

*The Comparison of Industrial Characteristics of Rajamangala University of  
Technology Thanyaburi Students*

Tongluck Boontham, Rajamangala University of Technology Thanyaburi, Thailand  
Sukanya Boonsri , Rajamangala University of Technology Thanyaburi, Thailand

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**Abstract**

This research was to the comparison of industrial characteristics of Rajamangala University of Technology Thanyaburi students in Thailand. The sample group of this research, selected using stratified random sampling, consisted of 492 students of Rajamangala University of Technology Thanyaburi .The research instrument was 5 points Likert scale questionnaire. The data were analyzed using t-test,F-test and ANOVA. The research revealed that 1) the comparison of industrial characteristics of students analysis classified by gender using t-test found that there was no difference in industrial characteristics between 2 genders with an insignificant of .05, 2) the comparison of analysis classified by working experience during study that students who did not have any working experience during study and students with work experience had the different industrial characteristics level with a significant of .05 ,and 3) the comparison of analysis classified by grade point average (GPA) using an F-test to determine the variance. It was found that students with different GPAs had at least 1 pair of industrial characteristics at a different level with a significant of .05. The researcher tested the difference of each pair using Scheffe' Test and found that there were 2 pairs at a different level: (1) a group of student which had a GPA 2.51 - 3.50, and (2) a group of student with a GPA greater than 3.50 had a higher average than a group of student with GPA lower than 2.51 with a significant of .05.

Keywords: industrial characteristics, university, student

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## **Introduction**

Thailand is in the midst of dynamic challenges in terms of transforming itself from a developing to a developed country. To increase a competitiveness ability to become a stable and sustainable country, Thailand has to develop its research strategy, sciences, technology, and innovation as well as to elevate the labor skills that fit the current and future industry needs.

Thailand has struggled in labor skills quality in every aspect, for instance, knowledge, skills, work attitude, ethics, and morals. Many people do not respect others' rights and public interest. Regarding the population structure, Thailand has become an aging society which has caused a shortage of labor since 2015. Other than that Thailand's education quality to improve workers' knowledge and skills does not match the industry needs, this problem has caused low labor quality.

The importance objective of human capital development is to foster the labor skills of people who are entering the industry and who are in the industry at the present under the limitation of resources and timeframe. This requires support from the corporate networks to promote the labor competency-based to fit with the industry needs in every sector. Therefore, it is critical to uplift the education quality in professional fields and the industrial characteristics of workers.

The Industrial characteristics development is to enhance the workers' social skills, intellectual, pertinacity, social interaction, and adaptation. These will let workers be able to solve undesirable behaviors during critical situations. To enhance the labor quality to match the industrial characteristics, it has to go through the education administration process of educational institutions by providing comprehensive training that covers social and life skills in all areas. The education institutions have to consider the core social and life skills to facilitate the training that learners will be able to apply their respective skills in their daily life. The essential social and life skills consist of (1) honesty, (2) discipline and punctuality, (3) responsibility, (4) knowledge acquisition, (5) pertinacity, (6) thrifty, (7) security, (8) creativity, (9) teamwork, and (10) public-minded (Labor Master Plan, 2016).

In terms of the industrial characteristics, learners can build up the characteristics in 2 methods: 1) learners can naturally learn from their experiences and role models. However, it is a non-directional learning method without timeframe and it is too slow to learn, and 2) by developing a training process to encourage learners through the collaborative learning methods by using different activities that allow learners to practice, discuss, exchange their opinions and experiences, show their thoughts, and aspects that relevant to their experiences among the learning group to build new knowledge which they can apply it to their life. This will support learners to be ready for entering the competitive industry especially in the high technology industry that needs multi-skills workers with the desirable industrial characteristics that suit the industry. Therefore, the industry characteristics are critical factors that students who will enter the industry must-have (Ministry of Education, 2009).

However, education institutions shall focus on the education administration quality and improve the education administration standard to gain acceptance from the industries in Thailand and other countries and to shape students' industrial

characteristics that meet the industry needs; hence, the study of industrial characteristics level will be a guideline to plan and formulate policies to enhance efficiency and effectiveness together with courses and activities design for students in the future.

### **Research objective**

To study the comparison of industrial characteristics of Rajamangala University of Technology Thanyaburi students in Thailand.

### **Population and Sample**

1. The population for the research was 4,184 of 4th-year students at Rajamangala University of Technology Thanyaburi who enrolled in the academic year 2018 (Data from 7th August 2018, Office of Academic Promotion and Registration, Rajamangala University of Technology Thanyaburi, 2018)

2. The sample size was set by using the Rule of Thumb. Hair et al. (2010) mentioned that the sample size in multivariate research should be 10 - 20 samples per 1 variable. However, this research studied causal relationships of multivariate with a Structural Equation Model and there were 17 causal relationship variables in this research; hence, the sample size for this research was 10 participants per 1 variable. Therefore, the participants in this research were at least 340 students. To make a parameter estimation more accurate, the researcher adjusted the number of participants to 500 by using stratified random sampling. The participants came from 9 faculties and 1 college (50 participants per 1 faculty/college). However, the researcher could collect data from 492 participants in the field.

### **Instrument**

The research instrument used for this research was a 5-rating scale industrial characteristics test.

### **Data collection**

The data were collected by mail as well as by the researcher.

### **Data analysis**

The data were analyzed using frequency, percentage, mean, standard deviation. F-test and ANOVA were used for comparing the average of industrial characteristics level which was divided into gender, faculty, work experience during study, grade point average (GPA), and guardian profession.

### **Results**

The result from industrial characteristics level analysis divided into 2 parts: (1) the result of industrial characteristics level analysis, and (2) The result of the comparison of students' industrial characteristic classified by variable;

1. The result of industrial characteristics level analysis: it was found that the level of the industrial characteristics of students was high with an average of 3.76. The item with the highest average (3.90) was: students attempted to complete and submit the tasks from lectures on time, and the next item (3.89) was: students had the opportunities to help others without asking in return, followed by students were able to work as a team gladly (3.83).

2. The result of the comparison of the average level of students' industrial characteristic analysis classified by variable;

2.1 The result of the comparison of the average level of industrial characteristics of Rajamangala University of Technology Thanyaburi students analysis classified by gender using t-test found that there was no difference in industrial characteristics between 2 genders with an insignificant of .05.

Table 1: The result of the comparison of the average level of industrial characteristics of students analysis classified by gender

gender	N	M	SD	t	Sig.
1. men	188	3.80	0.52	1.137	0.256
2. woman	297	3.73	0.69		

2.2 The result of the comparison of the average level of industrial characteristics of Rajamangala University of Technology Thanyaburi students analysis classified by working experience during study using t-test found that students who did not have any working experience during study and students with work experience had the different industrial characteristics level with a significant of .05. It showed that the industrial characteristics of students who did not have any working experience were higher than students who had the working experience during study.

Table 2: The result of the comparison of the average level of industrial characteristics of students analysis classified by working experience during study

working experience during study	N	M	SD	t	Sig.
1. none	270	3.83	0.63	2.924*	0.004
2. work experience	211	3.66	0.62		

\* p < .05

2.3 The result of the comparison of the average level of industrial characteristics of Rajamangala University of Technology Thanyaburi students analysis classified by grade point average (GPA) using an F-test to determine the variance. It was found that students with different GPAs had at least 1 pair of industrial characteristics at a different level with a significant of .05. The researcher tested the difference of each pair using Scheffe' Test and found that there were 2 pairs at a different level: (1) a group of student which had a GPA 2.51 - 3.50, and (2) a group of student with a GPA greater than 3.50 had a higher average than a group of student with GPA lower than 2.51 with a significant of .05.

Table 3: The result of analysis of the average level of industrial characteristics of students classified by grade point average (GPA)

the variance	SS	df	MS	F	Sig.
between the group	7.157	2	3.578	9.358*	.000
Within the group	186.993	489	.382		
total	194.149	491			

\* p < .05

Table 2: The result of the comparison of the average level of industrial characteristics of students analysis classified by grade point average (GPA), two pairs

grade point average	M	lower than 2.51	2.51 – 3.50	higher 3.50
lower than 2.51	3.50	-		
2.51 – 3.50	3.79	2.29*	-	
higher 3.50	3.93	0.44*	0.15	-

## Conclusion

1. The result of industrial characteristics level analysis: overall, the university students had a high level (M = 3.76) of the industrial characteristics. To consider 10 industrial characteristics, the researcher found that the majority of students had industrial characteristics. The highest level of characteristic was knowledge acquisition, public-minded, and teamwork which comply with Professional Graduates Production Strategy that requires graduates to have the knowledge, professional skills, soft skills, and work experiences. This also conformed to the study of Prapassorn Busaman (2017) who studied the knowledge acquisition behavior and the guidelines for knowledge acquisition behavior development which showed that knowledge acquisition was one of the important indexes in the industrial characteristics that students shall have, followed by public-minded. Transferring the public-minded behavior from education institutions and media to students had a positive correlation with students' public-minded with a significant of .01, and the 3rd index was teamwork which conformed to the research of Chalida Chanwichit and Viroj Jadesadalug (2017) who found the teamwork was an index that important to work efficiency in private and public organizations.

2. The result of the comparison of the average of students' industrial characteristic analysis classified by gender, work experience during study, and GPA. In terms of gender, it was found that the level of the industrial characteristics was not different between the 2 genders. This could be assumed that students' gender did not have a direct influence on the industrial characteristics. However, it was found that the work experience during study and GPA influenced the industrial characteristics. Students who did not have the work experience during study had a higher industrial characteristics level than students who had work experience during study with a significant of .05 as students with work experience might have problems during work or unpleasant working conditions.

## **Recommendation**

The analysis of other factors influencing social skills such as Information and Communication Technology (ICT), teamwork, knowledge acquisition, critical thinking, discipline, organizational loyalty, and public-minded should be further studied.

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**Contact email:** tongluck@rmutt.ac.th  
sukanya\_bo@rmutt.ac.th