

The impact of background variables for students' Performance: Case of online external degree program in Sri Lanka

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Abstract— The purpose of this study is to identify and the background variables that influence the student dropouts in an external degree program in Sri Lanka. Based on year 2013 statistics, out of the 240,000 students who sat for the G.C.E (A/L) examination, less than 10% were admitted to the universities. Out of the balance 90% who do not get the opportunity to enter the university education, considerable number of students enroll for the foreign degree programs and external degree programs. However statistics shows that its only 4.54% of students graduates through this degree program. The data collection undertaken for this study is obtained from the Colombo university database of registered BIT students. And experts representing academics who directly involved with the BIT degree program at university of Colombo, facilitation staff for the BIT degree program as well as the representatives of private education institutions who conduct classes to assist the students who follow BIT degree program were interviewed to reason out the background variable that impact upon student's completion rate. The study concludes that the student's age, geographical distribution and language barriers have higher impact on students' performances.

Keywords-Higher Education, Distant Learning, Drop out factors

I. INTRODUCTION

To go up in the ladder of success in Sri Lankan job market in Information Technology (IT) industry, having either profession qualification or university degree is very crucial. Additionally to that, having a university degree certificate will minimize the risk of unemployment.

In Sri Lanka, after sitting for G.C.E Advance Level examination, highest scored students from the examination get an opportunity to enter to the local universities where the students can get full scholarship to complete their Bachelor's degree program. According to statistical pocket book 2014 published by of census and statistics department in Sri Lanka stated that, every year around 300,000 students sit for G. C. E. A/L and nearly 60% qualify to sit for the G. C. E. A/L examination. As illustrated in Fig. 01 among these students, 240, 000 students sit for the G.C.E. A/L and around 150, 000 students qualify to enter university. That means 60% of candidates are eligible to enter for the university. Even though

there are around 150,000 eligible candidates per year, 15 local universities in Sri Lanka can accommodate only around 24,000 new students per year.

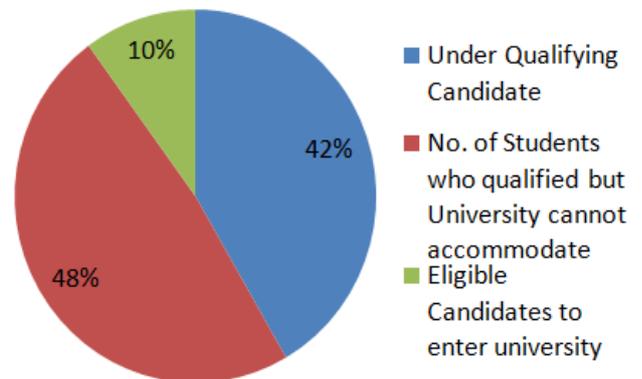


Figure 1. University entrance eligibility in Sri Lanka

That means merely top 17% of students can enter local universities in Sri Lanka and all the other students being automatically rejected from the university system [1].

Thus most of the students who completed higher education tend to seek paid university education via foreign universities or from local universities as external degree students. Even though among external students, enrollment for the degree program rates are very high but the same time system performs very poorly in term of degree completion.

The objective of this study is to identify the background variables that help to increase number of graduates from IT related external degree programs and the students' failures and dropouts. This will help university authorizes to take necessary steps to provide effective university education to the students who are coming from different backgrounds. Here in this study we try to identify background variables that have an impact upon the completion of external degree program.

To accomplish the stated objective this paper analyzes students data gathered from bachelor of information technology degree program conducted by University of Colombo. In year 2000, University of Colombo launched an external online degree program named Bachelor of Information

Technology (BIT) [2]. Any student who possesses 3 passes for G.C.E. A/L examination or gets through the entry exam named "Fundamentals of Information Technology" (FIT) can enroll to this BIT degree program. BIT degree program provides online facilitations and online materials for all the students who enrolled for each year. In addition to the online support there are number of private education institutes such as ESOF, MATRIX, OpenArc, etc. who conduct classes for the BIT students [3].

The nature of the BIT degree program is such that it is a three year part time degree program and the program has three exit points which is based on student's performances. Students who completes the respective assignment and who passes the first year examination were awarded a diploma in IT, while successful completion of second year will award higher diploma in IT and finally students will be eligible for the bachelor degree in IT after successfully completing minimum number of subjects from each of the three years, accomplish minimum GPA for the degree program, possessing a minimum "C" pass for the third year Individual Project and minimum "D" pass for all other subjects and a pass for all the enhancement courses [4].

Today BIT is one of the most popular external degree programs among Sri Lankan students' community. Based on the statistics, from year 2000 to year 2014 more than 30,000 students have registered for the BIT program and every year nearly 3000 new students registered for the degree program.

II. LITERATURE REVIEW

The extend of different scholarly publications with respect to the online or distant learning educational programs drop off rate amplify the importance of stated topic in Sri Lankan external degree program. Some of such studies the authors have tried to find out the factors and reasons for large students dropouts in the stated degree programs. For example Ortiz and Dehon (2013) study on distance learning in US tries to identify background variables which impact on US students academic performances. The outcome of this study indicates that variables such as age, gender, family background, institution involvement, and financial assistant have a higher impact on students' performances. Though the numbers of scholars agree with the state variables, the impact of these variables towards the students' performances have resulted with contradictory outcomes. Further studies on this disagreement reveals that it is the 'methodology' that varies in each of the studies have causes such deviation in the impact of the stated variables [5]. Among those various variables, we concerned on few important variables which will impact on distant learning IT students' academic performances. The impact of these variables on students performances are visually presented in **Fig. 01**.

A. Terms of Definitions

The term "dropping out" is a very broad statement. Thus it is very much important to understand and define this term beforehand. According to Tinto (1975), the term "dropout" was defined as the ones who are unsuccessful to achieve desired individual academic goals [6]. So in this study we

discuss about dropouts and successors of BIT distant learning degree program.

B. Variables that impact on students' performances

- Financial background of the students

Financial background of the students is one of the common and key factors (that comes under the variable 'personal characteristics') that impact upon students performances (for example parents financial strength, financial aids, etc.) According to Ortiz and Dehon students with Stable and reliable financial background (either from parents or receiving any financial aids) have a great potential to complete their degree program than students with unstable financial background [5].

Today, Sri Lanka has number of private universities and institutions, who offers undergraduate degree programs either by their own university name or with the affiliation of a foreign university. However compare to Government University's external degree programs; private institutions and universities charges are very high. These charges are mounted with registration fees, examination fees and administration fees adding on top of the tuition fees. Based on the current figures (2015) on average private institute charge Rs.400,000/= to Rs.1,000,000/= from their students to complete a degree program [7]. In many instances these figure go beyond the stated upper limit with many other extra payments (such as exam repetition fees). However, the external degrees offered by the government universities are very cheap compared to private institution offered degree programs.

For an example the BIT students have to pay only around Rs. 50, 000, as for fees (registration fee and examination fee) if they are to complete their degree, within three years (without repeating any subject). But if a student chooses to attend classes conducted by private institutions such ESOF, IDM, etc., or repeat a particular subjects, the stated cost will be differ and will increase.

- Past academic performance and prior knowledge about IT

Most of the researchers suggested that previous students' academic performance and prior knowledge about the subject matter influence the students' performance. More specifically, the literature reveals that students with weak prior academic performance and less knowledge about the subject have high tendency to drop out from the degree program [8].

- Language Proficiency

Alfan and Othman (2006) studies further claim that the "Students with better knowledge of English language most likely to perform better in the university than the students with poor knowledge of English" [9].

- Students' gender

According to Mudaa (2013), scholars have contradictory opinions on the impact of gender on academic performance. Some scholars' such as Mutcheler et al (1987), Tyson (1989) and Tinto(1973) argue that females students performance are better than male students, researchers such as okafor (2011) and Koh (1999) argues that male students are superior than

female students in their academic performances [8]. On the other hand researches such as Byrne and Flood (2008) and Belinda (2009) claims that gender has no impact on academic performance. Such deviation in gender based academic performance can be attributed to the applied methodology in their studies, respective subject areas that the study focused and different samples they used for their study [10], [11].

- Other variables

There are also other variables which impact the students' academic performances; such as disappointment with the degree program [12] students' attitude towards the degree program, learning style of the students, teaching style of the lecturers, family background, insufficient time, motivation, relationship issues, health, transportation priorities in students' life style, and friends [8].

III. METHODOLOGY

The data collection undertaken for this study is obtained from the Colombo university database of registered BIT students. This data gathered from the year 2000 until 2014. Thirty one thousand five hundred sixty one students' data were obtained for this study. Details of the students are under categories of into gender, age, district, registered year each studying year, passed or fail each studying year, year of successfully passed the diploma, advanced diploma or bachelor degree.

Experts interviews were conducted in order to identify and verify the respective background variables that impacting upon the students pass rates and retention facts behind the BIT degree program. These experts are represented with academics who directly involved with the BIT degree program at university of Colombo, facilitation staff for the BIT degree program as well as the representatives of private education institutions who conduct classes to assist the students who follow BIT degree program.

IV. FINDINGS AND DISCUSSION

From 2000 – 2014, thirty one thousand five hundred sixty one (31,561) students' data were gathered for the analysis and among all the students only thousand four hundred and thirty six (1,436) students (4.55%) were graduated from the external degree program. This study analyzed the statistics with respect to the impact on students performances based on their gender, age and geographical distribution.

A. Gender basis

TABLE I. GENDER BASIS

	No. of Registered students	No. of students who graduated	As a percentage
Male	20,059	884	4.41%
Female	11,500	552	4.80%

The initial statistical analysis looked in to the students pass rates based on the gender. The statistics indicates that out of the total number of students who register for BIT, 63.56% are male while the balance 36.44% is female students. The degree complication rate is also par with the students registration in which the statistics indicates that out of the total graduates 61.56% are male students and the balance 38.44% are female students. However even though this gives an impression that majority of the graduate are male students, as Table I indicates out of the total male and female students it is similar percentage of students (i.e. 4.41% and 4.80% respectively) who completes the BIT degree program. Thus we could conclude that the gender of students do not effectively impact on external degree completion and in this study specifically the BIT degree program.

B. Age basis

Table II illustrates the students' registration and pass rates based on different age groups of the students. The statistics indicates that 77% of the total student population comprises with youngsters who are in between 16 to 25 years of age. However out of the pool of students 18% are in between 26 to 35 years of age and the balance 5% are mature students. These statistics are justifiable in many terms, specifically when looking into the family commitment that the students have to make with their age, illiteracy in IT skills of Sri Lankan mature students and different learning styles with the age may lead to such low registration rate in age groups beyond age 35. Experts suggest that age of the students' have greater impact for the students' education. Most developed countries introduced different educational programs for adult learners considering their learning style but in Sri Lank adult learners have to struggle with educational programs without any exceptions.

Further Table II show that out of the total population of students who graduated with BIT degree program 88.92% are youngsters who are in between the age of 16 to 25. Though 9.48% of the total graduates are in between 26 to 35 years of

TABLE II. AGE BASIS

Age Group	No. of students who registered	% of students who registered	No. of students who passed	% of students who passed	As a percentage
16 – 25	24,340	77%	1,276	88.92%	5.23 %
26 – 35	5,677	18%	136	9.48%	2.33%
36 – 45	1,288	4%	21	1.46%	1.63 %
46 – 55	226	1%	2	0.14%	0.88 %
56 – 65	25	0%			0.00 %
66 – 75	2	0%			0.00 %
76 – 85	1	0%			0.00 %

age, out of 1,542 mature students (who are above 35 years of age) only 23 have been graduated. The experts claim that the

self studying nature of the BIT degree program may have an impact on this.

Having been in a teacher centered class rooms, the mature students are finding difficulties to learn the subjects via the online facilities.

However a careful study into this statistics shows that out of the total registered students the youngsters pass rates is high; it is still not an acceptable rate. For example out of the 24,340 students (who are in between age 16 to 25) it is only 5.23% of youngsters actually completes the degree and the balance continue to repeat the exam or drops out from the degree program. Experts claim that the lack of student centered learning culture and the higher tuition fees charged by the education institutes may cause such results.

C. Geographical basiss

Next, the study was extended to evaluate the student's registration and pass rates based on their geographical distribution. Table III is a summary of statistical evaluation.

The geographical distribution of the registered students shows that the central city "Colombo" has the broadest population followed by "Kandy", "Gampaha" and "Kaluthara" districts. In parallel to student's population the pass rates also follows the same trend. The experts claim that this trend can be easily attributed to the positioning of educational institute who conduct classes for BIT students. Though BIT is an external degree program the students who had the opportunity to interact with face to face interaction with lecturers tend to perform well compared to the most of self studying students. On the other hand students from "Colombo" district and "Kandy" district are the elite set of students as these district's infrastructure facilities such as availability internet is high. This indirectly makes the online course alien to the students who are primarily coming from underprivileged districts such as "Jaffna".

The experts' further claim that since degree program conducted only in English language, the language barrier is again one of the main concerns for the students and the results. In Sri Lankan education system students are offered to follow primarily and secondary education through the two official languages Sinhala and Tamil.

District	No. of students who registered	No. of students who passed	As a percentage
Jaffna	1,140	34	2.98%
Other	6,102	150	2.46%
Foreign Countries	8	0	0.00%

Only very few privileged schools in main cities in Colombo, Kandy and few other cities have the facility to follow secondary level education in English medium. However still in the Sri Lankan context, most of the students still prefer to sit for the G.C.E. O/L and G.C.E. A/L examination in either Sinhala or Tamil medium.

So naturally, most of students find it difficult to complete their degree program due to the language barriers. Though BIT degree program conduct in English medium, considering students' English language barrier, university introduce English language as an enhancement course for the first year students. But the experts arise the problems that will the students overcome their language fear after doing only a course? Does the university need to consider access students' English knowledge before they enroll for the degree program?

Table III reflects the impact of such impediments. Apart from the language barrier, this degree program is primarily based on the literacy of information technology in which mathematics also plays a prominent role. Expert claim that the studies illiteracy rates in Mathematics is a primarily reason for the lack of pass rates in districts other than the "Colombo", "Kandy", "Gampaha" and "Kaluthara".

V. CONCLUSION

The purpose of this study is to identify and the background variables that influence the student dropouts in an external degree program in Sri Lanka, and in this study the BIT degree program conducted by University of Colombo. The study concludes that student's age, literacy rate in English and Mathematics, limited face to face classroom activities (or availability of education instructional support), self studying nature of the degree program, and lack of infrastructure are the main reasons for the massive dropout rate of external degree program but gender of the student doesn't influence for the student dropouts in an external degree program.

To enroll for the BIT degree program the university expect students to obtain minimum academic qualification. So concerning the mentioned academic achievements, the university assumes that students have a high-quality student's record to enroll and continue the degree program. But concerning current dropout rate of BIT students, we can raise the question "is this minimum qualification is enough to enroll for the degree program and success with degree completion?" However as per today there is no proper study that has been conducted on the impact of students past performances on the completion of BIT degree program. G.C.E (A/L) and FIT being the entry qualification, the impact of each of these qualifications for the completion of the BIT degree program will bring important insight to this study. Thus the outcome of this study will address the question "Do we need to amend the

TABLE III. GEOGRAPHICAL BASIS

District	No. of students who registered	No. of students who passed	As a percentage
Colombo	9,202	630	6.85%
Kandy	2,386	149	6.24%
Gampaha	4,995	233	4.66%
Kalutara	2,391	98	4.10%
Galle	1,840	70	3.80%
Kegalle	1,049	35	3.34%
Matara	1,195	37	3.10%

education qualification to enroll the program or do we need compulsory fundamental introductory program for all the students before they start the degree program?" [9].

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