious theory extracted from Rogers IDT.

Again, the question is that, who takes the primary credit for the UTAUT? Rogers who originally suggested the four independent variables in the UTAUT as correlates of innovation diffusion and/ or adoption, or Venkatesh et al. (2003) who just modified their names? Studies basing on the UTAUT as their theoretical basis can be found (e.g. Gupta et al., 2008). However from their analysis of 450 articles, Williams et al. (2011), reported that, "although a large number of studies have cited the [UTAUT] originating article [Venkatesh et al., 2003] since its appearance, only 43 actually utilized the theory or its constructs in their empirical research" (p. 231), implying that so far most researchers just cite the UTAUT instead of actually using it.

3   Conceptual Framework

The critical theoretical review in Section 2 has brought out the fact that Roger's Innovation Theory (IDT) and its many aliases such as the "Paradigm of Innovation-Decision Process", the Classical Innovation Theory, the Diffusion of Innovations, and the Diffusion Theory, among others is the original theory to guide studies on the diffusion and/ or adoption of innovations. It is also more elaborate in so far as it considers the "technological, individual, organizational and institutional factors" (Buabeng-Andoh, 2012) when examining innovation diffusion and/ or adoption, while the TAM for example, considers only the technological factors and only two of them at that. It was also revealed that the

TAM, the TOE and the UTAUT frameworks are derivatives of the IDT. Thus instead of for example calling for the use of the "strengths of Rogers' … Diffusion of Innovations… to enrich TAM" (Awa et al., 2012, p. 574), this paper is boldly calling for a return to the classical innovation diffusion and/ or adoption theory, namely Rogers' Innovation Diffusion Theory (IDT).

Hence Figure 1 provides a framework, a scheme of concepts (variables or constructs) derived from Rogers' IDT (Subsection 2.1) which the researchers on the diffusion and/ or adoption of innovations, can operationalize in order to achieve their objectives. The framework has one dependent variable (DV), namely the "diffusion and/ or adoption of an innovation", being related to three groups of independent variables (IVs), namely the individual adopter characteristics as the first IV (IV1); the perceived characteristics of an innovation as the second IV (IV2); and the "nature of the social system" as the third IV (IV3). The term the "nature of the social system" is a synonym from Sociology for organizational characteristics. The DV was "operationally defined", that is, broken into two "concepts", namely "knowledge" and "use" of the innovation. Why? Because Rogers (2003) observes that "newness in an innovation need not just involve new knowledge.

Someone may have known about an innovation for some time but not yet developed a favourable or unfavourable attitude toward it, nor have adopted or rejected it. 'Newness' of an innovation may be expressed in knowledge, persuasion [or attitude], or a decision to adopt [or use it]" (p. 12). Rogers (2003) thus suggested that "knowledge", "attitude" and "behaviour" are suitable measures of innovation diffusion and/ or adoption. Also, Rogers (2003, p. 69) observes that "K [for knowledge], A [for attitude] and P [for practice or behaviour] are the main dependent variables in the evaluation of family planning programmes". However since one of the independent variables, perceived innovation characteristics, is very near to "attitude", in the model (Figure 1) it is proposed that only "knowledge" and "use" be the appropriate measures of diffusion and/ or adoption of an innovation.

Similarly the first IV (IV1) is "operationalised" into four "concepts" or individual adopter characteristics, namely the interaction with change agents of relevance to the innovation, training with respect to the innovation, cosmopolitanism (or urban influence) and demographic variables. The demographic characteristics are in turn "operationalised" as age, gender and income level. Under IV2, there are four "concepts" or perceived characteristics of the innovation, namely its perceived relative advantage, compatibility, user friendliness and 'observability'. Under IV3, there are four "concepts" or organisational characteristics, namely the organizational readiness for change, culture with respect to the innovation, size, and leader's change management style with respect to the innovation. What follows in sections 4 through 6 is a

systematic derivation of 14 hypotheses based on the conceptual framework (Figure 1).
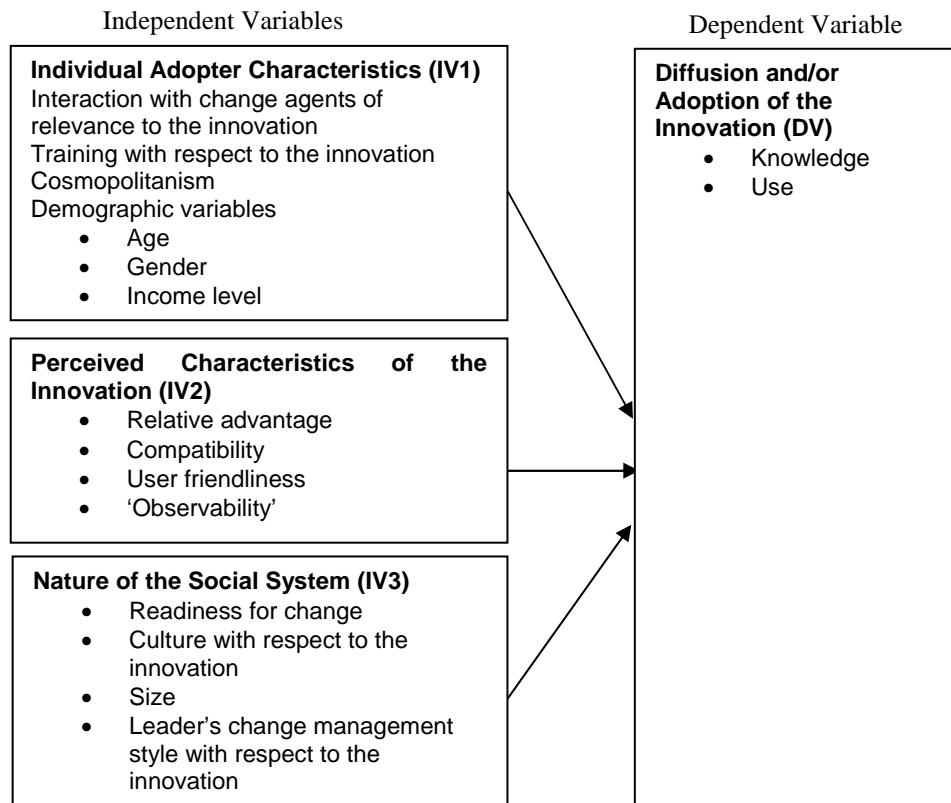
Independent Variables   Dependent Variable

Individual Adopter Characteristics (IV1)
Interaction with change agents of relevance to the innovation
Training with respect to the innovation
Cosmopolitanism
Demographic variables
• Age
• Gender
• Income level

Diffusion and/or Adoption of the Innovation (DV)
• Knowledge
• Use

Perceived Characteristics of the Innovation (IV2)
• Relative advantage
• Compatibility
• User friendliness
• 'Observability'

Nature of the Social System (IV3)
• Readiness for change
• Culture with respect to the innovation
• Size
• Leader's change management style with respect to the innovation

Figure 1: Conceptual model relating the adoption of innovations to three social correlates
Source: Adapted from Rogers (2003)

4 Hypotheses on Individual Characteristics as Correlates of Adoption of Innovations

4.1 Interaction with Change Agents as a Correlate of Adoption of Innovations

Rogers (2003) defines a change agent as an "individual who influences clients' innovation-decisions in a direction deemed desirable by a change agency" (p. 366). Rogers goes on to observe that many different occupations fit that definition of change agent: teachers, consultants, public health workers, agricultural extension agents, development workers, and sales people, all of whom "provide a communication link between a resource system with some

kind of expertise and a client system" (p. 368). Rogers defines another term which seems synonymous with a "change agent", namely that of a "champion", as a "charismatic individual who throws his or her weight behind an innovation, thus overcoming indifferences or resistance that the new idea may provoke in an organisation" (p. 414). Stuart, Mills and Remus (2009) define champions as individuals who emerge to take creative ideas and bring them to life; who actively and enthusiastically promote an innovation, building support, overcoming resistance and ensuring that the innovation is implemented (p. 734).

On the importance of a change agent in the process of introducing innovations in a social system, Rogers (2003) suggests several roles of a change agent, including (i) to develop a need for change (ii) to diagnose problems (iii) to create an intent to change in the client (iv) to translate the intent into action and (v) to stabilize adoption and prevent discontinuance. However, both Rogers (2003) and Stuart et al. (2009) concur when they observe that mere presence of change agents or champions is not adequate to facilitate innovation diffusion and/ or adoption, unless certain conditions are met. On their part for example, Stuart et al. (2009, p. 734) observe that change agents or champions must "communicate a clear vision of an innovation, display enthusiasm for the innovation, demonstrate commitment and involve others in supporting it", and must exude "confidence, persistence, energy and risk-taking [which] are… key characteristics of champions".

They should "have a variety of working experiences and a long tenure in the organization to draw from… [which] helps them to understand the potential of [say] new technology while giving them a broad social network to help implement and support the change….". Recent studies (e.g. Norton, 2012) positively relating the interaction with change agents or champions and the use of innovations can be found. But so are those (e.g. Bakkabulindi & Kabasiita, 2012) not doing so. Thus whether the "interaction with change agents or champions" is a positive correlate of the adoption of innovations is not fully clear. Hence in this paper, it is being proposed that future studies still have to test the hypothesis that interaction with change agents is a positive correlate of the adoption of innovations.

4.2   Training as a Correlate of Adoption of Innovations

Hong, Hao, Kumar, Ramendran and Kadiresan (2012) define "training" as the systematic acquisition and development of knowledge, skills and attitudes required by employees to adequately perform assigned tasks to boost their performance on the job. Thus, training in a work situation is concerned with extending and developing employees' capabilities and enabling them to perform better in their jobs, and be more ready for changes (Salleh, Yaakub &

Dzulkifli, 2011). Buabeng-Andoh (2012) on his part, observes that teachers' professional development is a key factor to their successful integration of computers into classroom teaching. He cites several studies as having revealed that whether beginner or experienced, ICT-related training programs develop teachers' competencies in computer use, influencing the teachers' attitudes towards computers as well as assisting the teachers to recognize the task of technology and how new technology tools are significant in student learning. Several recent researchers (e.g. Hung et al., 2010) have established training to be a positive correlate of the adoption of innovations. However studies not supporting the postulate (e.g. Bakkabulindi & Kabasiita, 2012) are available. Thus the support for the assertion to the effect that "training is a positive correlate of the adoption of innovations" is not unanimous. Hence in this paper, it is being proposed that future studies still have to test the hypothesis that training is a positive correlate of the adoption of innovations.

4.3 Cosmopolitanism as a Correlate of Adoption of Innovations

Rogers (2003) defines "cosmopoliteness", another version of the term "cosmopolitanism" as the "degree to which an individual is oriented outside a social system" (p. 290). He observes that early adopters' or innovators' interpersonal networks are more likely to be outside, rather than within, their social system. That they travel widely and are involved in matters beyond the boundaries of their local system. The innovators act like the "stranger", whose special perspective stems from a lack of integration into the local system. The "stranger" is not radically committed to the unique ingredients and peculiar tendencies of the group, and because of this social distance from others in the social system, the "stranger" is relatively free from the system's norms. This orientation frees the innovator from the constraints of the local system and allows him or her personal freedom to try out previously untried ideas.

   In this paper, it is assumed that "cosmopoliteness" is synonymous with "urban influence". Rogers (2003) asserts that the earlier adopters or innovators are more "cosmopolite" or cosmopolitan than the late adopters or non-innovators. Recent studies positively relating "cosmopoliteness" or urban influence and the diffusion and/ or adoption of innovations can be found (e.g. Billon, Macro & Lera-Lopez, 2009). But many of these past studies relate to ICT innovations. Hence it is still incumbent on future studies especially those on other innovations than ICT to still test the research hypothesis to the effect that cosmopolitanism is a positive correlate of the adoption of innovations.

4.4 Age as a Correlate of Adoption of Innovations

Schiffman and Kanuk (2004) observe that the age of the consumer innovator is related to the specific product category in which the consumer innovates, with

the consumer innovators tending to be younger than the late adopters or non-innovators because many of the products selected for research attention such as fashion and automobiles, are particularly attractive to the young consumers. Awa et al. (2012) explain the reluctance of the older executives to adopt e-commerce (EC), and by implication, other innovations, thus:

> The conservative stance of the older executives is explained by their premiums on social circles and spending traits, retirement benefits, and career and financial security…; lack of mental and physical stamina to grasp novelties; greater psychological commitment to the corporate status-quo…; and the lack of the social enabling environment for novelties…. Therefore, the likelihood of EC adoption [or the adoption of any other innovation] is more profound in organisations managed by young executives than those managed by the older executives (p. 578).

Several recent studies (e.g. Bakkabulindi, 2011) have established age to be a direct negative correlate of the diffusion and/ or adoption of innovations. But some recent studies (e.g. Educause Centre for Applied Research, ECAR, 2010) did not find age to correlate with the use of innovations at all. Yet other recent studies (e.g. Billons et al.., 2009) have found age to actually be a positive correlate of the diffusion and/ or adoption of innovations. Thus as Rogers (2003) observes, "there is inconsistent evidence about the relationship of age and innovativeness" (p. 288), that is the readiness for an individual to adopt innovations. It is thus a long time in the future when researchers will know for sure whether age is inversely related to the adoption of innovations.

4.5   Gender as a Correlate of Adoption of Innovations

Gender refers to the socially constructed differences and distinctions between men and women. Gender differs from sex in that it is not biologically determined. Gender distinctions include the different attributes, statuses, roles, responsibilities, and potentialities as well as their access to and the control over resources and benefits (Ssali, Ahikire & Madanda, 2007). Dlodlo (2009) summarized the attitudes expressed by many authors about technology in general and ICT in particular as being a male-dominated discipline, saying that:

> the dominant cultural understanding of technology is as a masculine activity, therefore women have often chosen not to engage in it…. Traditionally, anything… difficult to perform is considered the preserve of the male species. Therefore, girl children would psychologically have a barrier taking up science subjects, including ICT…. There is a shortage of role models who have succeeded in ICT careers and can be emulated among the women folk…. Boys have more access to technology at home than girls….. In this

light, boys are encouraged and have more positive attitudes towards ICTs than girls (p. 172).

Dlodlo (2009 p. 173) also captures very well the phenomenon of how women's responsibilities for family life curtail their abilities to be as technology-savvy as their male counterparts, thus:

> Women are responsible for family life. The triple workloads of domestic, income generation, and community management activities mean that women often do not have free time to travel, learn about, and use ICT. It is a challenge [for them] to balance family life and [ICT] training….

Sang, Valcke, van Braak and Tondeur (2010) while acknowledging the general belief that ICT is a male domain, do not fully concur with the observations by Dlodlo (2009), when they contend that:

> [the] literature on educational computing abounds with conflicting findings about the impact of gender…. Since the introduction of computers, ICT related activities have been viewed as a 'male domain'…. There is a significant body of evidence supporting the notion that gender plays a role in actual computer integration…. [However] since technologies have become a normal part of the working place setting, a number of researchers argue that computing should no longer be regarded as a male domain (p. 104).

Recent studies (e.g. Dlodlo, 2009) revealing that the males were more apt on the adoption of innovations than women, can be found. However, there are also recent studies (e.g. Sang et al., 2010), whose findings totally dismissed gender as a correlate of innovation diffusion and/ or adoption. Thus the gender and innovation diffusion and/ or adoption equation is not free from controversy. Thus future researchers still have to grapple with testing the research hypothesis to the effect that gender relates to the adoption of innovations in such a way that the males are more apt than the females.

4.6   Income Level as a Correlate of Adoption of Innovations

On the importance of income in innovation diffusion and/ or adoption, Schiffman and Kanuk (2004) observe that the "consumer innovators have…higher personal or family incomes and are more likely to have higher occupational statuses… than the late adopters or non-innovators" (p. 538). On his side, Rogers (2003) observes that the "earlier adopters… are wealthier…. [and] socio-economic status and innovativeness appear to go hand in hand" (p. 288). However Rogers (2003) poses a rhetorical question, namely that, "do innovators innovate because they are richer, or are they richer because they innovate?" (p. 288). While regretting that "this cause-and-effect question

cannot be answered solely on the basis of available cross-sectional data" (p. 288), he contends that there are understandable reasons why social status and innovativeness vary together.

Some new ideas are costly to adopt and require large initial outlays of capital, with only the wealthy units in a social system being able to adopt these innovations. Recent studies on income as a positive correlate (or cost as a negative correlate) of the adoption of innovations (e.g. Dlodlo, 2009) are available. But so are those (e.g. Bakkabulindi, Mulumba, Aluonzi, Oketch & Taibu, 2010) that do not support the hypothesis. Thus studies still have to empirically challenge the position by Rogers (2003) to the effect that the "earlier adopters have a higher social status than the late adopters, [where] status is indicated by such variables as income…." (p. 288). Hence the hypothesis: Income level is positively related to the adoption of innovations.

5 Hypotheses on Perceived Innovation Characteristics as Correlates of Adoption of Innovations

5.1 Perceived Relative Advantage as a Correlate of Adoption of Innovations

In his Innovation Diffusion Theory (IDT), Rogers (2003) defines the perceived relative advantage (PRA) of an innovation, as the degree to which the innovation is perceived as being better than the idea it supersedes, and is often expressed as economic profitability, and as conveying social prestige. PRA can also be measured in terms of the convenience and satisfaction (Kelleher & Sweetser, 2012) that the innovation brings to the adopter or user. Eason (1988) refers to Rogers' PRA as "system functionality" (SF), which he (Eason) defines as the ability of a system or innovation "to perform in order that it can support the required range of organizational tasks" (p. 129). In his Technology Adoption Model (TAM), Davis (1989) refers to Rogers' PRA as the "perceived usefulness" (PU) of an innovation, which he (Davis) defines as the "prospective user's subjective probability that using a specific application system will increase his or her job performance" (cited in Gupta et al., 2008, p. 144).

More recent innovation adoption researchers (e.g. Venkatesh et al., 2003) in their Unified Theory of Acceptance and Use of Technology (UTAUT) have introduced yet a new term, namely "performance expectancy" (PE) to refer to Rogers' PRA and Davis' PU of an innovation. El-Gayar, Moran and Hawkes (2011) define PE as the degree to which a potential adopter believes that using an innovation will help him or her improve performance on the job. Nov and Ye (2009) refer to Rogers' PRA as "job relevance", which they define as the fit

between an innovation and the job goals a user needs to accomplish. Thus clearly, apart from using different phrases, the terms perceived relative advantage (Rogers, 2003), system functionality (Eason, 1988), perceived usefulness (Davis, 1989), performance expectancy (Venkatesh et al., 2003) and job relevance (Nov & Ye, 2009) are synonyms and are considered as such in this paper.

Rogers (2003) asserts that the greater the perceived relative advantage, system functionality, perceived usefulness or performance expectancy of an innovation, the more rapid its adoption. Recent past studies (e.g. Kelleher & Sweetser, 2012) positively relating PRA and the use of innovations are very many. But studies giving a different result (e.g. Bakkabulindi, Osunsan, Kazibwe, Samanya & Mabonga, 2010) can also be got. Such contentious empirical results make it right and fitting for future studies to put Rogers (2003)'s assertion to the effect that "the relative advantage of an innovation, as perceived by members of a social system, is positively related to its rate of adoption" (p. 233), to the test. Hence in this paper, it is accordingly being hypothesized that: perceived relative advantage (PRA) positively correlates with the adoption of innovations.

5.2 Perceived Compatibility as a Correlate of Adoption of Innovations

According to Rogers (2003), the perceived compatibility (PC) of an innovation is the degree to which the innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. Rogers contends that an innovation can be compatible or incompatible with (i) the socio cultural values and beliefs (ii) the previously introduced ideas and/ or (iii) the client needs for the innovation. Perceived compatibility is positively related to an innovation's rate of use (Rogers, 2003) in that an innovation or new idea that is more compatible is less uncertain to the potential user and fits more closely with the individual's situation. Such compatibility helps the individual to give a meaning to the new idea so that it is regarded as more familiar. Recent theories such as the Unified Theory of Acceptance and Use of Technology, UTAUT (Venkatesh et al., 2003) use the term "facilitating conditions" (FC) to refer to Rogers' PC of an innovation.

They define FC as the "degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (in Gupta et al., 2008, p. 146). Thus the terms perceived compatibility, PC (Rogers, 2003) and facilitating conditions, FC (Venkatesh et al., 2003) are considered as synonyms in this paper. Recent studies (e.g. Kelleher & Sweetser, 2012), positively relating perceived compatibility (PC) and the use of innovations can be found. Ironically, such empirical support for the hypothesis aside, contrary findings (e.g. Bakkabulindi, Osunsan et al., 2010) can be cited.

Hence empirically, support for and against the hypothesis is available. This suggests the need for further studies to test the postulation to the effect that: perceived compatibility (PC) positively correlates with the adoption of innovations.

5.3 Perceived User Friendliness as a Correlate of Adoption of Innovations

In his Innovation Diffusion Theory (IDT), Rogers (2003) preferred to use the opposite of "perceived user friendliness" (PUF), namely "perceived complexity" which he defined as the "degree to which an innovation is perceived as relatively difficult to understand and use" (p. 257). However to avoid using a term "perceived complexity" which has negative connotation, while the other three perceived characteristics (perceived relative advantage, compatibility and 'observability') have positive ones, in this paper, picking a cue from Eason (1988 p. 133), the opposite term, "perceived user friendliness" (PUF) has been used. PUF is the degree to which an innovation is perceived as relatively easy to understand and use. Eason also refers to Rogers' PUF as the "usability" of a system, which he defines as the system offering its functionality in such a way that the planned users will be able to master and exploit it without undue strain on their capacities and skills.

In his TAM, Davis (1989) refers to Rogers' PUF as the "perceived ease of use" (PEU) of an innovation, which he (Davis) defines as the "degree to which a prospective user expects the target system to be free of effort" (cited in Gupta et al., 2008, p. 144). More recent innovation adoption researchers (e.g. Venkatesh et al, 2003) in their Unified Theory of Acceptable and Use of Technology (UTAUT) have coined a new term "effort expectancy" (EE) to refer to Roger's PUF of an innovation. El-Gayar et al. (2011) define EE of an innovation as the degree of ease associated with the use of the innovation (i.e. the degree to which a potential adopter considers the use of the innovation to be free of effort).

Thus apart from using different phraseology, the terms perceived user friendliness (Eason, 1988; Rogers, 2003), perceived ease of use (Davis, 1989) and effort expectancy (Venkatesh et al, 2003) are the same and are used interchangeably in this paper. Al-Hajri and Tatnall (2008) contend that understanding perceived ease of use (PEU) is important because it has implication for the design of training intervention to manipulate the perception of PEU. Recent past studies that have positively related PUF and the use of innovations are many (e.g. Lee et al., 2009). However, other studies (e.g. Bakkabulindi, Osunsan et al., 2010) have found PUF not to correlate with innovation diffusion and/ or adoption. Hence in this paper it is being suggested that future researchers continue to test the hypothesis to the effect that

perceived user friendliness (PUF) positively correlates with the adoption of innovations.

5.4   Perceived 'observability' as a Correlate of Adoption of Innovations

Perceived 'observability' (PO) is the degree to which results of an innovation are visible to others (Rogers, 2003). Thus PO can also be referred to as the perceived communicability or 'describability' of an innovation. Rogers observes that whereas some ideas are easily observed, communicated or described to other people, other innovations are difficult to observe, communicate or describe to others. For example, an innovation such as ICT, has two components; (i) hardware which are the physical parts of ICT, and (ii) software that consists of the instruction base for the technology. Thus the software component of a technological innovation (e.g. ICT) is not so apparent to observation. So innovations in which the software aspect is dominant possess less 'observability', and usually have a relatively slower rate of use (Rogers, 2003).

Awa et al. (2012) refer to Rogers' PO as the "perceived service quality" (PSQ) of an innovation, which according to them reflects an innovation's "image in customers' eyes, the overall customer judgment of the superiority or excellence of" the innovation or the "customer comparison between the actual and ideal performances of an application" (p. 577). According to them, PSQ can be measured in terms of cost effectiveness, customer satisfaction and customer retention among others. Awa et al. stress the importance of PSQ by asserting that its absence throws an adopter into psychological tensions, thus:

> actual performance short of ideal performance throws the customer into psychological tensions…; feelings of tension and anxiety to balance cognitive elements and pains inflicted by anxiety. Avoiding exaggerated product claims or insisting on understanding product claims assists in making informed decisions leading to dissonance free exchanges (p. 577).

Nov and Ye (2009) refer to Rogers' PO as the "result demonstrability" (RD) of an innovation, which they defined as the tangibility of the results of using the innovation.

They assert that RD reflects the extent to which a user believes that the results of an innovation are discernible. Different phraseology notwithstanding therefore, the terms perceived 'observability' (Rogers, 2003), perceived service quality (Awa et al., 2012) and results demonstrability (Nov & Ye, 2009) are the same and are used interchangeably in this paper. Several recent studies (e.g. Putzer & Park, 2010) have positively related the perceived 'observability' (PO) and the use of innovations. However, most of these studies pertain to ICT innovations, thus suggesting that future studies especially those on other

innovations than ICT, continue to test the hypothesis to the effect that perceived 'observability' (PO) positively correlates with the adoption of innovations.

6 Hypotheses on Organisation Characteristics as Correlates of Adoption of Innovations

6.1 Organisational Readiness for Change as a Correlate of Adoption of Innovations

Organisational readiness for change (RFC) is the "organisational members' beliefs, attitudes and intentions regarding the extent to which changes are needed and the organisation's capacity to successfully make those changes" (Bouckenooghe, 2010, p. 503). Organisational RFC therefore, can also be termed as organizational innovativeness or organisational ability to absorb change. Mullins (2010) observes that although organizations should have RFC, that is the readiness to adapt to their environments in order to survive, they tend to feel comfortable operating within the structure, policies and procedures which have been formulated to deal with the present situations. They thus set up defences or resistance to change (RTC) and prefer to concentrate on the routine things that they perform well. According to Avey, Wernsing and Luthans (2008), the resistance may take a number of forms such as dysfunctional attitudes (e.g. disengagement or cynicism) and behaviours (e.g. deviance).

Mullins (2010) attributes the RTC to organizational culture, the need to maintain stability, investment in the status quo, fear to disrupt past contracts or agreements and threats to power or influence the proposed change implies. On his part, Rogers (2003) attributes the RTC in organizations to bureaucracy where

> rules are made and orders issued by individuals of authority and carried out by organizational members who accept the system of authority. At first, this control system operates in a rational and efficient manner, but the organizational effectiveness of bureaucracy is often lost over time. Rules are enforced overzealously and applied to all cases in an impersonal and inappropriate way. Bureaucratic leaders become impersonal, and the rationality of the system disappears. Nevertheless, organization members, trapped in an 'iron cage of control', continue to support the bureaucratic system (p. 405).

Several authors (e.g. Mooij & Smeets, 2001) prescribe measures that managers can use to curb organizational RTC, including creating dissatisfaction in the

organization with the status quo; by reducing the fear of change in the organization; by encouraging participation of all in the change effort; and by trying to compensate those affected by any change.

Studies positively relating organisational readiness for change (RFC) or negatively relating its opposite, resistance to change (RTC) and innovation adoption can be found (e.g. Aarons et al., 2009). Some studies (e.g. Nov & Ye, 2008) however, have suggested that the RFC is only an indirect factor in the innovation adoption process, by showing that the resistance to change, RTC the opposite of RFC, was negatively related to the users' perceived ease of use, one of the key antecedents of technology adoption (Rogers, 2003). However, there are studies that discounted RFC as a correlate of innovation adoption (e.g. Bakkabulindi, 2012). Thus, because of the conflicting findings, future researchers are called upon to continue testing the hypothesis that organisational readiness for change (RFC) is positively correlated with the adoption of innovations.

6.2   Organisational Culture as a Correlate of Adoption of Innovations

Culture, a concept developed from Anthropology is difficult to define or explain precisely (Mullins, 2010). Nevertheless quite a few suggestions have come up. It has variously been conceptualized as; "how things are done around here"; as the "underlying assumptions about the way work is performed"; "what is acceptable and not acceptable"; "what behaviour and actions are encouraged and discouraged" (Mullins, 2010, p. 739). If change is to succeed in an organisation, one needs to understand the culture that is to be changed. If the proposed changes contradict the cultural biases and traditions, the changes will be difficult to embed in the organisation. Since cultures are difficult to change, organizational culture (OC) is among the sources of the resistance to change (Rogers, 2003). Change management authorities (e.g. French & Bell, 1990) discuss cultural values that facilitate change in organizations.

They include (i) a manager adopting a management style that allows for devolution of power from the top to the bottom; (ii) convincing employees that there are benefits in accepting change; (iii) achieving commitment to organizational goals through making employees participate in the change process; (iv) ensuring team work where a leader encourages increased participation, information sharing and collective decision making. He also advocates for (v) the valuing of each employee's contribution to change; (vi) the empowerment of employees to release their creativity, thereby promoting change; (vii) ensuring continuous learning, which will ensure organizational survival as it enhances ability to adapt to the environment. Studies relating OC to innovation adoption can be found (e.g. Bakkabulindi & Sekabembe, 2010). Studies in support of the hypothesis aside, there are studies that totally

dismissed the hypothesis to the effect that OC is a correlate of innovation adoption (e.g. Bakkabulindi, 2012). The conflicting results of the studies cited imply that the following hypothesis is still calling for the attention of future researchers: organisational ICT culture is positively correlated with adoption of innovations.

6.3   Organisational Size as a Correlate of Adoption of Innovations

According to Mullins (2010), the size of an organization can be defined and measured in different ways, although according to him, the most common indicator of organizational size is the number of persons employed by the organization. Rogers (2003) asserts that the "size of an organisation has consistently been found to be positively related to its innovativeness" (p. 409), that is the readiness for innovations or changes of its members, which he observes, "might seem surprising, given the conventional wisdom that smaller companies can be more flexible in their operations and freer of stifling bureaucracy" (p. 410). He goes on to rationalize why size is one of the best predictors of organisational innovativeness, thus

> size is… a surrogate measure of several dimensions that lead to innovation: total resources, slack resources (defined as the degree to which an organisation has more resources than those required for its ongoing operations), employees' technical expertise, organisational structure, and so on…. These "lurking" variables may be a fundamental reason for the common finding that size and innovativeness are related (p. 411).

Awa et al. (2012) on their part, with support of past studies suggest that the adoption of innovations such as electronic commerce (EC) is slower amongst smaller institutions perhaps because of the relative lack of education about innovation potentials, lack of technological expertise and lack of economy of scale advantage and facilitating slacks, among other reasons. However, there is an opposing view, which considers large organizations as overly bureaucratic and hence more resistant to the use of innovations. For example, Jaidee and Beaumont (2003) with a bias towards the adoption of business to business (B2B) electronic commerce (EC) in small and medium enterprises (SMEs) observed that SMEs arguably have distinct advantages over the large organizations in adopting B2B and other types of EC. First, they are smaller, making them more nimble in decision making, and unlike large organizations encumbered with large bureaucracies, SMEs can make quicker decisions to engage in a particular market opportunity or to create a new product or service. Because of their size, they contend, SMEs are more dependent than other organizations on external sources of scientific and technological innovation.

Consequently SMEs are better able to respond and more flexible in adjusting to market conditions and technology change than large organizations. In summary, "there is a continuing debate on the comparative advantages of large and small organizations; on whether 'bigger is best' or 'small is beautiful'" (Mullins, 2010, p. 589) with respect to the use of innovations. A few empirical studies (e.g. Hung et al., 2010) have established that "organizational size" has a significant influence on the adoption of innovations. Many more studies however, have totally dismissed organisation size as a correlate of innovation adoption (e.g. Bakkabulindi & Oyebade, 2011). Despite lack of unanimity, for the sake of future researchers, this paper tentatively concurs with Rogers' (2003) assertion that "earlier adopters have larger-sized units (farms, schools, companies) than do later adopters" (p. 288), and postulates that organisational size positively correlates with the adoption of innovations.

6.4 Organisational Leader's Change Management Style as a Correlate of Adoption of Innovations

Leading change is one of the most important and difficult leadership responsibilities (Yukl, 2006). "The role of leadership at all levels of an organization… is paramount for spearheading innovation as a process and maintaining its momentum until innovation… occurs" (Crossan & Apaydin, 2010, p, 1156). It is thus important for managers to understand the reasons for, and nature of, resistance and to adopt a clearly defined strategy for the initiation of change (Mullins, 2010). Change management can be subdivided into two approaches, namely planned change and emergency change approaches. Planned change is a deliberate pre-meditated move to alter the organisational status. It is change initiated and implemented by change leaders to either solve problems, to adapt to changes or to influence future changes. On the other hand unplanned or emergency change is not a sequential process. It is chaotic and often involves shifting of goals, discontinuation of activities and making of unexpected combinations of changes. For any change process to be successful however, it must be properly managed. For example Mullins (2010) stresses the need for a change manager to use a participatory change style if the change is to succeed, arguing that while in certain situations, it may be necessary to use hierarchical authority to impose change through an autocratic (Theory X) style of leadership, in most cases, change is more effective with a participative (Theory Y) style of leadership, where staff are kept fully informed of proposals, and are encouraged to adopt a positive attitude and have personal involvement in the implementation of change.

A host of other sources (e.g. Romme, 2010) recommend the use of Organisational Development (OD) as a model of managing planned change. In particular, Romme defines OD as "any practice that serves to deliberately

improve problem solving and renewal processes in organisations" (p. 9). While recent studies (e.g. Hung, et al., 2010) have supported the hypothesis that good change leadership can stimulate innovation adoption, evidence to the contrary (e.g. Bakkabulindi & Oyebade, 2011) can be found. Thus, findings on the "leader's change management style" as a correlate of innovation adoption are controversial. Nevertheless, future researchers may verify the hypothesis that organisational leader's change management style positively correlates with the adoption of innovations.

7   Discussion

This paper was intended to (i) give a full account of the Innovation Diffusion Theory (IDT) as a framework for guiding studies on the correlates of innovation diffusion and/ or adoption; (ii) critique the more recent technology adoption models, namely the Technology Acceptance Model (TAM), the Technology-Organisation-Environment (TOE) framework and the Unified Theory of Acceptance and Use of Technology (UTAUT), and to argue that all of them are derivatives of the IDT and hence (iii) to make a call for a return to the IDT as the original theory for guiding research on innovation diffusion and/ or adoption by suggesting a framework based on the IDT, and to derive 14 hypotheses for future research, basing on a review of recent empirical literature. It has achieved those objectives. In particular the framework suggested, divides the correlates of innovation diffusion and/ or adoption into three categories, namely the individual adopter characteristics, the perceived innovation characteristics, and the social system or organizational characteristics.

In terms of the individual adopter characteristics, it has been hypothesized that the interaction with change agents, of relevance, training, and cosmopolitanism positively relate to the adoption of innovations by an individual, while age negatively relates to the adoption of innovations by the individual. Gender has been postulated to relate to the adoption of innovations in such a way that the males are more apt adopter than the females. The income level of an individual has been hypothesized to be positively related to the adoption of innovations by the individual. Regarding perceived innovation characteristics, the perceived relative advantage, compatibility, user friendliness and 'observability' of an innovation, have been postulated to positively relate to the adoption of the innovation in question.

On the social system or organizational characteristics, it has been postulated that each of organizational readiness for change, culture, size and leader's change management style positively relates to the adoption of innovations by individuals in the organisation. The review that led to the 14 hypotheses

established several gaps in past studies that future researches can close. For example few studies on the diffusion and/ or adoption of innovations have been done outside the developed world (see, for example, the review by Awa et al., 2012). Further, the review led to the conclusion that some theories such as the Technology Adoption Model (TAM) of Davis (1989), are on the verge of being over-researched, while some such as the Unified Theory of Acceptance and Use of Technology (UTAUT) of Venkatesh et al. (2003) are hardly used.

Hence the need to diversify by picking more potential correlates of innovation diffusion and/ or adoption from their "reservoir", namely Rogers' Innovation Diffusion Theory (IDT) by avoiding or going beyond the two constructs, namely perceived usefulness (PU) and perceived ease of use (PEU) of TAM as advised by several authorities (e.g. Awa et al., 2012). Thus in addition to the perceived innovation characteristics, organisational characteristics and individual adopter characteristics will also be considered. The diversification being called for, will be in line with Rogers (2003) who contends that "the challenge for future research is to expand… and search for different objectives than those of the past. Perhaps there is need to dig deeper in directions that theory suggests" (p. 101). Otherwise, desirable though it is, the inclusion of all the possible correlates of innovation diffusion and/ or adoption in a given study is an impossibility, and hence a shortcoming of all studies.

That is why most studies acknowledge it in a language typical of the one used by Sim, Tan, Ooi and Lee (2011), thus; "like all studies… regarding… technology adoption, it is not possible to include all adoption factors in the model…. Given that, it might be helpful if future studies consider the inclusion of additional variables in their investigation…." (p. 10). Further, most studies have been quantitative, a tradition introduced by rural sociologists (Rogers, 2003, p. 53), and hence based on self-reporting questionnaires (Sang et al., 2010, p. 109). The data resulting from such self-reporting were based entirely on the honesty of the answers from the participants yet the participants may have provided less-than-accurate responses (Norton, 2012), although the same source observes that the use of anonymous questionnaires in many studies may have reduced the likelihood of this bias.

Pituch and Lee (2006) assert that the use of self-reporting measures "raises the possibility of common method variance, which may inflate the true associations between variables" (p. 239). Such shortcomings of self-reporting measures such as questionnaires, prompted Sang et al. (2010) to call for the use of more direct qualitative measures in future studies, thus, "future studies could build on… observation… and/ or interviews…. (p. 109). Rogers (2003, pp. 48-50) observes that this qualitative approach to diffusion studies was the tradition of anthropologists, but has been generally neglected for some time now. Yet, as advised by Kelleher and Sweetser (2012), a "qualitative approach seems most appropriate to allow more in-depth discussion of the factors influencing not

only adoption but also active use of [innovations such as] social media, which require human participation" (p. 109). Other advocates of the qualitative approach to studies on innovation diffusion and/ or adoption include Aarons et al. (2009).

Most studies have been cross-sectional or snapshot in nature, which restricted the full understanding of the decision making process with regard to the diffusion and/ or adoption of innovations. Rogers (2003) critiques such studies by observing that "cause-and-effect question[s] cannot be answered solely on the basis of… cross-sectional data" (p. 288). It is thus recommended that future researchers replicate earlier cross-sectional studies longitudinally, to identify the dynamics among factors critical to the said decision making (Hung et al., 2010, p. 601). In other words, time should be considered as an important variable in the innovation diffusion and/ or adoption process (Kelleher & Sweetser, 2012). Another major challenge cutting across almost all studies was the issue of inadequate sample size and/ or sampling methods (e.g. see Hung et al., 2010).

Such inadequate sample sizes and/ or sampling methods restricted the generalization of the findings. Future studies thus have the challenge of refining the sampling methods to be used in innovation diffusion and/ or adoption studies. Many studies acknowledged the limitation of inadequate instruments. For example after their study of the influence of system characteristics on e-learning use, Pituch and Lee (2006) critiqued their instruments by observing that, "better measures of system and user attributes should be developed, as we had to delete several items from these scales to attain good psychometric properties" (p. 239). Future studies thus have the challenge of refining the instruments used in innovation diffusion and/ or adoption studies (MacKenzie, Podsakoff & Podsakoff, 2011). Perhaps, we should expect more papers in the genre of Sato and Zouain (2012) geared toward instrument development and/ or refinement.

8   Conclusion

The paper called for a return to Rogers' Innovation Diffusion Theory (IDT) as the original theory for guiding research on innovation diffusion and/ or adoption by suggesting a framework based on the IDT, and derived 14 hypotheses for future research, basing on a review of recent empirical literature. The framework suggested, divides the correlates of innovation diffusion and/ or adoption of into three categories, namely the individual adopter characteristics, the perceived innovation characteristics, and the social system or organizational characteristics. The model suggested however, has limitations. For example, it

suggests hypotheses relating to only six individual adopter characteristics, namely the interaction with change agents, training, cosmopolitanism, age, gender and income level, yet other individual characteristics such as self-efficacy, professional experience and workload (Buabeng-Andoh, 2012) of the potential adopter, exist.

Only four perceived innovation characteristics, namely the perceived relative advantage, computability, user friendliness and 'observability' were considered in the model, excluding others such as the perceived trialability and risk (Rogers, 2003) of an innovation. Only four social system or organizational characteristics, namely the organizational readiness for change, culture, size and leader's change management style were used in the framework, excluding several other social system or organizational characteristics such as the availability of training of relevance to the innovation, accessibility to, and technical support (Awa et al., 2012) with respect to the innovation. Future researchers can thus expand the model. Nevertheless, hopefully the paper has contributed to solidifying the theoretical/ conceptual foundation on which future papers, both theoretical and empirical will build.

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Challenges in Implementing the TVET Curriculum in Technical Colleges in Southern Nigeria

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Abstract. This study aimed at examining the challenges in implementing the Technical and Vocational Education and Training (TVET) curriculum in technical colleges in Southern Nigeria. It sought to respond to three research questions and was guided by one research hypothesis. A questionnaire with 14 items was used to collect data from 60 principals of technical colleges in Southern Nigeria. The data collected was analysed using frequency counts and percentages. The Chi-square goodness of fit test was used to verify the hypothesis stated at the .05 level of significance. The study revealed that poor funding, obsolete facilities and inadequacy of instructional materials are affecting implementation of the TVET curriculum in Southern Nigeria technical colleges. Based on the findings of the study it was recommended that stakeholders work collectively to address these challenges.

Keywords: Technical and vocational education; TVET; Curriculum innovation.

1 Introduction

Technical and Vocational Education and Training (TVET) is that aspect of education that exposes the learner to acquisition of demonstrable skills that could be transformed into economic benefits (Akerele, 2007). Also, UNESCO (2002) sees TVET as a comprehensive term which encompasses the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge related to occupations in various sectors of economic and social life. Implementation of the TVET curriculum in Nigerian technical colleges has not been yielding the expected outcomes. This is due to the fact that the aims and objectives of TVET as enshrined in the National Policy on Education (NPE) have not been met. However, this could be explained by the persistent petition by the labour market, that Nigerian

graduates (TVET graduate inclusive) do not possess employable skills which could be traced to the implementation of the curriculum (TVET curriculum inclusive). According to National Board for Technical Education (NBTE, n.d) in Nigeria, there are one hundred and ten (110) state government technical colleges in Nigeria, while Southern Nigeria have sixty (60) state government technical colleges. Thus, this paper intends to examine technical college principals' opinion on the challenges of implementing TVET curriculum in Nigerian technical colleges.

1.1   Meaning of Curriculum

There is no universally accepted or precise definition of the term curriculum. The term has been with several meanings and a number of different definitions of its have been proposed (Ughamadu, 2006). Consequently, in spite of the problem of defining curriculum, it must be emphasized that curriculum experts and educators have reached some understanding as to what constitutes the term curriculum. According to Smith, Stanley and Shores (1957) in Ughamadu (2006), if an observer looks at the curriculum of the school in any given society, he or she will find, either stated or implied a set of educational goals and objectives, a body of subject matter, a list of exercises or activities to be performed (learning experiences) and a way of determining whether or not the objectives have been achieved by the learners (evaluation). Therefore, the term curriculum is defined as all experiences students go through in school during the course of their educational programmes (Caswell & Campbell, 1935) in (Ughamadu, 2006).

In addition, Doll (1978) in Akinseinde (2004), defined the curriculum of a school as the formal and informal content and process by which learners gain knowledge and understanding, develop skills, and alter attitudes, appreciations, and values under the auspices of that school. Wojtczak (2002) in Arowolo (2010) posited that curriculum is an educational plan that spells out which goals and objectives have to be achieved, which topics should be covered and which methods are to be used for learning, teaching and evaluation. Also, Tanner and Tanner (1995:158) in Commonwealth of Learning (COL) (2000), defined curriculum as a plan or program of all experiences under the direction of a school. In same vein, Gatawa (1990:8) in (COL, 2000), opined that curriculum is the totality of the experiences of children for which schools are responsible. Bringing all the above points together, the curriculum is viewed as a composite while including the learner, the teacher, teaching and learning methodologies, anticipated and unanticipated experiences, outputs and outcomes possible within a learning institution (COL, 2000).

1.2   Curriculum Implementation

This involves helping learners to acquire knowledge and as well as experience. It is important to note that curriculum implementation cannot take place without the learner (COL, 2000). The learner is the central figure in the curriculum implementation process. Implementation takes place as the learner goes through the intended experiences, knowledge, skills, ideas and attitudes that are aimed at enabling him/ her to function effectively in society. However, implementing TVET curriculum is not free from challenges.

1.3   Challenges in Implementing the TVET Curriculum in Nigerian Colleges

The challenges of implementing the TVET curriculum in Nigerian colleges are synonymous with the problems of TVET in Nigeria and also that of general education in Nigeria. Egwu (2009), posited that some of the major challenges of the Nigerian university system includes;

1. Institution related factor such as unstable academic calendar, inadequate collaboration between tertiary institutions and organized private sector, inadequate and obsolete infrastructure and equipment, for example poor equipped TVET workshop and libraries, dilapidated classroom blocks, and weak support structure for students Industrial Work Experience Scheme (SIWES).
2. Human resource related problems such as brain drain, human capital flight, unattractive conditions of service for teachers, and staff shortages across board
3. Government related challenges such as inadequate funding of tertiary institutions,
4. Student related challenges such as cultism, examination malpractice, social and academic vices (Egwu, 2009).

However, Udoka (2010), opined that the major challenge is funding. In the same vein, Yusuf and Soyemi (2012), posited that inadequate financing is one of the problems of implementing TVET curriculum in TVET institutions. Furthermore, Okoroafor (2010), also noted that; some of the problems of implementing TVET curriculum include;

1. Lack of sponsorship: Managers of educational institutions find it difficult to sponsor the TVET lecturers to seminars, conferences, and short courses claiming that there is lack of fund. This has affected the rate at which the TVET lecturers are upgraded.
2. Inadequate infrastructure: TVET lecturers do not have the opportunity to act what they have learnt into practice due to lack of infrastructure.

3. Inadequate Timing: Time should be provided for TVET lecturers to go and upgrade themselves. Work load should not be so demanding that they preclude TVET lecturers form research and time to develop new skills, abilities and knowledge through research and innovation.
4. Lack of reward for excellence.

However, Nwogu and Nwanoruo (2011), Olaitan (1994) in Odu (2011), and Okebukola (2012), stated that the challenges of TVET are numerous, which include inadequate human and material resources in terms of quality and quantity; poor funding of TVET, inadequacies in infrastructural facilities; poor quality preparation of lesson by TVET teachers; and social vices. According to Mohammed (2005) in Ayonmike (2013), one of the problems of Technical and Vocational Education in Nigeria is the lack of motivated teachers and the reason for this lack of motivation could easily be traced to the low esteem of the teachers. More so, Onjewu (n.d.) posited that the lack of funds on the other hand affects other essentials needed in the implementation of technical education like the provision of teaching aids, furnishing of offices, laboratories, workshops and even basic infrastructures like classroom, seats and tables, so that a common sight to find students of architecture for instance sharing a table where each ideally should have one because of the technical nature of their course.

Ekpenyong (2011) in Ayonmike (2013) posited that, there are a number of factors, which have in various proportions impeded the smooth implementation of the goals and objectives of Technical and Vocational Education and Training (TVET). According to the National Board for Technical Education (NBTE, 2011), the underlining challenges of TVET sector include; low societal recognition, which translate to low enrolment and inadequate skilled workforce, obsolete instructional facility, inadequate funding, poor staffing, poor linkages with industry and general deficiency in quality. In addition, evaluation in all sectors of education tends to be by conventional examinations, which generally does not factor in practical techniques in the industry.

1.4 Statement of Problem

The implementation of TVET curriculum in technical colleges in Southern Nigeria needs attention. This became pertinent due to the fact that significant research on the challenges of implementing TVET curriculum in Nigeria have been conducted but in Southern Nigeria where about sixty government technical colleges are located, no study have sampled the opinion of technical college principals on the challenges of implementing TVET curriculum. Hence this study became necessary to examine whether Southern Nigeria technical

college principals perceived the challenges of implementing TVET curriculum in Nigeria technical colleges as reported by TVET scholars.

1.5   Purpose of the Study

The purpose of this study is to examine the challenges of implementing TVET curriculum in government technical colleges in Nigeria. Specifically, the study is set out to examine the:
1. Challenges of implementing TVET curriculum in government technical colleges in South-South Nigeria
2. Challenges of implementing TVET curriculum in government technical colleges in South-West Nigeria
3. Challenges of implementing TVET curriculum in government technical colleges in South-East Nigeria

1.6   Research Questions

The following research questions were raised for the study:
1. What are the challenges of implementing TVET curriculum in government technical colleges in South-South Nigeria?
2. What are the challenges of implementing TVET curriculum in government technical colleges in South-West Nigeria?
3. What are the challenges of implementing TVET curriculum in government technical colleges in South-East Nigeria?

1.7   Research Hypothesis

It was hypothesized that is no significant difference in the response of principals from South-South, South-West, and South- East on the challenges of implementing TVET curriculum in government technical colleges Nigeria.

2   Methods

2.1   Scope of the Study

This study is on the challenges of implementing TVET curriculum in government technical colleges in Southern Nigeria. However, the study is limited in scope to examine the challenges of implementing TVET curriculum in government technical colleges in the three (3) geopolitical zones which are: South-South, South-West, and South-East Nigeria.

2.2 Population of the Study

The population of the study is all the 110 principals from the 110 government technical colleges in Nigeria.

2.3 Sampling and Sampling Technique

The purposive sampling technique was used to select all sixty (60) principals of government technical colleges from Southern Nigeria. All the principals were used because of the limited numbers of principals. Table 1 below shows the distribution of sample from the three (3) geopolitical zones in Southern Nigeria.

Table 1: Distribution of Government Technical Colleges in Southern Nigeria

Geopolitical Zones	Numbers of Government Technical Colleges
South-South	21 (35%)
South-West	28 (46.7%)
South-East	11 (18.3%)
Total Sample	60 (100%)

2.4 Instrument and Data Quality

Data were collected using a structured questionnaire titled "Challenges of Implementing Technical Vocational Education and Training Curriculum Questionnaire" (CITVETCQ) developed by the researcher. The CITVETCQ was divided into two parts. The first part sought information on selected data about government technical colleges. The second part consists of fifteen (15) items relevant to answering research questions posed in the study. The response format of CITVETCQ were based on an alternate response scale pattern of "Yes", "No", and "No Response".

The instrument was validated by two experts from the Department of Technical and Vocational Education, Nnamdi Azikiwe University, Awka, Anambra State and Delta State University, Abraka, Delta State of Nigeria. The experts agreed that the instrument was relevant and appropriate. As a result of their comments, some items were restricted to produce the final instrument. To determine the reliability of the instrument, ten (10) copies of the questionnaire were administered twice with an interval of four weeks to Heads of Department of Technical and Vocational Education of Federal and State Universities in Nigeria who were not part of the sample of this study. The test retest method was used to ascertain the reliability of the instrument using Pearson Product Moment Correlation Technique. The correlation coefficient obtained was 0.83 which was high and above the recommended acceptable value of 0.70 for good

reliability (Wuensch, 2009). Therefore, the instrument was regarded as reliable enough for use in data collection for the study.

2.5   Data Collection and Analysis

The researcher, with the support of eighteen (18) field research assistants who are students of the Department of Technical and Business Education, Delta State University, Abraka, administered the questionnaire to the principals of all the government technical colleges in the three (3) geopolitical zones of Southern Nigeria. Six (6) field research assistants were assigned to each of the geopolitical zones in the study area to help with the data collection. Upon collection, the data were entered and analysed using frequency counts and percentages, so as to respond to the research questions raised. Chi-Square goodness of fit statistics was used to test the research hypothesis. This was done at the level of confidence alpha = 0.05.

3   Findings, Discussion and Conclusion

The findings on the research questions and the hypothesis are summarized in Table 2.

Table 2: Challenges in Implementing the TVET Curriculum

		South-West (N=28)			South-East (N=11)			South-South (N=21)			X^2	p	Decision
		Yes	No	NA	Yes	No	NA	Yes	No	NA			
1	Inadequate infrastructure	100			90	9		100			4.53	0.339	NS
2	Inadequate capacity for internal quality assessment	89	11	0	91	9	0	90	10	0	0.03	0.999	NS
3	Brain drain	100	0	0	91	9	0	100	0	0	4.53	0.339	NS
4	Social and academic vices	14	25	61	9	91	0	0	95	5	30.98	0.001	S
5	Staff shortages	89	11	0	82	9	9	86	14	0	4.72	0.3173	NS
6	Poor conditions of service	100	0	0	100	0	0	100	0	0	0.00	1.0000	NS
7	Inadequate funding	100	0	0	100	0	0	100	0	0	0.00	1.000	NS
8	Poor collaboration with TVET institutions and private sector	100	0	0	100	0	0	100	0	0	0.00	1.000	NS
9	Lack of sponsorship for in service training	100	0	0	91	9	0	86	10	5	4.76	0.3128	NS
10	Lack of rewards for excellence	100	0	0	82	18	0	95	5	0	5.50	0.2397	NS
11	Shortage of TVET teachers	100	0	0	100	0	0	90	10	0	3.84	0.4281	NS
12	Quota system of student selection	7	89	4	9	91	0	5	86	10	1.77	0.7780	NS

The result in Table 2 shows that the respondents from Southern Nigeria GTC agreed that, the challenges of implementing TVET curriculum include : inadequate and obsolete infrastructure and equipment, for example poor equipped TVET workshop and libraries, dilapidated classroom blocks, inadequate capacity in the institutions for internal/peer quality assessment, brain drain, staff shortages across board, poor conditions of service for teachers, inadequate funding of TVET institutions, inadequate collaboration between TVET institutions and organized private sector, lack of sponsorship for in service training for staff of TVET institutions, lack of reward for excellence for staff of TVET institutions, acute shortage of TVET teachers, insufficient material resources for training in TVET institutions, dearth of qualified TVET educators. Also, Table 2 shows the Chi-Square analysis for testing the hypothesis at 0.05 level of significance. The results in the table shows that the calculated Chi-Square value for the fourteen (14) item statement is less than the tabulated Chi-Square value at Degree of Freedom (Df=4) apart from item statement number four (4) whose Chi-Square value is greater than the tabulated Chi-Square value. However, the hypothesis stated in this study was accepted. This implies that there is no significant difference in the response of principals from South-South, South-West, and South- East on the challenges of implementing TVET curriculum in government technical colleges Nigeria.

Consequently, the results obtained in this study is similar to various research report of TVET scholars who posited that the challenges of TVET are numerous, which include inadequate human and material resources in terms of quality and quantity; poor funding of TVET, inadequacies in infrastructural facilities; poor quality preparation of lesson by TVET teachers; and social vices (Egwu (2009); Udoka (2010); Yusuf and Soyemi (2012); Okoroafor (2010); Mohammed (2005) in Ayonmike (2013); Okebukola (2012); Onjewu (n.d.); Ekpenyong (2011) in Ayonmike (2013); Nwogu and Nwanoruo (2011); Olaitan (1994) in Odu (2011); Odu (2011); UNESCO (2009); and (NBTE, 2011).Based on the findings of the study, it was concluded that the implementation of TVET curriculum in Southern Nigeria government technical colleges has been faced with various challenges which are synonymous with some of the problems of education in Nigeria such as poor funding, obsolete facilities and poor provision of instructional materials for effective implementation of TVET curriculum. Therefore, for effective implementation of TVET curriculum in Nigerian government technical colleges, the government, nongovernmental organization, international organizational, and stakeholders should work collectively to address the various challenges of implementing the curriculum and also to address the general educational problems of the nation. These could be achieved through proper funding, management, administration, and public private partnership to improve resources in implementing TVET curriculum in Nigerian GTC.

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Impact of E-Learning Strategy on Students' Academic Performance at Strathmore University, Kenya

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Abstract. This study examined the impact of e-learning strategies on students' academic performance at Strathmore University. The purpose of the study was to investigate the methodology, ideologies, output and ecology of ICT strategies and their impact on students' performance. This was done through comparing students' mean scores on courses deploying ICT in their delivery with those that do not. The findings were that the e-learning strategies adopted at the University positively impacted on students' academic performance. However, a digital divide in disfavour of *poor* students is cutting back on the effectiveness of e-learning at the University. The paper discusses recommendations towards improvements in deployment of e-learning.

Keywords: Teaching and Learning; E-learning; ICT.

1   Introduction

E-learning is refers to the use of new technologies in the service of learning and/ or learner support (Laurillard, 2006). It includes the delivery of content via the Internet, intranet, audio- and videotape, satellite broadcast, interactive TV and CD-ROM (Boon et al, 2005). E-learning technologies can be used in three main ways in universities and colleges: technology enhanced classroom teaching; distance education (in a bid to reach more students who cannot gain access to conventional universities); and distributed learning (a mix of deliberately reduced face to face teaching and online learning also called 'the mixed mode' or ' flexible learning'). E-learning can help to encourage learner centeredness. Web et al (2004) cite Kolb's model which involved an approach similar to action research. The approach is geared towards four elements: active

experimentation, concrete experience, reflective observation and abstract conceptualization.

E-learning strategies require a realization of the changes in both the demand for and supply of e-resources. Developing an e-learning strategy is essential in setting a course that will enable a university, faculty or department to achieve predetermined goals (Engelbrecht, 2003). It should be about providing a solution; a return on expectation; enabling learning and driving performance; motivating learners and encouraging organisations; and ensuring that it becomes interwoven into the fabric of the entire institution (Dublin, 2004). The models developed for these strategies undergo a five phase process: initial stage, planned stage, defined stage, managed stage and optimising stage (Marshall, 2004).

Strathmore University integrated ICT's into its operations. It has a distance learning centre that relies on ICT to deploy its course materials. It also employs a mixed method of course delivery that blends online and face-to-face modes. The implementation, management and improvement of e-learning are presumed to have (positive) effects on student performance. In spite of ICT being integrated within the functions of Strathmore University, a study to investigate its impact on students' performance had not been carried out. There had been increased emphasis on keeping abreast with the latest advances in technology. However, it was only taken for granted that it had a positive impact on teaching and learning. Therefore, this study was conducted to investigate: the methodology; ideologies; output; and ecology of the University's ICT strategy and their impact on students' performance.

2   Related Literature

The area of e-learning is influenced by the ontological perceptions of the individual. The ontological perception of the individual will influence the principles, epistemology, methodology and the way e-learning is implemented to produce results. A positivistic approach which views reality in quantifiable terms, will affect the formulation and implementation of an e-learning strategy. The adoption of the constructivist/interpretive approach will also have its own approach. This was highlighted by Jefferies, Carstern-Stahl & McRobb (2007) who affirmed that the use of virtual learning tools (emails, tutorials, quizzes, web pages and PowerPoint) can all be related to a positivistic pedagogy, while the use of discussion boards foster social constructivist pedagogy. Successful e-learning implementation depends on building a strategy that meets the needs of the learners and the business goals of the institution (Engelbrecht, 2003).

2.1 Theoretical Framework

E-learning is an off-shoot of information technology 'cyperbole'. Interest in e-learning has been facilitated with the rapidly developing technologies. These technologies have experienced ideological 'followers' and 'foes'. The 'devotees' of ICT and e-learning tend to over-emphasize the impact of these technologies, while on the other side, 'adversaries' of ICT are sceptical about the impact of such technologies. The 'techies' insist that ICT's lead to globalisation and the knowledge economy, while the critical theorists insist that although ICT's have an impact, the human-social element should drive the implementation of these technologies.

ICTs are presented as co-terminus with the mechanisms of globalisation, and with this, comes the need for new forms of labour power. ICT's are both presented as cause and a consequent driver for change within Higher Education (Cleg, Hudson & Steel, 2003). E-learning has been deemed as a 'saviour' in the current 'hype' of massification of higher education.

Sharpe, Benfield and Francis (2006) gives an e-learning strategy that incorporates three modes: Mode 1 was the baseline course administration and learner support; Mode 2 blended learning leading to significant enhancements to learning and teaching process; and Mode 3 which was an online course module. The result was some success due to elements of effective interventions like contextualisation, community and teacher beliefs. Strategies of implementing e-learning can vary significantly. They can be reactive or pro-active; moderate or radical (Salmon 2005); incremental or transformative; top-down or bottom up and in some instances mixed. The choices of strategies are influenced by intra and inter organisational factors. In the case where the university is technology intensive, it might wish to distinguish between 'the core' and 'the periphery' in the choice and implementation of its strategies.

Pope (2002) conceptualized e-learning strategies according to Michael Porter's five market forces. The questions crucial in formulating strategies included: What is the bargaining power of suppliers? What is the bargaining power of buyers? What are the possible threats from new entrants? What are the threats from substitute products? What is the rivalry from existing firms? This framework applies mostly in universities which adopt an entrepreneurial model or an adaptive-reactive model. It will be less applicable to the traditional on-campus university.

The aim of the e-learning strategy is to encourage learning. The researchers conceive learning as the process of forming the speculative and practical intellect with all the human appetites that are provided in the classical anthropological view of man. This is done after producing a synthesis of a number of learning approaches: Dewey's pragmatic learning approach, Piaget's constructivism, Vygotsky's social constructive theory, Bruner's discovery

learning, Marton's deep learning, Bloom's taxonomy and Schank's problem based learning. Weitl et al (2002) concur that for e-learning projects to be successful, e-learning needs to take different learning styles into account. Their conceptualisation of a learning unit consists of the didactical metadata and didactical units. Didactical metadata contains helpful information about a learning unit to support the learner in finding the appropriate unit (getting started) (i.e. pre-requisites, objectives and related material). It also contains a specification of objectives and relationships to other learning materials plus the external learning environment. Didactical units represent the instructional content to be worked through by the learner presented in a sequential order (i.e. overview information, detailed information, exercises and tests).

2.2 Conceptual Framework

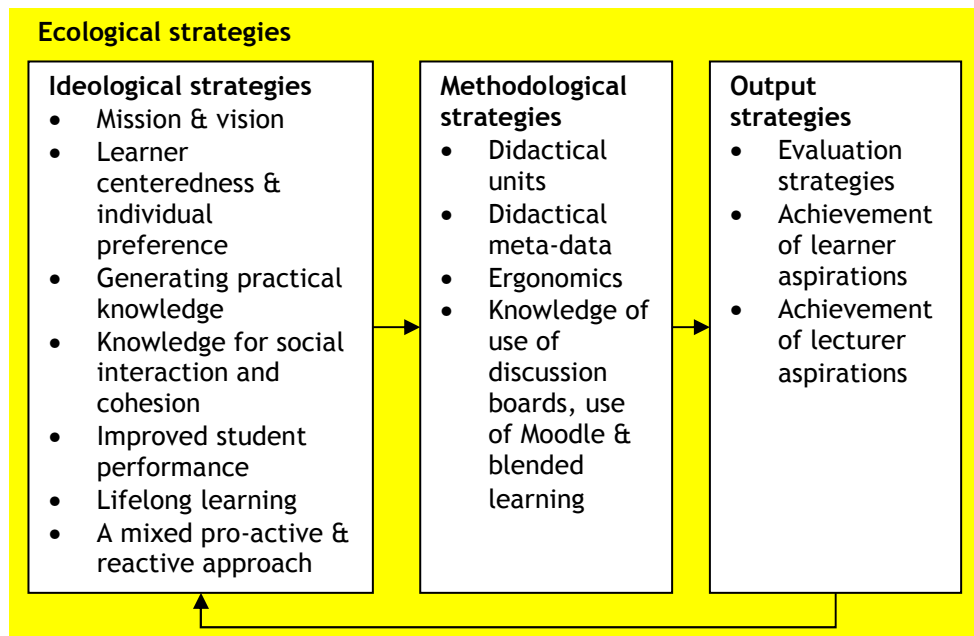The model of the conceptual framework adopted for the study is delineated in Figure 1.

Ecological strategies

Ideological strategies	Methodological strategies	Output strategies
• Mission & vision • Learner centeredness & individual preference • Generating practical knowledge • Knowledge for social interaction and cohesion • Improved student performance • Lifelong learning • A mixed pro-active & reactive approach	• Didactical units • Didactical meta-data • Ergonomics • Knowledge of use of discussion boards, use of Moodle & blended learning	• Evaluation strategies • Achievement of learner aspirations • Achievement of lecturer aspirations

Figure 1: Conceptual model for the study of the Impact of E-learning Strategy on Students' Performance
Source: Adapted from Neema-Abooki and Kitawi (2011)

Ideological strategies deal with the actual conceptualisation of e-learning in line with the university mission and vision. It deals with the formulation and

formalisation of knowledge principles. If a university conceptualizes itself as an entrepreneurial university, its principles will be different from one which conceives itself as a traditional brick and mortar university or adaptive-reactive university. In turn, its conceptualisation has an influence on which intellectual habits to emphasize on.

Regarding methodological strategies, the relationship between knowledge and knower, will influence the methodological/pedagogical strategies. Some of these strategies are focussed on didactical meta-data, didactical units, ergonomics and knowledge on the use of different technologies.

Output strategies focus on the object of the e-learning process. Materially, this can be the achievement of positive results from summative and formative evaluations. Formally, it can be the actual change that occurs in the learner. It is the knowledge differential before the ideological and methodological strategies have been effected, in comparison to after a student has undergone an e-learning process. It also includes the achievement of learner and lecturer aspirations.

Ecological Strategies deal with the e-learning setting. They take the e-learning techniques employed by other universities, the appropriateness of the e-learning technology, competitive and strategic positioning, add-on value to university operations, increased reputation (intangible) and reduction of teaching and learning costs into consideration. The ecological strategies, like an umbrella, have an impact on the ideological, methodological and output strategies.

3 Methodology

The researchers employed longitudinal surveys to examine statistics on e-learning. Questionnaires were also administered. The research was informed by online statistics, student performance for semester one of 2008 and questionnaires answered by students who used some form of e-learning. The researchers opted to compare the results of units which emphasise e-learning with the results from units that had not adopted e-learning for the same students. A sample of 50 students responded to the questionnaire. The questionnaires had four sections. The first section was querying background information and possible extraneous variables. The other four sections sought the influence of the independent variable on the dependent. The researchers were able to get online statistics for the first semester of the 2008/2009 academic year (previous four months). The statistics were deemed crucial because they gave information about the sites visited, the number of visits, the number of hits registered and the users accessing the information. The

researchers used Ms-Access to sort and manipulate the large amount of data which was initially stored in My-sql. The examination results for the same semester were used as an indication of academic performance. A total of 18 course unit averages were obtained.

4   Findings, Discussion and Conclusions

4.1   Online Statistics on Usage of E-Learning

The average number of hits in the month of August according to web statistics was 134,610. Fifty (50) percent were individuals who were accessing courses to view the contents. This was a fair indicator that most users were actually using the e-learning site. The number of internet users who had accessed the strathmore.edu web-link had increased by 46,443 (53%) in the last three months. In addition, there had been a small change in the three month average (78,921).

The site report obtained from alexa.com indicated the site is mostly accessed by users within Kenya (89%). Other frequent users are from India (4%) and Iran (2%). The highest ranked sub-domain under the main domain, Strathmore.edu, was elearning.strathmore.edu (43%). This meant that it was mostly used for learning purposes, compared to others like e-mail access (4%).

More BBIT (Bachelor of Business Information Technology) students accessed the e-learning (66, 985 hits, 39,004 course view) site than BCOM (27,233 hits, 11,143 course view), Diploma in Business Information Technology (DBIT) (66,985 hits, 26,292 course view) and IHEDS, Institute for Humanities Education and Development Studies (57,822 hits, 23,337 course view) students. SUES (Strathmore University e-learning System-those engaged in distance learning only) visits showed that many other users, not necessarily registered users, including distance learning students, actually accessed online material (108,065). It was noteworthy to point out the ratio of BCOM to BBIT students was 2:1. The higher student access rate within the BBIT degree might have been due to the nature of course units offered, which were more inclined towards information and web technologies.

The research compared averages for the same population of students. Overall, it appeared that there was a significant difference in class performance when e-learning was used compared to when e-learning was not used. Therefore, it was deduced that was derived from the above data was that e-learning contributes to the evening of student performance.

The most noteworthy positive responses were that lecturers informed about the possibility of e-learning (90%), many students (61%) concurred with it

encouraging teaching and learning, the web site was easy to use (53%) and e-learning tools were up-to-date (65%). Median responses were recorded for e-learning encourages the synthesis and analysis of information (49%); the materials uploaded and provided were fair and of good quality (55%; 51%) and some lecturers gave tests (47%) though these tests were not regular (39%).

Some students (49%) stated that materials related to e-learning were not available; e-learning was not making knowledge practical (23%); e-learning did not foster interaction and dialogue (43%; 71%) and knowledge provided through e-learning was mainly theoretical (76%). Another response was that 57% thought e-learning did not reduce expenditure on the part of students. In addition, seventeen (17) students agreed that e-learning does assist in filling of informational gaps through the provision of additional study materials. Two (2) students agreed that e-learning acts as a reference source. Other students (8) explained that e-learning encouraged many students to miss classes, and some form of 'laziness' on the part of the lecturers and students. Some felt that it provided an opportunity for lecturers not to go into detail. The other issue brought out was the 'irrelevant' nature of some materials posted onto the e-learning platform.

Some suggestions which were presented to improve and sustain e-learning were: five (5) students indicated the need to provide a clear and consistent information structure; in order to encourage pragmatism, some (5 students) thought that case studies were essential to attain this; Ten (10) students indicated that the hardware resources available in the university were few; twenty-five (25) students indicated that the high expenditures on the part of the students were due to extra printing, surfing and photocopying costs; Some suggested that lecturers provide at least a hard copy which the students can photocopy rather than print; Five (5) students suggested that enrolment keys into e-learning courses should be eliminated.

The students noted that units which tried to incorporate e-learning were mainly Information Technology units like Information System Analysis and Design (ISAD), Programming and Computer Graphics. Within the Institute of Humanities, the units which recorded similar responses were Social and Political Philosophy and Introduction to Ethics.

4.2   ICT Ideological Strategies impacting on Student Performance

Majority (61%) of the students "agreed" that e-learning encouraged teaching and learning; 31 (63%) students concurred that e-learning helped to achieve course objectives, 26 (53%) "Disagreed" that e-learning made knowledge more practical, with a further 21(42%) disputing that e-learning fostered interaction. This meant that the material being provided through e-learning was mainly theoretical. This might have been due to the fact that virtual learning

environments have not been fully implemented within the e-learning framework. There was need to incorporate tools which facilitated and maintained interaction between the learner-content-lecturer. Indeed, one could have argued that the University had adopted an idealistic approach other than a pragmatic and rationalist view. This was further backed by the finding that 35 (71%) students thought that e-learning did not encourage dialogue, yet on the other hand, they did agree on the possibility of it fostering teaching and learning. A solid framework suggested by Blass and Davis (2003) needed to be incorporated if e-learning was to achieve the intended benefits. Laurillard (2006) echoed the same when he stated that e-learning has cultural, social, intellectual and practical impacts on learning. Therefore, the University needed to adopt an interactionist strategy when developing and deploying its e-learning tool.

4.3   ICT Methodological Strategies and Student Performance

These strategies dealt with the 'how' of e-learning tools. It included ergonomics, course pre-requisites and other related material. The responses to methodological strategies were addressed by eight (8) research questions. Twenty-three (23) (representing 47%) students stated that the course objectives when integrated with e-learning were unclear. Up to 47% explained that the course materials were systematically deployed. The quality of e-learning material also required an improvement, since a majority (51%) graded the quality of the material as fair. Despite the fact that lecturers try to give many reference sources, 24 (49%) explained that materials related to e-learning content were unavailable. Engelbrecht (2003) points to the fact that e-learning materials should meet the needs of the learners and business goals. This meant that the lecturers ought to be trained on which methodological strategies to be adopted with the changing circumstances. Web et al (2004) cited the same concern. As regards ergonomics, 26(53%) agreed that the e-leaning site was easy to use and 19 (39%) stating that it was appealing to the eye. Despite this, some students expressed the opinion that enrolment keys should be eliminated. This agreed with observations made by Blass and Davis (2003) on the need to incorporate cognitive ergonomics in the design phase. Some students explicated that e-learning material were unsatisfactory (32.7%). This meant that there was need to bring together the e-learning course designers with lecturers who used these tools.

4.4   ICT Ecological Strategies and Student Performance

The effect of ecological strategies was addressed by four research questions. 20 (41%) agreed that some form of e-learning was adopted by other universities,

both public and private. Majority (65%) concurred that the e-learning tools within Strathmore were up-to-date, a laudable commendation to the University's IT Department. Still, majority (65%) of the respondents assented that e-learning did add value to Strathmore University. An opposite opinion expressed by 57% of the respondents was that e-learning did not reduce expenditure on the part of students, contrary to what strategies like GOK (2006) anticipate. This meant that although the University was embarking on full scale adoption of ICT, there was need to put into consideration the low socio-economic status of some of its students who were not able to access ICT facilities both within and outside the University. This meant that the lecturers needed to provide a back-up option for these students for instance giving the core materials during lectures. A financial scheme which gives credit to poor students could be designed.

4.5   Output Strategies and Student Performance

Two questions which dealt with whether tests were being given and the regularity of the tests were asked to answer the above research question. The researcher concentrated mainly on summative than formative evaluation. The responses yielded were that 21 (42.9%) were not given tests using any form of e-learning and the tests were not regular (18, 36.7% were not given tests; 19 (38.8%) only one test a semester and only 14% were given tests more than once a semester). In addition, if e-learning tools were to reap expected benefits, they had to be incorporated fully into the entire fabric of the organisation that it became invisible (Dublin, 2004). Some tests given using the traditional mode, like Introduction to Discrete Maths, Probability and Statistics and Business Mathematics, yielded better average scores than other units that incorporated e-learning. This meant there was need to train the lecturers on how to incorporate e-learning effectively into the teaching and learning process.

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