

แพลตฟอร์มดิจิทัลในการพัฒนากรอบความคิดแบบเติบโตและการคาดการณ์ของตนเองที่ส่งผลให้เกิดขึ้นจริง เพื่อส่งเสริมการรับรู้ความสามารถของตนเองของนักศึกษาสหกิจศึกษา

Digital platform intervention of the growth mindset and self-fulfilling prophecy to enhance Cooperative Education students' self-efficacy

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Received : February 28, 2020
Revised : March 26, 2020
Accepted : March 30, 2020

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ ดังต่อไปนี้ (1) เพื่อออกแบบและพัฒนาแพลตฟอร์มดิจิทัลในการพัฒนากรอบความคิดแบบเติบโตและการคาดการณ์ของตนเองที่ส่งผลให้เกิดขึ้นจริง เพื่อส่งเสริมการรับรู้ความสามารถของตนเองของนักศึกษาสหกิจศึกษา และ (2) เพื่อทดสอบผลของแพลตฟอร์มดิจิทัลในการพัฒนากรอบความคิดแบบเติบโตและการคาดการณ์ของตนเองที่ส่งผลให้เกิดขึ้นจริง ต่อการรับรู้ความสามารถของตนเองของนักศึกษาสหกิจศึกษา งานวิจัยครั้งนี้เป็นงานวิจัยแบบผสม กึ่งทดลอง มีกลุ่มทดลอง และ กลุ่มควบคุม เป็นนักศึกษาสหกิจศึกษาจำนวนทั้งหมด 72 คน การออกแบบและพัฒนากระบวนการใช้ ADDIE Model เครื่องมือวิจัยที่ใช้ในการรวบรวมข้อมูลเชิงปริมาณคือ แบบสอบถามเพื่อวัดการรับรู้ความสามารถของตนเองของนักศึกษาสหกิจศึกษาทั้งก่อนและหลังการปฏิบัติสหกิจศึกษา โดยใช้สถิติการทดสอบความแตกต่างของค่าเฉลี่ย การทดสอบความแตกต่างระหว่างกลุ่ม และ ข้อมูลเชิงคุณภาพรวบรวมจากกระบวนการที่ได้พัฒนาขึ้น

ประกอบด้วย (1) การอบรมเรื่องกรอบความคิดแบบเติบโตและการคาดการณ์ของตนเองที่ส่งผลให้เกิดขึ้นจริง (2) การบันทึกสะท้อนการเรียนรู้ออนไลน์ (3) การประชุมกลุ่มย่อยออนไลน์ และ (4) การสัมภาษณ์รายบุคคล โดยใช้สถิติการวิเคราะห์เนื้อหาของข้อมูลเชิงคุณภาพ

ผลการวิจัยพบว่า การรับรู้ความสามารถของตนเองของนักศึกษาสหกิจศึกษาในกลุ่มทดลองมีความแตกต่างอย่างมีนัยสำคัญที่ระดับ $p < .001$ ในขณะที่กลุ่มควบคุมไม่มีความแตกต่างอย่างมีนัยสำคัญ แสดงให้เห็นว่ากระบวนการมีผลต่อการรับรู้ความสามารถของตนเองของนักศึกษาสหกิจศึกษา ผู้วิจัยจึงเสนอให้นำกระบวนการนี้ไปใช้กับนักศึกษาที่ไปปฏิบัติสหกิจศึกษาโดยให้ความสำคัญกับ (1) การประยุกต์ใช้ทุกขั้นตอนของกระบวนการร่วมกัน (2) การใช้แพลตฟอร์มแลกเปลี่ยนเรียนรู้ดิจิทัลและเครื่องมือออนไลน์ (3) การมีส่วนร่วมของโค้ช ผู้นิเทศงานในสถานประกอบการ และอาจารย์นิเทศ และ (4) การส่งเสริมการสะท้อนคิดของนักศึกษาตลอดกระบวนการทั้งก่อน ระหว่าง และ

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หลังการปฏิบัติสหกิจศึกษา

คำสำคัญ : กรอบความคิดแบบเติบโต / การคาดการณ์ของตนเองที่ส่งผลให้เกิดขึ้นจริง / การรับรู้ความสามารถของตนเอง / การบันทึกสะท้อนการเรียนรู้ออนไลน์ / การประชุมกลุ่มย่อยออนไลน์

Abstract

The purposes of this study are (1) to design and develop growth mindset and self-fulfilling prophecy digital platform intervention to enhance Co-op students' self-efficacy and (2) to investigate the effects of growth mindset and self-fulfilling prophecy digital platform intervention on Co-op students' self-efficacy. This study used a quasi-experimental research design with a control and experimental groups totaling 72 Co-op students. The design and development was based on ADDIE design. The pre-test and post-test self-efficacy questionnaires were employed with paired-sample t-test analysis. The qualitative data was derived from intervention, using the content analysis. The designed intervention consisted of (1) work session, (2) reflective journal, (3) group discussion, and (4) individual interview. This study found that the self-efficacy of the experimental group revealed a statistical difference at $p < .001$ level while there is no statistically significant difference in the control group. It is recommended to implement intervention for Co-op students focusing on (1) employing integrated intervention, (2) utilizing the digital sharing platform, (3) engaging of coach, mentor, and professor, and (4) encouraging students' reflection.

Keywords : Growth mindset / Self-fulfilling prophecy / Self-efficacy / Reflective journal / Group discussion

Introduction

To response to changes in a disruptive era, the 21st century framework and the educational activity on "Lifelong Learning for All" has been developed. Lifelong learning is not just education and training:

It becomes the guiding principle for provision and participation across the full continuum of learning context (Longworth, 2003: 9). It is continuous throughout life and is focused entirely on the needs and demands of the learners themselves (Miller, 2001: 12). The Thailand Office of the Higher Education Commission (OHEC) found the necessity to improve the higher education curriculum to meet the demands of industry and increase employability (Yurarach, 2013: 144) as stated in the Twelfth National Economic and Social Development Plan (2017-2021) by the Office of the National Economic and Social Development Council. Cooperative Education (Co-op) is mentioned as a mechanism for developing educational quality, technology responses, employability, and lifelong learning. The challenges of the above plan were the preparation and the support for Co-op students so they could get the most benefit from their Cooperative Education period. There are three main processes in Cooperative Education: Pre, During, and Post Cooperative Education. In the new digital era, the graduate plays an important role as a transformative change agent for the regional and national economy. Graduates' employability skills and their abilities to combine the knowledge, experiences, attitudes, and entrepreneurship skills, which are valued by employers, needed to be addressed. There are challenges in higher education for institutions on their preparation to promote highly skilled employable graduates. There are many researches mentioned on the deficiency in the necessary "soft skills" of graduates (Newton, J., 2015: 3). The UK Commission's annual report on employment and skills described the attributes of employability of graduates to be self-management, time management, team working, business and customer awareness, problem solving, communication and literacy, application of numeracy, and application of information technology. Of all those underpinned attributes, the critical foundation was a "positive attitude: a 'can do' approach, a readiness to take part and contribute, openness to new ideas and a

drive to make these happen” (UK Commission for Employment and Skills, 2010).

The previously mentioned concept echoed the principle of a growth mindset, of which Carol S. Dweck explained that mindset is a belief which leads to thought and actions and strongly effects every part of people’s lives. People can become their desired selves and accomplish their value goals. The growth mindset helps students to embrace challenges, persist in the face of setbacks, see effort as the path to mastery, learn from criticism, and find lessons and inspiration in the success of others (Dweck, 2008: 10). The behaviors of individuals and responses to others come from people beliefs. If people develop a positive mindset, they might influence others to perceive situations in a positive way. This is the self-fulfilling prophecy concept, a false definition of a situation evoking a new behavior which makes the originally false conception come true (Merton, 1948: 194). The self-fulfilling prophecy has an effect on the desired outcome, meeting expectations, achievement, and awareness to avoid negative action. These effects from growth mindset and self-fulfilling prophecy mirror the learning outcomes of students’ self-efficacy.

Self-efficacy is one of the effective predictors of students’ motivation and learning (Zimmerman, 2000: 82). In the academic world: “Self-efficacy has proven to be responsive to improvements in students’ methods of learning (especially those involving greater self-regulation) and predictive of achievement outcomes” (Zimmerman, 2000: 89; Schunk & Pajares, 2009: 49). Students with self-efficacy are believed to contribute to positive outcomes, which are goals, effort and persistence, learning and achievement, and activity selection. As a result, there was the need to improve the efficiency and quality of the whole process of Cooperative Education by adding more soft skills in growth mindset and self-fulfilling prophecy and interactive processes into the existing process through so-called

‘intervention’ on digital platform. The result of this study will contribute to the quality of Cooperative Education students in lifelong learning through the efficient platform for cooperation linkages between the academic and industrial sectors, development of high-quality human resources for industry, and preparation of the workforce to have the requisite skills before entering the labor market, as in the Twelfth National Economic and Social Development Plan (2017-2021).

Therefore, this study aimed to design and develop the digital platform intervention of growth mindset, together with self-fulfilling prophecy, to enhance students’ self-efficacy through three main processes of Cooperative Education; Pre-Co-op, During Co-op, and Post-Co-op.

Research Methodology

This study used the mixed method embedded with the quasi-experimental research design. The data collection is from both quantitative and qualitative data through the pre-test and post-test self-efficacy questionnaires, the online reflective journal, the online group discussion, and the individual interview session. The two groups of control and experimental, non-randomization, were conducted to compare the dependent variable score. The intervention was designed by using the ADDIE model, an instructional system development: analysis, design, development, implementation, and evaluation (Molenda, 2003).

The study is aimed at exploring growth mindset and self-fulfilling prophecy intervention to enhance Co-op students’ self-efficacy. The conceptual framework is illustrated as Figure 1.

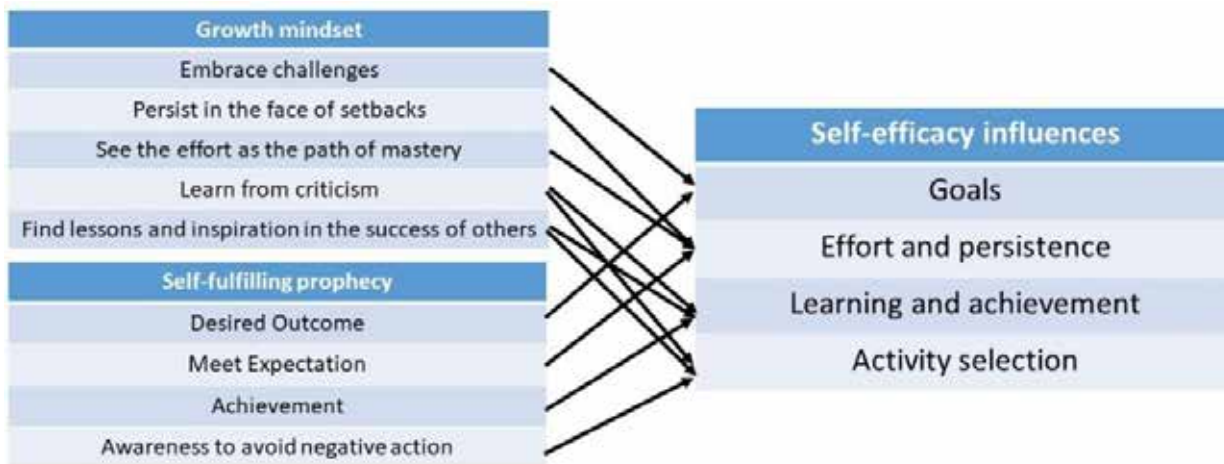


FIGURE 1: Conceptual Framework

Participants and procedure

The sample of this study consists of Co-op students from a public university in Thailand who enrolled in the Cooperative Education course in the first semester of the 2019 academic year. As this study was the quasi-experimental research, the samples were not randomly designed. The participants were voluntary joined the control group and experimental group. Availability sampling, a non-probability sampling method, was used to get the samples. The sampling process started with the researcher coordinated with the faculty staffs to hold the kick-off session one month prior to the working start date. The 30-minute kick-off session started with the introduction of research intervention details, then the researcher asked for the volunteered Co-op students to attend the research intervention. There were 72 Co-op students who volunteered to participate in this study (36 students as a control group and another 36 students as an experimental group) from the faculty of Natural Resources and Agro Industry, the faculty of Liberal Arts and Management Science, and the faculty of Science and Engineering. Prior to participation

in the intervention process, a formal consent form was distributed to the Co-op students of both the experimental group and the control group. The consent form was explicit that their participation was entirely voluntary and that they could withdraw from this study at any time.

The intervention was designed for Co-op students of the experimental group to participate in various activities, the growth mindset and self-fulfilling prophecy work session, the online reflective journal, the online group discussion, and the individual interview session through the pre-Coop, during-Coop and post-Coop. The pre-Coop, the 8-hour growth mindset and self-fulfilling prophecy work session was conducted on December 8, 2018. The during-Coop, one month later, Co-op students started to record in the online journal at least once a week, for a total of 14 weeks. The online group discussion was conducted biweekly, for a total of seven times. At the end of the Cooperative Education period, the post-Coop, the individual interview session was conducted. The illustrated intervention process is as Figure 2.



FIGURE 2: The intervention process

Data analysis

The quantitative data was from the pre-test and post-test of the measurable learning outcome test, observable outcome test, and self-efficacy questionnaire. The mean and standard deviation analysis were used for the first two tests. To compare the effect of the intervention toward the Co-op students' self-efficacy, a paired-sample t-test was conducted to compare the pre-test and post-test of self-efficacy scores of both the control group and the experimental group. Moreover, the study compared the difference between the faculty variable in the experimental group by using ANOVA. The qualitative data were from different sources such as the online reflective journal, online group discussion, and semi-structured individual interview session. The thematic coding content analysis was used, with the data organized using the NVIVO program.

RESEARCH FINDINGS

The Design and Development of Growth Mindset and Self-fulfilling Prophecy Digital Platform Intervention

The design and development of growth mindset and self-fulfilling prophecy were based on the instructional design using ADDIE design. The intervention consisted of four main parts: (1) the work session, (2) the online reflective journal, (3) the online group discussion, and 4) the individual interview session. The overall growth mindset and self-fulfilling prophecy intervention details are illustrated in Figure 3.

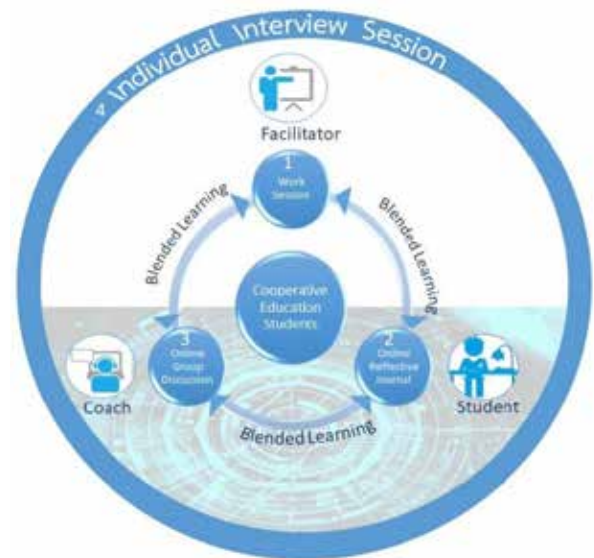


FIGURE2: The overall growth mindset and self-fulfilling prophecy intervention

The overall growth mindset and self-fulfilling prophecy intervention (intervention) was designed not only using ADDIE design but also with active learning, blended learning, learning model (70-20-10), and student-centered concepts. The intervention focused on Co-op students by equipping them with mindset, skillset, and toolset for their working lives during their Cooperative Education period. The intervention occurred in various timelines during the Cooperative Education period. The work session was conducted as one of the preparatory programs of Cooperative Education one month prior to the work starting date. During four months of working, students participated in the online reflective journal and the online group discussion. In the post-Cooperative Education period,

the students were interviewed on their reflection on intervention and Cooperative Education experiences.

The first part was the growth mindset and self-fulfilling prophecy work session, which was a face-to-face, facilitator-led, 8-hour-long session. In this study, the researcher took the role as the facilitator. Co-op students learned about the concepts of growth mindset and self-fulfilling prophecy. The work session materials consisted of (1) the presentation slides, (2) the student manual, and (3) the facilitator guide. To ensure that the Co-op students gained knowledge and understanding of the concepts, pre-test and post-test were conducted on 52 items' measurable learning outcomes and 19 observable learning outcomes. There was a statistically significant mean difference of Co-op students' knowledge and understanding of

the concepts before and after the work session. As a result, in Table 1 the paired-sample t-test shows a statistically significant difference in the pre-test mean scores ($\bar{x} = 53.073$, $SD = 5.469$) and the post-test mean scores ($\bar{x} = 59.317$, $SD = 2.927$); $p < .001$. This indicated that Co-op students gained growth mindset and self-fulfilling prophecy concepts from the activities in the work session. Apparently, the standard deviation of the pre-test ($SD = 5.469$) shows that there were some differences among Co-op students before the work session. However, the scores dispersion decreased 2.542 points after the work session, which implied a positive effect of the work session on Co-op students' knowledge and understanding.

TABLE 1: The mean scores of the pre-test and post-test of measurable learning outcome of the work session.

	n	Mean	S.D.	t	Sig
Pre-test	36	53.073	5.469	-8.635	.000*
Post-test	36	59.317	2.927		

Remark: * Significant difference

The second part was the online reflective journal which allowed Co-op students to reflect on their learning and applying the growth mindset and self-fulfilling prophecy concepts in the workplace. Co-op students recorded their situations online through a Google document template weekly for four months, a total of 14 weeks. Co-op students applied the concepts with their experiences and identified their gained learning. Students found that the online reflective journal was very useful. They could keep a record of their challenging situations that happened in the workplace and use that for self-reflection afterwards. The usefulness of the online reflective journal led feedback on frequency, with two Co-op students recommending to record more than once a week while most Co-op students agreed on once a week

as appropriate and practical. However, two Co-op students recommended to record in it biweekly since they felt there were no significant situations from which they could learn more. The online reflective journal might not be preferred by all Co-op students in terms of writing. Three Co-op students mentioned their preferences to have a different learning method. They preferred to have dialogue with others rather than writing. This information may be the reason for some Co-op students not recording in the journal every week. They also wanted more discussion on the online reflective journal during the online group discussion so that Co-op students could seek out group help.

The third part, the online group discussion, involved small groups of five to eight Co-op students who

logged into the ZOOM program to have discussions with friends and the facilitator (as coach) biweekly, for seven times. Each session took about 30 minutes. The online group discussion was very useful for Co-op students as a platform for Co-op students to share and learn from their experiences. With the support from the facilitator, Co-op students felt safe and were encouraged to discuss problems and they found solutions. The main roles of the facilitator were to facilitate the discussion, ask coaching questions, and listen to Co-op students' concerns and offer the appropriate advice. In some cases, the facilitator coached Co-op students by asking coaching questions so that Co-op students could find the solution by themselves or gave advice as appropriate. They enjoyed having conversations in the online group discussion and learned from others' situations. Co-op students expected the facilitator's roles of listening and understanding to help them solve problems. The facilitator of online group discussion might not necessarily be their advisor or professor. He or she could be anyone who understood the concepts and was equipped with experience, had consulting skills, and was able to coach the Co-op students. Since students valued the benefits of online group discussion, some Co-op students preferred to have online group discussion more often, such as weekly. Only two Co-op students suggested to have it once every three weeks and monthly. This implied that most Co-op students found that the online group discussion was useful.

The last part was the individual interview session. Students were interviewed after they completed their Cooperative Education. The interview took 30-60 minutes. Students reflected on the intervention and their learnings from the workplace. They expressed their attitudes toward the intervention and the learning gained from their Cooperative Education.

The overall interventions were interrelated with one another. Intervention combined different learning methods that Co-op students could take part in and

learn in different ways such as the LIVE interaction from the work session, the self-learning via the online reflective journal, and learning from others through online group discussion. Co-op students could learn more with their preferable methods. The facilitator (as coach) played roles in all parts except in the online reflective journal. Those four parts of intervention complemented one another to enhance Co-op students' learning.

Co-op students' attitudes toward overall intervention

Co-op students reflected on the overall intervention and revealed a positive attitude toward the overall intervention.

1) Intervention enabled Co-op students to shift their mindset to a growth mindset and have positive thinking. Most Co-op students expressed their opinion that they believed the mindset was very important. In the past, they might not have been aware of the importance of mindset. Once they knew more about mindset, they started changing their mindset in viewing things, which led to change in their thoughts and actions toward situations. They also mentioned that the mindset was very useful and could be applied to their work such as setting goals, planning work, achieving goals, welcoming criticism, and embracing challenging situations. They have more positive thinking in dealing with others.

2) Co-op students could apply their learning from the work session in the workplace. The first part of intervention, the work session, was one of the preparatory programs for their Cooperative Education. Most Co-op students applied their learning from the work session in the workplace. The growth mindset opened their minds on how they deal with challenging situations in the workplace such as persisting in the face of setbacks, seeing effort as a path to mastery, learning from others' success, and working under pressure.

3) Intervention encouraged Co-op students on self-reflection and learning. Co-op students reflected upon themselves throughout the intervention. In the work

session, students did the self-test of brain health test, mindset test, growth mindset rubrics test, and stress test which Co-op students could reflect upon themselves on how effective their lives were. Co-op students reported positive views in recording their experiences and learnings on the online reflective journal, which helped the Co-op students in reflecting on situations in the past and how they responded to those situations. They were aware of themselves more, and learned not to repeat the same mistakes and to make the right decisions in the future. With the journal, they could see how they learned and grew. During the online group discussion, students reflected upon themselves while they listened to others' challenging situations. And, in the individual interview session, students reflected on their overall intervention and learning that took place during their Cooperative Education period.

4) Co-op students learned from their friends and facilitator during the work session and online group discussion in the intervention process. During the work session, Co-op students had chances to discuss the contents, case studies, and activities with peers. In the online group discussion, they learned from friends and the facilitator on the challenging situations from workplaces. Co-op students used the suggestions or advice from friends and the facilitator to solve their problems. They also learned from their friends' situations and did the reflection. They put themselves in others' shoes and practiced their thinking on how they would respond in that situation where learnings occurred.

5) Intervention provided Co-op students the channel to release their stress and feelings that occurred in the workplace. As Co-op students were new to the workplace, they faced new challenging situations every day. Some Co-op students worked under pressure, and with stress the effectiveness of people was decreased. The intervention would help them to deal with challenging situations. During the work session, Co-op students learned the topic called "stress

management" which provided concepts on how to deal with stress. The online reflective journal also helped Co-op students in venting their feelings and stress into writing and they could come back and reflect on their writing. The online group discussion was the effective channel for Co-op students to release their stress by sharing their experiences with peers and the facilitator.

In conclusion, the learning took place in all parts of intervention. The work session provided Co-op students with the new concepts of growth mindset and self-fulfilling prophecy which they applied in their online reflective journal and online group discussion. The Co-op students' mindset changed throughout the intervention. The work session equipped Co-op students with the mindset, skillset, and toolset. They applied those in their working life. The online reflective journal enhanced and encouraged Co-op students to overcome any setbacks. While the online group discussion was like the supported environment for them to vent or express their feeling, having the facilitator to help or provide advice, and learning from others' situations and perspectives. Co-op students found the overall intervention to be very practical, applicable, and useful, so that they would recommend implementing it for all Cooperative Education. The integrated parts of intervention provided the flexible learning method which made intervention more interactive.

Co-op students' achievement of learning outcomes from Cooperative Education with digital platform intervention

The learning outcomes from Cooperative Education with intervention are (1) Co-op students adopted the new mindset, skills, and competencies to foster their growth, (2) Co-op students learned to adapt themselves to others and the culture of the workplace and make necessary development, (3) Co-op students experienced the real job to develop their competence and employability, and (4) Co-op students learned from workplace mentors

and academic professors academically, professionally, personally, and mentally. Overall, Co-op students found “what is in it for me” in their Cooperative Education. They knew their strengths, weaknesses, value, and skills. They also learned how to work and make relationships with others in the workplace and learned about work outside their campus experiences. Importantly, Co-op students could find their suitable career and increase their employability in the future. One of the important parts to support Co-op students was their mentor and professor who helped them academically, professionally, and mentally.

The Effect of Growth Mindset and Self-Fulfilling Prophecy Intervention on Co-op students’ Self-Efficacy

The pre-test of self-efficacy (27 questions) was distributed to both the 36 Co-op students from the control group and the 36 Co-op students from the experimental group prior to the Cooperative Education period. Then, the experimental group participated in the intervention – work session, online reflective journal, online group discussion, and individual interview session. After the end of the Cooperative Education period, the post-test self-efficacy was

distributed to both the control group and the experimental group. After the raw scores were collected, a paired-sample t-test was run on a sample of 36 Co-op students in the control group and a sample of 36 Co-op students in the experimental group to determine whether there was a statistically significant difference between the mean scores of self-efficacy before and after the Cooperative Education period. Table 2 shows the result of the mean scores and paired-sample t-test that there is a statistically significant difference in Co-op students’ self-efficacy of the experimental group. The control group pre-test mean scores ($\bar{x} = 4.064$, $SD = 0.402$) and post-test mean scores ($\bar{x} = 4.080$, $SD = 0.424$) were reported. While the experimental group pre-test mean scores ($\bar{x} = 4.010$, $SD = 0.258$) and post-test mean scores ($\bar{x} = 4.255$, $SD = 0.353$) were shown, the result indicates that the mean scores of the experimental group are statically significantly different ($t = -4.110$, $Sig = 0.000$) and that there is no statistically significant difference ($t = -0.385$, $Sig = 0.703$) in the control group. The result indicates that there is the effect of the intervention toward the Co-op students’ self-efficacy.

TABLE 2: The mean scores and the two-tailed test of self-efficacy pre-test and post-test.

	Test	n	Mean	S.D.	t	Sig
Control Group	Pre-test	36	4.064	0.402	-0.385	0.703**
	Post-test	36	4.080	0.424		
Experimental Group	Pre-test	36	4.010	0.258	-4.110	0.000*
	Post-test	36	4.255	0.353		

Remark: * Significant Difference
 ** No Significant Difference

To elaborate on the effect of intervention on the variables toward Co-op students’ self-efficacy, the 27 questions were grouped into nine aspects to see the effect from each of the variables. From 10 independent variables groups, five variables are from growth mindset and four variables are from self-fulfilling prophecy. The details of independent

variables were (1) Embrace challenges, (2) Persist in the face of setbacks, (3) See the effort as the path of mastery, (4) Learn from criticism, (5) Find lessons and inspiration in the success of others, (6) Desired outcome, (7) Meet expectations, (8) Achievement and learning, and (9) Awareness to avoid negative action.

Table 3 shows that there was no statistically significant difference in the control group in every independent variable. However, for the experimental group, there were two independent variables – “Find lessons and inspiration in the success of others” and “Meet expectations” – which reported no statistically significant difference. Eight other independent variables results showed a statistically significant difference

after the intervention. Even though these two independent variables, “Find lessons and inspiration in the success of others” and “Meet expectations,” may not show a statistically significant difference, the mean scores of the experimental group was higher than the control group. This indicated that there was the effect from independent variables but as a small effect.

TABLE 3: Self-efficacy mean of each independent variable.

Variables	Mean		S.D.		t		Sig	
	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.
1) Embrace challenges	-.027	.222	.385	.516	-.433	-2.582	.668**	.014*
2) Persist in the face of setbacks	.018	.231	.251	.556	.442	-2.495	.661**	.017*
3) See effort as the path to mastery	-.027	.240	.332	.461	-.502	-3.127	.619**	.004*
4) Learn from criticism	-.009	.222	.439	.685	-.126	-1.945	.900**	.060*
5) Find lessons and inspiration in the success of others	.055	.138	.474	.542	.702	-1.536	.487**	.134**
6) Desired outcome	-.074	.398	.414	.579	-1.071	-4.125	.291**	.000*
7) Meet expectations	.055	.222	.684	.897	.487	-1.485	.629**	.147**
8) Achievement	.000	.208	.462	.613	.000	-2.036	1.00**	.049*
9) Awareness to avoid negative action	-.055	.305	.487	.409	-.683	-4.480	.499**	.000*

Remark: * Significant Difference

** No Significant Difference

In this study, Co-op students in the experimental group were from different faculties: (1) the Faculty of Natural Resources and Agro Industry (15 students), (2) the Faculty of Science and Engineering (15 students), and (3) the Faculty of Liberal Arts and Management Science (10 students). To test the effect between each demographic group of Co-op students in the experimental group, the ANOVA

was conducted. The result revealed that there is no statistically significant difference among the group. This implied that the effect of the intervention was valid no matter what the faculties of the students were. Therefore, the intervention can be used for all Cooperative Education students. The ANOVA result is illustrated in Table 4.

TABLE 4: ANOVA the mean scores of different faculties of Co-op students in experimental group.

	Sum of Squares	df	Mean	F	Sig.
Between group	.516	2	.258	1.671	.204**
Within group	5.098	33	.154		
Total	5.615	35			

Remark: * Significant Difference

** No Significant Difference

The above mean scores different results were aligned with the results of students' learning records in the online reflective journal. During 14 weeks of Cooperative Education, 36 Co-op students recorded a total of 541 journal entries. Co-op students assessed themselves on the use of growth mindset and self-fulfilling prophecy. From Figure 3, the result

shows that they experienced the most in Desired outcome (19%), Persist in the face of setbacks (17%), and See effort as the path to mastery (16%). This indicated that Co-op students experienced various situations which they learned either negatively or positively in the workplace.

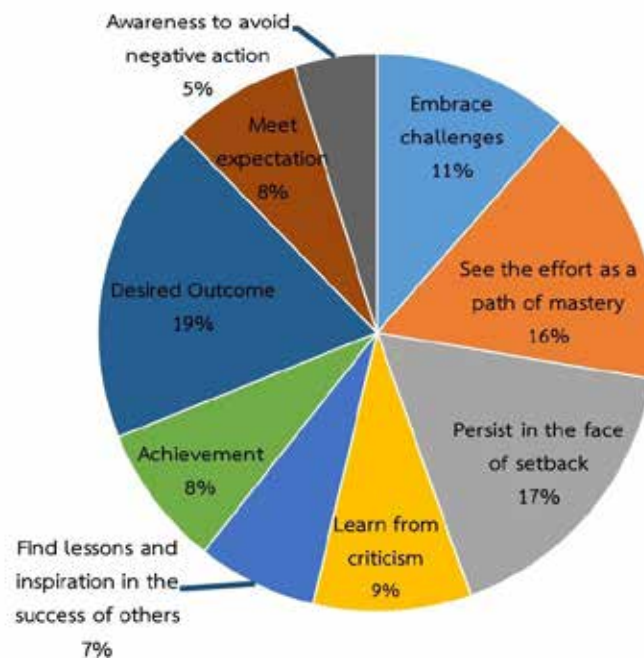


FIGURE 3: The frequency of using growth mindset and self-fulfilling prophecy

Discussions

The findings confirm that Co-op students in the experimental group demonstrated active learnings throughout the intervention process while working in the workplace. The online reflective journal and online group discussion were used to maintain the momentum of Co-op students' learning. It was found that the online reflective journal was used effectively by Co-op students who reflected upon themselves, recorded in the journal, came back to think about what they recorded, and then made improvement in order to not repeat the same mistake. It also found that the online group discussion provided them with a digital learning platform for sharing their experiences reflected from their online reflective journal as well as learning from others. This indicated that Co-op students continued their learning in the Cooperative

Education period. With experiential learning, as Kolb, Boyatzis, & Mainemelis, (1999) emphasized on the continuous learning process, learners observe, reflect, apply and improve, and at the end, learners promote "lifelong learning". However, this study could not clearly ensure the "lifelong learning" of Co-op students after Co-op students completed their Cooperative Education since there was no follow up process to sustain the continuity in this study.

Through such self-reflection and learnings from others by using the online reflective journal and online group discussion as mentioned, this study also found that Co-op students learned from their friends and facilitators. This learning helped them in problem solving and to be motivated and encouraged from others' experiences. This is partly similar

to the finding of Desta et al., (2009)'s study that through self-reflection and peer learning, students are initiated and engaged in their critical thinking and inquiry. Moreover, the above findings aligned with the result presented in research of Fingon & Fingon (2008), and Gibbs (1988) which found that what the learners learn and think will help learners to resolve problems.

The Eames & Cates (2001) study mentioned that students learned from the success and failures of others. This present study found that Co-op students learned from their friends during the work session and online group discussion. They not only gained the learnings from the successes and failures of others but also increased motivation and encouragement from friends' shared experiences. Co-op students showed their learning by his/her own reflection. Along the intervention process, there were coaches, mentors, and professors who were Co-op students' encouraging self-reflection supporters. The coach (researcher) – which by design was involved in all parts of intervention: work session, online reflective journal, online group discussion, and individual interview session – helped Co-op students to find the solutions by asking coaching questions and allowed Co-op students to reflect upon themselves. The mentor consulted and coached on Co-op students' daily works and projects. And, the professor gave advice on the projects and feedback on students' behaviors and performance in the workplace. These three supporters' ease of reflective dialogue resulted in Co-op students' learnings.

In addition, Auten (2013), Cogdill (2013), Fegley (2010), Hansen (2016), and Willeke (2015) confirmed that the growth mindset of the students and teachers plays an important role in academic achievement. The professor, therefore, should be knowledgeable in the growth mindset concept and apply it with Co-op students in order to enhance academic achievement.

The standard also required professors to visit

Co-op students at the workplace at least once. The current research found that professors visited Co-op students once. The Co-op students expressed their preference to meet their professors more often so that they could consult with them and reflect upon themselves while working. The challenge of professor visits was the limitation of time and number of Co-op students. The use of digital communication such as webinar, video conference, or Zoom program, etc., will be more efficient and effective as this study found that the online tools were very useful and practical in this digital era.

After completion of Cooperative Education, Co-op students assured their achievement on learning outcomes. They adopted the new mindset, skills, and competencies to foster their growth, learned to adapt themselves to others and the culture of the workplace and make necessary development, and experienced the real job to develop their competence and employability. These work experiences from the Cooperative Education of newly hired employees make faster work transition, which employers valued the most (Eames & Cates, 2011). Co-op students found the “what is in it for me” of Cooperative Education. Knowing oneself referred to what Co-op students reflected upon themselves and knowing their strengths, weaknesses, values, and skills. Knowing others means that Co-op students experienced relationships with others and how to adapt themselves with social situations and the culture in the working environment. And, knowing work during Cooperative Education helps Co-op students in career development and employability decisions. Although six out of 36 were offered the job after completion of their Cooperative Education, the rest of the Co-op students realized what their favorite type of job was and were able to make the right decision for their career development. This reflected on Co-op students' self-efficacy on their competence and led to their obtaining employability.

After documentary review, the standard of

Cooperative Education at a public university, like at other Thai universities, was limited to certain subjects for the Cooperative Education preparation program, not the growth mindset and self-fulfilling prophecy. Meanwhile, Auten M. (2013) promoted that "A growth mindset is a crucial first step in attaining the skills necessary to succeed in the 21st century". Seconded by research from LinkedIn and the World Economic Forum, indications are that the skills, especially soft skills, will be retained and increase in value, including active learning, adaptability, collaboration, time management, analytical thinking and creativity, and even the demand for technology competencies increases. The mentioned soft skills allowed students to navigate new information and make decisions effectively (Solution, L.T., 2019).

The Office of the Higher Education Commission (OHEC) established the five domains of learning and learning outcome for graduates, which are 1) Ethical and moral development, 2) Knowledge, the ability to understand, recall and present information, 3) Cognitive skill, 4) Interpersonal skill and responsibility, and 5) Analytical and communication skills (OHEC, 2006). To achieve those learning outcomes, in this study, it is recommended that Co-op students or students in general would be provided with the soft skill of growth mindset and self-fulfilling prophecy which enhanced the expected learning outcomes.

Apart from the qualitative result as discussed above, the study of the growth mindset and self-fulfilling prophecy intervention in quantitative research revealed that there was a statistically significant difference between the pre-test and post-test of the mean scores of Co-op students' self-efficacy. The mean scores and paired-sample t-test showed that there is a statistically significant difference in Co-op students' self-efficacy of the experimental group. The pre-test mean scores ($\bar{x} = 4.010$, $SD = 0.258$) and post-test mean scores ($\bar{x} = 4.255$, $SD = 0.353$) have a statistically significant difference ($t = -4.110$, $Sig = 0.000$). The result indicates that there is the

effect of the intervention toward the Co-op students' self-efficacy.

These findings were consistent with results from the following research. Cogdill (2013) revealed that students with a growth mindset were more likely to hold positive self-evaluations and participate in future activities. Blackwell, Trzesniewski, and Dweck (2007) also mentioned that the students with a growth mindset choose more positive, effort-based strategies in response to any failures, increased academic achievement by endorsing stronger learning goals, had more positive beliefs about effort, and made fewer "helpless" attributions. In addition, the results of studies on the self-fulfilling prophecy by McCane (2008), Haynes (1978), Heyward-Evans (2003), and Bamburg (1994) also show increases in students' academic performance and achievement.

From the researcher's point of view, students were able to demonstrate the application on the growth mindset and self-fulfilling prophecy during their Cooperative Education. They showed the confidence and were able to solve their problems in their workplaces. Using the digital platform intervention was the suitable and effective way for Cooperative Education due to the different location of students' workplace. The digital platform can connect Cooperative Education students and keep building relationship among them. The motivation and engagement during the challenging time derive from the interaction through digital platform which plays important role in the new digital era.

The Guidelines

The findings of this study had provided the evidence of the effectiveness of growth mindset and self-fulfilling prophecy intervention which enhance Cooperative Education students' self-efficacy. The followings are the guidelines of growth mindset and self-fulfilling prophecy development to enhance Cooperative Education students' self-efficacy.

1) Overall intervention would be recommended

to be implemented for all Cooperative Education students along the Cooperative Education program. The proved four integrated parts of intervention are complemented and interrelated to one another. This leads to an increase in their self-efficacy, resulting in students meeting their expected learning outcomes. The key success of intervention implementation was the support from the coach, workplace mentor, and professor.

2) It is recommended that there should be someone as a coach for Co-op students to share any concerns and consult with on problems during their Cooperative Education period. With the limitations of university resources, the coach does not necessarily have to be a professor but anyone who is skillful, empathetic, helpful, and considerate so that Co-op students could consult and ask for advice. The coach is very important for continuing students' learning. The coach needs to be certified on the concept of how to coach and how to give feedback.

3) There should be a review of the standard on the frequency of time and visits in the Cooperative Education program. The review would be on the increase of frequency and/or the use of communication technology to coach Co-op students, virtually or remotely.

4) The workplace mentor was a coach and consultant of Co-op students on their daily work and projects. Co-op students mentioned that support from the mentor was very important. With a good relationship with the mentor, Co-op students achieved more. Similar to the professor, the mentor supported Co-op

students academically, professionally, personally, and mentally during the Cooperative Education.

5) The mentor, professor and coach should learn about growth mindset so that they can support Co-op students on the growth mindset concept. As a certified coach, the researcher would recommend that mentor, coach, and professor further learn on coaching skills which would be useful for Co-op students.

6) The findings of this study show that the use of the online reflective journal and online group discussion in intervention encouraged Co-op students on self-reflection and learning. As this digital platform decreases the limitation of the time constraints of coaching and the professor visit, this platform is recommended to suit the digital native generation's preference.

7) It is recommended that a Cooperative Education program should be added to other curriculums, either compulsory or selective, with university encouragement so that students can learn from real experiences. Moreover, the four-month period of Cooperative Education should be reviewed on whether to be longer so that Co-op students could learn more, resulting in an increase of their employability. To make the change to a longer Cooperative Education period, the revision of existing unnecessary courses should be done to compensate with the benefit of Cooperative Education. Moreover, the Cooperative Education policy needs to be revised in terms of duration, project, students' compensation, mentor, professor, and university support.

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