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DETERMINANTS OF UNIVERSITY CHOICE FOR THE ACADEMIC DISCIPLINES IN THE TERTIARY EDUCATION IN SRI LANKA

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ABSTRACT

Tertiary education in Sri Lanka is a discretionary level of auxiliary education thus, primary and secondary education are compulsory in Sri Lanka. The tertiary education in Sri Lanka essentially stood up to with two crucial challenges, where among the students passing the G.C.E. Advanced Level Examination, only 15% would be accounted to enter university system while 85% are cleared out behind. In expansion, roughly over dozens of millions of students yearly lose the opportunity to continue higher education. Out of 20,000 students, who are selected to for universities are left with zero option to make a university choice based on their qualification and skills. Hence, there is a much demand from the students for a suitable academic discipline such as appropriate degree programs aiming for a sustainable carrier path after holding the degree title. Presently, Sri Lanka do not have a framework or mechanism to identify the student's university selection based on their qualifications, skills or willingness to select a suitable degree program. Hence, this study aims to identify the determinants of university choice for the academic disciplines in the tertiary education in Sri Lanka to develop a suitable mechanism for a physiological paradigm shift of higher education in Sri Lanka. The methodology of the study is based on the Dimensional factors of student selection Hossler (1999), Kotler and Fox (1995), Marketing Mix model for higher education and Combined Complex Decision model, (Holdswoth and Nind, 2005) to measure the University choices in various disciplines. The study used both qualitative and quantitative approaches and the sample was drawn based on convenient sampling technique as 139 participated in the study out of the population of 150 students. The study used both descriptive and essential inferential statistics tools to derive the analysis to meet the objectives of the study. The key findings of the study indicate that students are less likely to select the HEM programs when they concern the employability factor. Availability of flexible payment methods of the degree programs are more influential that the students are more likely to select HEM programmes as their undergraduate choice. Aside from that, female students are more likely to select HEM programmes as their undergraduate choice, yet they remain unemployed. Hence, the results are somewhat argumentative; therefore, it is much evident that Sri Lanka needs a phycological paradigm shift in the higher education system to develop a suitable mechanism for the university choices among the students.

Key Words: University Choice, Developing a Mechanism, Demand of the Students, Academic disciplines.

INTRODUCTION

Intellectual innovations and contemporary researchers are driving for

an immense transverse in the world trending patterns of education system in the modern world. Principally, Research findings enhance the academic excellence in which similarly improves the scholastic greatness and it helps to direct the current education system in the right pathway. Being a developing nation, it is high time that Sri Lanka ought essentially to adopt revolutionary education systems to ascertain proper labor force with added expertise with the purpose of assisting the state to compete with the rest of the world. In a nutshell, the country is currently ranked as 91st out of 118 countries based on Gross Enrollment Ratio (GER) in tertiary education and the higher education participation rate in the world. Comparatively, the East Asian countries show a significant improvement from late nineties onwards where Sri Lanka shown a slow progress in the higher education even though Sri Lanka attempts to emulate some South Asian states such as Indonesia, Malaysia, Vietnam and India. The GER, is a tool to determine the number of students enrolled in school at several different grade levels, and it was recorded in Indonesia as 31 percent, Malaysia and Vietnam as 30 percent, Thailand's GER is 51 percent, and Sri Lanka was recorded as just a little bit above 20 percent. (World Bank Annual Report, 2019).

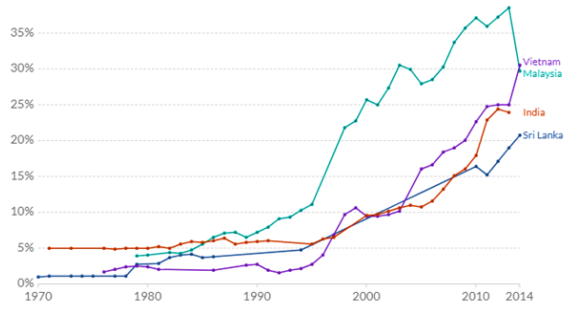


Figure No: 1 – Gross Enrolment Ration in Tertiary Education. (1970 to 2004)
Source: World Bank Annul Report (2019)

The tertiary education in Sri Lanka primarily confronted with two fundamental challenges where amongst the participants passing the G.C.E. Advanced Level Examination, merely 15% would be accounted to enter universities whilst 85% are left behind. In addition, approximately 150,000 students annually mislay the opportunity to proceed a higher education as per to this concealed factor. Based on the present national higher education system where it is merely implies that throughout the past 40 years, the nation have sacrificed a minimum of two to four million of youths in Sri Lanka in the absence of a sustainable solution to enter in to the higher education. Primarily, even though there is an eligibility to enter to a state university, the students with higher rank (Z-Score) will be granted the opportunity to enter into a state university and rest would be considered as potential but with less opportunity for higher education in a state university or not at all. The following figures illustrate the statistics of student's performances based on the information of Department of Examinations.

G.C.E.(A.L.) Examinations 2014 - 2019
Performance of All Candidates by Year

Year		2014	2015	2016	2017	2018	2019 (NEW)	2019 (OLD)
Number Sat		247376	255191	258193	253330	267111	187167	94619
Passed in 3 Subjects (Eligible for University Entrance)	Number	149489	155447	160520	163104	167907	113637	67489
	%	60.43	60.91	62.17	64.38	62.86	60.71	71.33
Obtained 3 A's	Number	5832	6547	7126	8267	5310	5534	1506
	%	2.36	2.57	2.76	3.26	1.99	2.96	1.59
Failed in All Subjects	Number	20377	23347	22392	22021	24057	17919	5479
	%	8.24	9.15	8.67	8.69	9.01	9.57	5.79

Figure: 2 G.C.E.(A.L) Examination Performances - 2014-2019
Source: Advanced Level Performance Report (2019)

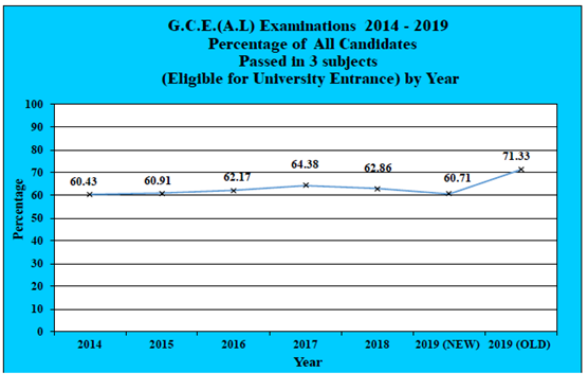


Figure: 3 Eligibility for University Entrance 2014-2019
Source: Advanced Level Performance Report (2019)

Aside from that, it further demonstrates that, even after this competitive university selection process, the unemployment rate of graduates in the country still exist at a perceptible proportion such as the average overall employability ratio of Universities in Sri Lanka is 54% (Nawaratne, 2012). The Faculties of Arts and Management have higher rates of unemployment in the country and accounted for 76% and 36% of unemployed graduates respectively. Moreover, for those who are privileged from the opportunity to pursue their higher education, unreceptive future carrier ill effects cannot perceive as a solely fault of theirs. Additionally, The Cumulative data indicates that the highest unemployment rate (9.1%), which was reported from the G.C.E. (A/L), is represented by the aforementioned group in Sri Lanka where it further classifies that 5.1 percent and 13.2 percent are accounted for male and female respectively (Department of Census and Statistics, 2018). As at 2017, total number of unemployed graduates in Sri Lanka was 34,316. Among the unemployed graduates, nearly 54 percent are accounted by Art degree holders while the other 46 percent entails the residual degree holders (Department of Census and Statistics, 2017).

The country correspondingly charges badly in terms of the proportion of higher education students enrolled in subjects of vital importance for economic development, such as the sciences (including medicine), technology, engineering and mathematics. The proportion of students is just 17 percent, causing Sri Lanka to be ranked only 79 of 99 countries. For engineering alone, with an enrolment share of 8 percent, the country fares even worse at 92 of 103 countries. (STEM) (AHEAD, 2018).

The molded philosophies remain in the society regards to completion of examinations since a child enter to a school until the completion of tertiary education has resulted to formulate leaned graduates who possess the same knowledge base which essentially caused for an immense competition related to employment pegging. This ill-advised traditional philosophies have resulted to increase the unemployment rate where even the schools and universities keep on lecturing students majorly with theoretical knowledge whilst offering very limited practical knowledge where a graduate even with a first class degree would fail to assist the existing industry with the lack of skills and practical industrial knowledge he or she possess. As per to the sophistications in the current world, information can be retrieved within seconds using the smart held devices, in addition, it is even hard to find a person who do not use any smart device, therefore, focusing on theoretical knowledge at a greater proportion is in vain as they are already available at a fingertip, therefore, it is heavily indispensable to orientate students more with industrial knowledge so that the country will possess irreplaceable industry professionals in the labor force who can offer an enormous rivalry to the global industries. Consequently, by considering the above background of tertiary education in Sri Lanka, the unemployment rate of

graduates cannot be elaborated as a solitary predicament of them.

Subsequently, from those who migrate overseas for academic purposes, minor percentage return where this has become a major chaos to the country on behalf of professional deficiency. Many Sri Lankan youth reportedly consider migration or international schooling as an opportunity to enhance their employment prospects, and Sri Lanka's tertiary-level student population is quite mobile – in part because higher education in Sri Lanka has insufficient capacity to address student demand, especially at the undergraduate level (D'Souza, & Moore, 2017). In considering the above facts and figures, it implies that Sri Lanka do not have a proper mechanism to select a suitable higher education program for its students aiming for carrier buildup or to find a suitable job opportunity for their stated qualification. This is one of the burning issues as the unemployment in the degree holders are climbing up to 15% and youth unemployment was increased from 18% to 28% during the last decade of Sri Lanka. Perhaps the selection of degree programs may not suite the selection of the employability and current university system may have not developed the required degree programs which need to be aligned with the job market. Hence, there is a considerable gap between the selection of the degree programs (STEM or HEMS) and finding a suitable job opportunity based on the qualification and the skills build up by the candidates. To incite this problem, Sri Lanka needs to increase higher education enrollment prospects urgently with a special focus on degree programs, such as STEM (Science, Technology, Engineering, and Mathematics),or HEMS(Humanities, Education, Management, and Social Sciences)programs, so that the nation will preserve well fitted industry professional whom would drive future economic growth through higher value-added industries and services (AHEAD, 2018). Primarily, the mainstream selections made by students are subdivided into two categories STEM and HEMS programs.

Objectives of the study

The main objective of the study is to identify the determinants that are influential in making tertiary education choice of undergraduate students in Sri Lanka. The following are the specific objectives of the study,

- Identify the impact of the most influential factors that making tertiary education choice of undergraduate students in Sri Lanka.
- Identify the possible policy concerns to develop a mechanism for a psychological paradigm shift in students' demand in the tertiary education in Sri Lanka.

Significance of the study

The significance of the study is to mainly focus few sectors in the higher education, namely youth population, Universities (Public and Private) in Sri Lanka, Labor market, Higher education institutes in Sri Lanka and Government of Sri Lanka. Identifying the most influential factors of university choice for the various academic disciplines in the tertiary education (STEM and HEM Programs) would primarily help the government of Sri Lanka to create a suitable selection mechanism or to create a policy framework for the university entrants' aim for sustainable solution for the long standing youth unemployment in Sri Lanka.

It also gives enormous value addition to the current university system to identify the most effective degree programs which are absolutely align with the national and international labor market. It is quite eminent that the current degree programs functioned by the universities in Sri Lanka are quite outdated and is not fit for the

current labor market requirement and it doesn't pave the way for the global highest.

Similarly, identifying the factors would essentially help the candidates that they can select a suitable degree programs aiming for the domestic or global labour market requirement or to build up the entrepreneurial characteristics among themselves. Without any hesitation, this would help private intuitions to introduce new degree programs to reach the optimum level of profit maximization.

LITERATURE REVIEW

''Higher' education is simply the highest segment of the education system of a nation. Higher education is said to impart the deepest understanding in the minds of students, rather than the relatively superficial grasp that might be acceptable elsewhere in the system. In higher education, nothing can be taken on trust and the students have to think for themselves so as to be able to stand on their own feet, intellectually speaking (Barnett, 1997) In such a prolific environment, students are presently, carefully choosing their higher education degree programs. Thus, there are numerous factors affecting to their choices in terms of selecting a suitable higher education programs for the progress of their lives. Ashraf and Ahmad (2013) suggested developing effective recruitment strategies, university competent authorities need to have a clear understanding of how and why the students choose a higher education institutions and programs for the advancement of the country. They should consider many factors in order to be selected by a student. Tertiary education should not only focus on skills and abilities of the grandaunts, but also how the students may feel about the educational experience (Abdullah, 2006). At present, Tertiary education is going in the direction of commercial competition as a result of that development of domestic education sector need to be under surveillance and on the other hand government annual budget allocation for the higher education sector is somewhat less than 3% from the GDP (Gross Domestic Production) during the recent half a decade in Sri Lanka. The lack of funding of government which leads for tertiary education institutions to think out of the frame and develop new programs to according to the market requirement to fulfill their financial necessities.

Perera and Pratheesh (2018) emphasized that the decision making in higher education when selecting a programmes plays a major role since selecting course defining students' future. The findings revealed that the "most important factors in the choice of major are Job factor and Academic quality. Friedmann (2018), conducted study about women's participation in STEM industry. The study found that "salary and the ability to combine work and family obligations were the most important determinants of women's career choices". For the purpose of examining the importance of different job attributes for men and women, Choice-based conjoint and choice model analyses were conducted in this study. Value of this study is after examining the core attributes related to women's career choices, initial principals of a social marketing intervention is suggested for the first time. Current trends, own preferences, parental pressure, and career counselors can influence students' career agreements (Raza 2016). This study was conducted in different public and private universities in Islamabad. Quantitative method research design employed, and purposive sampling is applied with the sample size of 145 female and 123male students. Raza further examined the education career change behavior of male and female students. The study revealed that student's choice and

adoption of educational career depends on current and prevailing trends, own decision. However, according to the author, parental pressure does not influence the decisions on education career change. Furthermore, findings are almost similar for both male and female however males are more satisfied with education career change in contrast to female.

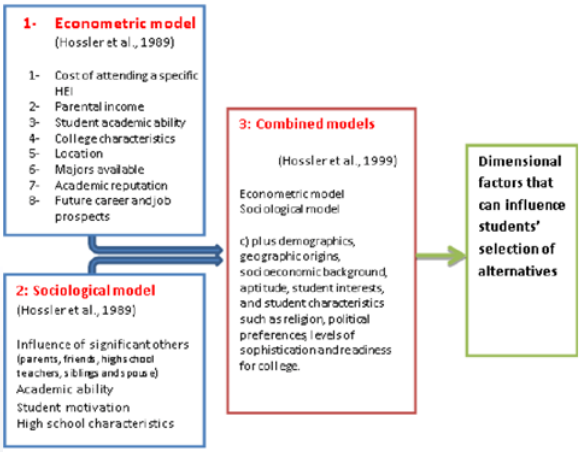
National universities intake has become very competitive over the past years; therefore, students tend to seek the alternative options in domestic market since overseas education is very expensive. Hence, the international degree programmes have increased through private higher education institute (Abeygunawardeana 2018).The main objective of this study is to find out influential factors in selecting a bachelor's degree from international degree programmes which have appeared recently. The methodology employed in the study was review of literature to identify the influential factors found in previous studies. In this study, in order to reflect the industry demand, Bachelor of Science, Bachelor of Engineering, Bachelor of Arts, Bachelor of Business Administration degrees have been selected for the study to cover STEM and Management related disciplines. A simple random sampling is used in the study with a sample size of 420 first year undergraduates in STEM and management related Bachelor's Degrees in randomly selected Private Higher Education institutes. Chloe (2019) conducted similar study which investigated key factors influencing international students' choice of private Higher Education Institutions (HEIs) in Malaysia. The study revealed that institution image can be identified as subsequent deciding factors pertain to a quality education. Edirisinghe et al., (2016) endorsed that institutional attributes such as benefits, facilities offered by the institute need to be considered. Further, the Chloe (2019) emphasized that institution image represents it's "reputation and international recognition and the range of academic programs and courses". Furthermore, other supporting qualities are strategic location and easiness of entry requirements of the institute.

Higher education of a country is a critical turning point especially with reference to the school leavers as it affects to the structural unemployment of the country. Therefore, understanding the determinants of students' choice in the undergraduate studies is pretty much vital in terms of socio-economics factors are concerned. Several studies developed frameworks to model undergraduates' university choice, for example three-stage model by Hossler (1987), Conceptual model by Perna (2006), FLAG (Fits Like A Glove) model by Allen (2002) etc. Cho et al. (2008) looked at the roles of gender, race and socioeconomic status in college choice and identified psychological, personal and institutional factors jointly impact the university selection process but this relationship is moderated by ethnicity, gender and family income. These findings are based on 1539 respondents of students attending four different universities in public, private, urban and rural areas. When paying attention on the demographic factors, family income and parental education Cho et al (2008), Giuseppe (2015) plays influential roles in university choice.

Tretola et al. (2019) claimed that guardians or parents observed a higher interest in STEM disciplines which leads to more "technical-related interaction among peers and within the family". Aforementioned researchers conducted a study on Multidisciplinary impact on the arts join informal STEM programs. Aim of the study is to discuss the increase in interest in the direction of careers and disciplines in STEM or STEAM (science, technology, engineering and mathematics

and the arts) of Middle school participants in the USA who were attending an on-campus university informal science program.

The aforesaid articles examine the literature on the university choice process in detail and it is much more aligned with Sri Lankan context of university selection. Firstly, the Hossler (1999) Dimensional Factors Model is considered under the following categories: Economic model, Sociological model and combined model. Secondly, Kotler and Fox (1995) Marketing Mix model for higher education is considered under the categories of Needs and motives, Information gathering, Evaluation alternatives, decision and enrolment and post purchase evaluation are the factors affecting to the student choice model of the Kotler's marketing mixed approach. Nonetheless, Holdswoth and Nind (2005) used Combined Complex Decision model to identify the individual complex decision-making process of the selection of the university higher education programs. Hossler (1999) reveals the dimensional factors of student selection is further suggested that program cost, parental income, location, reputation of the academic intuition and future job prospect are confined into economic model whereas, Peer influence, academic ability, Student motivation, Higher education characteristics are considered as sociological model and demographic and geographic origins, political preferences are used under combined model to measure the dimensional factors that influence the student's choice of the university program selection. Hossler (1999) Dimensional factors of student selection model is illustrate below.



Source: Hossler et al.'s (1999) Combined Model

The combination of marketing mixed approach for the higher education developed by Kotler and Fox consists of seven elements: the program, the place, the price, the promotion, the physical facilities, the people, the process. Similarly, the student choice is a part of consumer behavior that is how individuals or group select, buy and use goods or services (Kotler & Fox, 1995). There are five steps in student's choice of selecting a university: there are needs and motives, information gathering, evaluating alternatives, decision making and post choice evaluation.

Holdswoth and Nind (2005) Combined Complex Decision model, underscored that Quality and flexibility of the degree/course combinations, Availability of accommodation, Whether or not employers are likely to recruit from that university, Costs, Spatial proximity to home are factors that influence the choice process of a university.

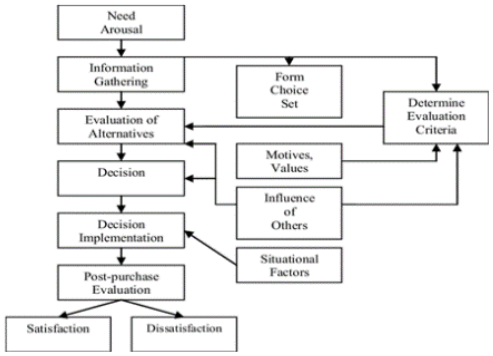


Figure : 5 The steps in Highly-Complex Decision Making Source

Source : Kotler Philip and Karen Fox, Strategic Marketing for Educational Institutions, (1995)

On the other hand, Shanka, Quintal and Taylor (2005) found that the Proximity to home, Quality/variety of education, Cost of living/tuition, Friends study, Family recommendation, Safety are the most influential factors for the process of the choice of a university. Identifying aforesaid theoretical framework such as theories, models and archived influential factors for the university selection are pretty much important to derive the conceptual framework of the study.

METHODOLOGY

Methodology is basically a detailed procedure, strategy or strategies utilized to distinguish, selected process, and analyze information about the core content of the topic. The conceptual framework is presented, and it is based on the theoretical framework of the literature review and the conceptual framework of this study is mainly based on three theoretical models have been used to identify and measure the university choice of the students. In this chapter, Conceptual framework and Operationalization of the study are briefly explained.

1. Dimensional factors of student selection by Hossler (1999)

2. Marketing mix model for Higher Education Kotler and Fox (1995)

3. Combined Complex Decision model Holdswoth and Nind (2005)

Dimensional factor model considered under three categories namely, Economic Model, Sociological Model and Combined Model. In the economic category model, Cost of attending a specific higher education institute, parental income, student academic ability, college characteristics, location, available majors, academic reputation of the university, future career and job prospects factors are taken into consideration. In sociological model, influence of significant others such as peers, parents, teachers and influence of siblings or spouse considered. In addition to the influence of significant others, academic ability, student motivation and high school characteristics also taken into consideration under sociological model.

In the Marketing Mix model for Higher Education by Kotler and Fox, student choice is considered as a part of consumer behavior. Main elements in Marketing Mix model developed by Kotler and Fox is the Programme, Location, Price of the course, promotion, Facilities of the Higher Education Institute, the people and the process. In the Combined Complex Decision model by Holdwoth and Nind, factors affected to the university choice is identified as, quality and flexibility of the degree programme, Accommodation availability, employers' likelihood to recruit from the selected university, cost of the programme, spatial proximity to home. By studying the theoretical frameworks listed above, conceptual framework of the study is shown below.

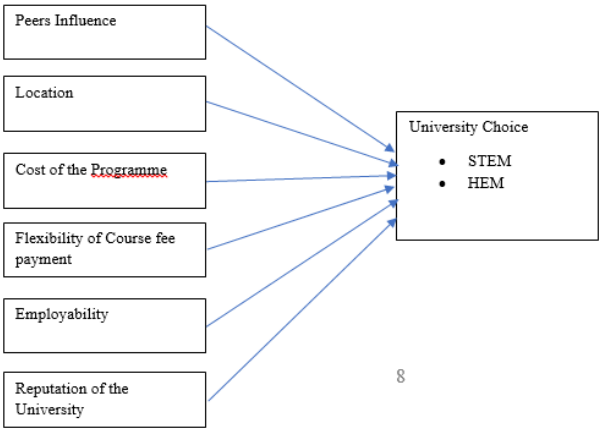


Figure 6: Conceptual Framework of the Study

Six independent variables are selected in the conceptual framework. In operationalizing the Conceptual framework, all independent variables measured using the Interval Scale. 20 equi-distance Likert scale questions are used to measure the independent variables. Dependent variable of the study is a Binary variable, where the University choice of STEM (Science, Technology, Engineering and Medicine or Mathematics) and HEM (Humanities, Education and Management) programmes taken.

Target population of this study is Undergraduate first year students. In Sri Lanka, Undergraduate First year students can be mainly categorized into two clusters as State University and Non- State University students. In this study, only Non-state Higher Education Institutes (HEIs) taken into consideration as State University student choice is board area and final decision is made by the University Grants Commission (UGC) Sri Lanka. Sample of 150 students are selected for the study using convenient sampling method, for the final analysis 139 responses are selected.

Upon carrying out descriptive analysis, correlation between independent variables and dependent variable checked using Chi-square test. Confirmatory Factor analysis carried out using Principle component analysis to fit the sub variables into main variables in the Conceptual Framework. Independent sample t-test used to compare the means of the independent variable in STEM and HEM choice. As the dependent variable of the study is a Binary variable. Binary Logistics regression model will be fitted to test the Conceptual Framework and to check the impact of the six independent variables in making STEM and HEM choice. Pseudo R square, Classification tables and Omnibus test are used as model diagnostic tools.

Descriptive Analysis

In the selected sample of 139 students, 61% are male students. 82% of the students in the sample are in age 21-23. 93% of students decided to enter into the undergraduate studies having three passes or above in their Advanced Level examination. 52% of sample received National University Entrance but was selected in non-sate sector. 27% of them enrolled into non-state sector institutes considering that it will take longer time to complete the degree if joined a state university. 19% of the students enrolled into Non-state HEI as they were not selected for their preferred programme in state university.

When considering the financial background of the students, 53% of the students are using Government Interest Free Loan Scheme as their financial support to continue their degree in Non-state HEIs. 43% of the students, course fee will be paid by their parents.

When considering their awareness of the available degree programmes, 52% of students visited the university websites, 30% of students visited social media fan pages of the selected university, 19%

visited stall of the Non-State HEI in an educational fair, 41% participated Open Day programmes conducted by the HEIs and another 28% visited the HEI before enrolling into the degree programs. It is worthwhile to note that only 14% of students enrolled by referring to the information in newspaper advertisements.

Table 1: Descriptive Statistics of the variables

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Parents Influ	139	1.84	.887	.760	.206	-.016	.408
Peers similar course	139	2.49	1.099	.526	.206	-.419	.408
Peers similar uni	139	2.76	1.179	.407	.206	-.652	.408
Friends Influ	139	2.44	1.149	.326	.206	-.744	.408
Location	139	2.24	1.087	.783	.206	.298	.408
Transport Availability	139	2.29	1.131	.632	.206	-.270	.408
Cost	139	2.19	.924	.386	.206	-.655	.408
Flex payments	139	2.08	.843	.658	.206	.441	.408
Scholarships	139	2.70	1.322	.288	.206	-.982	.408
Loan facility	139	2.15	1.388	.880	.206	-.637	.408
Uni Resources	139	2.37	1.180	.753	.206	-.081	.408
Academic Reputation	139	1.86	.913	1.043	.206	.956	.408
Entry Requirement	139	2.12	1.050	.757	.206	.015	.408
Discipline	139	1.74	.879	1.312	.206	1.875	.408
Internships	139	1.70	.857	1.118	.206	.542	.408
Programme Availability	139	1.71	.756	.959	.206	1.269	.408
Teaching Methodology	139	2.01	.830	.604	.206	.346	.408
Industry Demand	139	1.61	.856	1.548	.206	2.248	.408
Duration	139	1.80	.972	1.233	.206	1.209	.408
Employment	139	1.90	.973	1.211	.206	1.439	.408
Valid N (listwise)	139						

When considering the descriptive statistics, mean of the identified variables, influential level of friends, peers following the similar programme, peers in the same university, award of scholarships and availability of university resources are at medium level. Influential level of other factors are at a low level when considering mean.

Correlation Analysis

In testing the correlation between identified variables and university choice, Chi-square test has been used. Below hypotheses tested in correlation analysis

H0: ith Variable has no correlation with university choice

H1: ith variable has a correlation with university choice

Table 2: Correlation analysis results

Variable Name	Test Statistic	p- Value	Status
Employability	26.143	0.000	Accepted at 1%
Industry Demand	16.491	0.002	Accepted at 1%
Scholarships	12.77	0.012	Accepted 1%
Internships	11.569	0.009	Accepted at 1%
Cost	8.825	0.041	Accepted at 5%
Friends Influence	8.791	0.067	Accepted at 10%
Entry Requirement	8.233	0.083	Accepted 10%
Teaching Methodology	7.966	0.093	Accepted at 10%
Transport Availability	6.587	0.159	Rejected
Peers similar university	5.8	0.215	Rejected
University Resources	4.651	0.325	Rejected
Academic Reputation	4.276	0.37	Rejected
Discipline	3.673	0.452	Rejected
Location	3.556	0.467	Rejected
Duration	3.107	0.54	Rejected
Loan Facility	2.625	0.622	Rejected
Programme Availability	1.761	0.623	Rejected
Peers Similar course	1.658	0.798	Rejected
Parents' Influence	1.518	0.823	Rejected
Flex Payments	1.108	0.893	Rejected

Employability, Industry demand, award of scholarships and offering internship factors show a significant correlation with the university choice, which is significant at 1% level. Cost of the programme is showing a significant relationship with university choice which is significant at 5% level. Friends influence, Teaching Methodology and entry requirement factors are correlated at 10% level with the university choice.

Factor Analysis

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.794
Bartlett's Test of Sphericity	Approx. Chi-Square	987.516
	df	190
	Sig.	.000

According to the results of KMO and Bartlett's Test, factor analysis can be performed. As KMO test statistics is above 0.6, sample is adequate to perform Factor analysis. Bartlett's test check whether the covariance matrix is identical or not. As the test is significant, covariance matrix is

not identical which further supports the factor analysis.

Table 4: Variability explained by the Factor Model

Total Variance Explained

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.345	26.723	26.723	3.860	19.301	19.301
2	2.549	12.743	39.466	2.067	10.337	29.639
3	1.659	8.296	47.763	2.015	10.077	39.716
4	1.423	7.114	54.876	1.950	9.750	49.466
5	1.124	5.620	60.496	1.665	8.327	57.793
6	1.029	5.145	65.641	1.570	7.848	65.641

Extraction Method: Principal Component Analysis.

Approximately 66% of the variance in the university choice is explained by the factor model. According to the rotated component matrix of the factor model 06 factors extracted as listed below.

1. Peers Influence
2. Location of the University
3. Cost effectiveness
4. Flexibility of Course fee payment
5. Employability
6. Reputation of the University

Hypothesis Testing

Ho: Mean of ith factor in STEM group = Mean of ith Factor in HEM Group

H1: Mean of ith factor in STEM group ≠Mean of ith Factor in HEM Group

i = 1,2, 3, …., 6

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Peers	Equal variances assumed	9.106	.003	-.374	137	.709	-.21003	.56144	-1.32024	.90017
	Equal variances not assumed			-.476	67.037	.635	-.21003	.44080	-1.08986	.66980
Location	Equal variances assumed	.926	.338	.301	137	.764	.12069	.40051	-.67128	.91266
	Equal variances not assumed			.263	37.732	.794	.12069	.45895	-.80863	1.05001
Cost	Equal variances assumed	.001	.981	1.332	137	.185	.43887	.32942	-.21254	1.09028
	Equal variances not assumed			1.384	46.254	.173	.43887	.31716	-.19944	1.07719

Employability	Equal variances assumed	14.227	.000	2.121	137	.036	1.74890	.82460	.11832	3.37949
	Equal variances not assumed			1.644	34.186	.109	1.74890	1.06397	-.41292	3.91072
flex_pay	Equal variances assumed	6.436	.012	-1.887	137	.061	-.99843	.52917	-2.04482	.04796
	Equal variances not assumed			-2.427	68.564	.018	-.99843	.41138	-1.81921	-.17765
Uni_Reputation	Equal variances assumed	.444	.506	1.435	137	.153	.66865	.46582	-.25247	1.58978
	Equal variances not assumed			1.501	46.698	.140	.66865	.44551	-.22774	1.56505

Flexibility of Course fee payment factor is significant at 5% level and Employability factor is significant at 10% level. For all other factors mean for STEM and HEM groups are equal. It can be concluded that Mean influence of the flexible course fee payment availability is different for STEM and HEM groups. When considering the employability factor, Mean influence of employability factor is different for STEM and HEM groups.

Regression Modelling

Binary Logistics regression model fitted as the response variable is a binary variable. Model summary is shown below.

Table 6: Omnibus test results

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.475	1	.034
	Block	4.475	1	.034
	Model	18.513	4	.001

According to the omnibus test the fitted model is significant.

Table 7: Fitted Binary Logistics Regression Model

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Cost	-.367	.182	4.075	1	.044	.693
	Employability	-.092	.054	2.888	1	.089	.912
	flex_pay	.352	.128	7.572	1	.006	1.422
	Gender_1	1.045	.521	4.013	1	.045	2.842
	Constant	1.337	.870	2.361	1	.124	3.808

a. Variable(s) entered on step 1: Gender_1.

Fitted model can be shown as below.

$$\text{Log}\left(\frac{P}{1-P}\right) = 1.337 + (-0.367)^{*}\text{ Cost} + (-0.092)^{*}\text{Employability} + 0.352^{*}\text{ Flex Pay} + 1.045^{*}\text{Gender\_1}$$

Model Interpretation:

Odds ratio will be used in interpreting the Binary Logistica Regression Model.

- When Cost of the degree programme is higher than alternative programmes, students are less likely to select HEM programme as their undergraduate choice.
- When employability of the undergraduate programme is more influential, students are less likely to select HEM programmes as their undergraduate choice.
- When flexible payment methods are more influential students are more likely to select HEM programmes as their undergraduate choice.
- Female students are more likely to select HEM programmes as their undergraduate choice.

Table 8: Model Diagnostics table

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	132.029[a]	.272	.312

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

This table contains the Pseudo R square values of the model. Cox and Snell R square and Nagelkerke R square both used to calculate the explained variation. According to Pseudo R square values, variability explained by our model is varies from 27.2% to 31.2%.

Table 9: Classification Table

Classification Table[a]

			Predicted		
			Final_Choice		Percentage Correct
	Observed		STEM	HEMS	
Step 1	Final_Choice	STEM	3	26	10.3
		HEMS	2	108	98.2
	Overall Percentage				79.9

a. The cut value is .500

According to the classification table, percentage accuracy in classification is 79.9%. Sensitivity, which is the percentage of cases that selected HEM courses, which were correctly predicted by the model is 98.2%. Specificity, where the percentage of cases that not selected HEM courses, which were correctly predicted by the model is 10.3%.

GENERAL DISCUSSION AND CONCLUSION

This study is aimed to identify determinants of university choice for the academic disciplines in the tertiary education in Sri Lanka. The identified determinants of university choice of the

students can be categorized in to six factors namely, Peers Influence, Location of the University, Cost of the program, Flexibility of Course fee payment, Employability, Reputation of the University. Employability, Industry demand, Award of Scholarships, Internships, Cost of the programmes, Friends Influence. It is found that the entry requirements and teaching methodology has a significant association over the selection of the STEM and HEM programs. Similarly, while making a comparison with student choices, it is identified that that mean influence of availability of flexible course fee payment and the consideration of employability is somewhat dissimilar for the selection of STEM and HEM programs. It is found that, students prefer to select HEM programs more, when more flexible payment methods are available, such as different payment plans, Instalment Plays, Financial Rebates on qualifications and skills of the students, penalty waved schemes, payment adjustments plans and banking aid and assistance facilities ect. The results of the regression model further illustrate that the, availability of such flexible payments methods makes the student more likely to select the HEM programmes. The reason behind this finding is perhaps, the selected sample represent 53% of the students from Government Interest Free Loan Scheme (IFLS). This finding was questionable as students are generally more likely to select STEM courses when the flexible payments methods are available for the program selection. Another fact is that the courses offered under Government Interest Free Loan Scheme are limited in the STEM stream. Correspondingly, the no of degree opportunities offered under STEM stream are also be limited. The reason behind this is STEM course fees are much higher than the HEM course fees since the STEM programs are essentially required to conduct laboratory practical sessions and need of special equipment and utensils for the various scientific investigations. Therefore, it is suggested that the competent authorities need to mull over in developing a flexible payment scheme policy for the undergrads and it is required to do a structural revision of STEM course fees by establishing more programs for the selection of the students.

Aside from that, students are more likely to select STEM programs when they consider the prospect of getting employed just after graduation. Hence, the undergraduates have high tendency to select STEM programs by assuming that the students could secure a permeant job in the future. When cost of the opted program is higher than the alternative programmes students are more likely to select STEM programmes. This may be the prospect of safeguarding an employee opportunity in the future. The results further depict that the female students are more preferred to select the HEM courses. This is somewhat a debatable finding; National Youth Unemployment Rate was shown an upward movement in the last decade in Sri Lanka. Youth unemployment rate increased from 18. % to 28. % (Department of Census Statistics, 2019). Female labor force participation rate was recorded as 32% in the year of 2019. It is a quite low rate comparing to the Asian countries. The study found that female students are more likely to select HEM programs and that there is high tendency to be unemployed by considering the labor force participation rate in Sri Lanka. Hence, it is suggested to design a diverse entrepreneurial program including financial assistance aiming for the female grandaunts to actively participate in the labor force and intensify the country's' economic growth.

It is also found that the employability opportunity of STEM is higher than the employability opportunity of HEM. Hence, it is suggested to make a structural revision of the HEM program curriculum

to make undergraduates more skillful and to make a job-oriented approach. Similarly, it is much required to develop a "Vox Populi" among the public to draft an evaluation policy of undergraduates of Sri Lanka.

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