

# An Approach To Studying The Needs Of Enterprises To Support Cooperative Education Management Of Autonomous Universities

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## Abstract

The objectives of this research were to study the key elements that support cooperative education in autonomous universities, and to provide directions and proposed policies to promote cooperative education in establishments that participate in the cooperative education program of autonomous universities. The research comprised 357 establishments participating in the cooperative education program that accept King Mongkut's University of Technology North Bangkok students to commence work in the 2021 academic year, which were acquired by purposive sampling). The research instrument was a 5-level rating scale questionnaire based on the Likert method and relative model fit index by confirmatory factor analysis.

The results reveal that the structural equation modeling of analyzing the second-order confirmatory factor analysis of the approach for studying the needs of the enterprises to support the cooperative education management of autonomous universities was composed of 4 main components. There were 6 sub-elements of management. Knowledge had 5 sub-elements, skills had 6 sub-elements, and attributes had 7 sub-elements, which were consistent with the data ( $\chi^2 = 272.012$ ,  $df = 248$ ,  $p = 0.141$ ,  $\chi^2/df = 1.097$ ,  $GFI = 0.937$ ,  $RMSEA = 0.017$ ,  $AGFI = 0.923$ ).

**Keywords:** Autonomous Universities, Cooperative education, Education Management, Enterprises.

## Introduction

Developing undergraduate students to be ready for on-the-job training is critical to equipping them with the knowledge, ability, and competence to start work from the commencement of work. It decreases the duration of learning and workplace adaptation, increases productivity, and reduces the chances of career failure. However, to develop students to be ready must take into account of professional knowledge and competencies suitable for future careers, as well as important life skills such as working as a team, effective communication, accepting diverse opinions, having a good attitude towards work, etc. According to the 20-year National Strategy (Office of the National Economic and Social Develop, 2018), the 12th National Economic and Social Development Plan (2017–2021) (Office of the

National Economics and Social Development Council, 2017), the National Education Plan 2017–2036, and the National Education Standards 2018, with emphasis on the development of people and Thai society to be the strong foundation of the country, be physically, mentally, intellectually, and skillfully equipped. Education management in the 21<sup>st</sup> century is a lifelong education society to jointly create the innovation of quality of life and social development. This is an important part of driving the national economy to be competitive in the global economy and, according to the Higher Education Standards B.E. 2561, Section 1, regarding student achievements, it requires educational institutions to provide education for graduates of higher education with characteristics consistent with the national strategy and are a major force in the country's development

towards stability, prosperity, and sustainability in 3 aspects: lifelong learning, both academically and professionally, being an innovator; and being a strong global citizen who can reside to study and work around the world. Thus, the policy will be put into practice to prepare quality manpower through the support and promotion of institutions of education to supply cooperative education, which is an educational system that focuses on the performance of workplaces in a systematic manner by providing on-site learning as well as sending students out to work in the workplace. Therefore, students can apply their knowledge from educational institutions to enterprises to gain experiential learning (Kolb, A. Y., and Kolb D. A, 2005; Martin, A. and Hughes, H., 2009) and be ready to perform professional tasks upon graduation (Trivelli et al., 2018). Many educational institutions provide cooperative education and integration of learning with work. The cooperation between higher education institutions and enterprises allows students to have hands-on workplace training opportunities. It is the sharing of resources between educational institutions and enterprises as a collaboration in educational management (Bunyasophon, 2010) to improve skills in using and controlling tools or equipment in real enterprises (Gordon, 1998), practice problem-solving skills, and take the problems found as research challenges that will benefit both the manufacturing and hospitality sectors. At the same time, the manufacturing and service sectors need to adapt to current technology changes to enter Industry 4.0 (Ministry of Industry, 2016; The National Reform Council, 2016) and adopt innovation in business development.

Cooperative education management has important elements that will make cooperative education management successful in developing students and enterprises to benefit from joining cooperative education programs. These are those who engage in various aspects, including educational institutions, cooperative education students, university supervisors, cooperative education officers, enterprises in the cooperative education program, and staff counselors, who are employees of a business assigned to supervise and provide operational counseling to cooperative students in the workplace (Office of the Higher Education Commission Ministry of Education, 2008). Nevertheless, as the past and present cooperative

education management has been implemented, many difficulties have been found in many areas of awareness and understanding, such as the recognition of tax benefits for enterprises that perform cooperative education operations. Enterprises that accept students for cooperative education can obtain tax benefits that stimulate more enterprises to admit students to the cooperative education program, enabling them to understand the role and duties of the advisory staff of the enterprises, having professional knowledge and competencies suitable for future careers, and important life skills, for example, teamwork (Rawboon et al., (2021), effective communication (Hecklau et al., 2016; ABET, 2017), accepting diverse ideas, having a good attitude towards the work of cooperative education students. The curriculum of teaching and learning, such as content design, activities, and teaching methods, as well as an understanding of the processes and methods of operation in the workplace of a university supervisor and cooperative education staff, which is an important principle in the successful management of cooperative education. The role of the establishment must have a common understanding to develop cooperative students, as well as the analysis of workplace issues between the enterprises and cooperative students in order to bring the problems to study or research to solve the problems that arise. This requires collaboration between educational institutions and establishments (Bunyasophon, 2010) to lead to a solution, the role and responsibilities of the enterprises, and awareness of the related law in managing cooperative education that all parties should know. The foregoing is an element that must be integrated together in order for cooperative education to be successful, leading the students to be moral, ethical, knowledgeable, intellectually skilled, and able to work with others (Kergroach, 2017). Having the right competencies enables the use of knowledge and abilities to cause change or adaptation in the industrial sector, which speeds up industrial upgrading. It is consistent with Fleury and Fleury (2000) defines competence as knowing how to act responsibly, which implies mobilizing, integrating, transferring knowledge, resources, competencies, which adds economic value to the organization and social value to the employee.

Based on this problem, the demand of enterprises for the factors that affect educational management in colleges and universities should be studied. The obtained data will be useful in terms of the policy by setting planning guidelines for cooperative education management of autonomous universities to enhance the quality of education management and to develop the potential of graduates to be ready to enter the labor market that can be expanded sustainably. Based on the above reasons and necessity, the researcher therefore wanted to study the approach for the needs of enterprises to support the cooperative education management of autonomous universities through the cooperation of educational institutions with enterprises by creating awareness and understanding from the beginning in the management of cooperative education in order to develop the manpower to meet the needs of the production and service sectors both in quantity and quality.

**Hypothesis.** The approach to studying the needs of enterprises to support cooperative education management of autonomous universities consists of 4 components: management, knowledge, skills, and attribute. Every element is under the same main element.

## Materials and Methods

### 1. Population and sample group

The populations of this study were 357 enterprises participating in the cooperative education program that accepts King Mongkut's University of Technology North Bangkok students to commence work in the academic year 2021.

The samples of this study include 337 enterprises joining the cooperative education program accepting students of King Mongkut's University of Technology North Bangkok to work in the academic year 2021, and 94.40% of the total population was obtained by purposive sampling and voluntarily responded to the research project's questionnaire.

### 2. Research Variables

1. Structural variables consist of 4 main components: management, knowledge, skill, and attributes.

2. Indicator variables consist of 6 indicators of management, 5 indicators of knowledge, 6 indicators of skill, and 7 indicators of attributes.

### 3. Research areas

Research areas were enterprises joining the cooperative education program accepting students of King Mongkut's University of Technology North Bangkok to perform work in the academic year 2021.

### 4. Time Period

This study was conducted over a 12-month period (operated in the fiscal year 2022, from 1 October 2021 to 30 September 2022).

### 5. Assessment of Research Tools

The research instrument was a questionnaire survey on the approach to studying the needs of enterprises to support the cooperative education management of autonomous universities. The questionnaire was developed into 5-points of the Likert Scales (Likert, 1932), which are the highest, high, medium, low, and lowest. The criteria for standard interpretation were that the mean of 4.51–5.00 represented the highest, 3.51–4.50 represented high, 2.51–3.50 represented medium, 1.51–2.50 represented low, and 1.00–1.50 represented the least (Spooren et al., 2007; Srisa-ard, 2010; Silpcharu, 2017) by dividing into 4 aspects; management, knowledge, skills, and attributes; and also, the Index of item objective congruence (IOC) was between 0.80–1.00, Power of Discrimination from 0.31 to 80, and Reliability of the entire questionnaire of 0.95.

### 6. Data Collection

The researchers collected data from 357 enterprises that participated in the cooperative education program that accepted students from King Mongkut's University of Technology North Bangkok in the 2021 academic year by using an e-document questionnaire and sending it to many enterprises, and then followed up individually all 337 sets of a questionnaire, where the percentage of returns was 94.40.

The collected questionnaires were used to verify the completeness of the survey responses. Then record the results of the questionnaire into the computer program for data analysis and summarize the research results.

### 7. Data analysis

Analyzed opinions on the approach to studying the needs of enterprises to support the cooperative education management of autonomous

universities by using basic statistics: average, standard deviation.

The structural equation model and the second-order confirmatory factor (Comrey and Lee, 1992) were analyzed to study the needs of enterprises to support cooperative education of autonomous universities which was an analysis of the importance of variables that have variations with each component; weight analysis; and the importance of each of the four components, namely management, knowledge, skills, and attributes.

## Results

1. The results of the study on the situation of the cooperative education management system of enterprises participating in the cooperative education program of the autonomous universities by applying an in-depth interview with 7 people involved in cooperative education, with the objective to know the approach for the needs of enterprises to support cooperative education of the state autonomous university and found that;

1.1 In terms of management, the people involved in cooperative education management gave feedback on their understanding of cooperative education management in the enterprises. There must be an understanding of cooperative education management in the field of co-operative admission policy of the organization, providing advice and assistance in advising on matters such as rules, personnel management regulations, organizational management structure, or other relevant information, understanding of qualifications and roles of supervisors, students, and advisors in cooperative education management, job description, and cooperative education action plan, understanding of tax benefits for enterprises from operating cooperative education; and determining objectives and goals of cooperative education, understanding of the determination of competency of co-operative students; competencies based on the needs of the organization, competencies based on function and expertise; and understanding of teaching work, defining learning outcomes by integrating collaboration among people involved, understanding of measurement, and evaluation standards, monitoring student performance, and evaluating cooperative education activities during work,

creating students' awareness of operation safety, and reasonably arranging students' operation training environment determine tasks and job descriptions or students' projects, also giving feedback and suggestions on presentations, progress reports, and performance reports, consulting, advising; writing daily performance reports and weekly performance assessments and academic reports of students; job supervision, work planning, and following up on the progress of the student's performance, assigning job positions to suit the qualifications of students, understanding the supervisor's work, and meeting with lecturers about the student's work, their potential, and behavior.

1.2 In terms of knowledge, those who are involved in the management of cooperative education commented that in the current state of the Thai education system, it has to experience advancement in science and technology, which affects the preparation of manpower to be of sufficient quality and quantity to support the growth of national demand, and drive the country's development strategy in order to achieve the cooperative education goals. Therefore, the knowledge and understanding of cooperative education students should have the task of matching basic knowledge and professional knowledge, organizational knowledge such as organizational structure, organizational rules, knowledge of work procedures, experiential performance techniques, the use of basic operational tools or programs, having basic knowledge on creating innovation on a practical basis, knowledge of the technologies used in the operation, Information technology for presentations, having knowledge of professional ethics and able to apply the knowledge learned in the operation, as well as be able to present new ideas that can develop the operation appropriately.

1.3 In terms of skills, the participants in cooperative education management mentioned that cooperative education management is experiential learning that gives students the opportunity to apply work skills and specific skills related to the profession, as well as to experience the real life of work before graduation. However, the skills of cooperative education students should include planning skills and studying how to perform tasks

before taking action, leadership skills, choosing the correct and appropriate solution, solving difficult and complex problems, communicating and coordinating with other departments/agencies, presentation skills, using digital technology skills, correct use of tools and technology, decision-making skills while working, skilled in sequential and systematic thinking processes, English communication or other foreign languages in the modern business world such as Chinese, Indian and other languages, follow-up and assessment, adaptation to the current situation, having job analysis skills, including skills for working with others, etc.

1.4 In terms of the attributes, the involved persons in cooperative education management explained that the principles of the cooperative education curriculum are based on basic learning theory and also promote students' professional experience. Therefore, to manage cooperative education to be efficient and effective, co-operative students must be honest, diligent, patient, and determined to work; have a positive working attitude, punctual, responsible for assigned tasks; have strict discipline, compliance with organizational rules; have good interpersonal relationships; ability to work with others, always want to know and self improvement; be humble, generous, and considerate to colleagues, responsible for the assets and resources used to perform the work; be able to control their own emotions in different situations, flexible and adaptable in different situations, accept others' opinions, be thorough in their work, as well as dress nicely, have a good personality, manners, and reverence.

2. The results of the study of key elements that support the management of cooperative education of autonomous universities reviewed that:

The analysis results of opinions on the approach to studying the needs of enterprises to support cooperative education management of autonomous universities found that the needs of enterprises to promote cooperative education of universities as a whole were at a high level (average score of 4.17) and all aspects were also at a high level (average scores of 4.15–4.20). When considering each aspect by sorting the mean from highest to lowest, it was found that the attribute had the highest mean score

(mean score of 4.20), followed by skills (mean score of 4.17), knowledge (mean score of 4.16), and management (mean score of 4.15), respectively. Details are shown in Table 1.

**Table 1.** Mean, standard deviations, and levels of opinion on the approach to studying the needs of enterprises to support the cooperative education management of autonomous universities.

Assessment Topic	$\bar{X}$	S.D.	Rate opinions
Management	4.15	0.51	High
Knowledge	4.16	0.62	High
Skills	4.17	0.62	High
Attributes	4.20	0.63	High
<b>Overall</b>	<b>4.17</b>	<b>0.60</b>	<b>High</b>

2.2 Analysis results of structural equation models, the second-order confirmatory factor, structural equation models of the approach for studying the needs of enterprises to support the cooperative education management of autonomous universities.

The results of the structural equation model analysis of the second-order confirmatory factor, structural equation models of the approach for studying the needs of the enterprises to support the cooperative education management of autonomous universities after model improvement, considering the key statistical values in the standardized estimate mode, namely factor loading, Coefficient of Multiple Determination (R-Square or Multiple Correlation –  $R^2$ ), Critical Ratio – CR, the hypothesis test result (P-Value) of the main component or latent variables, and the sub-components or observable variables (Arbuckle, 2011). It was found that the structural equation model for the educational approach to the needs of enterprises to promote cooperative education management of autonomous universities was consistent with empirical data. The results showed that all the statistical values were acceptable, and The Chi-Square Probability Level (p) was 0.083 greater than 0.05. The Chi-Square Probability Level (p) was 0.083 greater than 0.05, indicating that this model was not statistically significant. The relative chi-square (CMIN\DF) was 1.092 less than 3, the Goodness-of-fit index (GFI) was 0.937 which was more than 0.90 and the Root mean square error of approximation (RMSEA) was 0.017 which was less than 0.08. The findings confirm that the developed model is appropriate to describe the educational

model for the needs of the establishment to promote cooperative education management of autonomous universities. However, the research results verified that the developed model was suitable for describing the enterprise demand-oriented model to support the cooperative education of autonomous universities. Also, it was found that:

The models of the approach for studying the needs of the enterprises to support the cooperative education management of autonomous universities had a positive factor loading of 4 main components; management, knowledge, skills, and attributes. The level of statistical significance was at the level of  $p = 0.001$  in all aspects. The reliability of the measurement was high (Multiple Correlation –  $R^2$ ) between 0.96 – 1.00, indicating that the four main components were under the major components by ordering the factor loading in descending method, and reviewed that management, knowledge, and attributes had the same amount of factor loading of 1.00 and skill had a factor loading of 0.98, respectively. Nevertheless, the finding of standardized factor loading when considering each factor showed that:

1. Management factor, variable with the highest standardized factor loading was understanding of work training, guiding rational directions to students (MGMT12) and had the standardized factor loading of 0.97. Also, there was a co-variance with the management factor (management) at 0.95 percent, followed by an understanding about claiming tax benefits for enterprises from cooperative education (MGMT21) with a standardized factor loading of 0.87. Besides, the common variance with the management factor (management) was 0.77%. Moreover, the standardized factor loading of understanding the qualifications and roles of supervisors, students, and advisors in cooperative education management (MGMT7) was 0.89 and had a common variance with the management factor (management) of 0.79%. Understanding of the proper environment for student practice (MGMT16) had a standardized factor loading of 0.85 and a co-variance with the management factor (Management) of 0.73%. The understanding of determining learning outcomes for cooperative education students by integrating cooperation from those involved, consisting of enterprises, the advisors, supervisors, and

cooperative education students (MGMT22) had a standardized factor loading of 0.79 and a co-variance with the management factor (Management) of 0.63%. Understanding of tasks and job descriptions or the student's project topic (MGMT23) had a standardized factor loading of 0.78 and a co-variance with the management factor (Management) of 0.61%, respectively.

2. The Knowledge factor, the variable with the most factor loading, was having basic knowledge about creating innovations on a practical basis (Know11), having a standardized factor loading of 0.96. Additionally, there was a co-variance with the knowledge factor (Knowledge) of 0.92%, followed by having basic knowledge and specific knowledge corresponding to the job title and assignment (Know1) with the standardized factor loading equal to 0.87, and there was a co-variance with the knowledge factor of (0.75%), knowledge of the technology used in operations (Know6), the standardized factor loading of 0.79, and the co-variance with the knowledge factor (Knowledge) of 0.63% were able to introduce new ideas that could improve operations (Know10), had a standardized factor loading of 0.73 and shared variance with the knowledge factor of 0.53%. Besides, the knowledge that can be applied in operations (Know9), had standardized factor loading of 0.68 and the mutual variation with the knowledge factor (Knowledge) of 0.47%, respectively.

3. Skills factor, the variable with the highest standardized factor loading was a skill to work with others (Sk14), had a standardized loading factor of 0.90, and there was a common variance with the skill factor of 0.81%. In terms of leadership skills (Sk15), it had a standardized factor loading of 0.88, and a common variance with the skills factor (Skills) was 0.78. The skill of mastering and using digital technology (Sk13) was equivalent to the standardized factor loading of 0.87 and variance in relation to the skill factor of 0.76%. Also, the standardized factor loading of skill of operational analytical thinking ability (Sk8) was 0.83 and a co-variance with the skill factor of 0.68%. Proficiency in English or other languages in the modern business world, such as Chinese, Indian and other languages (Sk11), had

a standardized factor loading of 0.74, and a covariance with the skill factor of 0.54%. The skill of deciding to solve problems while working (Sk2) had a standardized factor loading of 0.67 and a common variance with skill components (Skills) of 0.45%, respectively.

4. Attributes factor, the variable with the highest standardized factor loading was honesty (Att1) of 0.93 and had the same variance as the attribute factor (Attributes) of 0.86 percent, followed by good human relations, ability to work with others (Att6), had a standardized factor loading of 0.92 and a common variation with attributes factor of 0.85%., always ambitious and self-developing (Att8) with the standardized factor loading of 0.89 and a common variation with attributes of 0.80%. In the matter of flexibility and adaptability (Att11), a standardized loading factor of 0.88, and a common variance with attributes factor (Attributes) of 0.78%.

Responsible for assigned tasks (Att5) had a standardized factor loading of 0.87 and a common variance with an attributes factor of 0.76%. Plus, the standardized factor loading of discipline and organizational compliance (Att9) was 0.83, and covariance with attributes factor was 0.69%. Besides, dressing appropriately, good personality, having proper manners, and being respectful (Att17) had a standard element weight of 0.78 and had a common variation with the attributes factor (Attributes) of 0.60%, respectively.

From the hypothesis, it was found that all 4 main factors were under the same major component. The factor loading was between 0.98 to 1.00 ordered from highest to lowest factor loading, Also, it explained that in terms of management, knowledge, and attributes had the same factor loading which was equal to 1.00, and skill (Skill) had a factor loading of 0.98 respectively, details as in Table 2 and Figure 1

Table 2. Statistical values of structural equation model analysis, the confirmatory factor analysis of the approach for studying the needs of enterprises to support cooperative education of autonomous universities.

Variable	Estimate		Variances	R <sup>2</sup>	C.R.	P
	Unstandardize d	standardize d				
<b>Outcome variable</b>						
Approach to Studying the Needs of Enterprises to Support Cooperative education Management of Autonomous Universities						
<b>Variable</b>						
Management	1.00	1.00	0.00	0.99		
Knowledge	1.05	1.00	0.00	1.00	18.832	***
Skills	0.88	0.98	0.01	0.96	13.318	***
Attributes	1.11	1.00	0.00	1.00	20.761	***
<b>Management</b>						
1. Understanding the qualifications and roles of supervisors, students, and advisors in cooperative education management (MGMT7)	1.08	0.89	0.13	0.79		
2. Understanding of work training, guiding rational direction to students (MGMT12)	1.19	0.97	0.03	0.95	16.436	***
3. Understanding of the proper environment for student practice (MGMT16).	1.03	0.85	0.16	0.73	19.653	***
4. Understanding about claiming tax benefits for enterprises from cooperative education (MGMT21)	1.06	0.87	0.14	0.77	22.672	***
5. Understanding about determining learning outcomes for cooperative education students by integrating	1.00	0.79	0.24	0.63	18.59	***

cooperation from those involved, consisting of enterprises, the advisors, supervisors, and cooperative education students (MGMT22)							
6. Understanding of tasks and job descriptions or the student's project topic (MGMT23)	0.97	0.78	0.24	0.61	19.218	***	
<b>Knowledge</b>							
1. Having basic knowledge and specific knowledge corresponding to the job title and assignment (Know1)	1.00	0.87	0.15	0.75			
2. Having knowledge of the technology used in operation (Know6)	0.94	0.79	0.23	0.63	18.909	***	
3. Having the knowledge that can be applied in operation (Know9)	0.79	0.68	0.32	0.47	14.995	***	
4. Having new ideas that could improve operations (Know10)	0.85	0.73	0.29	0.53	16.516	***	

Variable	Estimate		Variances	R <sup>2</sup>	C.R.	P	
	Unstandardize d	standardize d					
5. Having basic knowledge about creating innovations on a practical basis (Know11)	1.13	0.96	0.05	0.92	27.889	***	
<b>Skills</b>							
1. Having the skill of deciding to solve problems while working (Sk2)	1.00	0.67	0.39	0.45			
2. Having the skill of operational analytical thinking ability (Sk8)	1.09	0.83	0.18	0.68	13.980	***	
3. Having the skill of proficiency in English or other languages in the modern business world, such as Chinese, Indian and other languages (Sk11)	0.97	0.74	0.26	0.54	12.630	***	
4. Having the skill of mastering and using digital technology (Sk13)	1.19	0.87	0.15	0.76	14.616	***	
5. Having the skill to work with others (Sk14)	1.23	0.90	0.11	0.81	15.075	***	
6. Having leadership skill (Sk15)	1.21	0.88	0.14	0.78	14.768	***	
<b>Attributes</b>							
1. Honesty (Att1)	1.00	0.93	0.08	0.86			
2. Responsible for assigned tasks (Att5)	0.99	0.87	0.16	0.76	26.172	***	
3. Have good human relations, and the ability to work with others (Att6)	0.99	0.92	0.09	0.85	31.176	***	
4. Always ambitious and self-developing (Att8)	0.98	0.89	0.12	0.80	28.194	***	
5. Have Discipline and organizational compliance (Att9)	0.92	0.83	0.19	0.69	23.069	***	
6. Have flexibility and adaptability (Att11)	0.99	0.88	0.14	0.78	27.30	***	



7. Dressing appropriately, good personality, having a proper manner, and being respectful (Att17)	0.92	0.78	0.28	0.60	20.088	***
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Note \*\*\*.  $p < .001$

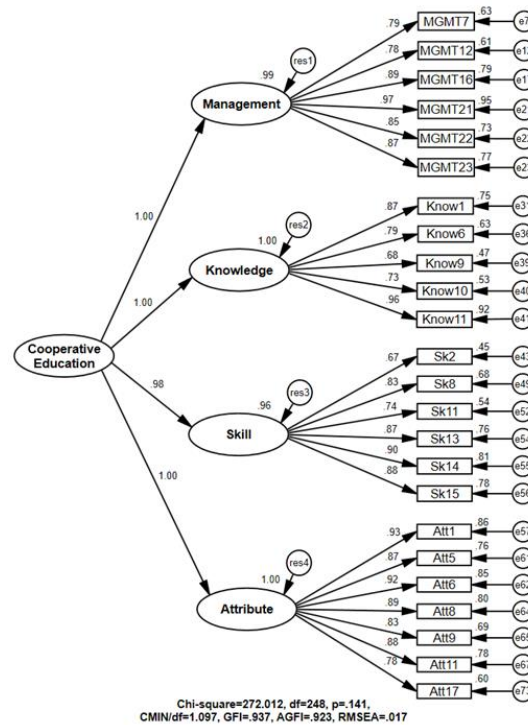


Figure 1. Structural Equation Model of Approach for Studying the Needs of an Enterprises for Supporting Cooperative education of Autonomous Universities in Standardized Estimate Mode.

3. The results of providing guidelines and policy recommendations to promote cooperative education management of enterprises participated in the cooperative education program of autonomous universities found that:

3.1 In the area of cooperative education management curriculum development, the focus should be on the curriculum, which must be organized to provide courses that allow students to acquire practical knowledge during their work. In addition, students must learn through practical operations. Moreover, Fundamentals on building knowledge and cognitive should be added so that students can innovate from their own creativity. The innovation must be based on practicality (Innovation), which must at least provide learners with knowledge and understanding of market feasibility analysis, production feasibility, business model feasibility, law and regulation feasibility, and financial feasibility.

3.2 In the matter of creating shared value between educational institutions, government organizations, and the private sector in co-creation, the operations in government organizations and the private sector currently have their own knowledge and technology, so educational institutions that organize cooperative education should cooperate with industry more by creating shared value as a partner. Thus, university supervisors must lead co-operative students by using their knowledge to help drive projects of enterprises that require the knowledge and abilities of supervisors, co-operative students, and advisors of the enterprises by integrating their knowledge with each other to achieve the project's goals. This is due to the cooperation of all parties, enterprises, university supervisors, co-operative students, and advisor staff to provide learning outcomes to co-operative students who can continue to develop after graduation and have the ability to perform further suitable tasks.

3.3 In terms of learning outcomes development, that is, learning outcomes should be defined by integrating cooperation from relevant personnel, including enterprises, advisor staff, university supervisors, and co-operative students to determine competencies that consist of knowledge, skills, and attributes. Determining guidelines for learning assessment (Learning Assessment), creating learning plans (Learning Plans) with a focus on learners to achieve the learning outcomes specified in the curriculum or is an outcome-oriented education (Outcome-based Education) under the National Qualifications Framework for Higher Education (TUF) Curriculum Criteria Professional standards and other relevant requirements.

3.4 In the case of social skills development, in the management of cooperative education, educational institutions are primarily responsible for producing cooperative education students for enterprises, developing social skills for students before going out to learn in both government and private organizations that accept students to work. Students should be able to perform with appropriate social skills to be able to work with others, such as emotional skills that are fundamental to life in connection with working and interacting with others, communication, teamwork, building human relations with others, including solving immediate problems, etc.

### Conclusion and Discussion

1. The results of a study on the needs of enterprises to support the cooperative education of autonomous universities showed that the feedback analysis concerning the approach to studying the needs of enterprises to support cooperative education management of autonomous universities mentioned that the demands of the enterprises to support cooperative education of autonomous universities as a whole are at a high level, and in each aspect is also at a high level, in line with the concept of McClelland's (1973) theory says that competence is a behavioral trait that results from knowledge, abilities, skills, and other attributes that make a person stand out in an organization (Office of the Civil Service Commission, 2010).

2. The approach for studying the needs of the enterprises to support the cooperative education

management of autonomous universities comprises 4 main components, there are 6 sub-elements of management. Knowledge has 5 sub-elements, 6 sub-elements for skills, and attribute has 7 sub-elements, which are consistent empirical data. The indicators of each aspect are as follows.

2.1 The 6 components of management, including the understanding of the qualifications and responsibilities of supervisors, students, and advisors in cooperative education management, having an understanding of teaching, guidance, and giving direction to students logically, understanding of the appropriate environment for students' practices, having an understanding of how to obtain tax benefits for enterprises from cooperative education operations, being knowledgeable of determining the learning outcomes of co-operative students by integrating cooperation of the relevant persons, including enterprises, advisors, supervisors, and cooperative education students, having an understanding of job assignments and job descriptions or student project topics consistent with the memorandum of the Office of the Higher Education Commission and the Subcommittee on the Promotion of Cooperative Education Development, and also provide policies to continuously promote and support the management of cooperative education. The main strategies and measures for promoting and supporting cooperative education management to ensure continuous and sustainable stability are: 1) Enhancing cooperative education knowledge and understanding, 2) Setting standards for Thai cooperative education operations, and 3) Promoting Thai cooperative education. 4) Supporting international educational enterprises, and formulate measures, one of which is to give tax benefits to graduate user organizations. Graduate user organizations, especially enterprises, can bring incurred expenses in cooperative education operations, such as allowances, accident insurance premiums, etc. welfare fees, materials provided to students entering cooperative education, and external speakers hired to educate co-operative students can apply for tax benefits. Thus, enterprises that accept students for cooperative education can receive further tax benefits. This will incentivize enterprises to accept more students into cooperative education and will benefit all parties involved, including higher education institutions, students and

enterprises. It will also benefit society and the country as a whole (Office of the Higher Education Commission, Ministry of Education, 2008). In addition, learning outcomes from integrated teaching and learning design must begin with determining the learning outcomes that are desired to teach the students. The learning outcome should be the one that is necessary to develop learners in real conditions only, for example, defined by the National Qualifications Framework (NQF), it consists of knowledge, skills, and application capabilities and responsibilities. Subsequently, learning evaluation guidelines are formulated to measure and assess how learners have achieved the required learning outcomes, then set a learning management plan by choosing to integrate with the work that is suitable for learning outcomes, and evaluation guidelines (Stirling, 2016).

2.2 There are 6 sub-components of knowledge: comprising basic knowledge, specific knowledge corresponding to the position, and assignments. Having the technical knowledge of the operation can be applied consistent with the cooperative education development network in the upper southern region (2018). The learner's learning outcomes in the preparation of an integrated curriculum must be in line with the learning outcomes standards in accordance with the National Higher Education Qualification Standards Framework (NCPO) of the Higher Education Commission (SCO), which in the field of knowledge must determine the learning outcomes of the learners to have an understanding of the theory and apply the knowledge learned to solve problems that arise in real situations.

2.3 There are 6 sub-elements of skills as follows: skills in making decisions to solve problems while performing tasks; skills in thinking; analyzing operations; and communication skills in English or other foreign languages in the modern business world. Additionally, there are skills in understanding and using digital technology, skills to work with others, and leadership skills (Rawboon et al., (2021) in line with the definition of competence as a behavioral attribute of a person that is the result of knowledge, skills, and abilities that enable a person to produce a performance that stands out from other colleagues in the organization. Capabilities are not one of the characteristics of personnel but a group of

behavioral attributes. This allows personnel with similar characteristics to have different competencies, such as skills. Knowledge, ability, character, motivation, drive, feelings, etc. (McClelland's, 1973; Spencer and Spencer, 2008; Office of the Civil Service Commission, 2010). This conforms to Sutin's approach to assessing learners' skills in the 21st century (2012), discussing the assessment of learners' skills in the 21st century, an educational institution that strives to produce graduates for success in their careers and a life spent in a rapidly changing world. There are complexities that must be addressed to prepare students to have the skills to live in the 21st century world: critical thinking, problem-solving, good communication skills, and good teamwork; being able to use data and technology appropriately; having a flexible mindset, adapting well to change, being a creative and innovative maker, being a global citizen, and having a financial understanding, In addition, this is also consistent with the Upper South Cooperative education Development Network (2018), which has introduced an integrated curriculum approach to working in the field of skills, which should focus on the learner's cognitive skills, the ability to analyze situations and apply knowledge and conceptual understanding, as well as principles, theories, and processes for critical thinking and problem-solving. when confronted with new situations that were not previously unexpected on their own. Moreover, there are interpersonal skills and responsibility, as well as the ability to work in groups. Demonstrate leadership, self-and social responsibility, the ability to plan and be responsible for one's own studies, numerical analysis, communication, and information technology skills. Besides, the ability to perform numerical analysis, the ability to use mathematical and statistical techniques, the ability to communicate both orally and in writing, as well as using information technology to integrate teaching and learning with work, Its main objective is to give learners the opportunity to use their theoretical knowledge in real-world situations to develop skills necessary for work and lifelong learning. Therefore, the learning outcomes of learners who have passed integrated learning with work are consistent with Wongchavalitkul et al., (2015), who studied the expectations of the student's core competency, cooperative Students In the student's view, students and

entrepreneurs, as well as engineering and technology groups, The results showed that students and entrepreneurs in the engineering and technology sectors were satisfied. There are expectations and core competencies in the work of students. Cooperative education students in the five components are at a high level in the following, in descending order: adherence to righteousness and ethics, good service, teamwork, achievement, and career expertise. Hence, both samples have the expectations of the skills that should be in the work of the student in all 8 elements at a high level. Thus, the sample students have expectations of skills they should have at work in descending order: teamwork skills, adaptive skills, computational and computer skills, management skills, communication skills, creative skills, problem-solving skills, and professional skills for entrepreneurs.

2.4 In terms of attributes, there are 7 sub-components, comprising honesty, responsibility for assigned tasks, good human relations (Barrick et al., 2000), the ability to work with others, always eagerness for knowledge and self-development, discipline and following the rules of the organization, flexibility and adaptability to situations, and having good dress, personality, manners, and respect (Rawboon et al., (2021), which correspond to Wongchavalitkul et al., (2015) researched the expectations of the main competency in the work of students, cooperative education students from the perspective of entrepreneurs. The results of the study found that both groups of the sample have a high level of expectations through the students' core competency and cooperative education students. Nevertheless, entrepreneurs in the engineering and technology sectors have greater expectations of good serviceability, work ethics, teamwork skills, management skills, and adaptability than entrepreneurs in the social sciences sector. On the other hand, entrepreneurs in the engineering and technology sectors have fewer expectations of creative ideas, calculation, and computer skills than social science practitioners. It is consistent with Moreira et al., (2022) explored Competencies Development: The Role of Organizational Commitment and the Perception of Employability. The results showed that the best way for an organization to retain its employees is by promoting the development of their key competencies.

## Recommendations

Suggestions for applying the research results

1. Thai Cooperative education Association and departments of educational institutions that are responsible for overseeing the management of cooperative education, should apply the results of this research as a guideline in policy formulation, planning, and promotion of cooperative education of autonomous universities and universities affiliated with the state to be effective and efficient for cooperative education management.

2. The results of this research should be implemented by Government agencies, the private sector, and the education sector as a model for integrating cooperation in the preparation of projects to support cooperative education of autonomous universities to succeed in cooperative education management effectiveness and efficiency.

Suggestion for the Future Research

Educational institutions that are autonomous universities and universities affiliated with the state with cooperative education are able to apply the findings of this research as a guideline in conjunction with the development of learners' learning outcomes, and then evaluate the results of learners in various components in order to utilize the results in developing cooperative education to be more effective in the future.

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