

Student Development through Constructivism in Cooperative Education: A Case Study of the Faculty of Accounting, Rangsit University

Wanrudee Suksanguan

Faculty of Accountancy Rangsit University, Thailand

Email: kob.wanrudee@gmail.com

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Abstract

The purposes of this research were as follows: 1) to develop students through constructivism in cooperative education and an independent study; 2) to investigate students' opinions towards the establishments they work for; and 3) to study the achievements of cooperative education. The population consisted of 76 accounting students who enrolled in Cooperative Education Course, Semester 2, Academic Year 2018. The sample of this qualitative study, according to the objective 1 was 3 advisor, students responsible for Auditing, Value Added Tax and Government accounting. The objective 2 and 3 were quantitative study. The sample included 76 participants. Research methodology consisted of participatory observation, in-depth interview and questionnaires. Data analysis applied qualitative content analysis and mean.

However, the qualitative analysis showed that 1) Auditing: student examined income and expenses and found that accounting documents of some expenses were missing. Student developed to become knowledgeable until they knew the purpose and inspection methods of income and expenses. Value Added Tax: student found that there were errors in records and documents were delayed, causing the company to pay a penalty and extra money. Government accounting: Student was assigned to record cash accounting and deposit entry covering income and expenses. The student was suggested that there shall be written in a lease, emphasizing that "If a tenant does not come to receive a rental deposit insurance within the specified period, it will be regarded public revenue." 2) Students' opinions toward establishments of internships were at an excellent level. Similarly, 3) The achievements of cooperative education considering from results students received from participating in Cooperative education Project were at an excellent level. The average score of students was at 90.20 in total.

Keywords: Cooperative education, student development, constructivism

Introduction

According to the World Bank data (World Bank, 2019), it is stated that in 2030, 72% of Thai graduates will be unemployed. Work will be replaced by artificial intelligence technology, and the leading companies will recruit employees without considering educational qualifications. (Daily News, 2018, Sep 12, p.15). In the future, knowledge is not the most important thing because it can become obsolete. The most important thing is to create skills and competencies of students, enabling them to be able to change themselves (Daily News, 2018, Sep 12, p.15). This is a cause urging the government by the Prime Minister to order the problems of unemployed graduates and make universities to produce graduates to respond to Thailand's National Strategy and for the lack in various industries. Therefore, there is a project to build a new generation of graduate courses. The government on behalf of the Ministry of Education will provide subsidies for bachelor's degree level of 100,000–200,000 baht per person per year. The course requires 50% of actual study time, requiring students to study in actual establishments. An industrial sector shall provide people to teach in conjunction with universities to create people with ideas, analytical thinking as well as people who can work from real experiences (Daily news, 2018, Apr 10, p.23).

Thailand is one the countries in the world that the government gives importance and continuously spends budget to develop national education. (Office of the Education, Council Ministry of Education, 2017) The significant goal is to promote and develop manpower to be a resource or valuable human capital with knowledge, skills and ability to apply various innovations for living and to develop the country effectively in the future. This is in line with the National Education Development Plan 2017 – 2036 in Strategy 2 stating about manpower and development strategies for production, research and innovation (Office of the Education, Council Ministry of Education, 2017). It can be seen that this strategy is the key to driving Thailand into Thailand 4.0 (Matichon, 2018, Aug 20, p.21). The cabinet agreed that the first important thing is to create educational reform. Education at all levels must be changed. The conventional teaching methods cannot respond to needs anymore. The learning process must change. Lessons in the classroom shall be reduced. The most important study is learning from doing and real experiences (Matichon, 2019, Sep 13, p.1). This corresponds to the 20-year National Strategy in development and promotion of human resource potential in Article 3 Educational Reform that Responds to Changes in the 21st Century.

Since higher education institutions recognize the importance of producing graduates who are competent in accordance with the needs of the labor market and can actually work upon graduation, education integrated with work in the form of a cooperative education course is provided to enable students to perform actual work at workplaces. (Thairath, 2019, May 25, p.12) Workplaces are provided with channels for recruiting new employees and to assign work corresponding to students' fields of study, focusing on learning by using work experience. (Thairath, 2019 May 25, p.12) Students must take at least 16 weeks to develop professional skills and life skills in order to have knowledge and skills that are in line with the needs of the labor market. When an internship is complete, students will have to

create a project to solve problems for workplaces that they have worked with which creates new knowledge. The Office of Higher Education Commission has been promoting cooperative activities for over 20 years, producing more than 40,000 graduates to work and more than 20,000 participating establishments (Thairath, 2019, May 25, p.12).

Based on experience of being an advisor and evaluation committee of the independent study project of cooperative education in the accounting field, the researcher has found that students lack analytical thinking, writing skills, communication skills and commitment in seeking knowledge. They cannot find solutions and solve work problems. They cannot bring theoretical knowledge learned into practical use, etc., affecting the quality of independent education projects, which cannot be utilized.

Therefore, the researcher has an idea to conduct a case-based study in order to uncover specific details deeply in the qualitative field. In the way of developing students to be able to create knowledge by themselves, the researcher has applied a theory of constructivism including independent study projects in a cooperative education course in order to enable students to get concrete results, supported by advisors to provide consultation and suggestion. This is a learning process for students to bring their own ideas to construct work. Experience students gain from internships and independent study projects will be knowledge that stays durable and will not be easily forgettable. Students will be able to convey such knowledge through presentation.

Objectives

1. To develop students through constructivism with internships and independent study projects
2. To study students' opinions toward establishment of internships
3. To investigate achievements of Cooperative Education course

Theoretical Foundation Literature Review and Conceptual Framework

The researcher investigated a case study. The case was to investigate student development through constructivism in cooperative education. The literature review consists of a case study and constructivism as follows.

– A case study

Stake (1988) defines a case study as a learning process concerning a case to be studied. A product of learning is demonstrated. A definition of a “Case” refers to what an individual would like to closely study. It has complexity and it is dynamic. The system consists of individual characteristic, totality and boundaries.

Some educators may call case study research as an individual case study. Boonchom Srisa-ard (2010) states that research in education may be conducted as a broad or in-depth study. Pichet Wongkiatkhajorn (2016) said that research in this form is useful for qualitative research. It is a study for human resources development. Prasant Nuangchalem (2013) adds that research results obtained from case-based research may not be

comprehensive or generalized. Data obtained is an actual message that can be only made to a particular person or group.

A case study research is a study within a scope of qualitative research. It is an in-depth study about one event or one or several situations. A majority of case studies apply observation or close monitoring. Evidence-based description is employed. Theories are used to support a study. A focus is on a researcher's interest rather than on a reader. A researcher should understand a certain case and explain the matter accurately with supportive evidence. A case study does not focus on the sample and the population. It particularly studies a case a researcher is interested in. A case study is a continual study. One case may consist of several matters which can be studied as a chain while being investigated. Such matters are related to what a researcher is exploring. Types of study are as follows.

1. Historical organizational study is a continual study focusing on a particular organization.
2. Observational study is a study applying participant observation.
3. Life history is a study that a person describing a complete background or history of other persons.
4. Situation analysis is a study of particular situation based on several points of view.
5. Multi cases is a study in which a researcher studies different and independent cases or entities.
6. Multi sites is a study of several sources or a study consisting of cooperation from several sectors. The aim of this study is to develop a theory (Yachai Pongboriboon, 2010)

Chai Photisita (2009) proposes 3 forms of a case study as follows.

1. Descriptive study focuses on describing complete details of a phenomenon studied. A researcher presents a case study through descriptive technique. The essence of this case study is details, not analysis.
2. Exploratory study aims to seek a definition for an unclear concept. In addition, a researcher conducts a case study to uncover significant issues of a phenomenon or to identify what issues shall be deeply studied. After that, a researcher designs a research study to understand or to seek solutions to such issues.
3. Explanatory study investigates a current or known phenomenon. It seeks an unprecedented explanation through a case study. This study is useful for seeking explanation in quantitative study.

– Constructivism

For student development to create their own knowledge, the researcher applied a theory of constructionism. The educator named Suchin Petchrak (2005) and Tisana Khammani (2011) explains about constructivism which can be summarized that good learning occurs by empowerment of knowledge of learners. If learners have an opportunity to create ideas and bring their own ideas to construct work, it will make those ideas clear, concrete and durable. Students will not forget it easily and will be able to convey to others to understand their ideas well. In addition, this self-constructed knowledge will also be a foundation for learners to continually create new knowledge endlessly. This learning method is called learning by doing. When students create something, they will receive knowledge as well.

This new knowledge will help learners to create more complex things, enabling them to modify and exchange knowledge with others and increasing knowledge. This process is a continuous cycle that is complementary to each other and to themselves endlessly.

According to the theories and concepts above, the researcher was interested in conducting “A Case Study: Student Development through Constructivism in Cooperative Education”. A case study was conducted with students who had cooperative education. The study aimed to explore the application of theoretical knowledge from classroom applied in practice (Doing), which could lead to skills and constructivism by combining two parts that have been learned. The researcher believes that learning by doing could be better in enhancing learners’ knowledge retention than learning in a classroom. Learners can also construct their pieces of work. Skills are cultivated inside them but knowledge is easily forgot and constantly changing.

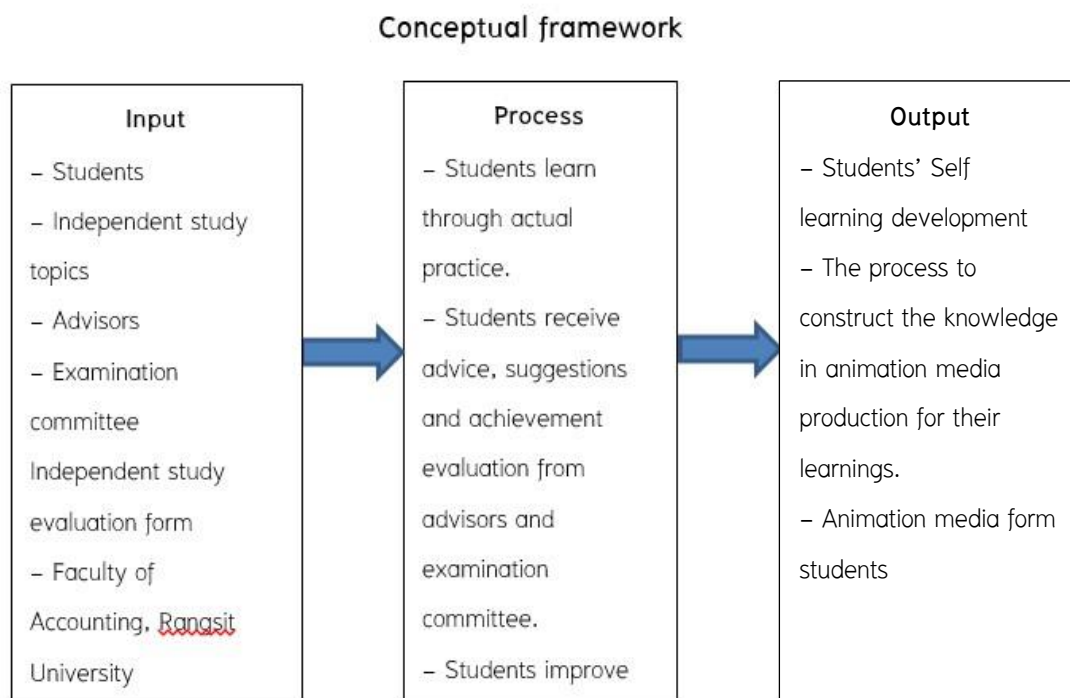


Figure 1 Conceptual framework

Material and Methods

To develop student by constructivism in internships for learning from real experiences, the researcher has applied a case study method using mixed-method research, consisting of 3 main steps as follows (Sariwat, 2005; Stake, 1995).

1. Methods for selection of participants for the case-based research are as follows.

1.1 The population consisted of 76 students for:

1.1.1 studying students' opinions towards the establishment of the internship;

1.1.2 examining achievements of a cooperative education course.

1.2 All the 3 students supervised by the researcher for developing students through constructivism.

2. Data collection

2.1 Qualitative data was collected by behavior observation, student interviews and mentor interviews in establishments where students have their internships.

2.2 Quantitative data was collected from questionnaires as a tool for data collection. The data was collected from students in all cooperative education projects.

3. Data analysis

3.1 Qualitative data applied content analysis based on interesting issues. The data was analyzed in overall. Details are further analyzed.

3.2 Quantitative data applied mean.

Scope of study

– Student development processes

For the student development processes for constructing knowledge by themselves and for applying knowledge to prepare independent study project reports, the researcher applied a theory of constructivism as follows.

1. Students start internships in an establishment they chose and approved by the Faculty of Accounting.

2. Advisors visited and supervised students at the establishments to see the workplace environment and job description and to evaluate the establishments. At this stage, advisors would look at student performance reports along with conducting interviews with students and mentors at their respective establishments.

3. Advisors provided advice on topic development and guidance on content analysis and defined content framework of independent study projects.

4. Students prepare independent study project reports based on their own ideas. Advisors provided advice to students until they could have appropriate topics and could have project proposals.

5. Students had project proposals of independent study project reports including Chapter 1–3. The examination committee evaluated proposals of accounting studies and provided suggestions to students. Students made improvements until they could complete the content.

6. Students completed Chapter 4 and 5. Advisors provided advice and suggestions closely.

7. Students had a test of achievements based on their independent study project. The examination committee of accounting provided advice and suggestions. Students made improvements until completion.

8. Advisors evaluated grading. The elements of grading consisted of the following 3 parts:

8.1 Evaluation from establishment	50 points
8.2 Presentation evaluated by evaluation committee	20 points
8.3 Independent study project report	30 points
Total	100 points

– Scope of content

Three students supervised by the researcher trained and practiced the following independent study projects.

1. Auditing
2. Tax accounting
3. Governmental accounting

– Scope of population

76 of fourth-year students who enrolled in the Cooperative Education course in Semester 2, Academic Year 2018. Of the 76, three students were supervised by the researcher.

– Scope of time

Semester 2, Academic Year 2018. It started in January and ended in April 2018, covering 4 months.

Research instruments

1. Behavior observation: use a participatory observation when supervising students in the establishments and when students needed advice.
2. Evaluation of achievements was in accordance with evaluation guidelines of independent study project of the Faculty of Accounting.

Results

Qualitative results

To develop students through constructivism with internships and independent study project, the researcher has applied a qualitative method of content analysis based on a concept of Marsick & Watkins (1997). Overall was considered first and details were further examined. The results were presented through descriptive analysis as follows:

1. Behavior observation: the researcher used an advisor appointment form and a document revision list form as tools for observing the students' behavior. It was found that all 3 students had the intention of conducting independent study projects in accounting with consistency in meeting the project advisor in all stages of work covering the beginning of project topics, listening and revising work according to the advice of the project advisor and the examination committee and being punctual work due to be completed as scheduled. The important thing of the achievement was that students had to act on their own to create work in every step of operation.

2. Interview of 3 students to collect details of knowledge obtained from independent study projects in accounting on the following topics:

2.1 Auditing: from the students' interviews on various issues as follows:

2.1.1 Reason for being interested in internship and conducting independent study: the students did not like to work at one establishment for a long time, and like to have challenging work with consistent changes. What's more, the students wanted to be an auditor after graduation.

2.1.2 The students were trained on auditing regarding examining income and expenses. Mentors distributed work to students and taught them how to audit as well as showing the previous year's paper as an example. The students examined the documents for proof of payment randomly given by the mentors. They were assigned to check accuracy between the documents and the accounting reports to ensure that the amount and the internal control system were complete and accurate.

2.1.3 The problems the students encountered in inspecting income–expenses in accounting reports included that some found that a few items lacked supporting documentation. The staff informed that the documents were numerous so they did not keep such documents in a file. However, they already made copies in the computer system. The staff opened such copies on the computer to show them to students. The student informed mentors and recorded it as what was found from the inspection.

2.1.4 When the students had been trained for a while, they came to the advisor to see the progress of their work. The researcher asked several students about the issues found in the inspection such as the purposes and methods of inspecting income and expenses. However, students could not answer because the mentors did not inform them. They were assigned to work in small parts and it was not continuous. The researcher briefly explained to the students about the purposes of inspecting income, expenses and to ensure that: 1) it actually occurred; 2) it was a correct accounting record; and 3) data in financial statements was disclosed according to Financial Report Standards. Methods of income–expense inspection were as follows: 1) comparative analysis; 2) inspection of purchase and sale journals; 3) inspection of documents used in accounting records; 4) inspection of related items such as Account Receivable, Account Payables, Input Tax and Output Tax; 5) inspection of amount of purchases and sales at the end of the period; and 6) inspection of income and other expenses, including repair costs to ensure whether there was a list of Capital Expenditure included. Students were assigned to study more from the auditing textbook and to meet each other again one month after. They were supposed to submit independent research projects including Chapter 1 – 3. In the meantime, if there were any problems, they could come and visit the advisor at any time.

2.1.5 At the end of the 3rd month, students were assigned to present their first 3 chapters in their respective independent study projects. They were required to explain about the objectives and clear inspection of income and expenses. The students stated that after meeting with their advisor, they went back to read the textbook.

However, they still did not understand until they asked the mentors. The mentors allowed them to complete a full cycle of work. Therefore, students understood more, resulting in creating knowledge with a combination of knowledge from internships and a theory of constructivism.

2.1.6 The students presented the first 3 chapters to the evaluation committee. The committee provided some suggestions to students to revise and prepare Chapter 4 and 5. A one-month appointment was scheduled to further evaluate achievements.

2.1.7 The presentation of the 5 chapters was completed. Overall scores met the criteria of A. After that, the students visited the advisor as they needed help on auditing jobs. Most auditing companies would open for recruitment while the students were having internships, which was in January until April. This could cause students to miss an opportunity to get a job. Therefore, it is suggested that the university should change the internship period to be consistent with the auditing recruitment period.

2.2 Tax accounting: interview the students on the following issues.

2.2.1 The students prepared independent study projects about accounting report, Input Tax – Output Tax and Value Added Tax (VAT) because they were trained about accounting reports, purchase and sales as well as Value Added Tax and Input Tax and Output Tax report.

2.2.2 Job description: the students practice inspection and classification of documents for accounting records. Students saw actual documents such as orders, purchase orders and receipts. Such documents were prepared by the students and submitted by outsiders enabling them to practice skills in verifying document accuracy and also learn to use Express and Microsoft Excel program in actual operations. In addition, they also filled out online filing VAT registration form.

In this stage, the researcher suggested the students to seek additional knowledge by reading the discussion of the Department of Revenue regarding VAT so that it could be an issue of consideration and for document accuracy.

2.2.3 The problems the students encountered in operation were regarding the preparation of Input Tax and Output Tax reports. There were mistyped data, resulting in the amount of VAT. Also, it was found that the documents required to produce Input Tax and Output Tax reports were delayed, causing the companies to have to file additional tax. The companies were willing to pay additional premiums and extra money because they had a lot of work load.

2.2.4 Internship enabled the students to compare theoretical knowledge gained from the classroom and knowledge constructed by themselves to actual practices gained from the internships. The students found that there was no difference and it could enable them to gain knowledge and have more understanding.

2.2.5 The students had an opportunity to apply knowledge of tax accounting and basic accounting.

2.3 Governmental accounting: interview the students on the following issues:

2.3.1 The students had practiced with the Air Force Civil Engineer Department as they would be soldiers after graduation. They were assigned to record accounting and deposit entry covering income and expenses. They did independent study projects about cash and bank deposit.

2.3.2 Having internships with the government sector, the students found that names of the government agencies were different from the account names in business sector. They had to understand the nature of accounting transactions and their categories.

2.3.3 Receiving entry consisted of money according to the petition from the Department of the Air Force, deposits and insurance payments, money from overdrafts and property renovations. Payable entry consisted of a welfare fee, deposit payback and insurance money and payback to the Department of the Air Force.

2.3.4 Process of accounting and deposit entry was as follows: 1) Receive supporting documents; 2) Record evidence and subsidiary accounts; 3) Record accounting transactions in Express system; 4) Prepare financial reports; and 5) Collect documents for inspection.

2.3.5 Account names associated with receiving – paying were other creditors – government agencies, other debtors – government agencies, cash/current deposits, other deposits, other insurance payments, other fines income, other fees, miscellaneous income, residual income, payment vouchers, accrued vouchers and expenses between agencies, etc.

2.3.6 The problems the students encountered in operation were as follows:

(1) A rental deposit insurance upon maturity that a tenant did not withdraw it would be recorded as public revenue. If a tenant came to request for such deposit later, it could cause difficulties and delay.

(2) If documents for withdrawal were missing or incorrect, it would not be approved for withdrawal.

(3) If a receipt-payment document and a check mismatched, it could not be recorded and the mentors must be informed about this.

2.3.7 According to the problem in 1, the researcher suggested students to solve problems by writing that “If a tenant does not come to receive their rental deposit insurance within the specified period, it will be regarded public revenue” to reduce problems of requesting the deposit when overdue.

2.3.8 The students applied knowledge from intermediate accounting and basic accounting to analyze accounting entries. This enabled students to gain knowledge about account names they never knew. They applied accounting theory into accounting names of government agencies.

The researcher observed that the characteristics of these 3 students had one thing in common which was a lack of ability to change or apply existing knowledge to work. They needed guidance.

Quantitative results

1. Investigate students' opinions toward internship establishments. The results are as follows:

Table 1 Students' opinions toward internship establishments

	Evaluation for internship establishments	Mean	N
1	An establishment understands and realizes the importance of cooperative education.	4.74	
2	An establishment prepares and supports internship.	4.74	
3	An establishment assigns work that matches students' knowledge and ability.	4.66	
4	An establishment provides an opportunity for students to work there	4.58	
5	An establishment provides advice and contributes to individual study report.	4.57	
Total number of questionnaire respondents			76

The questionnaire respondents included 76 respondents. There were 13 males and 63 females. It was found that all evaluation items were at a good level with the average of 4.50 and above.

1. To investigate the achievements of Cooperative Education Project, students' opinions towards the Cooperative Education Project were collected. Details are as follows:

Table 2 Results students received from participating in Cooperative Education Project

	Results students received from participating in Cooperative Education Project	Mean	N
6	Students gain more knowledge and understanding about profession.	4.58	
7	Students develop their professional skills more.	4.67	
8	Students are ready for actual operation.	4.50	
9	You will recommend junior students to participate in this program.	4.80	
10	Overall satisfaction toward Cooperative Education Project.	4.74	
Total number of questionnaire respondents			76

According to the above table, it can be seen that results students received from participating in the program was at an excellent level with the average of 4.50 and above.

3. Of 76 students participating in Cooperative Education Project, 28 students were recruited to work at the internship establishments and 48 students were not recruited.

4. Scores of independent study project or Cooperative Education are as follows:

Table 3 Details of scores of independent study project

Item	N	Average score from establishments 50 points	Average score from presentation 20 points	Average score of report 30 point	Total
Scores of independent study project	76	44.94	18.24	27.06	90.20

According to the above table, each average score from independent study project was higher than 80 percent. Most students got an A and the number of learning credits was 6 credits

Conclusions

A case study of student development through constructivism in cooperative education is mixed-method research. The population included 76 students. It aimed to investigate: 1) To develop students through constructivism with internships and independent study projects 2) To study students' opinions toward establishment of internships 3) To investigate achievements of Cooperative Education course. The study could be summarized as follows:

Aspect 1 Student development started as follows: 1) students have an internship; 2) teachers visit and supervise students; 3) advisors provide advice about developing topics; 4) students prepare a report; 5) student take an achievement test; and 6) advisors record scores from 3 parts consisting of score from establishment (50 points), presentation (20 points) and an independent study project report (30 points).

Aspect 2 Research methodology, research instruments, data analysis and scope to the study are as follows:

2.1 Qualitative research employed participatory observation and in-depth interview.

2.2 Quantitative research employed questionnaires to ask 76 students.

2.3 Data analysis applied qualitative content analysis and mean.

2.4 Scope of content: 3 students supervised by the researcher who did an independent study projects relating to auditing, tax accounting and governmental accounting.

2.5 Scope of population and timeframe included 76 fourth year students who enrolled in the Cooperative Education course in Semester 2, Academic Year 2018 (January to April).

Aspect 3 Results of un-depth interviews from the 3 students are as follows:

3.1 Auditing: enabling them to know objectives and inspection methods as follows:

3.1.1 Objectives of inspection of income and expenses were to ensure that 1) it actual occurred; 2) accounting entries were accurate; and 3) data in financial statements was disclosed according to Financial Report Standards.

3.1.2 inspection of income and expenses are as follows: 1) comparative analysis; 2) inspection of purchase and sale journals; 3) inspection of documents used in accounting records; 4) inspection of related; 5) inspection of amount of purchases and sales at the end of the period; and 6) inspection of income and other expenses, including repair costs to ensure that whether there was a list of Capital Expenditure included.

3.2 Tax accounting: students were assigned to record accounting entries, purchase and sale as well as Value Added Tax and Input Tax and Output Tax report. The students encountered problems about Input Tax and Output Tax report, mistyped errors and incomplete information and delay of documents, resulting in failing to meet the deadline for filing revenue. It caused the company to lose premiums and additional money.

Internships enabled students to compare theoretical knowledge gained from classrooms and knowledge constructed by themselves to actual practices gained from internships. Students found that there was no difference and it could enable them to gain knowledge and have more understanding.

3.3 Governmental accounting: students were assigned to record cash and bank deposit entry covering income and expenses.

Problems students encountered were that rental deposit insurance upon maturity that a tenant did not withdraw, would be recorded as public revenue. If a tenant came to request for such deposit later, it could cause difficulties and delays.

The students were suggested by the advisor that there shall be in writing stating that “If a tenant does not come to receive their rental deposit insurance within the specified period, it will be regarded public revenue” to reduce the problem of requesting the deposit when it was overdue.

The students obtained knowledge about accounting they never had before. They applied accounting theory into accounting names of government agencies.

Aspect 4 Qualitative results showed that students’ opinions toward internship establishments were at an excellent level with the average of 4.5 in all items. The achievements of the Cooperative Education Project showed that the average was at an excellent level and the average score of students was 90.20.

Aspect 5 An index of the achievement of the Cooperative Education Project is that of 76 students, 28 students were recruited to work for internship establishments after they graduate.

Discussions

According to an integration of educational management and cooperative education for 1 semester or 4 months with the aim of reducing learning inside classrooms and providing an opportunity to the students to learn from their internships evaluated by the researcher who is their advisor, it was found that the students could perform their assigned tasks very well. However, they lacked analytical skills, writing skills and communication skills. They also

lacked determination in the pursuit of knowledge. That is, the students only learned from the tasks they were assigned. They could not connect the assigned tasks to other accounting cycles. With these reasons, it is necessary to have experienced advisors in accounting field to closely mentor them. The researcher advised the students about applying skills gained from internships to find relevant theories so that they could cultivate analytical skills and seek further knowledge for the assigned tasks. For instance, they could improve their work, express opinions or suggestions for developing mistakes in the assigned tasks. What's more, the researcher teaches the students about aims of operating assigned tasks which mentors cannot teach. The researcher provides feedback to the students on their performance to consider which parts are important issues and need special attention. The researcher also gives advice on the operational cycle relating to when to start and when to finish.

According to the activities, the students could develop analytical skills and create the body of knowledge by constructivism. They could apply knowledge gained from classrooms into actual work. They provided useful independent reports for establishments they had work for. Out of 76 students, 28 students were accepted to work for the establishments as the establishments saw the students' abilities. It was 37 percent. This project was considered successful.

The achievements of Cooperative Education Project affected 3 related parties including: 1) educational institutions which develop students' potential and provide opportunities for teachers to visit business sector; 2) achievements toward establishments which build academic cooperation between universities and can be used as a channel for recruiting new employees; and 3) achievement for students which helps them to understand their profession and have more operational skills and can also apply academic knowledge to perform tasks to construct knowledge (Sirichai Saramanus et. al., 2014). This is consistent with the research results.

A case study titled student development through constructivism in cooperative education uncovers details on a combination of skills gained from internship establishments with theoretical knowledge to construct knowledge. The word *skill* according to the Dictionary of the National Institute 2009 defines it as a skill or an ability to perform one thing. The word *knowledge* means something that arises from learning, researching, familiarity, expertise, experience, what comes from listening, thinking, practice, practice and academia. Only knowledge may not be sufficient anymore. The concept of *work skills* was raised in both the East and the West (Siriwan Munintarawong, 2018). In addition, one characteristic of graduates consistent with national development is having work skills (Surakiat Tadawattanawit, 2018) and the researcher has realized that knowledge is an easy thing to forget and it can be obsolete. However, skills will last long and be durable.

Suggestions

Learning from actual works along with the theory from classroom and additional search will generate knowledge long term memory more than learning and reading, then the knowledge process from this research would be adjusted for other appropriate subjects in the future.

Expected benefits

1. The knowledge gained from the student internship in this research will be a foundation for students, enabling them to create new knowledge in the future.
2. Learning through practice will enable students to acquire new knowledge and can be used for more complicated work.
3. Students will develop their own learning process, resulting in self-development and exchange knowledge with others. This will enable students to gain more knowledge.
4. The knowledge gained can be applied to create Knowledge Management which allows others to access such knowledge. It can be used to develop the organization to maximize benefits.

References

- Daily news. (2018, April 10). *Ministry of Education Produces New Graduates*, p.23.
- Daily news. (2018, September 12). *Dr. Udom points out unemployed graduates reach 72% within 12 years*, p.15.
- Khammani, T. (2011). *Teaching Science: knowledge for organizing effective learning processes*. Bangkok: Chulalongkorn University Press.
- Marsick, V. J., & Watkins, K. E. (1997). *Case study research methods*. In R. A. Swanson, & E.F. Holton III (Eds). *Human Resource Development Research Handbook; Linking Research and Practice*. San Francisco: Berrett-Koehler Publishers.
- Matichon. (2018, August 20). *Unemployed graduates reflect quality of national education*, p.21.
- Matichon. (2019, September 13). *2030, graduates unemployed 72%, need changes to respond to national need*, p.1.
- Munintarawong, S. (2018). *Issues Related to Internship Practices among Thammasat University's Students Majoring in Japanese Language*. *Jsn Journal Special Edition*. 8(3). 206-218.
- Nuangchalem, P. (2013). *Teaching and learning (2nd ed)*. Bangkok: Chulalongkorn University Press.
- Office of the Education, Council Ministry of Education. (2017). *National Education Plan, 2017 – 2036*. 10,000 copies. Prikwan Graphic Company Limited. 226 pages.

- Office of the Secretary of the National Strategy Committee, Office of the National Economic and Social Development. (2018). *National Strategy, 2018 – 2037* (abbreviated version). 22 pages.
- Petchrak, S. (2005). *Research report on the process of learning to create wisdom in Thailand (2nd ed.)*. Bangkok: Kurusapa Printing Ladphrao.
- Photisita, C. (2009). *Science and art of quality research*. Bangkok: Amarin Printing.
- Pongboriboon, Y. (2010). A case study. *Journal of Education, Khon Kaen University*. 33(4), 42–50.
- Saramanus, S. (2014). *The achievement of Cooperative Education Project of the Faculty of Science and Technology*. Research. Bangkok: Rajamangala University of Technology Phra Nakhon.
- Sariwat, L. (2005). *A case study*. Bangkok: Odian Store.
- Srisa-ard, B. (2010). *Research for teachers (3rd ed)*. Bangkok: Surivasas Printing.
- Stake, Robert E. (1988). “Case Study Methods Education Research: Seeking Sweet Water” In *Complementary Method for Research in Education*. Edited by Richard M. Jaeger. Washington, D.C., American Educational Research Association.
- Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- Tadawattanawit, S. (2018). The Characteristics of the Graduates in Accordance with Development of Thailand According the “Thailand 4.0” Economic Model. *Dusit Thani College Journal*. 12(2), 404–416.
- Thairath. (2019, May 25). *Thai Cooperative Education: 10 years to sustainable future*, p.12.
- Wongkiatkhajorn, P. (2016). *Guidelines for learning qualitative research*. Bangkok: Panyachon Publishing House.
- World Bank. (2019). *2030, graduates unemployed 72%, need changes to respond to national need*, Matichon September 13, p.1, p.12.