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**DEMYSTIFYING ASSESSMENT IN HIGHER EDUCATION:
A COMPARATIVE STUDY OF UNDERGRADUATES' ACADEMIC
PERFORMANCE IN MALAWI UNIVERSITIES WITH LARGE
ENROLLMENTS IN A SINGLE CLASS/SUBJECT**

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ABSTRACT

This paper focuses on some persistent challenges of grading students in large classes in institutions of Higher Learning in Malawi by looking at whether access and quality are mutually complementary. Firstly, the paper gives a brief overview of how Malawi has attempted to achieve the 2000 UN Millennium Development Goals (MDGs) in the Education Sector, particularly on increasing and broadening access to Higher Education and equity. Secondly, the paper discusses the results of a Comparative Study of Undergraduates' Academic Performance in large classes at Mzuzu University using the following courses: Curriculum Theory and Practice, Testing, Measurement and Evaluation, and Research Methods. Using these courses, the assessment and grading were conducted on the generic and upgrading students according to their gender. Moreover, the study adopted a longitudinal research design. The results showed that while most generic students consistently maintained their performance levels for the three courses, there was at least one course that had a mean mark which was considerably different from at least one of the other mean. There was also significant difference in performance between the means (averages) of the generic and upgrading students in the two courses namely, Testing, Measurement and Evaluation, and Research Methods by gender. The paper concludes that since sustainable development depends on competent graduates; there is need for proper and innovative assessment procedures in Higher Education in order to meet this demand. Moreover, bridging the disparities of gender, especially when Higher Education is undergoing significant reforms aimed at increasing and broadening access to Higher Education; issues of equity, quality, relevance and cost- effectiveness should equally be prioritized by policymakers. Further, innovations in the assessment processes of undergraduates should equally be considered pivotal.

Keywords: Assessment, undergraduates, generic, performance, t-test, ANOVA

INTRODUCTION:

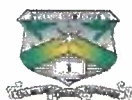
In the year 2000, World leaders agreed to tackle global poverty through use of education as the benchmark for human liberation. Other equally critical issues included fighting hunger, improving primary school enrollment and reducing maternal mortality rates by the year 2015. The UN Millennium Development Goals (MDGs) caught public imagination and interest world over, despite the fact that these goals were not fully realized thirteen years down the line as of 2013 as observed by (Development and Cooperation International Journal, 2013, p. 277).

Interestingly, at national level, Malawi as a country, developed the Malawi Growth and Development Strategy (MGDS) official document as the initial overarching strategy for five years, from 2006 /2007 to 2010/2011 fiscal years for the attainment of the MDGs. The purpose of the MGDS was to serve as a single reference point for policy makers in Government, the Private Sector, Civil Society Organizations, Donors and Cooperating Partners and the general public on socio-economic growth and development priorities of the country (MGDS, 2006 – 2011, Executive Summary, p. xii).

The overriding philosophy behind the MGDSs was to reduce poverty through sustainable economic growth and infrastructure development. The MGDSs identified six key priority areas, which defined the direction, the country intended to take during the first five years. These were as follows: Agriculture and food security; infrastructure development; irrigation and water development; energy generation and supply; integrated rural development; and prevention and management of HIV and AIDS. Malawi then singled out these six key focus areas as particularly necessary for achieving the overall medium-term objectives of the MGDS.

NATIONAL EDUCATION SECTOR PLAN (NESP) 2008-2017:

As for Higher Education, the ten-year NESP (2008-2017) identified increasing and broadening access to Higher Education, improving quality and relevance of education, and enhancing management and governance of the education system as index goals of the overall National Education Sector Strategic Plan. Since the NESP (2008) sought to increase and broaden access to Higher Education and improve quality and relevance of Higher Education for both sexes and people with special needs (PWNs), many institutions of higher learning have been founded in Malawi most of which have very high student enrolment rates without considering quality assurance issues. To date there are currently four Public Universities and sixteen private universities in Malawi many of which are susceptible to quality.



MZUZU UNIVERSITY:

Mzuzu University also known as Mzuni is one of the four Public Universities which is located in the Northern Region of Malawi. Currently, the University has five faculties, and the Faculty of Education is the oldest and the largest that has been confronted by challenges of large classes. This faculty has very high student-teacher ratios that go well over 1:300 in some cases and 1:600 in some extremes. Such incongruent teacher-student ratios present serious challenges in the teaching and learning processes of undergraduate students. Often times, teaching is conducted in the main hall with an aid of a microphone and huge loud speakers. This problem is compounded by lack of modern technologies such as ICTs, LCDs and overhead projectors that would help support the lessons by way of combining voice and text and audiovisuals.

QUANTITY AGAINST QUALITY:

As sustainable development depends on competent human resources, quality and relevant Higher Education is indispensable. A worrisome trend though, is that during the past decade, from the year 2006 to 2016, many Private Universities have emerged in Malawi. This followed the liberation of Higher Education in

response to international pressures and calls for mass education. While this problem is not peculiar to public universities, private universities have also seen a surge in numbers, size and enrollments. With these increases, the absence of proper quality controls have already began to compromise on the quality of Education being offered. The issue however is that the debate regarding the coexistence of quantity and quality in the education sector is dichotomous. See the diagram below.

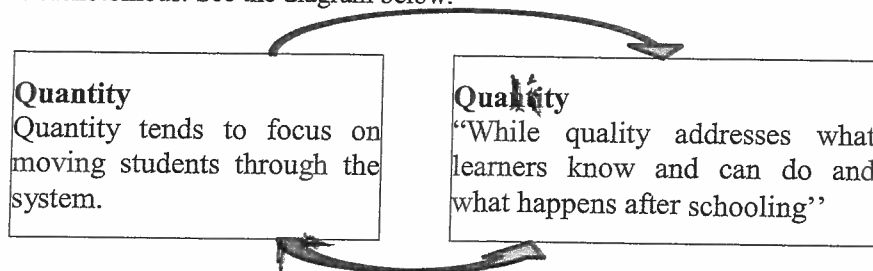


Figure 1. Source: American Institutes of Research (Washington, DC)

CAN QUALITY AND QUANTITY CO-EXIST?

To begin with, quantity tends to focus on moving students through the system while quality addresses what students know, what they can do and what happens after the learning processes. In other words, quality- in as much as learning is concerned- involves the achievement of relevant knowledge, skills and attitudes for life. The goal of educators is to produce quality curriculum and materials that should assist learners to acquire basic learning and competencies in order to improve the quality of their life in future. Thus, as Higher Education in Malawi is undergoing significant metamorphoses in term of improving access and equity, the concerns of quality, relevance, cost-effectiveness and innovations in the assessment practices and grading of the students must not be relegated to the end.

STATEMENT OF THE PROBLEM:

At times like these when Malawi's education system is significantly undergoing a revolution in terms of quality, relevance and cost-effectiveness, assessment should be included in the drive-chain and the discussion package because what is valued in any education system is often reflected in its assessment practices and procedures. Therefore, there is a complementary relationship that exists between learning and assessment which call for scrutiny as part of the ongoing reforms. Indeed, assessment plays a critical role in the teaching and learning processes. According to (Allen, 2004) assessment involves the use of empirical data on student learning processes to refine programmes and improve student learning experiences.

METHODOLOGY:

The study adopted a longitudinal research design: The population for the study consisted of a cohort of 157 undergraduates between 2013 and 2015. The generic students normally complete their degrees in four years while the upgraders do it two years. The upgraders join the university after completing their three year diplomas from other accredited universities. The sample was composed of 127 generic undergraduates and 30 upgrading students. More so, we only included those students who had scores in Curriculum Theory and Practice, Testing and Measurement, and Research Methods in Education courses. Gender-wise, the population comprised of 107 males (68%) and 50 females (32%), respectively given the discrepancies in our enrollment system. Data of undergraduates' grades obtained from three different courses were analyzed using simple percentages, t-test and One Way Analysis of Variance (ANOVA).

The main purpose of the study was to investigate the overall academic performance of undergraduates between 2013 and 2015 in the Faculty of Education at Mzuzu University. Specifically, the study sought to answer the following research questions:

1. Is there any significant difference in academic performance among the undergraduates in the three courses when graded by the same lecturer?
2. Is there any significant difference in learning gains between female and male undergraduates when taught in large classes?
3. Do upgrading students perform any better than the generic students in their third year degree courses?

SIGNIFICANCE OF THIS STUDY:

This paper focused on looking at the sustainable development in education. It did so by critically analyzing the common emerging trends common in learning and teaching processes. Such trends included assessment and grading which serve as crucial tools in the teaching and learning processes. It is not off the reason, therefore, to assume that assessment and grading dictate the way teachers and students transact their business. Moreover, sustainable development depends on Higher Education that is capable of producing competent and creative graduates who can create wealth and jobs. Granted this, increasing and broadening access to Higher Education, equity, critical resources and political will, at one end; quality and relevance on the other end, can co-exist within the Higher Education democratization process and this was the rationale for this study.

RESULTS AND DISCUSSION:

The following were the results to the research questions below:

1. Is there any significant difference in academic performance among the undergraduates in the given three courses when graded by the same lecturer?

Table 1: Tests of Normality

Course		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
Performance	Curriculum	.079	127	.052	.981	127	.079
	Testing	.105	127	.002	.949	127	.000
	Research	.096	127	.006	.936	127	.000

a. Lilliefors Significance Correction

Test for Normality: An assessment of normality of data was deemed essential before conducting One- Way ANOVA as this is one of the key underlying assumptions. Data on the dependent variable (performance) for all the three courses were normally distributed as evidenced by the Shapiro-Wilk Test as all the p values for Shapiro-Wilk Test were greater than 0.05 (see Test of Normality Table above). Furthermore, normal Q-Q Plot was conducted to determine normality graphically and the data points were also close to the diagonal (straight) line. That is, data points did not deviate significantly from the line in the plot below obvious non-linear fashion (see Q-Q in the Appendix).

Table 2: Performance of Generic Students in the Three Courses

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Curriculum	127	63.35	7.596	.674	62.01	64.68	49	81
Testing	127	68.05	6.428	.570	66.92	69.18	50	78
Research	127	71.47	7.271	.645	70.20	72.75	46	84
Total	381	67.62	7.841	.402	66.83	68.41	46	84

Generic students performed consistently better in each of the three courses taken at level 2, 3 and 4 (Curriculum: M=63, SD = 7.6; Testing: M = 68, SD =6.4; Research: M=71, SD =7.3). Or the overall mean performance for generic students improved from Curriculum Theory course in level 2 (M = 63, SD =7.6), to Testing, Measurement and Evaluation course in level 3 (M = 68, SD = 6.4), and Research Methods in level 4 (M= 71, SD = 7.3).

Table 3: One Way of Variance (ANOVA) of Generic Performance

Performance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4227.449	2	2113.724	41.748	.000
Within Groups	19138.126	378	50.630		
Total	23365.575	380			

In order to determine if there were statistically significant differences in performance for generic students in the three course means, a One-way ANOVA was undertaken. There was a statistically significant difference in mean performance between groups in the three courses ($F(2, 378) = 41.748, p = .000$).

A commonly used Tukey HSD Post Hoc test on a One-way ANOVA was conducted to determine the specific courses in which students' performance differed. This multiple comparison test revealed a statistically significant difference in performance between Curriculum and Testing ($p = .000$), between Curriculum and Research ($p = .000$), as well as between testing and research ($p = .000$).

Question 2: Is there any significant difference in learning gains between female and male undergraduates when taught in large classes?

Table 4: Differences in Mean scores between female and male undergraduates

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Curriculum Theory	Male	88	63.49	7.488	.798
	Female	39	63.03	7.926	1.269
Testing & Measurement	Male	88	68.62	6.540	.697
	Female	39	66.74	6.047	.968
Research Methods	Male	88	72.35	7.339	.782
	Female	39	69.49	6.793	1.088

On average, male students consistently outperformed females in all the three courses shown in the table above with minor point differences between them in Curriculum Theory (see table 4 above).

Table 5: T-test on Gender Performance

	T	df	Mean difference (M-F)	p (2-tailed)
Curriculum Theory and Practice	.316	125	.463	.753
Testing & measurement	1.530	125	.1881	.129
Research	2.138	125	2.865	.036

Note: * $p < 0.05$

An independent sample t-test was conducted to determine if there were statistically significant differences in academic performance between male and female students in each of the three courses. Results indicated that there were no significant differences in performance between males and females in: Curriculum Theory and Practice, $t(125) = .316, p = .753$ and in Testing and Measurement, $t(125) = 1.530, p = .129$. However, there was a statistically significant difference in performance between males and females in Research, $t(125) = 2.138, p = .036$. That is, males performed significantly better than females in Research Methods course.

Question 3: Do upgrading students perform any better than the generic students in their third year degree courses?

Performance analysis between generic and upgrading students was done only on Testing and Measurement and Research Methods courses as the upgrading students did not have scores in a Curriculum Theory and Practice course which is offered at lower levels at Mzuni.

Table 6: Group Statistics

Student Type		N	Mean	Std. Deviation	Std. Mean	Error
Testing & Measurement	Generic	127	68.05	6.428	.570	
	Upgrading	30	73.63	4.279	.781	
Research	Generic	127	71.47	7.271	.645	
	Upgrading	30	63.57	9.243	1.687	

On average, in the Testing and Measurement course, upgrading students (N=30) out-performed) (M = 73.6, SD = 4.2) the generic students (M =68, SD =6.4). This was mainly due to their teaching experience in schools since most of the assessment questions focused on application and practical classroom experience. Conversely, in the Research Methods course, generic students (M=71.5, SD = 7.3) out- performed upgrading students (M =63.6, SD = 9.2). This could be because most upgrading students have inadequate knowledge of computer skills to enable them access additional research data from the internet.

Table 7: Independent samples t-test results

	T	df	Mean difference	p (2-tailed)
Testing & Measurement	-5.775	155	-5.586	.000*
Research Methods	-5.072	155	7.906	.000*

Note: *p<0.05

To examine if such observed differences in performance were statistically significant, an independent samples t-test was conducted (see results in Table 7 above). The results showed that in Testing and Measurement course, the difference in performance was statistically significant $t(155) = -5.586, p = .000$ meaning that upgrading students significantly out-classed generic students in this course. In the Research Methods course, the difference was statistically significant, $t(155) = -5.072, p = .000$, meaning that in this course, generic students performed significantly better than upgrading students.

What seemed clear from this analysis was that, although mature students were part of the Higher Education system, their integration into college and social life was limited. This means adapting to Higher Education after some break from formal education, led to performance-related challenges which required special support. That way, both social and academic adjustments were and or are key issues for mature students to accomplish their educational goals once they are admitted.

CONCLUSION:

Assessment serves a critical role in the teaching and learning processes. It, for instance, dictates the way learning should take place. Moreover, assessment and grading in Higher Education are valuable elements that help students' succeed and progress since they are able to know and trail the status of their learning processes. For the lecturer, assessment and grading provide information that is useful for both understanding individual students' needs and evaluating their own teaching efforts. However, at the present time, teaching and assessment in universities involving large classes has emerged as tasks that are not only complex but are also haunting and daunting. Nevertheless, when institutions want to know what the students have learned and how effective the learning processes have been, the evidence they primarily turn to is the students work and how it has been assessed. Hence, the purpose of this study was to investigate the consistency of undergraduates' performance in large classes. It also established that quality is compromised by lack of relevant teaching and learning resources such as good libraries and books, laboratories, computers and other relevant infrastructures and human resources.

RECOMMENDATIONS:

In view of the foregoing, it is hereby recommended that Higher Education institutions in Malawi and beyond should raise the academic staff profile through professional development. In particular, due to increased enrollments, teaching staff should be re-trained in assessment techniques that utilize agile and novelty teaching approaches. Moreover, universities should make a deliberate effort to increase and broaden access to Higher Education among females and people with disabilities (PWDs) if meaningful social justice is to be achieved. This is particularly true given the current abysmal male-female ratio which now stands at 3:1, and is way below the 50:50 ratio recommendation made by the SADC Protocol on Gender Equality. The paper also recommends upgrading students to take special interest in computer training programmes that will help them boost their research skills.

AREAS FOR FURTHER RESEARCH:

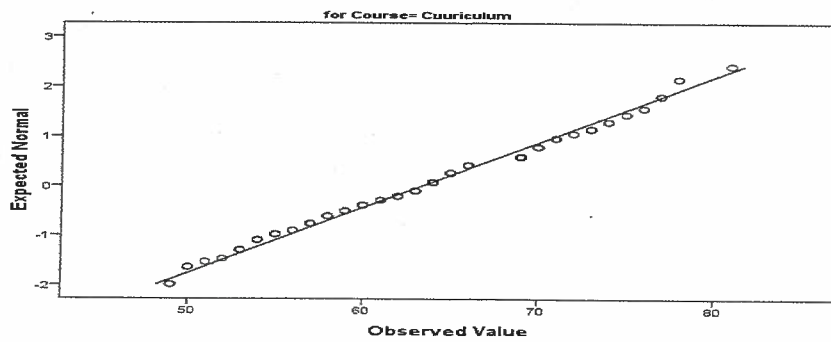
There is need to conduct an in-depth study on the learning conditions that affects undergraduates in large classes of over 100 students. There is also need to further investigate Criterion- referencing Testing in Higher Education and its impact. There is also need for a longitudinal research to investigate factors that made female students perform not very well when compared with their male counterparts.

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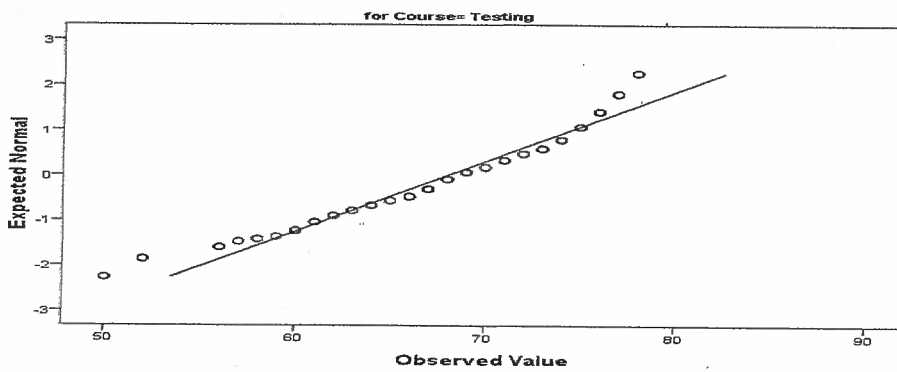
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APPENDEXES

Normal Q-Q Plot of Performance



Normal Q-Q Plot of Performance



Normal Q-Q Plot of Performance

