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LEARNING MANAGEMENT THROUGH "SCAFFOLDING" TECHNIQUE TO FOSTER CREATIVITY OF DIPLOMA STUDENTS, DEPARTMENT OF MANAGEMENT, SONGKHLA COMMUNITY COLLEGE, THAILAND

APRENDIZAGEM DE GESTÃO ATRAVÉS DA TÉCNICA DE "SCAFFOLDING" PARA PROMOVER A CRIATIVIDADE DOS ESTUDANTES DE DIPLOMA, DEPARTAMENTO DE GESTÃO, SONGKHLA COMMUNITY COLLEGE, TAILÂNDIA

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Abstract
This research purposes evaluate the creativity through learning management of "Scaffolding" Technique with the Diploma students in Branch of Management, Songkhla Community College. To foster creative thinking by employing "Scaffolding" Technique to the Diploma students. The target group in this research was 25 first year students in Branch of Management in Songkhla Community College, who registered for a Basic Business course. The student samples were obtained through a purposive sampling method because only one basic business course in Branch of Management was offered due to the requirement of the Institute of Community College. The result of the research can be concluded that the comparison of the creativity evaluation of the diploma student samples on the Business Model Canvas (BMC) by using the evaluation criteria based on the theory of creative thinking of the Guilford's is 70% significantly higher than the preset criterion at .01.

Keyword: Initiative. Scaffolding. Business Model Canvas (BMC).

Resumo
Esta pesquisa tem como objetivo avaliar a criatividade através da gestão da aprendizagem da técnica de "Scaffolding" com os alunos do curso de Gestão do Songkhla Community College. Promover o pensamento criativo empregando a técnica de "Scaffolding" com os alunos do curso. O grupo-alvo desta pesquisa foi composto por 25 alunos do primeiro ano do curso de Gestão do Songkhla Community College, matriculados no curso básico de Administração. As amostras de alunos foram obtidas por meio de um método de amostragem intencional, pois apenas um curso básico de negócios no curso de Administração foi oferecido devido à exigência do Instituto de Faculdade Comunitária. O resultado da pesquisa pode ser concluído que a comparação da avaliação da criatividade das amostras de alunos do curso técnico no Business Model Canvas (BMC), utilizando os critérios de avaliação baseados na teoria do pensamento criativo de Guilford, é 70% significativamente maior do que o critério predefinido em 0,01.

Palavras-chave: *Iniciativa. Scaffolding. Business Model Canvas (BMC).*

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1 INTRODUCTION

The United Nations (UN) has advocated the 2030 sustainable development Agenda and Sustainable Development Goals for all countries to reach a higher achievement and sustainable development. SDG 4 of Quality Education is clearly specified to provide all individuals with inclusive and equitable quality education and to enhance a lifetime education learning (Benjakarn Rungrojvanich, 2016). Thus, the education of Thailand needs to be intensively adjusted and advanced for lifetime learning for all age generations to equal that of another country.

The target of National Education Act B.E.2542 (1999) aims to develop a learning development for learners to have appropriate abilities and self development. A learning management is considered to hold the most important role. As a result, in a normal learning management a teacher has been realized to have an important role. However, currently, a teacher's role is changed from mainly transferring knowledge in class to facilitate learners for autonomous learning

Thinking is a conscious cognitive process in which the data or a response gained are inferred with an existing information or experience to initiate a meaning as an Internalization knowledge or comprehension (Tisana Khaemmanee, 2011.) A thinking process continuously occurs to activate internal behaviours which enhances external behaviours. Thinking exists in several forms such as Critical Thinking, Creative Thinking and Problem Solving Thinking. Thus, a process of enhancing learners for changing themselves mainly bases on learning education management and learning activity management to provide a pleasant learning and a thinking process in pre-, while- and post- stages of a lesson (Department of Academic Affairs, 2001). Scaffolding is a process which can be employed to foster student's ability and deal with their learning problems (Noppamas Paladkong, 2018). A teacher copes with an individual learner to help solve learning disabilities and to enhance an individual learning ability. The basic main principle of the Scaffolding process is that a learner with a better learning potential assists a learner with a lower learning potential in learning a lesson. The learning assistance decreases while a learning development progresses (Sarita Buakhieo, 2016). Scaffolding Technique is employed in teaching to help learners reinforce thinking. A research using Scaffolding Technique to manage learning indicates that it can help improve a collaborative solving problem ability in creative thinking. The result of the research shows that the learner's

average post-test mark is at a high level based on PISA 2015, which is higher than that of the pre-test mark at a medium level at a statistic significance of .05. It is also consistent with an activity participation with a high level of collaborative solving problem ability.

According to an annual report of Office of the Academic Affairs of Songkhla Community College, the teaching management of Academic Years 2017-2019 for the learners in a Diploma level in a Community College Plan revealed physical and emotional and social problems. The mentioned problems resulted in a low learning ability and competency. Typically, the Community College students vary in age ranges, working experience and family status. Moreover, some students stop learning for a long duration and accumulate more life skills. Also, they have limited ways of thinking and usually wait for peer's answer or presentation. Additionally, they can hardly integrate their exist experience with academic knowledge resulted in a slow learning. Most of the students are over 18 years of age and have working experience in a working place but lack a system thinking. Therefore, the research students were interested in employing Scaffolding Technique to encourage creative thinking and learning management for the Diploma students in Songkhla Community College.

2 PURPOSE OF THE RESEARCH

To evaluate the creativity through learning management of "Scaffolding" Technique with the Diploma students in Branch of Management, Songkhla Community College

3 HYPOTHESIS OF THE RESEARCH

Learning management of "Scaffolding" Technique is help to support creativity for the Diploma students in Branch of Management, Songkhla Community College at a higher average than a preset criterion of 70 per Cent.

4 METHODOLOGY OF THE RESEARCH

The study is an experimental research on Business Model Canvas (BMC). The factors of the research are studied as below:

4.1 The target population

The target population was 25 first year diploma students in Branch of Management, Songkhla Community College, who registered for a Basic Business course. The samples were selected by way of Purposive Sampling.

4.2 Variables of the Research

1) Independent Variable is the Learning Management through “Scaffolding” Technique.
2) Dependent Variable is creative thinking based on Guilford’s theory of creativity. Creativity consists of process characteristics; originality which is different from prior thinking; individual characteristics includes confidence, assertiveness and healthy mind and readiness to face a risky situation with confidence; productivity characteristics which results from creativity and is new from an exist one and valuable for oneself and another.

4.3 Instruments for Data Collection

The instrument tools employed in the research were created by the research students including:

1) Learning Management Plan (LMP) for enforcing creative thinking to enhance creativity in a Basic Business Course on Business Model Canvas (BMC). The Learning Management Plan consisted of 4 plans as the follows:

LMP 1 is on “Business Model Canvas” (BMC).

LMP 2 is on “the components of Business Model Canvas” (BMC) including the questions of “What” which were asked to analyze Key Partner and Key Activities whereas the questions of “How” were asked to analyze Key Resources and Business Value.

LMP 3 is on the components of Business Model Canvas” (BMC) including the questions of “Who” which were asked to analyze Customer Segmentation, Customer Relationship and Channels.

LMP 4 is on the components of Business Model Canvas” (BMC) in “Money” group including the Cost Structure and Revenue Streams.

2) Learning management through Scaffolding Technique consisted of 3 stages, namely,1) “Model” stage which arouses students’ interest and provides freedom for thinking 2) “Break down” stage which allows the learners to exploit their prior experience in adjusting learning contexts, to make a clear thought and thought determination 3) “Encourage” stage in which the learning performance was evaluated for an improvement or a feedback.
3) Evaluation form of key words related to BMC in each question group
4) There were 4 sets of key words related to BMC. Then, each set has its seperate question group.
5) Evaluation form of creativity behaviors with 4 levels of evaluation criterion including:

Very good (4 marks) -the learner answers the question by describing the obtained benefits from learning Business Model Canvas with a new concept of rationale and practical use in daily life.

Good (3 marks) the learner answers the question by describing the obtained benefit from learning Business Model Canvas with a new concept of rationale.

Fair (2 marks) the learner answers the question by describing the obtained benefit from learning Business Model Canvas with rationale in general without a new concept.

Revised (1 mark) the learner answers the question by describing the obtained benefit from learning Business Model Canvas without a rationale

4.4 Making an instrument for data collection

1) prepare 4 learning management plans on Business Model Canvas (BMC)
2) Analyze a revised 2018 Diploma Curriculum of Branch of Management under the Institute Community Colleges
3) Study learning management forms and related documents of learning management plans
4) prepare a learning management plan consistent with Thai Qualifications Framework for Higher Education as specified in a 2016 Revised Diploma Curriculum of General Management Branch to cover a course description of Basic Business Course
5) submit the prepared learning management plan to the advisor to consider

the learning content and learning objectives

6) submit the learning management plan revised by the advisor to 3 experts to examine the consistence of learning content and learning objectives

The Index of Item Objective Congruence (IOC) by Rovineli and Hambelton was employed as a justification criterion. (Somnuek Pathiyatani, 2001.)

+1 means the learning management plan has a content validity and is consistent with the objectives.

0 means it is not certain if the learning management plan has a content validity and is consistent with the objectives.

-1 means the learning management plan does not have a content validity and is not consistent with the objectives.

The IOC values of Learning Management Plan employing "Scafolding" Technique to enhance the learners' creative thinking show that the content validity of the 4 plans ranges from 0.67 to 1.00. As a result, all items of the Learning Management Plans revised by the 3 experts can be used for the experiment with the Diploma students in Branch of Management.

7) Evaluation form of key words about business in each question group of Business Model Canvas (BMC) consists of:

7.1) Evaluation form of key words related to business used in Learning Management Plan 1

7.2) Evaluation form of key words in minor components of BMC in a How-question group and a What- question group used in Learning Management Plan 2

7.3) Evaluation form of key words in minor components of BMC in a Who-question group used in Learning Management Plan 3

7.4) A record of data analysis on BMC in a Money-question group used in Learning Management Plan 4

The research students collected the documents related to business in each group of questions in BMC. The basic business key words were selected from the online classroom of the Stock Exchange of Thailand. The documents explained key words and related information of BMC and set a criterion for the teacher to evaluate the important key words in each group of the question sets. The evaluation criterion for the learner is to pass 70% of all selected business key words as specified in the Entrepreneur Classroom of the Stock Exchange of Thailand.

7.5) Evaluation form of creative behaviours with the following steps

7.5.1 study the curriculum, course descriptions and learning objectives of Basic Business Course of Songkhla Community College, the Institute of Community Colleges

7.5.2 study a way how to create the exercise for learners' skill practice

7.5.3 create a creativity proficiency criterion based on Guildford's Creativity Theory with a 4-level description as described below.

Very good (4 marks) -the learner answers the question by describing the obtained benefits from learning Business Model Canvas with a new concept of rationale and practical use in daily life.

Good (3 marks) the learner answers the question by describing the obtained benefit from learning Business Model Canvas with a new concept of rationale.

Fair (2 marks) the learner answers the question by describing the obtained benefit from learning Business Model Canvas with rationale in general without a new concept.

Revised (1 mark) the learner answers the question by describing the obtained benefit from learning Business Model Canvas without a rationale

7.5.4 submit the behavior evaluation form of creativity based on Guilford's Creativity Theory to 3 experts for consideration to examine validity of the behavior evaluation form. Then the content was revised according to the experts' recommendations.

4.5 Format of the experiment

The experiment was undertaken using a one-group posttest only design.

Table 1

One-group posttest

Experiment	Post -test
X	T_2

where X means Learning following Constructionism

T_2 means Post - test

4.6 Data collection

The research was undertaken from February to March 2020 in 4 weeks for 12 hours. The research students did the experiment and collected related data from the target class with following procedures:

1. The samples were provided with 1 learning unit skill including 2 items to learn. The students were provided with 1 week of 3 hours for the Business Analytics Tools and 4 weeks of 3 hours each totally 12 hours for Business Model Canvas (BMC).
2. After the students finished the learning unit, the teacher evaluated their creative behaviors based on creative thinking evaluation criterion.
3. The behaviour marks of creative thinking were statically analyzed by comparing the learning achievement with the preset criterion with the passed criterion of not less than 70% of the full mark. The t-test one sample was employed to evaluate the creative thinking value.

4.7 Statistics and data analysis

SPSS Software Program and the following statistic formula were employed to analyze the related data.

1) content validity of learning Management plan supervised by 3 experts based on IOC
2) validity of creativity evaluation form
3) comparing behaviour mark of creative think with 70% of preset criterion using *t – test* one sample. (Winai Phosuwan, 2019.)

where $t = \frac{\bar{x}-\mu_0}{\frac{S}{\sqrt{n}}}$ when $df = n - 1$ (1)

where:

$\bar{x}$ = average of the samples

μ_0 = average of population or a preset criterion

S = standard deviation of the samples

n = size of the samples

df = degree of freedom

5 RESULT OF THE RESEARCH

In the research the sample group was 25 first year Diploma students in Branch of Management. Students evaluated the creativity of the Diploma students in Brach of Management on Business Model Canvas (BMC) after Scaffolding Technique was employed. Scaffolding Technique consisted of 3 stages namely, 1. “Model” stage which arouses students’ interest and provides freedom for thinking 2. “Break down” stage which allows the learners to exploit their experience in learning adjustment, to make a clear thought and thought determination and 3. “Encourage” stage in which the learning product was evaluated for an improvement. Then the research students evaluated the learners’ creativity by examining degree of difference and newness of learning performance from the old one. The evaluation result is presented in Table 2.

Table 1 shows the comparison of the evaluated result on creativity of the Diploma students in Branch of Management for business analytics content on Business Model Canvas: BMC based on Guilford’s Creativity Theory. It indicates that the average mark of the students’ creativity is 18.72, which is significantly higher than 70% at a .01 level. When creativity evaluation of each item in the data presentation of the content is examined, the content of rationale has the highest average of 4.00. The question response has the second highest average of 3.96 followed by descriptions writing with average of 3.84.

Table 2

Shows the comparison of Creativity Evaluation of Diploma Students in Branch of Management on Business Model Canvas (BMC).

Experiment Group	No. of Students (Person)	$\overline{X}$	S.D.	t	p
Post-test	25	18.72	0.74	32.02**	.000

**Significant at .01

Table 2 shows the comparison of the evaluated result on creativity of the Diploma students in Branch of Management for business analytics content on Business Model Canvas: BMC based on Guilford’s Creativity Theory. The result indicates that the

average mark of the students' creativity is 18.72, which is significantly higher than 70% at .01

6 DISCUSSION OF THE RESEARCH

The objective of the research aims at fostering creativity by learning management of "Scaffolding" Technique with the Diploma students. The target group in the research was 25 first year diploma students in Branch of Management, Songkhla Community College, who registered for a Basic Business course. The samples were selected by way of Purposive Sampling in Branch of Management, Songkhla Community College.

The result of the research resulted from the comparison of the evaluated result on creativity of the Diploma students in Branch of Management for business analytics content on Business Model Canvas: BMC based on Guilford's Creativity Theory. It indicates that the average mark of the students' creativity is 18.72, which is significantly higher than 70% at .01. When creativity evaluation of each item in the data presentation of the content is examined, the content of rationale has the highest average of 4.00. The question response has the second highest average of 3.96 followed by descriptions writing with average of 3.84.

The research is consistent with that of Parichart Phasuk (2016). The research provides learning guidelines based on Scaffolding Deeper Technique. The technique is divided into 5 stages. 1) problem identification in which a situation is given to identify a related and common problem in daily life, 2) information search in which the teacher search all or some information until the learners can search all information by themselves, 3) problem solving explanation in which questions are asked to guide learners to write probable solving problem means with supporting evidence, 4) solving problem presentation in which a learner gives a presentation in front of the class with a picture comparison of before and after improvement and 5) problem solving evaluation in which each learner's problem solving mean is compared for improvement. The learning technique above is claimed to help develop the learners' creative competence in a collaborative problem solving. In addition, the post-test average of the learners is higher than that of the criterion.

7 CONCLUSION AND RECOMMENDATIONS

The comparison of the evaluated result on creativity of the Diploma students in Branch of Management based on Guilford's Creativity Theory indicates that the average mark of the students' creativity is 18.72, which is significantly higher than 70% at .01.

7.1 Recommendations

The result of the research on Learning Management through "Scaffolding" Technique to Foster the Diploma Students in Branch of Management, Songklha Community College provides the following recommendations.

1) In any kind of teaching technique, environmental conditions and students' needs should be carefully studied to appropriately and reasonably suit the course.
2) Learning activities gained from the result and the development of the research are only one alternative for a learning management. Thus, it is necessary for any individual teacher to adapt and employ them to suit an actual teaching context.
3) The developed learning plan should be considered to employ with another course and level of students.

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Authors’ Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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