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Mining Educational data to guide students to predict the upcoming higher educational career

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Abstract

Sri Lankan Institute of Advance Technological Education (SLIATE)[1] is a leading higher education institute in Sri Lanka. It has been focusing on fostering Advanced Technical Education at post-secondary level. It is mandated to establish Advanced Technological Institutes (ATI) in every province for technological education. At present it manages and supervises 19 ATIs. Higher education career selection is a vital for anyone's future life. There is lot of factors affecting for this such as Ordinary Level and Advanced level results, Student career interest, Family Background, Future occupation interest, etc. Students concern only their educational grades for selecting their career path. But students or education managers don't analyze the large amount collected registration data for gain the valuable knowledge to direct the students to select the proper higher educational career path.

Key word

Education, Education data mining, Higher Education, Higher Education Career,

Introduction

National economics [2] are strongly based on the higher educational pupils in the country. The young generation unable to accurately choose their higher education career it's highly affected their future and future of nations economic. So, predict the future higher education career is vital. The data mining is one of the instruments in this process. So, within a year SLIATE can collect vast amount of registration data of their candidates and this amount is expected to continue to grow considerably in the future. Data extraction leads to discover

valuable knowledge. Using this knowledge candidates and the management can accurately disclose the intelligent career decisions. But if this much of data wealth are available, can candidates fully capitalize on the exactions of data?

Data mining [3], the extraction of hidden predictive information from large databases, is a powerful new technology with great potential to help business, market companies kept and educational related companies to focus on the most important information in their data warehouses. Data mining tools predict future trends and behaviors, allowing businesses to make proactive, knowledge-driven decisions. The automated, prospective analyses offered by data mining move beyond the analyses of past events provided by retrospective tools typical of decision support systems. Data mining tools can answer business questions that traditionally were more time consuming to resolve. They search databases for hidden patterns, finding predictive information that experts may miss because it lies outside their expectations.

Higher education career selection is a vital for anyone's future life. There is lot of factors effecting for this such as Ordinary Level and Advanced level results, Student career interest, Family Background, Future occupation interest, etc. Students concern only their educational grades for selecting their career path. But students or education managers don't analyze the large amount collected registration data for gain the valuable knowledge to direct the students to select the proper higher educational career path.

Methodology

A structured self-developed questionnaire is designed to collect information and achieve the objective of the survey. The research is a Quantitative research. The questionnaire prepared for the survey consists of different sections which covers to find all the factors affected to select their higher education career path. The questionnaire is a close ended type containing Multiple Choice Question (MCQ) and simple structured questions. A graded evaluation of the students Ordinary Level and Advanced Level result, Interest level of the relevant area, awareness of the future career path, supporting of the family and age were considered as the main factors. Primary data for this study was collected using googles forms. The respondents are from across five different ATIs situated in various provinces and were from two different courses. The size of the sample is 742 students. 48.1% students follow the Higher National Diploma in Accountancy and 51.9% students follow the Higher National Diploma in Information Technology. Hypothetical statistical analysis method [4] is used for analysis the data set.

Hypotheses

1. Null Hypothesis

   I. There is no relationship between student's O/L result and student Higher education career path.

II. There is no relationship between student's A/L result and student Higher education career path.

III. There is no relationship between student's interested subject area and student Higher education career path.

IV. There is no relationship between student's family support and student Higher education career path.

V. There is no relationship between student's age and student Higher education career path.

2. Alternative Hypothesis

I. There is a relationship between student's O/L result and student Higher education career path.

II. There is a relationship between student's A/L result and student Higher education career path.

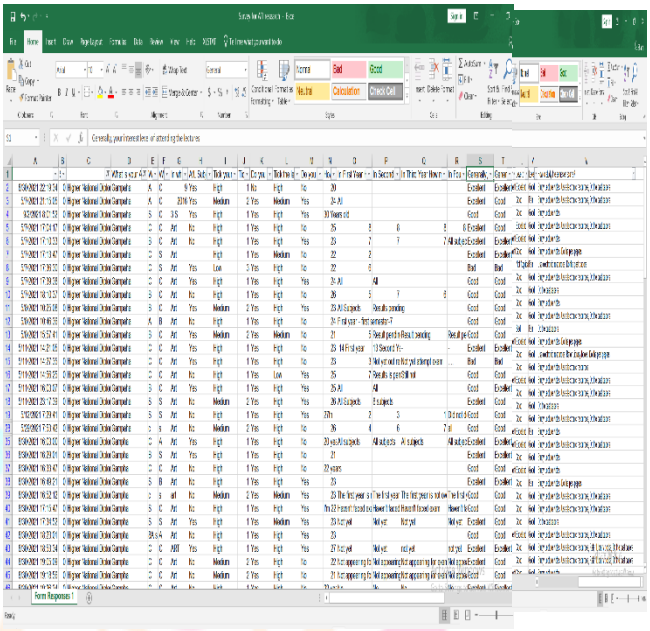
III. There is a relationship between student's interested subject area and student Higher education career path.

IV. There is a relationship between student's family support and student Higher education career path.

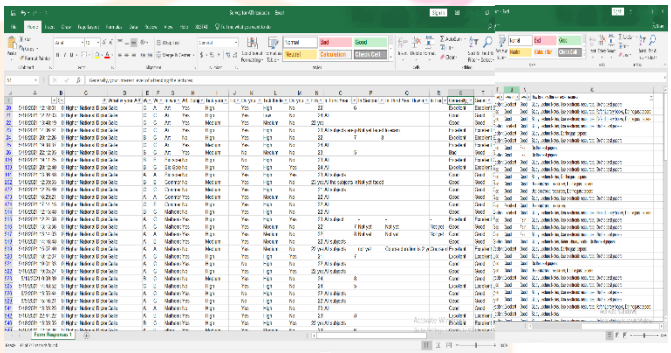
V. There is a relationship between student's age and student Higher education career path.

Result Interpretations

This is the collected data set from different ATIs.

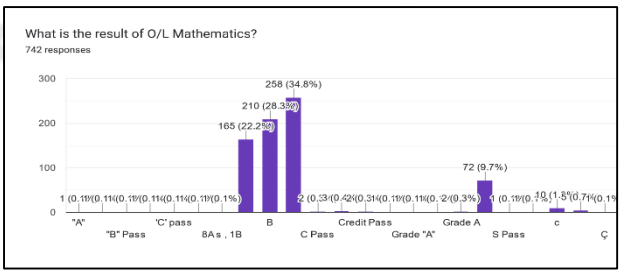


Data Set in ATI – Gampaha

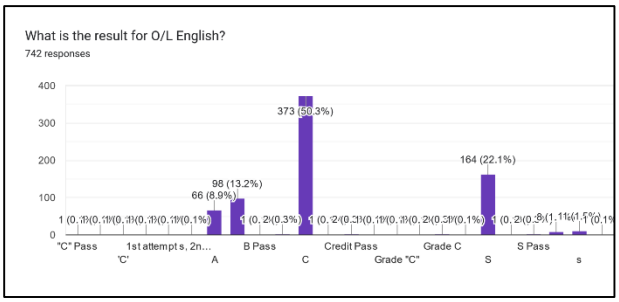


Data Set in ATI – Gall

Following graphs shows that how Ordinary Level exam result affected to the student's career path selection.



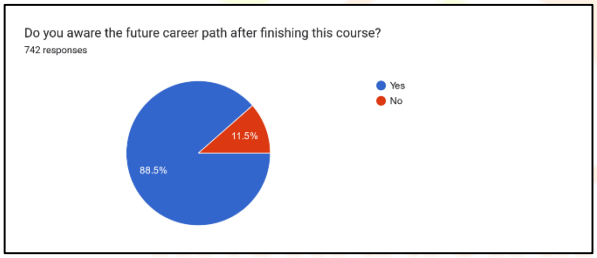
Result variation for the Mathematics subject



Result variation for the English subject

By investigating above graphs indicate that most of the student's in the sample performed well for their secondary education.

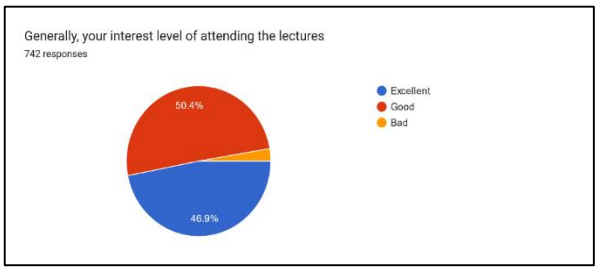
After analyzed the above charts it represents 76.8% of students decided that their higher education career based on their secondary education. But, 23.2% students said it's not. This result predict that student's higher education career path selection directly coupled with their secondary education.



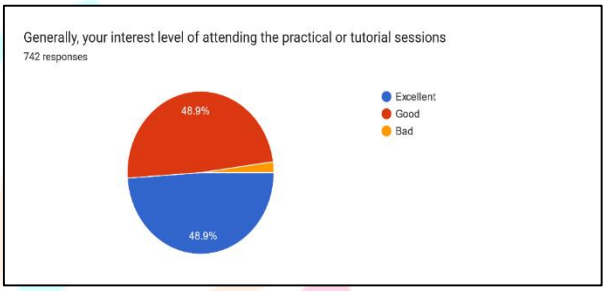
Awareness rate of future career path.

Above chart reveal that if students selecting their higher education career they can finalized their future career path too. Because 88.5% students decided what are they doing after completion of their higher education goals. According to the t test[5] 73.9% of families lend the hands to their children to follow their higher education goals. But, approximately quarter percent of families are not support for their children's education.

Further analyzed collected data set which disclose student's performance and interest of the selected higher education path.



Interest level of attending lectures



Interest level of attending tutorials and practical

Conclusion

In the light of findings of the study, it concluded that to selecting the higher education career path there are different factors want to be considered. As a summary of the data analysis it revealed that after completion of some student's secondary education and they approach to the higher education, students not only base on their Advance Level result but also, they want to consider various factors. Such as their interested subject area, future career opportunities after completing the course, support of the family. Further analyzing the data, it can be shows higher percentage of students do the job during their higher studies. The reason for that is most of the students difficult to bare the expenses they need during the higher study period. If they

do the job their interest on attending the Lectures, Tutorials and Practical sessions are high, it represents students prefer to achieve their higher education goals with better results. By examining the data set it represents students not only trap to their books they like to gather outside knowledge therefore, large number of students prefer to do the assignments and projects related to the subject.

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