

Students' Enrolment Growth and Implications for Educational Planning: Takoradi Technical University in Review

Adwoa Kwegyiriba¹, Eric Boakye Agyepong² And Ronald Osei Mensah³

¹Senior Lecturer, Centre for Languages and Liberal Studies, Takoradi Technical University, Takoradi, Ghana

²Acting Head, Planning Office, Takoradi Technical University, Takoradi, Ghana

³Assistant Lecturer, Centre for Languages and Liberal Studies, Takoradi Technical University, Takoradi, Ghana

*Corresponding author

Adwoa Kwegyiriba, Senior Lecturer, Centre for Languages and Liberal Studies, Takoradi Technical University, Takoradi, Ghana

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Abstract

This paper primarily seeks to assess students' enrolment growth and the implications for educational planning at the Takoradi Technical University. Specifically, the paper seeks to determine the rate of growth in first year enrolment and to predict first year enrolment for Management decision making. Methodologically, secondary data served as the basic source of information comprising of data from the annual report of the planning office of the University, and the Strategic Plan Implementation and Oversight Committee Report (2016 -2020). Primary data was collected from the various faculties in the University. It was therefore revealed that the year under review witnessed marginal improvements over the previous year's ratios and rates of the key indicators. It is worth mentioning, however that, despite the improvements in the key indicators, the institution still fall short to the norm. It is therefore recommended that considering the percentage increase in enrolment from the 2019/2020 to 2020/2021 academic year and the total number of classrooms and facilities with their respective capacities, Management should ensure the optimal usage of the classrooms and other facilities by the students.

Keywords: Enrolment Growth, Educational Planning, Stakeholders, Management, Decision Making

Introduction

The proliferation of private tertiary institutions and the establishment of satellite campuses of most traditional universities in the urban centers of Ghana have led to the struggle for students at the expense of quality.

Takoradi Technical University has a vision of becoming a University of choice devoted to excellent delivery to produce competent human resource.

In order to achieve the vision of Takoradi Technical University (TTU) and to satisfy the educational regulatory bodies' conditions, it is imperative that the relevant education indicators are computed and compared with the standards of our supervisory bodies to ascertain whether or not TTU is conforming to them. The calculated indicators will enable TTU plan adequately and help Management make reasonable decisions in the provision of quality tertiary education in the Western Region in particular and in the country at large.

The Problem

Internally Generated Fund (IGF) plays premium in the smooth running of institutions. School fees component of IGF is huge for most institutions with high enrolment. With the increase in private tertiary institutions and the establishment of satellite campuses of the traditional universities in the regional capitals and other enclaves of the country, the struggle for students in a competitive environment has become an issue in recent times. Various institutions have employed different means to increase enrolment.

Some of the strategies adopted by institutions include the introduction of new programmes, distance learning, outreach programmes, admitting students into prior programmes among others. In the struggle to increase enrolment, has the provision of quality education been compromised? Our challenge is to investigate the rate of growth in first year enrolment for management decision making and to predict first year enrolment for management decision making.

Objective of the Study

The study primarily seeks;

1. To determine the rate of growth in first year enrolment.
2. To predict first year enrolment for Management decision making.

Justification of the Study

It is an undeniable fact that the first batch of the Free Education at the Senior High Schools will increase the number of applicants for tertiary education. All other things being equal, Takoradi Technical University with its competitive programmes and locational advantage is likely to receive more applications than the University can contain. The research is justified by the fact that it will inform the acceptable intake for the institution with regards to existing facilities and management decision making.

Methodology

Secondary data was basically used for the analysis. Data on enrolment and staff as well as some ratios were taken from the 2018/2019 Annual Report of the Planning Office, as well as data on the Strategic Plan Implementation and Oversight Committee Report (2016 -2020).

The Gross Enrolment Ratio (GER) in 2019 was taken from the Ministry of Education Website. The total number of the First Batch of the free education in 2017 and the total number of the West African Senior Secondary Certificate Examination (WASSCE) candidates were respectively taken from the Ghana Education Service (GES) and the West Africa Examinations Council (WAEC) websites. The tertiary education age category for Western Region was taken from the projections of the 2010 population census.

Primary data on facilities was collected from the Faculties of Engineering, Applied Arts and Technology, Built and the Natural Environment, Applied Sciences and the Secretaryship and Management Studies Department of the Faculty of Business Studies. The total credit hours taught by the teaching staff were taken from the Deans of Faculties. The Faculties and the Department mentioned have a lot of practical works in their curriculum.

Challenges and Assumptions

The total number of the present SHS 3 (2020) students and the

Projections for 2020/2021 First Year Enrolment Figures

Table 1: First Year Enrolment Figures of TTU Programmes for 2014/2015 – 2019/2020

Academic Year	Non Tertiary 100	DIPTECH 100	HND 100	BTECH regular 4YR 100	TOTAL	BTECH top up 100	MTECH 100	total	GRAND TOTAL
2019/2020	377	719	3507	72	4675	1187	9	1196	5871
2018/2019	282	261	3208	52	3803	836	12	848	4651
2017/2018	384	0	2900	0	3284	813	0	813	4097
2016/2017	170	0	2783	0	2953	347	0	347	3300
2015/2016	165	0	2683	0	2848	343	0	343	3191
2014/2015	247	0	2192	0	2439	103	0	103	2542
TOTAL	1625	980	17273	124	20002	3629	21	3650	23625

Source: (Annual Report of the Planning Office, TTU, 2018/2019).

total number of SHS 3 students in 2019 were difficult to find, fortunately the total number of the first batch (2017) free SHS education students was known.

As a result of the above, the under listed assumptions were made.

1. All the first batch free education students who were admitted to first year of SHS and other analogous institutions in 2017 have sat for their final examinations in 2020.
2. The total number of SHS 3 students in 2020 was assumed to be equal to the total number of students who sat for the WAS-SCE and other sister examinations in 2020
3. All the Final year students of 2020 will apply to the various tertiary institutions in the 2020/2021 academic year.

Analysis of Data and Discussion

Enrolments were analyzed on the 3 basic thematic areas: New Entrants, Total Enrolment and Growth Rates in Enrolments for Established Public Universities.

Indicators under the New Entrants are the Male: Female Participation and Science: Social Sciences and Humanities ratio. TTU's share of the Gross Enrolment Ratio of the tertiary education sub-sector was computed to ascertain the level of the University's participation. Growth Rates in Enrolments in Humanities/Business and Science and Technology were analyzed and compared with the standards.

The estimated first year enrolment for the 2020/2021 academic year was found by studying the Level 100 enrolment trend from 2014/2015 - 2019/2020 and computing the geometric mean using the formula: $Gm. = (f/a)^{1/n-1}$ where f and a are the enrolment figures for different years and f/a are the growth factors.

Further analysis was made on whether the University will be able to admit the estimated figure by considering the available space and equipment. The student-facility ratio and classroom capacity for lectures were used for such analysis. Utilization of classroom facility to its optimum capacity was also analyzed given the credit hours and the period of time to use the facility from 7.00am – 5.00pm for the regular programmes.

The first year students of the University consist of the tertiary and the non-tertiary categories. The non-tertiary is composed of those admitted to the Ordinary Diploma and the Technicians who are externally assessed by WAEC and the Technical Examinations Division of GES as well as the ACCESS programme examined by NABPTEX. It is also made up of students admitted to the University's own Diploma assessed internally, referred to as the Diploma of Technology (DIPTECH).

The tertiary component is also made up of students admitted to the Higher National Diploma (HND), the Bachelor of Technology (BTECH) and Master of Technology (MTECH) programmes.

Projections were made for external and internal applicants. Programmes where applicants are admitted from the second cycle schools (external) and those being admitted from the University (internal). As a result, Non tertiary Diploma and Technician courses, Diploma of technology, HND and the regular 4-year BTECH constituted one category while the 2-year BTECH Top up and MTECH constituted another category. It is on records that students from external institutions admitted to the BTECH top up and MTECH are insignificant relative to internal.

The Geometric Mean (Gm) = $(f/a)^{1/n-1}$ for the period 2014/2015 – 2019/2020 for the external applicants computed from Table 1 as:
 $Gm = (4675/2439)^{1/6-1}$
 $= (1.92)^{1/5}$
 $= (1.95)^{0.2}$
 $= 1.14.$

This means that enrolment increased averagely by 1.14 over the 6 year period for applicants from the second cycle institutions. Projections for the category in 2020/2021 academic year will be an increase of 1.14 on the 2019/2020 enrolment figure, that is
 $(4675 * 1.14)$
 $= 5330$

Considering the percentage increase in the 2019 WASSCE enrolment and the 2020 Free Education enrolment of SHS:
 $= \text{WASSCE 2019 candidates} = 346098$
 $\text{First Batch Free Education} = 424092$
 $\% \text{ increase} = (424092-346098)/346098 * 100\%$
 $= 77994/346098 * 100\%$
 $= 23\%$

The figure represents an increase in SHS Final year enrolment by 23% from 2019 to 2020.

Multiplying 23% by the projected 2020/2021 enrolment figure,
 $= 0.23 * 5330 = 1226$

The projected figure by the category considering the First Batch of the Free SHS
 $= 5330 + 1226 = 6556.$

Using the geometric mean, the BTECH top up and the MTECH will increase on the average by 1.63 over the period projecting the enrolment to $1196 * 1.63 = 1945$ in 2020/2021 provided all other efforts would be sustained. Given the trend, MTECH enrolment is likely to decrease from 9 to 7 if no intervention is put in place. The total first year students in 2019/2020 will increase from 5871 to 8501 ($6556 + 1945$) in 2020/2021 about 45% increase over the period.

Completion Rate and the Projected Enrolment in the 2020/2021 Academic Year

The completion rates for HND were computed from 2016/2017 – 2018/2019 year groups. The completion growth rate of the period will help predict for the completion rate for 2019/2020 and will inform decisions on the predicted 2020/2021 enrolment figure by analyzing the in-out ratios for space for lectures, equipment for practical work and for a policy on residential accommodation. The indicator is calculated as a percentage of the number of students who will graduate in a particular year group divided by the number enrolled for the same year group. Higher National Diploma students who graduated in 2016/2017 academic year were enrolled in 2014/2015. Table 2 illustrates the year of enrolment and graduation.

Table 2: HND Enrolment and Graduation Years

Enrolment year – student number	Graduation year – student number	Completion Rate (%)
2014/2015 - 2192	2016/2017 – 2159	98.5
2015/2016 - 2692	2017/2018 - 2683	99.7
2016/2017 - 2783	2019/2020 -	100.9

Source: (Annual Report of the Planning Office, TTU, 2018/2019)

The research assumes a 100% exit for the Non-Tertiary Diploma and the Technicians considering the percentage increase of 1.2% in the Completion Rate from 2014/2015 academic year to 2015/2016. All the 9 students of MTECH will also exit but the 230 DIPTECH students will continue to use the University facilities per their line of progression. Assuming a 100% Promotion Rate for the DIPTECH 2, expectation is that HND 2 to increase by 230.

Considering the in-out ratios, the in-figures consist of the current DipTECH 100 who will be promoted to 200, current DipTECH 200 who will join HND 200 (HND 100 to 200), HND200-300, BTECH 4yr100 to 200 and then to 300. The out-figures consist of all final years except DipTECH 200. The Table 3 below illustrates it.

Table 3

SN	2019/2020			2020/2021		
	Programme	No. Of Students	Remarks	Programme	No. Of Students	Remarks
1	HND 300	2650	Exit	HND 300	3027	Promotion from HND 200
2	BTECH TOP UP 200	742	Exit	HND 200	3508 +230	
=3738	Promotion from HND 100 and DIP-TECH 200					
3	MTECH 200	14	Exit	BTECH 4yr 200	72	Promotion from BTECH 4yr 100
4	DIPTECH 200	230	Add to			
HND 200	BTECH 4yr 300	48	Promotion from BTECH 4yr 200			
5	DIPLOMA 2	65	Exit	BTECH TOP UP 200	270	Promotion from BTECH top up 100
				MTECH 200	9	Promotion from MTECH 100
				DIPTECH 200	708	Promotion from DIPTECH 100
TOTALS		3,701			7,872	

Source: (Annual Report of the Planning Office, TTU, 2018/2019)

The table shows that 3701 students will exit in 2019/2020 while 7872 will retain in 2019/2020 and 2021. The expected student population in the 2020/2021 academic year would be the sum of the predicted 'Fresher' enrolment of 8501 and the in-figure of 7872. This would totaled 16373. Considering the student population of 12599 in the 2019/2020 academic year, there would be an increase of 3774 representing 29.9% over the 2019/2020 student population basically due to the free SHS education policy.

Findings

1. Considering the percentage increase in 2019 WASSCE enrolment and the 2020 free education enrolment of Senior High School, there is a 23% increase in the year under review. It means that tudents' enrollment growth is also going to increase in Takoradi Technical University (TTU) and therefore has implications for planning on infrastructure and manpower.
2. Considering the student population of 12599 in the 2019/2020 academic year, there would be an increase of 3774 representing 29.9% over the 2019/ 2020 student population basically due to the free Senior High School education policy. It means that TTU is witnessing almost 30% increase in freshmen enrollment and the likelihood for higher percentage increase in the subsequent years which has implications on the already limited existing infrastructure.

Conclusion

The year under review witnessed marginal improvements over the

previous year's ratios and rates of the key indicators. The observations could be attributed to Management's effort in responding to the recommendations of the 2018/2019 Annual Report of the Planning Office. It is worth mentioning, however that, despite the improvements in the key indicators, the institution still fall short

to the norm that practical class has a minimum class size of twenty (20) students and a maximum class size of forty (40) students whereas non-practical class has a minimum of sixty (60) students and a maximum of eighty (80) students. Management should therefore put in the necessary and vigorous measures to correct the deviations [1-4].

Recommendations

1. Considering the percentage increase in enrollment from the 2019/2020 to 2020/2021 academic year and the Government policy on free Senior High School, management should have more engagement with the stakeholders in educational infra-structural provision to meet the current increase in enrollment growth rate and future projections.
2. Comparing the available number of beds in the University's halls of residence (1670) to the expected enrolment of 16,373 students, it implies that over 80% of the students cannot be accommodated in the University halls of residence. To this end, management should engage more owners/operators of private hostels in order to ensure good deals and prevent exploitation of students who would be accommodated in these private hostels.

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