

Trend analysis of Students' Admission, Enrolment and Completion in KNUST Distance Learning Postgraduate Programmes

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Abstract

This paper analysed the trends of admission, enrolment and completion of some Kwame Nkrumah University of Science and Technology – Institute of Distance Learning (KNUST–IDL) postgraduate programmers over 6 years, and the factors that affect candidates' delay in completion of programmers. Academic records review and questionnaire were used to gather data. Analysis of the data revealed that students' admission and enrolment were highest in 2011 with 1,669 and 1,370 students respectively and lowest in 2015 with 576 and 436 students respectively. Admission trends show a yearly increase in admission from 2009 to 2011 but a decrease from 2012 to 2015. Student enrolment showed a fluctuating trend between 2009 and 2015. Comparatively, completion in science programmers was lower than in humanity programmers. Candidates' inability to graduate on time was as a result of factors such as household issues, financial constraints, thesis and examination related issues. It is recommended that KNUST–IDL should implement strategies to ensuring increasing student enrolment and on-time completion of programmers.

Key words: Trend analysis, admission, enrolment, completion, Distance education

1. Introduction

Most Universities in sub-Saharan Africa are not able to meet the demands of higher education by qualified applicants (Materu, 2007). In Ghana, a greater number of qualified applicants to universities are turned away annually due to inadequate facilities and rising cost of providing quality education at the tertiary level (Mensah and Owusu-Mensah, 2002).

To remedy such situation, many tertiary institutions in Ghana have adopted distance education as a viable complement to the conventional on-campus teaching. The Kwame Nkrumah University of Science and Technology (KNUST), Kumasi established the Faculty of Distance Learning in 2005 - now Institute of Distance Learning (IDL) - to facilitate the running of distance learning programmes. Thus, KNUST became a dual mode institution providing both conventional and distance education programmes simultaneously.

The IDL is envisioned to significantly increasing equitable access to relevant, affordable and flexible tertiary education and training through a wide variety of demand-driven continuing, undergraduate and postgraduate programmes. The IDL offers opportunity to those who cannot be accommodated in conventional systems for reasons such as family and work obligations, age, time, affordability, competition, and logistical challenges among others. In order to increase access to KNUST programmes by distance, IDL has introduced several undergraduate, postgraduate and continuing education programmes. The IDL started with 3 undergraduate programmes in 2005/2006 academic year with a student population of 295. By 2012/2013, the institute was offering 13 postgraduate and 13 undergraduate programmes with a total student population of 10,475 (IDL, 2013).

The number of programmes grew to 24 for postgraduate and 17 for undergraduate by 2015/2016 academic year. Student enrolment in the postgraduate programmes stood at about 3,500 in the 2015/16 academic year. Table 1 Summarises Postgraduate Programmes offered by IDL in collaboration with Departments in KNUST from 2006 to 2015.

Table 1: Postgraduate Programmes run by the IDL from 2006 to 2015

Year	Programmes	Collaborating Departments
2006	MPhil/M.Sc. Industrial Mathematics	Mathematics
2007	Commonwealth Executive Masters of Business Administration (CEMBA) Commonwealth Executive Masters of Public Administration (CEMPA)	IDL Programme IDL Programme
2009	M.Sc. Environmental Science MPhil/M.Sc. Postharvest Technology	Theoretical and Applied Biology Horticulture
2011	M.Sc. Health Informatics MPhil/M.Sc. Information Technology	Computer Science Computer Science
2012	M.Sc. Actuarial Science M.Sc. Food Quality Management M.Sc. Business Consulting and Enterprise Risk Management M.Sc. Development Management MPhil/M.Sc. Educational Innovation and Leadership Science MPhil/M.Sc. Industrial Finance and Investment	Mathematics Food Science and Technology IDL Programme IDL Programme IDL Programme
2013	MBA. Logistics And Supply Chain Management	School of Business
2014	M. Public Administration	Political Science
2015	MPHIL/M.SC Forensic Science MPHIL/MPA. Political Science M. Education M.Sc. Human Nutrition And Dietetics MBA. Accounting MBA. Finance MBA. Human Resource Management MBA. Marketing MPhil/M.Sc. Logistics and Supply Chain Management	Biochemistry and Biotechnology Political Science Art Education Food Science and Technology School of Business School of Business School of Business School of Business School of Business IDL Programme

Apart from the CEMBA and CEMPA programmes which are offered in all the 10 Regional centres of the Institute, the remaining 22 postgraduate programmes are offered in only two centers: KNUST Campus, Kumasi and Kwabenya Campus, Accra. In this paper, we studied the trends of admission, enrollment and completion in five selected KNUST-IDL postgraduate programmes. We have contextually defined admitted students as the number of applicants who were selected with a written confirmation to pursue a programme, and enrolled students as number of admitted applicants who registered and participated in the programmes. We also defined completed students as the number of students who have successfully fulfilled the requirements of a programme and are eligible for certificate; enrolment rate as the percentage of admitted applicants who registered and participated in the programme and completion rate as the percentage of students who graduated from their programme of study within a required period.

Writing on trend analysis study, Bell and Best (1986) stated that "it is based upon longitudinal consideration of recorded data indicating what has happened in the past, what the present situation reveals and on the basis of this data what is likely to happen in future". Trend studies according to Koul (1995) are "undertaken through documentary analysis or survey at repeated intervals". The Council on Academic Accreditation (CAA) has identified programme completion rates as an outcome measure that addresses the quality of the programme's success with respect to student achievement. Further, the CAA believes that programme completion rates reflect multiple facets of programme effectiveness. Some researchers have used the push and pull theory of migration to explain the differences between students' objectives for enrolling in educational programmes and factors that push them to drop out of programmes.

Ndudzo and Nyatanga (2013) used the push and pull theory to explore the factors which attract students to Open Distance Learning (ODL) as well as outlining the factors which discourage learners from pursuing studies through ODL in Zimbabwe Open University (ZOU). Their study showed that ODL learner is attracted (pull) to ZOU because it is conveniently found within the Regional Centers of Zimbabwe's provinces. Other drivers include convenience, flexibility fee payment plan and personality and professional development. The major factors which discourage (push) learners to pursue distance education with ZOU include limited contact time with tutors, nature of induction given to learners, inaccessibility of computers and the internet, lack of financial resources to fund education and unfavorable fees payment schemes.

In an Evaluation Study of the Diploma in Computer Science and Application (DCSA) Programme at Bangladesh Open University, Rashid *et al* (2015) investigated the status of DCSA programme focusing on student enrollment, dropout, and completion trends. The study explored the factors that attract or pull students to enroll in the programme and push them to dropout from the programme. The findings of their study revealed that the push factors identified from the study are mostly extrinsic or institution related. They included personal work load, financial constraint, examination related factors (failure in examination) and lack of understanding of course materials among others. They stated further that the factors that need to improve are current instructional strategy, timely delivery of learning materials and course related information.

Concern about decreasing enrolment and low completion rates for distance learners has been documented by researchers(Waldrop, 2013). According to Dede (cited in Waldrop, 2013) "distance learning ever since the first correspondence courses in the 19th Century has witnessed exponential growth of students but plagued with the retention and completion problems". With less than 300 enrolled students in 2005, IDL recorded student enrolment figures of 10,475 in 2012/13 academic years with 24programmes for both postgraduate and undergraduate. However, student enrolment numbers have been on decline since 2013/14 academic year. In 2015/16 for instance, student enrolment numbers dropped to 7,454 although the number of programmes had increased to 41. Enrolment over the academic years has not been met with proportional completion rates. Completion figures have varied by programme but are reputedly low. This study provides detailed view of trends in admission, enrolment and completion and examines factors affecting students' completion of postgraduate programme sin KNUST-IDL. The main objective of this study was to provide trends in admission, enrollment and completion of distance learning postgraduate programmes and to explain factors affecting the late completion of programmes in the KNUST-IDL.

The specific objectives of the study therefore were to:

- 1.Examine students admission, enrollment and completion trends in KNUST-IDL postgraduate programmes from 2009/2010 – 2015/2016 academic years
2. Identify factors that are accountable for students' late completion in programmes.

2. Methodology

The nature of this study is along the line of a descriptive survey. According to Best and Khan (1998), descriptive research is concerned with conditions or relationships that exist such as trends. The study covered postgraduates of five programmes who enrolled in their studies from 2009 and completed their programmes from 2011 to 2015. The programmes of study were M.Sc. Industrial Mathematics, Commonwealth Executive Masters of Business Administration (CEMBA), Commonwealth Executive Masters of Public Administration (CEMPA), M.Sc. Environmental Science and M.Sc. Postharvest Technology. The programmes were purposively selected because they were among the early batch of postgraduate programmes established and hence have past graduates completing their programmes as far back as 2011.

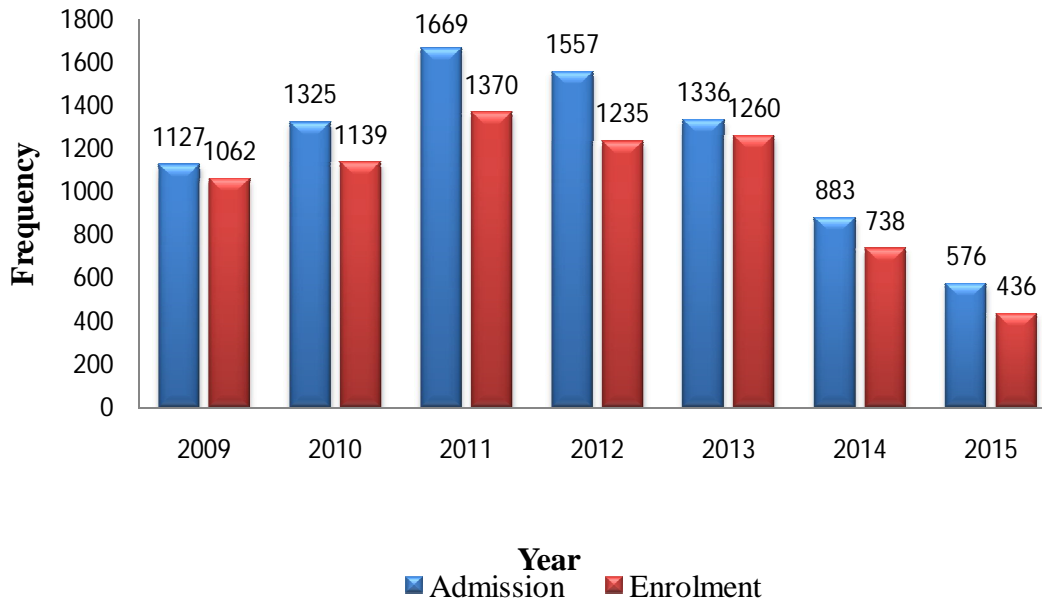
Primary data on factors that hinder students' completion in programmes were collected from students who overstayed their programmes of study through interview. The study used a Likert scale type questions to derive data. In all40 students and two key informants from KNUST-IDL were interviewed. Data were collected on their opinions about programmes focusing on the reasons of overstay, quality of student support services and areas of improvement for effectiveness of the programme. Secondary information was generated from a review of documents from KNUST-IDL, KNUST ARMIS and the School of Graduate Studies (SGS). Data obtained for the study were analysed quantitatively using MS-Excel version 2010 and SPSS version 20 and presented with graphs and tables.

3. Results and Discussion

3.1 Admission and enrolment trends of selected IDL postgraduate programmes

The admission and enrolment trends of students from the five selected programmes (M.Sc. Industrial Mathematics, Commonwealth Executive Masters of Business Administration, Commonwealth Executive Masters of Public Administration, M.Sc. Environmental Science and M.Sc. Postharvest Technology) as examined from the KNUST ARMIS and the School of Graduate Studies records are presented in Figure 1 below;

Figure1: Admission and enrolment trends of five selected IDL postgraduate programmes



From Figure 1, it is observed that the year 2011 recorded the highest numbers of students' admission (1669) and enrolment (1370). The results show admission increased yearly from 2009 to 2011, but decreased from 2012 to 2015. The year 2015 recorded the lowest numbers of admitted students (576). With regards to the enrolment trend, the results show a fluctuating trend of student enrolment between 2009 and 2015. The highest number of enrolled students (1370) was recorded in 2011, which represented 82.1% of total admitted applicants. The lowest number of enrolled students (436) representing 75.2% of total admitted applicants was in 2015. The years 2009 and 2013 recorded the highest proportions (94.2% and 94.3% respectively) of admitted applicants enrolling in their programmes of study.

Generally, the results show that there is decreasing trend in admission and enrollment especially from 2013 to 2015. The decreasing trends raise concerns about the sustainability of the various programmes. In an interview with Director of the institute he said; "We are becoming concerned about the drop in admission and enrollment figures for our postgraduate programmes since 2014. There may be several reasons why the drop. Amongst them is perhaps the proliferation of distance education institutions in Ghana and hence competition for students".

The Institute Registrar shared his view about the drop as follows; "The drop in enrolment to me is as a result of the uncompetitive admission requirement for selecting applicants into the institute. For instance, our institute gives attention to Senior High School results in addition to the first degree certificate, and so applicants who in one way or the other have deficiencies in WASSCE or SSSCE results are not able to gain admission here and so opt for other institutions".

3.2 Comparison of Enrolment among Humanities and Science Based Programmes

Figure 2 present comparison between enrolment rates in the humanities and Sciences programmes for the period 2009-2015.

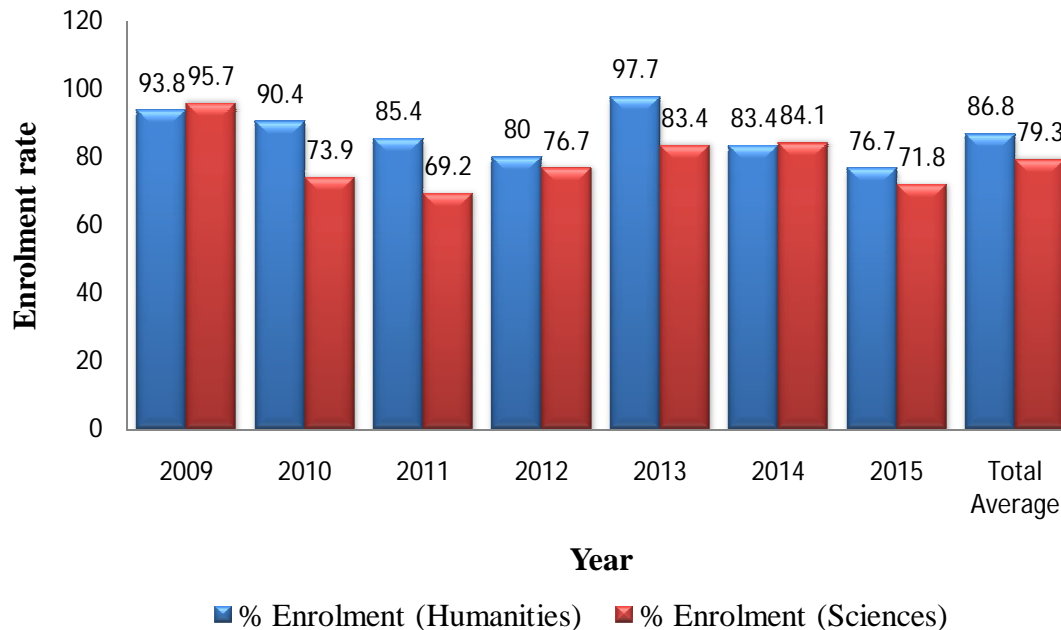


Figure 2: Comparison of enrolment among humanity and science programmes of KNUST-IDL

From Figure 2 above it is clear that there is little variation in the enrolment rates between the humanities and sciences programmes. Students’ enrolment rate in the Humanities programmes was 93.8% in 2009 but decreases steadily through to 80% in 2012. The highest enrolment rate (97.7%) was recorded in 2013 but then again decreased to 76.7% (lowest) in 2015. The trend in enrolment rate in the science programme followed a similar pattern as that of the humanities programmes. The enrolment rate in the science programme was 95.7% in 2009 decreased to 69.2% in 2011 and picked up to 84.1% in 2014 and then decreased again to 71.8% in 2015 showing a fluctuating trend. The highest students’ enrolment rate (95.7%) was recorded in 2009 and the lowest rate (69.2%) recorded in 2011.

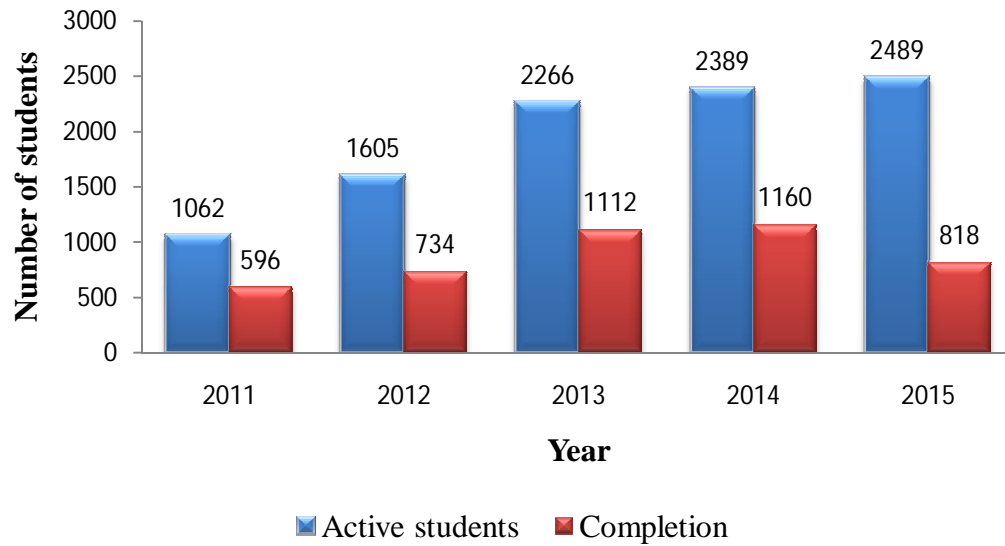
Despite the fact that the trend in enrolment rates in both the humanities and science based programmes were quite similar, enrolment among the humanities programme were relatively higher than that of the sciences. This is quite understandable due to the structure and difficulty in handling science based programmes in distance learning as compared to humanity programmes. According to Nigam and Joshi (cited in Osei and Mensah, 2012), non-science courses are easily handled in distance learning as compared to science programmes. They noted that distance education in technology and science is still grappling with numerous implementation stages.

At the KNUST-IDL, the dynamics and variation in enrolment might have arose from intrinsic factors such as tuition fee, expenses in purchasing science instruments and chemicals for research works. In a study by Dadigamuwa and Senanayake (2012), affordable fee structure was found to be the third most important factor that affect enrolment in science and engineering programmes. This assertion was confirmed by the Institute’s accountant in an interview when he said: “Challenges in payment of tuition fee have been much more pronounced in the science programmes than others. Many of the science students are in arrears of fees compared to other programmes. I would imagine the high cost of the fees they pay might have accounted for this situation”.

3.4 Completion Trends of selected IDL postgraduate programmes

The results in Figure 3 below show the trend of student completion per year. From the figure, the active students are students who are in final semester of their programmes plus students from previous cohort that could not graduate in the previous years.

Figure 3: Completion trend among the selected Postgraduate programmes



From the results it is noted that the number of active students have increased across the years from 1062 in 2011 to 2489 in 2015. The number of completed students have also increased from 596 in 2011 to 1160 in 2014 but decreased to 818 in 2015. These results show that despite the fact that the number of active students reached the highest (2489) in 2015, the same year recorded a low completion. Other researchers such as Wang and Baker (2015) have also reported low completion rates of students in distance learning programmes citing reasons such as busy schedules at workplaces, family and other social responsibilities as major factors. Wang and Baker (2015) further noted that it is often unclear whether completion on time is even a goal for distance learners as many have other goals and motivation beyond completing on time and/or earning a certificate.

3.5 Comparison of Completion Rate between Humanities and Sciences Programmes

A comparison of the completion rate between the postgraduate science and humanity programmes of the KNUST-IDL are presented in Fig.4. The completion rates were calculated as the percentage of active students that actually completed from each programme per year.

Figure4: Comparison of completion rate between humanity and sciences programme

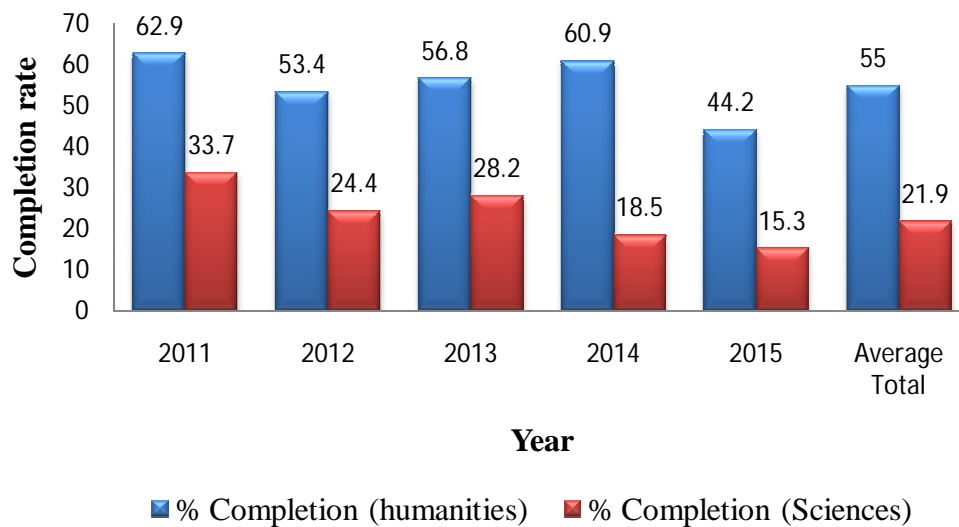


Figure 4 shows that completion rate among the humanity programmes are higher than that of the sciences. It indicates that for each, that is 2011 to 2015 the completion rate among the humanity programmes were higher than the science programmes. While the average completion rate among the science programmes is 21.9%, the rate for the humanity programmes is 55%.

3.6 Factors Influencing Completion Rate of Students

A student’s inability to complete a course within a specified duration could be attributed to a vast number of many factors: such as Trail in a course, poor Cumulative Weighted Average (CWA), inability to complete thesis, fees challenges, and other student’s personal issues. This section of the study presents analysis of the factors that affected students’ completion of their programmes.

From the results - of a Factor analysis - presented in Table 2, it is observed that there are four major factors that affected students’ completion rate. These are personal and institutional factors namely household issues, financial constraints, thesis related challenges and examination related issues. From the results in Table 2, the factors which were identified to have hindered completion include rewriting of trail paper(s); CWA less than 55; late completion of thesis; delays from thesis supervisor; late assignment of thesis supervisor; outstanding fees; lack of funds for thesis; family burden, and health issues. Variables such as ‘outstanding fees’ and ‘lack of fund for thesis’ load strongly on component 1 and thus denoted ‘Financial constraint’. Family burden and health issues load strongly on component 2, denoted as ‘household issues’.

Also variables such as late completion of thesis, delays from thesis supervisor and late assignment of thesis supervisor all load strongly on component 3 and denoted ‘thesis related challenges’. Variables ‘rewrite trail paper’ and ‘CWA less than 55’ also load strongly on component 4 which we termed as ‘examination related issues’.

Table 2: Factors affecting students completion rates

Items	Component			
	1	2	3	4
Rewrite trail paper	.277	.004	.121	.826
CWA less than 55	.023	.043	-.044	.853
Late completion of thesis	.160	.205	.647	.089
Delays from thesis supervisor	-.339	.111	.777	.282
Late assignment of thesis supervisor	.211	.114	.748	-.244
Outstanding fees	.891	.056	.206	.233
Lack of funds for thesis	.915	.239	-.045	.079
Family burden	.036	.919	.232	.095
Health issues	.240	.908	.144	-.044

The factors observed from the study are also widely reported in many other related past studies on students' completion. The challenge of cost is noted by researchers (Hickman, 2003). According to Hickman (2003), many students in distance education find cost as a challenge with some of them often deferring their programmes until they get funds to pay for tuition and other expenses hence leading to low completion rate among students. The challenge of handling multiple roles noted with adult learners has also been widely acknowledged as a characteristic of distance learners that affect their completion rate. As Gachugi (2013) noted distance learners are both adults and parents, and as such are faced with the challenge of managing limited time for studies with other demand on family and work related issues. This situation does not only affect performances but also the available time for thesis work and other assignment relating to their studies there by resulting in delays in completion of their programmes.

4 Conclusion

The findings from the study have revealed a general decreasing trend in number of students admitted and enrolled over the years. The completion rate of science based programmes was also found to be very low. A number of factors accounted for the low completion rates. While some of factors relate to institutional factors, others relate to students personal issues.

The study therefore recommends that the KNUST-IDL should adopt strategies that will increase enrolment. This recommendation is based on the premise that students numbers are dropping for the various programmes. It was observed that financial challenges played a role in delaying completion of programmes. This situation can however serve as deterrent to prospective applicants to KNUST-IDL programmes, and so we suggest that fee amount and payments package should be reviewed to make it payer friendly. Also, KNUST-IDL should strengthen student-supervisor relationship by enforcing students' attendance to thesis seminars, and by ensuring supervisors and students' adherence to thesis supervision timetable drawn by them. Also since workers are the primary stakeholder group for distance learning, KNUST-IDL should target them, using promotional strategies that involve reaching out to them at their work places.

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