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Motivational Effecting on Career Education Choice of Electrical Engineering Course for Community College in Thailand by Survey Data Analysis

Abstract. The motivational affecting of students making their choosing in professional programmes are interested in this study. Although various reasons, including parental, interpersonal, secondary teachers have reported as determinant of student choices, there is an insufficiency of studied that have quantitative surveyed a more details in community college context. The aim of this work was to monitor the factors that affected career educational choice among career students of electrical engineering course in Prasat industrial and community education college of Thailand. A total data of 64 respondents were gathered through questionnaire forms. The data collection was qualitatively analyzed using Statistical Package for Social Science platform. The key motivations emerged, namely personal factors, personal related factors, institutional factors, social factors, and future of work future factors. In this survey study, the numerous ranges of career students' respond regarding their choosing on career educational were focused. The results suggested that the desired on successful when graduation played the greatest motivational role of career educational choices among career students. Additionally, the null hypothesis was named for group proportions testing of two main conditions under gender of male and female, and difference age. Regarding to the results, the P-value was shown by over 0.05 in all cases. This statistical means that there is non-significant on the population between male and female as well as difference age. Therefore, the obtained results can be an advantage part of consideration to career students gaining opportunities for the future of work achievement.

Streszczenie. Celem niniejszego badania jest zainteresowanie wpływem motywacyjnym studentów dokonujących wyboru programów zawodowych. Chociaż różne przyczyny, w tym rodzicielskie, interpersonalne i nauczyciele szkół średnich, są zgłaszane jako czynniki determinujące wybory uczniów, istnieje niewystarczająca ilość badań, które obejmowałyby więcej szczegółów w kontekście uczelni lokalnych. Celem tej pracy było monitorowanie czynników, które wpłynęły na wybór ścieżki kariery wśród studentów kierunków elektrotechnicznych w Prasat Industrial and Community Education College w Tajlandii. Za pomocą formularzy kwestionariusza zebrano łącznie dane od 64 respondentów. Zebrane dane poddano analizie jakościowej przy użyciu platformy Pakiet Statystyczny dla Nauk Społecznych. Pojawiły się kluczowe motywacje, a mianowicie czynniki osobiste, czynniki osobiste, czynniki instytucjonalne, czynniki społeczne i czynniki dotyczące przyszłości pracy. W tym badaniu skupiono się na różnorodnych odpowiedziach studentów kierunków zawodowych na temat wyboru ścieżki kształcenia zawodowego. Wyniki sugerują, że oczekiwany sukces po ukończeniu studiów odegrał największą rolę motywacyjną w wyborach zawodowych wśród studentów kierunków zawodowych. Dodatkowo nazwano hipotezę zerową na potrzeby badania proporcji grupowych dwóch głównych warunków w zależności od płci męskiej i kobiecej oraz różnicy wieku. Jeśli chodzi o wyniki, wartość p wyniosła ponad 0,05 we wszystkich przypadkach. Statystyka ta oznacza, że w populacji nie ma istotnej różnicy między płcią męską i żeńską, a także różnicą wieku. Dlatego uzyskane wyniki mogą stanowić zaletę dla studentów kierunków zawodowych, którzy zyskują szansę na przyszłe osiągnięcia zawodowe. **(Wpływ motywacyjny na edukację zawodową Wybór kursu elektrotechniki dla Community College w Tajlandii na podstawie analizy danych z ankiety)**

Keywords: career education, community college, survey data, thailand.

Słowa kluczowe: edukacja zawodowa, uczelnia społeczna, dane z ankiet, tajlandia.

Introduction

The importance of educational has an essential foundation to encourage people in building the knowledge and skills for basics of life, such as learning, communication, and problem solving [1]. Truly, education is an opportunity for individuals to continue into the next step of occupational achievement. Alternatively, vocational education of Thailand is a career training that qualify learner to being professionals, for example industrial technicians, electrical technicians, civil technicians, mechanic technicians, and artisan [2-4]. These professional programmes arrange basic courses to practice and train a creative thought in the areas of engineering basic skills, which can respond to the needs of labour market [5]. In this case, students will be able to learn and experience following to their choosing of career fields [6-8]. However, several issues are relevant in affecting students to participating in the future careers. As regards to this point, career students may confront in cases of failing and wrong decisions on the expectation of study fields [9-11]. Hence, the role of personality in educational choices is a combination of numerous reasons comprising behaviors, capabilities, and interests [12-14]. Although some of these attempts have been beneficial, career students still constitute challenges among them [15]. During the recent years, the actual

confirmation has proposed about the factors determining professional programmes, some of which are attitude, family, capabilities, and popularities [16-19]. The bulk of attention for the past years has been on exploring vocational institutions. Nonetheless, there is potential in investigating how the phenomenon is encountered in the community college context. Previously, Sullivan, B. A., et al., [20] reported the associations of personality traits and vocational interests. They found the differences role of individual in vocational development. Nattavud Pimpa et al. [21] offered the influencing factors on Thai's students choosing of vocational education system on marketing factors and reference groups. The results showed the processes of student choosing that depends on secondary teacher school with the obtaining of furthering information. Similar to these studies, G. Haynes et al. [22] suggested the decision-making processes of young people in England. For this, the quality of institution was one of the major reasons along with lack of real understanding of the vocational programmes of students. In addition to this point, R. Moriyasu et al., [23] reported the career relevant on occupational choice at a rural Japanese high school. They indicated that career-relevant information could help students' occupational choices in the labour market. And the Study presented various personality associations at the

fact level that support to choosing on career training educational of the act of individual differences in choosing. Therefore, in order to have a thorough approach about the motivational that affected career educational of students choosing, quantitative method is the most suitable for greater understanding from relevant sources [24]. As well, the data collection has become a crucial part which consists of interviews [25], observations [26], documents [27], and questionnaires [28]. Particularly, a questionnaire is one which conventionally achieve the specific information from the chosen respondents and optimal methodology for larger scale studied [29]. In respect of this, statistical technique offers an effective tool for data interpretations along with identifying trends of statistical data [30]. Generally, the statistical technique is mainly comprised of Statistical Analysis Software (SAS) [31], Stata [32], R [33], and Statistical Package for Social Science (SPSS) [34]. Among these, SPSS platform presents an unique instrument that contribute numeral outcome analysis to predicting a range of statistical procedures [35-36]. Thus, the overall purpose of the present study was to survey the motivational on career educational choices of students in Prasat Industrials and Community Education College of Thailand to understand the perspectives about the factors that significantly affected to students choosing. This qualitative research integrated statistical processes to conventional content analysis using questionnaire forms and SPSS technique. Since the study is survey in manner, the attention was provided to reporting the different motivational affecting, including personal factors, personal related factors, institutional factors, social factors, and future of work factors.

Consequently, this work presents the outcome expectancy with respect to motivational affecting on career educational choices of electrical engineering course in Prasat Industrial and Community Education College. With accurate insight into motivational of students on career educational choices, career students can benefit understanding about their choosing. In addition, the results can be a potential opportunity to affect career students for career successful in the future.

Methodology

According to the work systematic, this qualitative research was directed at Prasat Industrial and Community Education College in Thailand. The study participant was enlisted from career students in electrical engineering course of vocational certificate level in 2023. As the data gathering, the questionnaire forms were used to collect research answering from participants. Five categories' questions to reveal factors affecting career educational choices were crafted, as can be seen in Table 1. For the determining sample size [37], a total of 64 career students was selected (100% response rate) to the questionnaire forms. In addition, respondents rated their level of preference from 1 to 5 scores in the rating scale of strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree, respectively. Data was gathered over a three-month period (March 2023 to June 2023). Since this work was run as the survey one, the data responses were analyzed qualitatively through statistical method to normal content analysis.

As analysis, statistical method was applied to examine trends and patterns with associations of data analysis. Hence, IBM SPSS statistics (version 29.0.1.0 (171)) was proceeded specially for descriptive analysis on numerical prediction with predictions for group identification [38]. The quantity of statistical population was accurately tested through different parameters of variation, including means,

standard deviation, and variances. To perform the appropriate statistical test, the state on null hypothesis and alternative hypothesis were identified to approach the significance level [39-40]. What's more, critical values, p-values, and confidence intervals were compared with a systematic accuracy to receiving the right statistical result. Subsequently, Table 1 displayed the detail on research instruments in each questionnaire variables from the category of motivational effecting factors on career educational choices, as following.

Table 1. The grid of research instruments in five categories' questions of motivational effecting on career educational choices

Motivational	Variables	Dimensions
Personal Factors	A1	Similarity to your aptitudes and interests
	A2	Appropriate to your skills and competencies
	A3	Having skills professionals need for your desired
	A4	Upgrading your educational qualifications
	A5	Simple to a job application
Personal Related Factors	A6	The role of your parent in selection
	A7	Advising and supporting from your teachers
	A8	Invitations of senior
	A9	Invitations of friends
Institutional Factors	A10	The implementation of education management standards
	A11	Modern uniform of students
	A12	Modern educational technology
	A13	Matching learners with materials and learning
Social Factors	A14	Comfortable with the tuition fee
	A15	Success after graduation
	A16	Opportunities and access to the labour market
	A17	Essential skills and traits for workforce in the society
	A18	Knowledge sharing relevance in society
Future of Work Factors	A19	Knowledge applying to a growing of own business
	A20	Career training and skills to experts on the future of work
	A21	Career advancement and family life
	A22	Career opportunities in many working paths
	A23	Career stability in the future

Results & Discussions

The primary sources were gathered by survey from career students of electrical engineering course in Prasat Industrial and Community Education College. With the motivational effecting on career educational choices, 64 respondents were chosen as the sample in this study. Fig. 1, the two pie charts showed the proportion of questionnaire replying in two main categories of gender and difference age. Looking the information in more detail, Fig. 1(a) presented the percentage the number of male and female participating in this educational level. The finding in this point that male was much more likely to enroll in career educational level than female, which located the percentage of around 87.5% (56 person) when compared to female of around 12.5% (8 person). At the same time, the age structure of a populations was displayed in Fig. 1(b). Referring to different age categories in chart, the majority of career students' populations was greater than or equal to 18 years. In decreasing order, 15 years, 16 years, 17 years were given in the number of participations.

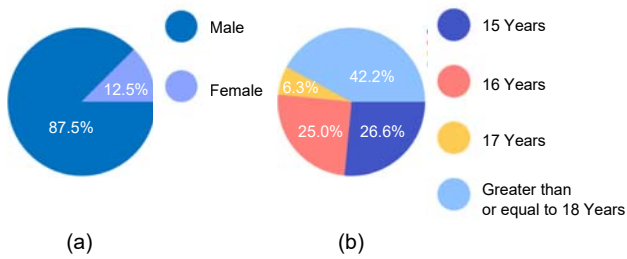


Fig. 1. The pie charts demonstrating the distribution of survey data by personal information of career students in Prasat Industrial and Community Education College: (a) Gender, (b) Age

Five key categories about the motivational affecting on the career educational choice emerged personal factors, personal related factors, institutional factors, social factors, and future of work factors. The results were summarized in Fig. 2 that was a presentation of the subcategories in rating scale choosing from this study. According to the bar graphs in Fig. 2, the rating scale of strongly agree was focused. Firstly, personal factors showcased the motivational that personalities have on the career educational behavior of career students choosing. The representing around 37% participants who acknowledge the significant role of individuals 'choice. Secondary, the category of personal related factors illustrated by around 11% participants identified their relating person as being motivational in their choosing. Note that some career students made their choosing without relating person interference. Next, the concept of this category is the confident belief in institutional to achieve goals. In this part, around 22% of the participants demonstrated to trust that they could be successful in career training level. The most common to all (around 45%) participating career students in the study was social factors. However, representing under 5% of respondents, believed that social factors were not contribution to their choosing to career training level. Moreover, around 40% of career students appeared to perceive a career in the future of work as worker. Thusly, the expectation of better pathways when graduation that could have stimulated their choosing to the career educational.

In Table 2, the information illustrated the average value of each category on motivational effecting on career students choosing through means and standard deviation (S.D.) by SPSS platform. Overall, the average means of social factors gave the highest scores when comparing to other categories, which was shown score by 4.1211, referring to Fig.2. Meanwhile, the lower scores were presented in the categories of future of work factors, personal factors, institutional factors, and personal related factors, respectively. Therefore, the motivational on social factors was focused concentratedly in further description, as can be seen in Table 3.

Looking in Table 3 in depth, each instrument of social factors on motivational to career educational choices was tested intensively under statistical method between A15 to A18, corresponding to Table 1. Obviously, the data analysis extended in each research instrument choosing. Interestingly, both of male and female stated that the motivational to pursue career education choices was based on their expectations for successful after graduation (A15), which presented the highest score of means, 4.23 (male) and 4.75 (female). Altogether, opportunities and access to the labour market (A16), knowledge sharing relevance in society (A18), and essential skills and traits for workforce in the society (A17) were highlighted in career students' responses, which displayed scores by 4.07, 4.05, 3.91, respectively.

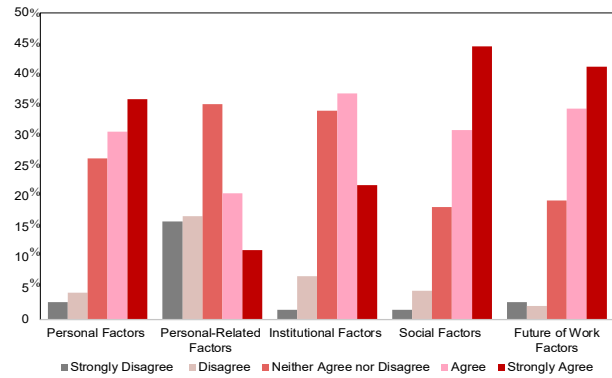


Fig. 2. The bar graphs displaying the percentage of survey respondents from career students in Prasat Industrial and Community Education

Table 2. The scores comparison of descriptive statistic by SPSS software on career educational choices from career student

Motivational	N	Minimum	Maximum	Mean	Standard Deviation
Personal Factors	64	1.20	5.0	3.9250	0.81455
Personal Related Factors	64	1.00	5.0	2.9453	0.89694
Institutional Factors	64	1.67	5.0	3.8151	0.69966
Social Factors	64	1.75	5.0	4.1211	0.81527
Future of work Factors	64	1.00	5.0	4.0906	0.79437

Table 3. The comparison of each research instruments of the motivational affecting on social factors between male and female from A15 to A18

Motivational on Social factors	Male (n=56)		Female (n=8)	
	\bar{x}	S.D.	\bar{x}	S.D.
A15	4.23	1.128	4.75	0.707
A16	4.07	1.024	4.63	0.744
A17	3.91	0.880	4.25	0.707
A18	4.05	0.903	4.38	0.916

To entirely acknowledge the motivational effecting on career educational choices of social factors category, Sheffer's method was used to investigate the different group of populations between gender and age [41-42]. Therefore, the statistics hypothesis was named in the part of statistical confirmation by gender statistics of male and female. At the beginning, the different of conditions testing on male and female was identified by independent t-test determining by null hypothesis (H_0) and alternative hypothesis (H_1), as following;

H_0 : There is no motivational effecting of career educational choices on gender

H_1 : There is motivational effecting of career educational choices on gender

The statistics hypothesis was tested through the comparison means of two main groups by independent sample t-test under a percentage confidence interval. Accordingly, the significance testing will lead to the rejection of null hypothesis when a statistical significance score (P-value or Sig. (2-tailed)) lower than 0.05. In Table 4 to Table 7, the tables presented each one in social factors category from 64 respondents, including Table 4 (A15), Table 5 (A16), Table 6 (A17), and Table 7 (A18). The overall illustrated the difference gender affecting on career educational choices. By comparison, P-value was especially considered. As a result, all cases were found the statistically significant of P-value above 0.05 scores in equal

variance assumed. Definitely, null hypothesis in statistical stage was accepted and alternative hypothesis was not accepted. The result is non-significant, which mean that there is on difference between variables of male and female. In the second stage, the second hypothesis testing was named to consider the motivational effecting on career educational choice within age statistical. As well as, the data analysis was tested through ANOVA, which was determined the parameters H_0 and H_1 by following;

H_0 : There is no motivational effecting of career education choices on age

H_1 : There is motivational effecting of career education choices on age

Correspondingly, Table 8 to Table 12 showed the hypothesis testing between groups of age respondents in four groups, 15 years, 16 years, 17 years, and greater than or equal to 18 years. Substantially, the result analysis viewed that all cases were presented P-value over 0.05. As this point, null hypothesis was accepted obviously, and alternative hypothesis was not accepted. Hence, there can be summarized that age statistics is non-significant among difference age.

Table 4. The statistical hypothesis testing based on motivational affecting of successful after graduation (A15) by SPSS technique.

Levene's Test for Equality of Variances						
		F	Sig.	t	df	Sig. (2-tailed)
A15	Equal variances assumed	4.569	.037	-1.259	62	.213
	Equal variances not assumed			-1.774	12.799	.100

Table 5. The statistical hypothesis testing based on motivational affecting of access to the labour market (A16) by SPSS technique.

Levene's Test for Equality of Variances						
		F	Sig.	t	df	Sig. (2-tailed)
A16	Equal variances assumed	1.003	.321	-1.469	62	.147
	Equal variances not assumed			-1.867	11.200	.088

Table 6. The statistical hypothesis testing based on motivational affecting of essential skills and traits or workforce in the society (A17) by SPSS technique.

Levene's Test for Equality of Variances						
		F	Sig.	t	df	Sig. (2-tailed)
A17	Equal variances assumed	.095	.759	-1.042	62	.302
	Equal variances not assumed			-1.228	10.372	.247

Table 7. The statistical hypothesis testing based on motivational affecting of knowledge sharing relevance in society (A18) by SPSS technique.

Levene's Test for Equality of Variances						
		F	Sig.	t	df	Sig. (2-tailed)
A18	Equal variances assumed	.126	.724	-.940	62	.351
	Equal variances not assumed			-.930	9.055	.377

Table 8. The hypothesis testing based on motivational affecting of personal factors under population of difference age

ANOVA						
avg_Personal						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	1.677	3	.559	.836	.479	
Within Groups	40.123	60	.669			
Total	41.800	63				

Table 9. The hypothesis testing based on motivational affecting of personal related factors under population of difference age

ANOVA						
avg_related						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	2.691	3	.897	1.122	.348	
Within Groups	47.992	60	.800			
Total	50.684	63				

Table 10. The hypothesis testing based on motivational affecting of institutional factors under population of difference age

ANOVA						
avg_institutional						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	2.009	3	.670	1.394	.253	
Within Groups	28.831	60	.481			
Total	30.840	63				

Table 11. The hypothesis testing based on motivational affecting of social factors under population of difference age

ANOVA						
avg_Social						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	1.687	3	.562	.840	.478	
Within Groups	40.187	60	.670			
Total	41.874	63				

Table 12. The hypothesis testing based on motivational affecting of future of work future under population of difference age

ANOVA						
avg_Future						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	2.719	3	.906	1.468	.232	
Within Groups	37.036	60	.617			
Total	39.754	63				

This qualitative research provides perspective into the motivational factors that affected career educational choices of participating students in Prasat Industrial and Community Education College of Thailand. The realizing in this work that personal factors, personal related factors, institutional factors, social factors, and future of work factors are the imperative in dealing to students choosing on the career training. This confirmed that in making the choice on professional programmes, career students argued various experiences that affect individual choosing differently.

In the opinion of participants, the category of personal factor was found to be enormous motivational in their choosing. As various reasons, they would like to upgrade their educational qualifications with improving skills and some of them believed that the career training could be a simple way to job application. However, there was interesting to find in this work, some participants argued themselves that other motivational affected on career educational choices. In the category of personal related factors, almost participants voted on neither agree nor disagree, since relating person were not related to the content of their choosing on professional programmes, such as parent, advisors, senior, and friends. But only a few career students indicate on strongly agree of this stage. In contrast, the results reveal that institutional factors were mostly attended in the rating scale of agree by the total number of career students. Despite the significant of career training, there are difference conditions could be affected to career students choosing, such as education management standard, modern uniform, educational technology as well as tuition fee. Similarly, the motivational on successful when

graduation was found to be the most exceptional reason referred by participants for career educational choices, which were categorized as social factors category. This implied that career students had an interest in the future of work. Based on that, the category of social factors had most of participants because they can obtain opportunities and access to the labour market, having skills and traits for workforce in the society, and sharing relevance knowledge in society. In addition to this point, those career students firmly suggested that the future of work factors took impressive priority in their choosing. There could be assumed that work opportunities were the most common reason for participants in career educational choices. As well as, job advancement, applying in own business, and career stability were also affected to the choices of career students. By comparison, the motivational factors on electrical career education choosing of personal factors, personal related factors, institutional factors, social factors, and future of work future factors were no different on gender between male and female, which corresponded to the null hypothesis. Reasonably, students would like to study in professional programmes relating to the area of electrical engineering field which their interest and specializations without discrimination on gender. Moreover, the category of age respondents on 15 years, 16 years, 17 years, and greater than or equal to 18 years were considered to determine the effecting on electrical career education choosing. For the result, there was shown that in all the groups accepted to the null hypothesis, since age was not affecting to the motivational on career educational choices. Consequently, this has a crucially important implication with regards to education pathway counseling of supporting for career students in their choosing.

Conclusion

This study involves the outcome expectancy of motivational affecting on career educational choices in electrical engineering course at Prasat Industrial and Community Education College. Career students approach their career educational choices from multiple perspectives. In this way, they assess the motivational affecting of personal factors, personal related factors, institutional factors, social factors, and future of work factors.

Interestingly, the social factors emerged as a mostly motivational section among a host of others found in this work. Thus, the motivational can be a potential part of consideration to meet opportunities in the future of work.

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