PROMOTING HIGHER PRODUCTIVITY IN TERTIARY EDUCATION IN GHANA: AN EMPIRICAL ANALYSIS OF CHALLENGES AND EFFECTIVE IMPROVEMENT STRATEGIES IN THE UNIVERSITY FOR DEVELOPMENT STUDIES (UDS)

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Abstract
The concept of productivity in tertiary education has been emphasized in recent times. This study examines how productivity can be enhanced in higher learning institutions, using the University for Development Studies (UDS) as a case study. The study objectives included assessing the strength of productivity drivers at UDS, examining challenges to productivity and identifying measures for enhancing productivity at UDS and tertiary education in general. The study was basically descriptive, and used primary and secondary data. Questionnaire was administered to 300 staff of UDS who were sampled using simple random sampling technique. Data was analyzed through the Statistical Package for Social Sciences (SPSS) version 24. The study found that UDS is significantly poised to increase its productivity. This was established based on the findings that suggest that the Institution is strengthening and significantly boosting the factors that drive productivity in tertiary education. Key recommendations include the need for increased adoption of technology in teaching and learning.

Keywords: *Higher productivity, tertiary institution, technology adoption, University for Development Studies*

Introduction

Education does not only bring about change, but also constitutes an important tool for development and growth in the economy. A successful attainment of these twin benefits of education however depends on the level of productivity in the educational system. Africa has generally progressed significantly in education, although the continent is still faced with several challenges which have been captured extensively by UNESCO (Mohammedbhai, 2008). The level of progress witnessed is not only limited to one level but cuts across all levels of education.

A key component of the educational system is tertiary education, which is described as an important level of education responsible for contributing to higher level manpower development, equipping them with skills and competencies. In the view of Yizengaw (2008), higher education is a panacea to achieve economic stability, social development, scientific innovation, sustainable peace and advancement in technology. Peretomode (2007) expands the position of Yizengaw and emphasizes that higher education is the foundation to national development as higher educational institutions contribute significantly in creating wealth and human capital.

In the opinion of Kors (2008), the assertions by Peretomode (2007), Yizengaw (2008), among others with similar position cannot be debated because sustained growth can be achieved through human resources. An argument put forward by the World Bank (2004) is that "higher education is vital to development and developing nations require knowledge to survive in the world". This essentially accentuates the role of tertiary education in national development.

Undoubtedly, the performance of higher learning institutions, and their subsequent ability to make significant contribution to the development of a

nation, is a function of the level of productivity in these institutions. Productivity refers to how well resources such as finance, information, human and physical capitals are combined and used to achieve specific and required results. Therefore, productivity may be described as the relationship between output and any other related inputs measured in real term (Fadipe and Oyedele, 2000). Ejiogu (1997) however points out that productivity in the educational system is the ratio of total educational output and the input of resource used within the production process.

In the context of the definition of productivity as put forward by Ejiogu (1997), productivity metric can detect all worker-hours spent in generating a student credit hour or degree. The major setback of this approach is that higher education uses several operational approaches, which depend on a more input varieties (most of which are not frequently measured), it may be difficult to develop a practical model using physical quantity explicitly and exclusively. What is more important is the input quality (teachers, students, facilities) and outputs (degrees) differs greatly by context.

These limitations notwithstanding, a primary focus should not only be limited to measuring productivity but ultimately enhancing it. This study thus examines how productivity can be enhanced in higher learning institutions, using the University for Development Studies (UDS) as a case study.

Problem Statement

Growth in productivity is vital to every economy due to improved standard of living over time through increased output. The increase in productivity overcome the high input cost such as labour wage and raw material costs. Increase in productivity is an encouraging measure to contain costs in the effort to keep college education affordable in higher education institutions. Tertiary education in Ghana currently is faced with a number of challenges that potentially can affect productivity. Among the notable challenges are inadequate infrastructure due to the increasing intake, increasing cost of education, inadequate teaching staff and funding challenges. Under these unnerving pressures quality is ether compromised or cost would deny several potential students access. These are issues that threaten the

ability of these institutions to meaningfully contribute to economic development. To help address these challenges, this study examines the challenges to productivity and examines measures that can enhance productivity in tertiary education. The specific objectives of the study include: assessing the strength of productivity drivers at UDS, identifying the challenges to productivity at UDS, and identify measures for enhancing productivity at UDS and tertiary education in general.

Literature Review
Concept of productivity

Productivity is the quantity of output generated per work-hour. Mali (1978) defined productivity as a process of bringing together in organizations and utilized in accomplishing results. Productivity is about attaining the maximum performance at least cost. In the view of the International Labour Office (ILO, 2005), increase in productivity denotes a situation when the proportionate increase in result exceeds the proportionate increase in inputs. Thus, fewer inputs can be used to produce the same output. Productivity is an important source of economic growth and competitiveness across the world and serves as the basis for national performance assessment and international comparison using basic statistical information. The effects of product and labour market regulations on the performance of an economy are explained using productivity data.

Improvement in productivity can be assessed at both individual and institutional levels. Individual productivity is often portrayed by rate of employment and wages, job satisfaction, employment stability, institutional productivity, and output per worker which is also determined using share of market and performance of export (ILO, 2008). At all levels, increase in productivity can be a function of various factors including but not limited to novel skills acquired on or off the job, additional capital equipment or organizational modifications. Individual productivity is influenced by level of education, training, health, core skills and experience. However, productivity of an institution is influenced by occupational safety and health, management, and investment in plant and equipment.

Productivity metrics can be complex when applied to education. Productivity metrics is capable of tracking the worker-hours spent in producing a student's credit hour or degree when it is applied to higher levels of education. This approach is limited by the fact that several operational approaches are used in higher education which depend on more input varieties, (most of which are often not often quantified), it may not be realistic to develop a model based explicitly and exclusively on physical quantities (Sullivan et al., 2012). Sullivan et al. (2012) further argued that the input quality such as teachers and students and output (degree) are context based.

Higher education productivity is viewed as the amount that accrue to individuals and the society from education based on resources inputs. It also implies the wasteful nature of the system. There are two dimensions of productivity, namely, efficiency and effectiveness. The concept of efficiency is extent and quality of service delivery attributable to a given amount of resources. On the other hand, effectiveness refers to the extent a service provider is able to satisfy the needs and demands of stakeholders such as students, local communities, faculty members, industries and the nation.

This scenario indicates that productivity is a complex concept that concerns the aims, vision and mission of an institution. According to Ruppert (1994), the higher education systems aim at promoting quality of education including access, efficiency, equity, and contribution to state needs, together with connection and impacts on other sectors of education. In the view of Gate and Stone (1997), tertiary education productivity can be improved through:
a) definition of unit of analysis;
b) formulation of higher system of education objectives;
c) identification of efficient and effective strategies on the set goals; and
d) development of measures to improve and monitor productivity.

Strategies of Enhancing Workers Productive Capacity
The main objective of an educational institution is to augment productivity. The major force driving an organization is its' employees. Therefore, to improve productivity, growth and efficiency, organizations need to motivate its employees. Motivation of employees is an important factor in institutional success. Therefore, the best way to improve productivity is to understand the factors influencing employees' performance. The strategies for enhancing workers' productive capacity are personnel motivation, manpower development and work environment.

Personnel motivation
According to Armstrong (2012), motivation is a mechanism of energizing, directing and sustaining behavior. It bothers the behaviour strength and direction, and the factors influencing people's way of behaviour. Motivation is something which impels a person to act, or a reason of behavior (Allan *et al.*, 2011).

Efficiency and achievement must take center stage of every workplace to ensure tangible results in an organization and valuable return to employees. It is enlightening to note that employees are central to achieve high productivity. Therefore, it is important for every organization to have words of encouragement for its workers periodically. Encouragement helps workers to improve performance at their work/job and increases their happiness. Rewards and other forms of motivations creates the feeling of effort recognition and self-importance among employees of an organization.

Organizations' effectiveness and efficiency is usually influenced by employees' motivation, job satisfaction, commitment and skills (Stephen, 2014). Employees who are motivated by their organizations usually have higher productivity and stimulate other employees' work habit. Employees' motivation is positively related to their productivity. An employee who is well motivated derives higher job satisfaction when their needs are satisfied and thereby improves their productivity. Therefore, motivation is critical in satisfying employees' desires while job satisfaction is an emotional response to current job conditions by employees. Thus, employees' motivation and job satisfaction results in confidence, loyalty and ultimately improve productivity of employees and organizations.

For organizations to attract and retain knowledgeable, talented and highly skilled personnel, the existing employees must be motivated to increase performance to attain increased productivity. Each employee, devoid of the socio-demographic background have needs to be satisfied by their organizations. Employees' behavior is negatively influenced by unsatisfied needs due to tensions and apprehensions.

The needs hierarchy espoused by Maslow (1954) applies to most people and explains human satisfaction. The fundamental argument raised by Maslow in his hierarchy of needs is that human beings always desire more. Thus, they are "*wanting beings*" who are in constant desire for more and their desires are organized in a series of levels, known as a hierarchy of importance. Herzberg (1966) also espoused a two-factor theory known as the motivation-hygiene theory. This theory portrays job satisfaction as a function of an individual's feelings on a job content including achievement of task, recognition, advancement, responsibility and work. These factors are what Herzberg (1966) referred to as motivators or satisfiers.

Job dissatisfaction on the other hand is influenced by individuals' feelings on job *context such as* salary, work condition, security of job, policies of organizations, personal status, supervision, and other job related conditions. These factors are referred to as factors of hygiene. Herzberg's motivation-hygiene theory has relevance to job satisfaction in tertiary institutions. The factors of hygiene tend to offer the animal side of man's nature which needs to evade unfriendly environment. Herzberg's theory revealed that employers' efforts at improving staff's condition of work aimed at reducing job dissatisfaction. Increase in salary is often not enough to motivate employees. It may reduce an individual's dissatisfaction but not a strong motivation to employees.

Therefore, there is the need for higher educational institutions managers to devise strategies to foster job satisfaction among workers. The productivity of workers of an institution are likely to be greater when they are satisfied than when they are not (Famade, 2002).

Manpower development

This is a crucial requirement in organisations because manpower development ensures upgrading employees to be vibrant and versatile as a way of performing their duties efficiently and effectively. Career development programmes for faculty members are considered important in tertiary institutions in the educational sector. The reason is that activities are explained and aimed at improving the capabilities, technical and conceptual skills of teaching staff to possess the required knowledge for handling complex situations for better job performance.

In recent times, the need for the teaching staff to upgrade their skills, knowledge, attitudes and behaviours on the job is so immense. The faculty members need to constantly update the knowledge development to avoid being obsolete and redundant. According to Jones (1994), manpower development of teaching staff in tertiary institutions have to be targeted at skill acquisition required to perform various tasks obligations and functions relating to their duties.

The availability of skill upgrading and learning opportunities to employees in organizations are always delightful to employees. This helps employees to learn, horn their skills and invariably feel bonded by their employers, hence, obliged to apply the knowledge gain to enhance their performance. Constant skill upgrading is one of the important motivational factors to achieve high productivity from employees. Therefore, investing on employees skill upgrading can enhance engagement and commitment of employees to their organizations. The higher the skills of employees, the more innovative they can be. New technologies will enhance employees' capacity given that workers with more skills often require minimal supervision to discharge their responsibility and are better communicators than employees with less skills.

Work environment

When the environment of work is appropriately designed, it motivates employees to increase their productivity. In the view of Opperman (2002), work

environment consists of technical, human and organizational sub-environments. The tools, equipment, technological infrastructure and other physical/technical stamens constitute the technical sub-environment while the human environment consists of peers, team and work groups, interactional issues, as well as leadership and management of an organization. Organizational environment on the other hand are the systems, practices, procedures, values and philosophies of an organization. A work environment can be conducive or toxic.

A work environment is conducive when employees have pleasurable experience which enable them harness their capabilities and potentials. On the other hand, a work environment is considered toxic when employees have unpleasant experiences and may not be able to actualize employees' behaviour. According to Kyko (2005), a toxic work environment may be due to a biased boss, opaque management, company policies, interpersonal relationships, working conditions and salaries. There is the need for employers to create productive workplace cultures. Employees are often motivated to be committed to their organizations by a positive work environment. Thus, the best productivity from employees can be achieved with a well-organized work environment.

Building Leadership and Management Capability
A good vision for organizational management is based on leadership effectiveness. It concerns the identification of new opportunities and inspiring employees to pursue these opportunities. An important determinant of organizational production is leadership behaviour. Leadership is a behavioural characteristic that can either be acquired or inherited. The Trait leadership theory assumes that leaders are not made, but born. The fundamental assumption underlining the Trait theory is that leadership qualities are innate. It is these innate qualities that propel efficient and effective performance from leaders.

However, the behavioural theorists opined that leaders are made based on some behavioural characteristics adopted over time. These behavioral tendencies that spur them to inspire their workers to greater productivity. A good leader is essential for high productivity because leaders play an important role in prescribing direction, priorities, purpose, goals and assigning duties to employees.

Research Methodology
Research Design
The study focused on investigating into challenges of productivity in tertiary education and how this can be improved. The descriptive research design was adopted in undertaking this study. The descriptive survey was used in collecting the required data that will help address the various research questions.

Type of Data Used
The study used both secondary and primary data. The researcher obtained the primary data through the questionnaire which was developed and used as the data collection instrument. Primary data collected helped in analyzing respondents' subjective view of the issue researched into. The views from actors and stakeholders, in this instance the staff of the University, were critical in drawing reasonable conclusions. The secondary data was also used to provide guidance, the core objective of the study. Journals, archival records and books were basically the source of the secondary data used for the study. Secondary data was considered important in completing the primary data which also happens to be fresh knowledge. The authenticity of the secondary data was verified before they were used in the study.

Population, Sample Size and Sampling Procedure
The study used the staff of UDS as the primary respondents. The population of the staff at the time of the study stood at 1570. Out of this population, the study sampled 306. The sample size was selected based on a technique developed by Krejcie and Morgan (1970), determined based on the formula:

$$s = X^2NP\,(1-P) \div d^2\,(N-1) + X^2P\,(1-P).$$

s = required sample size.
X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size.
P = the population proportion (assumed to be .50 since this would provide the maximum sample size).
d^2 = the degree of accuracy expressed as a proportion (.05).

The researcher subsequently selected the respondents using the simple random sampling technique. Out of the total number of 306 respondents selected, 300 responded indicating a response rate of 98.03%.

Data collection
Data was collected with the help of research assistants who were trained to identify and select respondents, and competently administer the questionnaires. Respondents were allowed about a week to accurately provide the required responses. To address the issue of ethics, respondents were provided details of the study and explanations provided to any questions they may have raised. Further, they were given the option not to participate if they did not want to.

Data Collection Instrument
The study used questionnaires in collecting the primary data, as indicated earlier. The questionnaire was structured with questions spanning four sections. The first section (section A) dealt with the demographic characteristics of the respondents. The second section focused on assessing the strength of productivity drivers or factors that boost productivity in the University. Section C concentrated on assessing the challenges to productivity in the University while the fourth chapter examined measures for enhancing productivity in the University

Pre-testing
The questionnaires were pretested at the Tamale Polytechnic before they were finalized and administered. The pretesting used a sample size of 30 staff at the Polytechnic. The pretesting recorded a response rate of 83.3%.

Data Analyses
The study analyzed data by using four analysis techniques for the various sections of the questionnaire. Section A, which focused on the demographic characteristics of respondents was analyzed using frequency distribution and percentages.
Section B which focused on assessing the productivity drivers was analyzed using the standard normal distribution to test the stated hypothesis.
Section C which focused on the challenges hindering productivity was analyzed using the one sample mean test analysis technique.
The final section, which looked at measures for enhancing productivity, was analyzed using the Relative Importance Index technique (RII). In view of this, respondents responded to questions using a five-point numerical Likert scale: strongly agree (5), agree (4), neutral (3), disagree (2) and strongly disagree (1).
The relative ranking of the factors, denoted by RII were determined based on the respondents' scores using equation (1).

$$\text{RII} = \frac{\sum w}{AN} \qquad (1)$$

where "w" denotes the weight of each factor assigned by the respondents, and ranges between 1 to 5, A denotes the highest weight (5 as in this study) and N denotes the total sample size. The RII ranges from 0 to 1.

Results and Discussions
This chapter presents the data analysis and presentation of the results of the study. The results are presented under each of the objectives set; and discussed in the context of previous empirical findings captured under the literature review.

Demographic characteristics of respondents
This section presents and analyses the background of the respondents selected for the study. This is to be able to relate the findings and draw implications from them. Variables analyzed here cover the gender, age, level of study and the number of years respondents have spent working at UDS. Table 1 presents a summary of the results on respondents' demographic characteristics:

Table 1: Respondents' Demographic Characteristics

Demographic characteristic	Number of respondents	Percentage
Gender		
Male	180	60.0
Female	120	40.0
Total	**300**	**100.0**
Age (years)		
21-30	30	10.0
31-40	90	30.0
41-50	130	43.3
Above 50	50	16.7
Total	**300**	**100.0**
Level of Study		
First degree	90	30.0
Second degree	120	40.0
Third degree	90	30.0
Total	**300**	**100.0**
Years Spent at UDS		
> 6	60	20.0
6-10	120	40.0
11-15	90	30.0
< 15	30	10.0
Total	**300**	**100.0**

Source: Analysis of Field Data (2016)

The table shows a significant male domination (about 60%), consistent with the general situation in most formal institutions in Ghana. The 40% female representation however is relatively significant, and an indication of a gradual trend towards a probable gender parity in the future. Also, considering the fact that the research environment is a higher institution of learning, it can be inferred that human resource development on the part of females is progressing.

Secondly, it is seen from the table that about 60% of the staff are 51 years or older, an indication that a significant majority of the staff of the University have traversed their most productive age, which is usually considered within the age range of 40s and younger. To derive the needed productivity from this group, training and incentives would be key. Further analysis of the results reveal that only about 40% of the staff were found to be in their most productive ages. For this group of staff, their productivity can be maximized with an effective rewards system; and therefore this should be considered in policy decisions.

Thirdly, respondents' level of study indicated in the table shows that the minimum qualification recorded was the first degree which constituted about 30% (or 90 respondents). Respondents' who had obtained their second degrees were about 40% (or 120); while the remaining 30% had obtained their third degrees. It generally reflects the quality of human resource in the environment of study. For an institution of higher learning, advanced human resource, especially with the teaching staff, is a condition necessary to enhance the institution's status and credibility; and an important criterion in school ranking worldwide.

The final variable investigated under respondents' demographic characteristics is the number of years spent in the institution. The results in the table suggest that about 80% of the respondents have spent a minimum of six (6) years in the institution. About 40% had spent more than 10 years while about 10% had spent over 15 years. It generally suggests a

higher retention rate at UDS, given that most staff are likely to stay for a significant number of years. A probable explanation could be the perceived security in public sector employment. Regardless of the reasons, the relevance of this finding to the study is that higher retention is an indication of some appreciable level of satisfaction, in this situation, productivity could be boosted with measures that promote employee engagement.

A Pearson's product-moment correlation was run to determine the correlation between respondents' gender and years spent at UDS. The test carried out showed a strong correlation between the two variables, which was statistically significant ($r = .862$, $n = 300$) (see table 2). Also, the p-value recorded was less than the margin of error ($p<0.05$). The finding implies that gender has significantly influenced the number of years respondents have spent in the institution.

Table 2: Results of Correlations

		Gender	Years Spent at UDS
Gender	Pearson Correlation	1	.862**
	Sig. (2-tailed)		.000
	N	300	300
Years Spent with UDS	Pearson Correlation	.862**	1
	Sig. (2-tailed)	.000	
	N	300	300

** denotes statistically significant at the 0.01 level (2-tailed).

Performance of Productivity Drivers at UDS

The objective here was not to measure productivity but to evaluate the benefits of factors that contribute to productivity. This is because the higher education inputs and outputs display heterogeneous characteristics, and so was not the main focus of the study. A quick review of the literature shows that in the educational system, productivity is the ratio of total educational output to the resource inputs used in the production process. According to Sofoluwa (2000), productivity is the efficient performance resulting in high level output of goods and services, both in quality and quantity with minimal waste in resource and minimal cost in terms of money, energy and time as well as the users of the product.

Productivity is driven by certain variables. Depending on the environment, this could involve several factors. To understand the challenges hindering productivity at UDS, it was considered important to first establish the strength, in terms of performance of these productivity variables. The study tested eight hypotheses as regards the performance of productivity drivers at UDS. The hypotheses were tested (at a critical value of 1.96) using the standard normal distribution which is stated as:

Where P1 is the proportion of 'agree' responses
P2 refers to the proportion of 'disagree' responses

For each hypothesis tested, the Null Hypothesis (H_o) is accepted and the alternative hypothesis rejected where the Z test and the critical value are equal at a significant level of 5%. On the other hand the alternative hypothesis is accepted and the Null hypothesis rejected if the value recorded for Z and the critical value are not equal at a significant level of 5%.

Table 3: Research Hypothesis

S_1	H_o	UDS does not practice competency-based/personalized learning
	H_1	UDS practices competency-based/personalized learning
S_2	H_o	UDS does not adequately adopt technology in teaching and learning
	H_1	UDS adequately adopts technology in teaching and learning
S_3	H_o	UDS does not effectively utilize community resources
	H_1	UDS effectively utilizes community resources
S_4	H_o	UDS does not have new and alternative sources of student support and funding
	H_1	UDS has new and alternative sources of student support and funding
S_5	H_o	UDS has not recorded any improvement in its processes
	H_1	UDS has recorded an improvement in its processes
S_6	H_o	UDS does not have flexibility to ease requirements and mandate
	H_1	UDS has flexibility to ease requirements and mandate
S_7	H_o	UDS does not adequately compensate staff
	H_1	UDS adequately compensates staff
S_8	H_o	UDS does not effectively organize teaching workforce
	H_1	UDS maintains an effective organisation of teaching workforce

The table depicts the results of the hypothesis tested in relation to the performance of productivity drivers (Pro Drive) in the University. Statements marked with (*) are those productivity drivers which recorded a 100% acceptance, in other words, the response was absolute.

Table 4: Results of Hypothesis Tested

Statements (S_i)	P_1	P_2	Standard Normal Distribution (z)	Critical Value	Decision
*S_1	1	0		1.96	Accepted
S_2	0.90	0.10	21.3	1.96	Accepted
S_3	0.70	0.30	17.0	1.96	Accepted
S_4	0.90	0.10	21.3	1.96	Accepted
S_5	0.50	0.50	13.00	1.96	Accepted
S_6	0.80	0.20	18.00	1.96	Accepted
S_7	0.70	0.30	15.10	1.96	Accepted
S_8	0.60	0.40	7.01	1.96	Accepted

Source: Analysis of Field Data (2016)

It can be observed that for each hypothesis tested, as indicted in the table, the test statistics and the critical value are not the same, thus providing the basis for them to be accepted. The general implication of the results is that UDS is significantly poised to increase its productivity. The results confirm that there is a significant attention to the factors that drive productivity in the Institution as an environment of higher learning. Specifically, the University practices competency-based/personalized learning. In furtherance of this objective, students are also provided some exposure to the practical working environments, a requirement every student must meet.

Further, the results suggest that the University has an acceptable level of adoption of technology in teaching and learning, which Zambuk and Gital (2012) describe as being critical for increasing

productivity in institutions of higher learning. Also significant is the observation that the University effectively utilizes community resources and provides some level of support to students. These are significant factors that drive student achievement, which is an important measure of productivity in tertiary education.

The results of the hypothesis tested also suggest positive developments in processes, systems and resource allocation of the University. A number of studies have classified such developments as core strategy for increasing productivity in an educational institution (Sullivan, et al, 2012). Under human capital, the results suggest that productivity drivers are receiving significant attention. For example, compensation is relatively adequate, while the University maintains an effective organisation of teaching workforce.

Challenges Hindering Productivity at UDS
Another key objective was to identify challenges hindering productivity at UDS. Using the one sample mean test technique, responses were analysed to establish what the staff generally perceive to be the challenges hindering productivity at UDS. The relevance of the statistical technique adopted in analyzing the responses was to determine the relative significance of variables tested under this objective. Table 5 shows the results obtained. The significance of each of the variables tested is measured by the p-value. The study used a margin of error of 5% (0.05). Therefore, a variable is considered to be significant if it records a p-value ≤ 0.05.

Table 5: One-Sample Test of Challenges Hindering Productivity at UDS

Factors	Test Value = 1.5				
	Mean	df	t	Sig. (2-tailed)	Mean Difference
Inadequate staff		299	3.530	.000	.100
Lack of sufficient funding		299	2.000	.010	.203
Low linkage with industry		299	23.055	.000	.400
Weak implementation of policies		299	12.969	.000	.300
Weak implementation of performance appraisal system		299	23.055	.000	.400
Low adoption of technology in teaching and learning		299	12.969	.000	.300
Intense labour disputes		299	4.010	.020	.300
Lack of vibrant staff development programmes		299	19.266	.000	.600
Poor reward system		299	-12.969	.000	-.300

Source: Analysis of Field Data (2016)

A cursory observation of the results in the table would reveal that none of the variables tested was rejected as not constituting a challenge hindering productivity at UDS. Put differently, all the variables tested under this objective recorded p-values that were statistically significant (*p*-value < 0.05).
The implication of this finding is that inadequate staff, insufficient funding, low linkage with industry, weak implementation of policies, weak implementation of performance appraisal system,

low adoption of technology in teaching and learning, intense labour disputes, lack of vibrant staff development programmes, and poor reward system are factors contributing to low productivity at UDS. The factors "Lack of sufficient funding" and "Intense labour disputes" appeared the least significant in terms of the statistical significance of the test results, an indication that they make less contribution to low productivity compared to the remaining factors identified in the study. Their level of significance

however suggests that they require as much attention as would be given to the other factors.

Effective Strategies for Enhancing Productivity at UDS

The relationship between a higher learning institution's productivity and economic development has been established in previous studies that examined the linkage between universities and industry. It is important therefore that institutions of higher learning, like the UDS, work towards higher productivity. Following from this, one of the important objectives of the study was to identify effective strategies for enhancing productivity at UDS as an Institution of higher learning. The results of the Relative Importance Index (RII) are presented in Table 6.

Table 6: Effective Strategies for Enhancing Productivity at UDS

key: SA-strongly agree, A-agree, NS-not sure, D-disagree, SD-strongly disagree						
Statement	Frequency					RII
	SA (5)	A (4)	NS (3)	D (2)	SD (1)	
Individual Level						
Job design	150	150	0	0	0	0.90
Recognition	240	60	0	0	0	0.96
Promotion and growth in the organization	270	30	0	0	0	0.98
Education and training	210	90	0	0	0	0.94
Job security	60	240	0	0	0	0.84
A good match between job requirements, abilities and experience	90	210	0	0	0	0.86
Performance management	300		0	0	0	1.00
Institutional Level						
Improvement in processes	180	120	0	0	0	0.92
Resource availability	180	120	0	0	0	0.92
improved adoption of technology in teaching and learning	150	150	0	0	0	0.90
Open communication	30	270	0	0	0	0.82
Good working conditions	210	90	0	0	0	0.94

Source: Analysis of Field Data (2016)

The highest possible RII value is 1. The closer the RII value to 1, the more statistically significant the factor. The findings depicted in the table above describe what respondents identify to be effective strategies for enhancing productivity at UDS. A cursory observation of the results in the table will show that all the factors indicated in the table were generally accepted by respondents as constituting effective strategies for enhancing productivity in the institution, the basis for this assertion is that, the least RII recorded of 0.82 (in respect of the factor "Open communication'') is highly significant statistically, implying that respondents largely accepted (although at varying degrees) as an important factor for improving productivity; suggesting that the other remaining factors are even more important in terms of improving productivity.

A fully stated measure of higher education productivity would include quality changes over time and quality variation across inputs and outputs by individuals and the institution. The factors investigated were thus classified as individual level factors and institutional level factors. According to Asifiwe (2008), although they all contribute to productivity, they make different impacts. Therefore, understanding which level of factors make the most

contribution to productivity is an important step towards enhancing productivity in an institution.

Further analysis of the results will show that the top three most significant factors including Recognition, Promotion and growth in the organization, and Performance management with Relative Importance Index of 0.96, 0.98, and 1.00 respectively, were all individual level factors. The study thus finds individual level factors as having the predisposition to make greater contribution to productivity. This finding is consistent with the observation made by Fammade et al (2016) in their study which also concluded that individual level factors require greater attention because they have the tendency to enhance productivity much more than the institutional level factors.

From the table above, the individual level factors include: Job design, recognition, promotion and growth in the organisation, education and training, job security, a good match between job requirements, abilities and experience, and performance management.

Conclusions and recommendations
Conclusions
The study found that UDS is significantly poised to increase its productivity. This was established based on the findings that suggest that the University is strengthening and significantly boosting the factors that drive productivity in tertiary education. Key examples in this direction included the findings that the University practices competency-based/personalized learning; and also has an acceptable level of adoption of technology in teaching and learning. The study also found that the university has seen some positive developments in its processes, systems and resource allocation. Under human capital, the results suggest that productivity drivers are receiving significant attention. For example, compensation is relatively adequate while the University maintains an effective organisation of teaching workforce.

The study also identified the following as potential challenges to productivity: Inadequate staff, Lack of sufficient funding, Low linkage with industry, Weak implementation of policies, Weak implementation of performance appraisal system, Low adoption of technology in teaching and learning, Intense labour disputes, Lack of vibrant staff development programmes, and Poor reward system. Finally, the study found individual level factors as having the predisposition to make greater contribution to productivity. The most significant of these factors included: recognition, promotion and growth in the organization, and Performance management.

Recommendations
To help address the challenges, the following are recommended:

1. The University is regarded as being a prime knowledge institution. It is imperative therefore that quality is always emphasized in any policy initiative. When quality is a key aspect of the policy, factors that promote quality would be attended to, in the process productivity would be enhanced.

2. Secondly, the world is currently driven by technology; thus for an institution of higher learning, there is the need for higher adoption of technology in teaching and learning. At the least, any graduating student will be competent in the use of ICT which in itself is key that opens the door to several business opportunities that can drive the economy.

3. Further, teaching should not be overly abstract but greatly applied, for greater benefit of the society. There should be greater evidence of problem-solving coming from the universities and other institutions of higher learning in order to justify the current level of investments made in tertiary education by both the state and parents who struggle to see their wards through this level of education.

4. Finally, an enabler of productivity is process efficiency and effectiveness. In the midst of resource constraints, turning out high numbers of quality graduates at lower cost per outcome should be the focus. This will require rethinking the policies, processes, tools, business models, and funding structures that have been acknowledged in our education system over time.

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