TRENDS IN UNIVERSITY APPLICATION OF FACULTY OF SCIENCE AND TECHNOLOGY, SUAN SUNANDHA RAJABHAT UNIVERSITY

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ABSTRACT

Faculty of Science and Technology, Suan Sunandha Rajabhat University (SSRU) has two departments. Which are Department of Science and Applied Science. Department of Science is composed of Chemistry, Information Mathematics, Physics, Biology, Applied Statistics and Industrial Microbiology Program. Department of Applied Science is composed of Home Economics, Sports and Health Science, Environmental Science, Food Science and Technology, Biotechnology, Computer Science and Information Technology and Forensic Science Program. Nowadays, high school students are changing trend to select programs from pure science to applied science. The numbers of student applications to applied science have been increased every year. Researcher found that students are concerned to their career paths and salaries. From SSRU application data (2018) of Faculty of Science and Technology in Thai University Central Admission System (TCAS) round 3, the three highest numbers of applicants were all in Department of Applied Science. Which were Sports and Health Science (190), Home Economics (145) and Computer Science Program (113), respectively. The three highest numbers of applicants in Department of Science were Biology (33), Chemistry (30), and Industrial Microbiology Program (25), consecutively. Moreover, Department of Applied Science had more confirmation percentage of application (40-53%) compared to Department of Science (8-27%). The objective of this study is to find the trends of university application of Faculty of Science and Technology, SSRU in order to use as an analytical data for determining the number of students in each program in the future.

Keywords: Trend, University Application, TCAS, Faculty of Science and Technology

1. INTRODUCTION

Trend is an upwards or downwards shift in a data set over a period of time. In statistics, trend analysis usually refers to analysis on past data in a certain time. It allows one to predict what would happen to the data in the future. Researcher should considered to collect data at least three points of consecutive period of time. Trends in university application have been changing according to the demand of specialty employees in private sector and Thai government "Thailand 4.0" economic model. From Thai government's "Thailand 4.0" economic model, education curriculums should be adjusted to support the academic requirements and skills of employees of private sector. That is very important and urgently needed in order to increase economic competency of Thailand in the future. Thailand 4.0 model is used to focus on new S-curve industries. [1] Which are agricultural, digital, logistic, medical, robotics, tourist, petrochemical, and textile, aerospace and automotive industries. Information Technology and Computer Science program can support digital industry. The number of internet users in Thailand has been increased from 19.8 million people in 2010 to 43.8 million people in 2016. The digital economy is expected to play a critical role in every industrial sector e.g. e-payment, e-commerce and social media penetration. [2] Food Science and Technology curriculum can support the requirement of food science officer of agricultural industry. The demand of experts in Home Economics and Sport and Health Science program is increased to support the service industry that is well-known industry in Thailand.

The factors affecting the selection of courses of student in Faculty of Management Sciences, Loei Rajabhat University was studied. [3] The researcher asked 678 first year undergraduate full time students to fill the forms of questionnaires. From the results, researchers found the factors are as the following; features of the program, public relation, locations, the influence of the study, and program expenses respectively. Applied science is the application of existing scientific knowledge to practical applications, like technology or inventions. Within natural science, disciplines that are basic science, also called "pure science", develop basic

information to predict and perhaps explain and understand phenomena in the natural world. Applied science in Faculty of Science and Technology is Food Science and Technology, Biotechnology, Computer Science, Information Technology, Sport and Health Science, and Home Economics. From Thailand 4.0 Model, Mathayom 6 students are influenced by the model to select the programs in University. The study of trends in University Application of Faculty of Science and Technology was not previously done by other researchers. The researcher would like to find the changing of university application of Mathayom 6 (Grade 12) students in recent years.

2. OBJECTIVES

1) To analyze trend in university application for 14 programs of Faculty of Science and Technology, Suan Sunandha Rajabhat University during 2016-2018.
2) To use analyzed data as the database for forecasting the number of student application for 14 programs and 2 departments of Faculty of Science and Technology, Suan Sunandha Rajabhat University in the future.

3. METHODS

Data Collection and Evaluation

The number of student application for 14 programs of Faculty of Science and Technology, Suan Sunandha Rajabhat University during 2016-2018 was collected from Academic Services Division, SSRU. The number of student application in 2016 was subtracted by the number of student application in 2018 in order to find the differences. The different number was multiplied 100 and divided by the number of student application in 2016. The results were percentage of student application in 2018 compared with 2016.

Linear regression analysis was used to find the correlation of number of student population and number of students applied to Faculty of Science and Technology in 14 programs. R-squared (R^2) shows the bad or good relation between dependent value (student population) and independent value (student application). The good to strong relationship between dependent and independent value can be shown when correlation is between 0.56-1.0. The moderate relationship between dependent and independent value can be shown when correlation is 0.25-0.56. The fair relationship of correlation is 0.06-0.25. No or weak relationship of correlation is 0.00-0.06.

4. RESULTS

Thailand is changing to aging society. The population is rapidly declined that causes threaten the number of student application and existence in university, especially private university. Population of teenagers 18 year old in Thailand was reduced from 906,356 in 2016 to 844,189 in 2018. The correlation of student population and application in Department of Science and Department of Applied Science was shown in Table 1 and Table 2. The lower correlation shows the lower effects of student population to student application in university. Correlation of Home economics (HE), Forensic Science (FR) and Sport and Health Science program is 0.00, 0.04 and 0.28, respectively. That shows the low effect of population change to student application. Whereas, the correlation of Environmental Science (EN), Information Technology (IT), Computer Science (CS), Biotechnology (BT) is 0.56, 0.76, 0.85, and 0.88, respectively. The total correlation of student population and student application of Department of Science is lower than Department of Applied Science. The reduction of student in Department of Science is more intense than Department of Applied Science.

TABLE 1 Correlation of Student Population and Application in Department of Applied Science during 2016 - 2018

Year	Population	CS	IT	HE	SP	FS	EN	BT	FR	Total
2016	906356	710	695	916	1171	683	478	108	290	5051
2017	844189	573	578	1590	1325	483	460	82	368	5459
2018	821836	354	274	610	664	282	234	46	226	2690
Correlation		0.85	0.76	0.00	0.28	0.93	0.56	0.88	0.04	0.36
Interpretation		Strong	Strong	No	Moderate	Strong	Good	Strong	Weak	Moderate

TABLE 2 Correlation of Student Population and Application in Department of Science during 2016-2018

Year	Population	BI	CH	MA	PH	ST	MI	Total
2016	906356	403	260	118	108	116	204	1209
2017	844189	393	210	98	89	64	208	1062
2018	821836	117	171	46	35	43	113	525
Correlation		0.53	0.96	0.76	0.74	1.00	0.46	0.70
Interpretation		Good	Strong	Good	Good	Strong	Good	Good

TABLE 3 Reduction Percentage of Student Application during 2016-2018

Program	2016	2017	2018	Reduction (%)
CS	710	573	354	50.14
IT	695	578	274	60.58
HE	916	1590	610	33.41
SP	1171	1325	664	43.3
FS	683	483	282	58.71
EN	478	460	234	51.05
BT	108	82	46	57.41
FR	290	368	226	22.07
BI	403	393	117	70.97
CH	260	210	171	34.23
MA	118	98	46	61.02
PH	108	89	35	67.59
ST	116	64	43	62.93
MI	204	208	113	44.61
Total	6260	6521	3215	48.64

Table 3 shows reduction percentage of student application at Faculty of Science and Technology, SSRU in each program. The total number of student application in 2018 was compared with the total number of student application in 2016. The reduction of student application is observed in every program. The total number of student application in 2018 was intensely decreased because of the changing of admission system cooperated by Thai University Central Admission System (TCAS). The enrollment of students will be divided into 5 rounds: portfolio, quota, common direct admission, former admission and independent and direct admission by each university. 1) Portfolio round: Students submit their portfolio without taking any written examination. Committee will determine student proficiency by interviewing and demonstration. That is good for applied science programs e.g. Home Economics and Sport and Heath Science. For the requirement of Sport and

Health Science program, the applicants will asked to test the running test for 1,000 meters within 4 min for male and 800 meters within 4 min for female. 2) Quota: Students apply and take the quota entrance examination into universities in their areas. 3) Common direct admission: Students apply and take entrance examination by choosing 4 faculties without ranking. The examination will be held at the same period. 4) Former admission: Students apply for taking the entrance examination and choose 4 faculties without ranking. The criterion of application will be announced in TCAS website. 5) Independent and direct admission: Students apply to universities directly. However, 5th round application is quite close to the first day of classes in first semester. The number of student application at Faculty of Science and Technology, SSRU was quite low in 2018. That was affected to the number of total applicants in 2018.

TABLE 4 The Number of Student Applicants and Percentage of Confirmation in Round 3 Application 2018

Program	Applicant	Confirmed Applicant	Confirmation (%)
CS	113	49	43.36
IT	83	24	28.92
HE	145	62	42.76
SP	190	101	53.16
FS	93	26	27.96
EN	51	14	27.45
BT	11	3	27.27
FR	38	15	39.47
BI	33	8	24.24
CH	30	8	26.67
MA	8	1	12.50
PH	3	2	66.67
ST	8	5	62.50
MI	25	2	8.00
Total	831	320	38.51

From SSRU application data (2018) of Faculty of Science and Technology in Thai University Central Admission System (TCAS) round 3 in Table 4, the three highest numbers of applicants were all in Department of Applied Science. Which were Sports and Health Science (190), Home Economics (145) and Computer Science Program (113), respectively. The three highest numbers of applicants in Department of Science were Biology (33), Chemistry (30), and Industrial Microbiology Program (25), consecutively. Moreover, Department of Applied Science had more confirmation percentage of application (40-53%) compared to Department of Science (8-27%).

5. CONCLUSIONS AND FUTURE WORK

From correlation results between student population and student application during 2016-2018, researcher found the moderate-strong relationship in 14 programs at Faculty of Science and Technology, SSRU. The number of applicants has been intensely decreased during 2016-2018, especially programs in Department of Science. Moreover, the competition between universities is increased to sustain the financial stability of universities. The new curriculums are launched to gain interest of Mathayom 6 students and to follow the trend of Thailand 4.0 model. However, the declining demand for education, combined with increased competition from government universities, private universities and foreign universities, could lead to the closure of programs, universities and colleges. Faculty of Science and Technology, SSRU should do surveys to find the demand of students in order to open the new curriculums in the future.

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