

ผลการใช้เทคนิค 5W1H บูรณาการเทคนิค KWL-Plus  
ในการเรียนแบบร่วมมือบนออนไลน์ที่มีต่อทักษะการคิดวิเคราะห์  
ของนักเรียนชั้นมัธยมศึกษาปีที่ 6 ที่มีรูปแบบการเรียนรู้ต่างกัน

The Result of Using 5W1H Questions Technique  
Integrated with KWL-PLUS Reading Techniques Collaborative  
Online Learning Upon Analytical Thinking Skill of  
Mathayomsuksa 6 Students with Different Learning Style

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การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาการใช้กิจกรรมการเรียนรู้แบบร่วมมือที่ต่างกันบนออนไลน์ด้วยเทคนิคคำถาม 5W1H บูรณาการกับเทคนิคการอ่าน KWL-Plus ที่มีผลต่อทักษะการคิดวิเคราะห์ของนักเรียนชั้นมัธยมศึกษาปีที่ 6 ที่มีรูปแบบการเรียนรู้ต่างกัน กลุ่มตัวอย่างของการวิจัยเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 6 โรงเรียนประสาทวิทยาคาร อำเภอปราสาท จังหวัดสุรินทร์ สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เขต 33 ที่มีรูปแบบการเรียนรู้ต่างกัน จำนวน 124 คน เครื่องมือที่ใช้ในการวิจัย ได้แก่ กิจกรรมการเรียนรู้ร่วมมือแบบคู่คิดบนออนไลน์ผ่านเฟสบุ๊ก เทคนิคคำถาม 5W1H บูรณาการกับเทคนิคการอ่าน KWL-Plus กิจกรรมการเรียนรู้ร่วมมือแบบจิกซอร์บนออนไลน์ผ่านเฟสบุ๊ก เทคนิคคำถาม 5W1H บูรณาการเทคนิคกับการอ่าน KWL-Plus รวมทั้งหมด 4 กิจกรรม ซึ่งมีคะแนนความคิดเห็นของผู้เชี่ยวชาญอยู่ในระดับมากที่สุด ( $\bar{X} = 4.60$ ,  $S.D. = 0.54$ ) และแบบทดสอบวัดทักษะการคิดวิเคราะห์ จำนวน 20 ข้อ มีค่าความยากง่ายตั้งแต่ 0.34 - 0.85

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ค่าอำนาจจำแนก 0.20 - 0.78 และมีค่าความเที่ยงทั้งฉบับ 0.73 สถิติที่ใช้ในการวิเคราะห์ข้อมูลประกอบด้วยสถิติพื้นฐาน ค่าเฉลี่ยเลขคณิต ส่วนเบี่ยงเบนมาตรฐาน ค่าเฉลี่ยร้อยละ และสถิติทดสอบความแปรปรวนสองทาง Two Way ANOVA

ผลการวิจัยพบว่า 1) นักเรียนที่มีรูปแบบการเรียนรู้ต่างกันเมื่อได้รับการฝึกด้วยกิจกรรมการเรียนรู้ร่วมมือแบบคู่คิดและแบบจิกซอร์บนออนไลน์ผ่านเฟสบุ๊ค ด้วยเทคนิคคำถาม 5W1H บุรณาการกับเทคนิคการอ่าน KWL-Plus นักเรียนมีทักษะการคิดวิเคราะห์แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 2) การจัดกิจกรรมการเรียนรู้ร่วมมือแบบคู่คิดและแบบจิกซอร์บนออนไลน์ผ่านเฟสบุ๊ค เทคนิคคำถาม 5W1H บุรณาการกับเทคนิคการอ่าน KWL-Plus วิธีการต่างกัน เมื่อนำมาฝึกกับนักเรียนที่มีรูปแบบการเรียนรู้ต่างกัน นักเรียนมีทักษะการคิดวิเคราะห์แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 และ 3) นักเรียนที่มีรูปแบบการเรียนรู้ต่างกันเมื่อได้รับฝึกด้วยกิจกรรมการเรียนรู้ร่วมมือวิธีการต่างกัน มีทักษะการคิดวิเคราะห์ไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

**คำสำคัญ :** เทคนิคคำถาม 5W1H บุรณาการกับเทคนิคการอ่าน KWL-Plus กิจกรรมการเรียนรู้ร่วมมือแบบคู่คิดบนออนไลน์ กิจกรรมการเรียนรู้ร่วมมือแบบจิกซอร์บนออนไลน์ ทักษะการคิดวิเคราะห์ รูปแบบการเรียนรู้

## Abstract

This research aimed to study the different collaborative online learning style using 5W1H questioning technique integrated with KWL-Plus reading technique. It affects analytical thinking skills of Mathayomsuksa 6 (grade 12) students who have a different learning style. The samples group for this study were 124 students of Mathayomsuksa 6 (grade 12) from Prasatwitayakarn School, Prasat district, Surin province, Secondary Educational Service Area 33. The research tools were 4 activities from the Think-Pair-Share collaborative online learning activities on Facebook which

use 5W1H questioning technique integrated with KWL-Plus reading technique and the Jigsaw collaborative online learning activities on Facebook which use 5W1H questioning technique integrated with KWL-Plus reading technique. These tools have the highest level of the experts' opinion ( $\bar{X} = 4.60$ , S.D. = 0.54). Moreover, the analytical thinking skill test of 20 items has a difficulty index between 0.31 and 0.85, a discrimination value between 0.20 and 0.78, and content validity at 0.73. The statistical methods for data analysis consisted of arithmetic average, standard deviation, percentage average, and Two-way ANOVA

### Research Conclusion

1. The results showed that the students who have practiced in different learning styles of Think-Pair-Share collaborative online learning and the Jigsaw collaborative online learning using 5W1H questioning technique integrated with KWL-Plus reading technique activities on Facebook have different analytical thinking skills with the significance level of 0.05.

2. The Think-Pair-Share collaborative online learning and the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique have different methods. When practiced by students who have a different learning style, they have different analytical thinking skill with the significance level of 0.05.

3. The students who have the different learning style when practiced with the different collaborative learning activities methods, have no different the analytical thinking skill with the significance level of 0.05

**Key Words :** 5W1H questioning technique integrated with KWL-Plus reading technique, the Think-Pair-Share collaborative online learning activities, the Jigsaw collaborative online learning activities, the analytical thinking skill, learning style.

## Introduction

Human quality development for self-sufficiency and being beneficial for themselves, family, community, and nation, must be developed in both intellect and sociality to be able to analyze, propose scientific reasoning, focus on learning, and do self-learning. Therefore it needs to be an opportunity for everyone to be able to think and make a reasonable solution, be creative and have long-term learning, be literate about the world, and prepare for changes to develop yourself and society (Office of the Education Council. 2003). The Ministry of Education also mentions that “Analysis Thinking is an important thinking skill and performance of learners following the objective of the Basic Education Core Curriculum, B.E. 2551 (A.D. 2008), such as Analysis Thinking, Synthesis Thinking, Creative Thinking, Critical Thinking, and Systems Thinking for knowledge and skills for communication, thinking, problem-solving, technological know-how, and life skills. Thinking development is important for humans and a necessity for learners since humans have to use skills for consideration, interpreting, classification, and conclusion in news that is related to their living. Therefore, there are many methods for developing learners to have thinking ability such as 5W1H “The Kipling method” (Rudyard Kipling. 1902) which is Analysis Thinking that is used for analyzing data or problems including What?, Where?, When?, Why?, Who?, and How?. KWL-Plus technique (Carr and Ogle. 1987 : 75) has 5 steps; Step K (What we Know), Step W (What we want to know), Step L (What we have learned), Step Plus (Mind Mapping), and Step Plus (Summarizing). It is a learning activity which systematically and concretely connects past experience with new experience. Think-Pair-Share is the method that arranges the activity for each learner to self-study about the assigned topic

then pairs to explain the results and share knowledge from studying with each other and other pairs. Jigsaw collaborative learning is based on the Jigsaw method for group activity where the instructor assigns each group member to study each topic. When members finish studying their topic, they will discuss and exchange that information with group members.

Therefore, the analytical thinking skill is needed to develop learners to be able to apply in living. If it is not developed, it will affect quality of life, society, politics, economy, and country development. So we adopted some methods to integrate for arranging a learning activity which is called “The collaborative online learning activity using 5W1H questioning technique integrated with KWL-Plus reading technique” for developing analytical thinking skills of learner. Learners can study things and do learning activities including other knowledge by analyzing business transaction, video online, and related links in a Facebook group, and a Principle of Accounting Group.

## Research objectives

To study the results of the Think–Pair–Share collaborative online learning and the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique affecting analytical thinking skills of Grade 12 students who have different learning styles.

## Research hypothesis

1. Students have different learning styles when they are practiced with the Think–Pair–Share collaborative online learning and the Jigsaw

collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique and they have the different analytical thinking skill.

2. Students who are practiced with the Think–Pair–Share collaborative online learning and the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique have different methods and they have the different analytical thinking skill.

3. Students have different learning styles when they are practiced with the different methods and they will have the different analytical thinking skill.

## Scope of Research

### 1. Population and sample

#### 1.1 Population

Grade 12 students, Prasat district, Surin province, Secondary Educational Service Area 33, who is studying in second semester, academic year 2015.

#### 1.2 Sample

The sample size is 124 Grade 12 students with different learning styles who are studying in the second semester, academic year 2015 at Prasatwitayakarn School, Prasat district, Surin province, Secondary Educational Service Area 33. The sample group in this study is randomly allocated as follows:

1.2.1 Using the learning method questionnaire based on Antony Grasha and Sheryl Reichman. (1980 : 13 - 15) the students had 6 styles

which were, Independent Style (16 people), Dependent Style (35 people), Collaborative Style (31) people, Avoidant Style (22 people), Competitive Style (33 people), and Participant Style (196 people).

1.2.2 The experiment had 31 people in each learning style sample group. The result of learning style analysis shows that Independent Style and Avoidant Style had a fewer number of students to participate than the experimentation condition, so both styles were removed. The students of 4 learning styles drew lots for the teaching test in 2 methods. The first method adopted 64 students to test the Think–Pair–Share collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique. Another method adopted 60 students to test the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique.

## **2. Variable**

### **2.1 Independent variable**

2.1.1 The Think–Pair–Share collaborative online learning activities on Facebook used 5W1H questioning technique integrated with KWL-Plus reading technique.

2.1.2 The Jigsaw collaborative online learning activities on Facebook used 5W1H questioning technique integrated with KWL-Plus reading technique.

2.1.3 4 Learning styles; Dependent style, Collaborative style, Competitive style, and Participant style.

2.2 The Dependent variable is the analytical thinking skill score.

### **Period of time**

8 weeks and 14 hours (including orientation) between 8<sup>th</sup> February 2016 and 31<sup>st</sup> March 2016.

## Definitions

1. The Think-Pair-Share collaborative online learning on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique is a teaching method or the collaborative online learning activities by creating a group activity of an Elementary Accounting subject called “The Think-Pair-Share collaborative learning activities”. This used the Think-Pair-Share collaborative learning integrated with 5W1H questioning technique integrated with KWL-Plus reading technique, business transaction analysis content, videos online and links of business transaction analysis content to post on Facebook in the Elementary Accounting group for the students to practice the learning activities, studying contents and processing knowledge by The Think-Pair-Share collaborative online learning activities on Facebook. There are 3 activities steps as follows: Think Pair and Share.

2. The Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique is a teaching method or collaborative online learning activities by creating a group activity of Elementary Accounting subject called “The Jigsaw collaborative learning activities”. It uses the Jigsaw collaborative learning activities integrated with 5W1H questioning technique integrated with KWL-Plus reading technique, business transaction analysis content, videos online and links of business transaction analysis content to post on Facebook in the Elementary Accounting group for the students to practice the learning activities, studying contents and processing knowledge by the Jigsaw collaborative learning activities on Facebook. There are 3 activities steps as follows : Home Groups, Expert Groups and Expert Groups presenting their knowledge.



3. Analytical thinking skill is the scores from the analytical thinking skill questionnaires in business transaction analysis of Elementary Accounting subject. It assess a post-test by the researcher's test. Each activity is a multiple choice test which has 5 choices for each of 20 questions.

## Research Tools

1. Think-Pair-Share collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique and Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique, which has 4 topics (10 hours) about Business Transaction Analysis, Principle of Accounting subject such as, Knowledge in Basic Accounting, Accounting Equations and Balance sheet, and Business Transaction Analysis.

2. The analytical thinking skill test with an objective test which has 5 choices for each of 20 questions.

## Methodology and Data Collection

1. The Researcher distributed the learning style test to 370 students who were studying in Mathayomsuksa 6 (grade 12) from Prasatwitayakarn School in the second semester of academic year 2015. Next the researcher explained to students about 6 learning styles as follows; Independent Style, Dependent Style, Collaborative Style, Avoidant Style, Competitive Style and Participant Style and then, students did the questionnaires, consisting of 60 questions and taking 40 minutes. After that the scores were checked, calculating the average by using basic statistics and informing students

about learning styles themselves. In other words, which one is the highest average score of learning styles, shows that the students have this learning style. Then take a random sample of the learning style by drawing and divide 124 students into 2 groups. Sixty students are the first group of the Think–Pair–Share collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique. Sixty students are in the second group of the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique.

2. Students do a pre-test, which is the analytical thinking skill test, 5 choices for each of 20 questions and record scores. Then a comparative analysis was undertaken of the average scores of analytical thinking skill pre-test with One-way ANOVA. The result showed that the students have no different scores of analytical thinking skill with the significance level of 0.05 and this sample has mixed-ability analytical thinking skill.

3. Collecting data by creating the Think–Pair–Share collaborative online learning activities and the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique in computer room at Prasatwitayakarn School. There are 2 steps as follows :

3.1 The 64 students in group 1 are 16 students of Dependent Learning Style, 16 students of Collaborative Learning Style, 16 students of Competitive Learning Style and 16 students of Participant Learning Style who learn with the Think–Pair–Share collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique. There are 3 steps as follows :

Think : Students read the 5W1H questioning technique integrated with the KWL-Plus reading technique and think.

Pair : Students pick their own partner and answer a question with the 5W1H questioning technique integrated with the KWL-Plus reading technique which has 5 steps as follow step 1: K (What we Know) integrated with the 5W1H questioning technique, step 2: W (What we want to know) integrated with the 5W1H questioning technique, step 3: L (What we have learned) integrated with the 5W1H technique, step 4: Plus (Mind Mapping) and step 5: Summarizing. Share: Share their thoughts with the whole class.

3.2 The 60 students in group 2 are 15 students of Dependent Learning Style, 15 students of Collaborative Learning Style, 15 students of Competitive Learning Style and 15 students of Participant Learning Style who learn with the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with the KWL-Plus reading technique. There are 3 steps as follows :

Home Groups : Students separate to study a lesson by themselves.

Expert Groups : Students answer a question with the 5W1H questioning technique integrated with the KWL-Plus reading technique which has 5 steps as follows. Step 1 : K (What we Know) integrated with the 5W1H technique. Step 2 : W (What we want to know) integrated with the 5W1H questioning technique. Step 3 : L (What we have learned) integrated with the 5W1H questioning technique. Step 4 : Plus (Mind Mapping) and step 5 : Summarizing.

The members of the Expert Group present knowledge : Bring the members back into the old group and exchange knowledge with each other.

4. When 2 groups have completed studying all the 4 titles, then the students must do the post-test by using the analytical thinking skill test which uses the same questions from the pre-test. After that data is analysed by using the two-way ANOVA analysis of variance and analysis of data by using Social Sciences program.

## Results and Conclusion

The research results of using 5W1H questioning technique integrated with KWL-Plus reading technique in the Think–Pair–Share collaborative online learning and the Jigsaw online collaborative learning activities on Facebook affects the analytical thinking skill of Mathayomsuksa 6 (grade 12) which has a different learning style in Elementary Accounting. The results were as follows :

1. Students used the different learning styles when they were practicing the Think–Pair–Share collaborative online learning and the Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique. They have different scores of the analytical thinking skill with the significance level of 0.05. The students with a Participant learning style have the highest average score (Mean 15.39) and the students of Dependent learning style have the lowest average score (12.71). When considering to pair learners to show that 3 pairs of students have the different analytical thinking skill score, there are Dependent learning style and Collaborative learning style, Dependent learning style and Competitive learning style, and Dependent learning style and Participant learning style. 3 pairs of students have no difference with the analytical thinking skill score, there are Collaborative learning style and

Competitive learning style, Collaborative learning style and Participant learning style, and Competitive learning style and Participant learning style.

2. The Think-Pair-Share collaborative online learning and the Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique have the different methods when used with the students who have a different learning style. The students have the different analytical thinking skill score with the significance level of 0.05. The students who practiced by the Jigsaw collaborative learning activities have a higher average score than the students who practiced by the Think-Pair-Share collaborative learning activities (Mean 14.80 > 13.98).

3. The students have a different learning style when practicing the different collaborative learning styles and no difference of the analytical thinking skill score with the significance level of 0.05. When considering the relationship of students learning style score between Participant learning style, Competitive learning style, Collaborative learning style and Dependent learning style, it shows that the score of Participant learning style interacts with Competitive learning style and the score of Participant learning style has no interaction with Dependent learning style. When students have a different learning style practiced by the Think-Pair-Share collaborative and the Jigsaw collaborative learning activities show that the score of Participant learning style, Competitive learning style and Collaborative learning style are higher than the score of Dependent learning style. However the students having a Dependent learning style practiced by the Think-Pair-Share collaborative learning activities have a higher average score than the Jigsaw collaborative learning activities.

## Discussion

This research showed some effects as follows;

1. Students who have different analytical thinking skills have a collaborative learning style with collaborative and competitive learning styles having a higher average than dependent style. The students who have a collaborative learning style have to learn each subject by concentrating and participating in class. Student with a participant style want to highly participate in activity in class. Students with a competitive style want to learn and gain more experience by competing with friends. Student with a Collaborative Style are the best learners when they exchange their knowledge. They love to work with others and discuss both inside and outside a class including extracurricular activity. Students with a dependence style have the lowest average score because they usually study and gain experience from curiosity in only their responsible topic. Moreover, they often use their teachers and friends for their knowledge. As these students always follow only teachers or friends, they cannot synthesis their knowledge by themselves (Aathony F. Grasha. 1980). This also conforms to the research of Ali Reza Baneshi, Mahnaz, and Hasan Mokhtarpour. (2007) which studied about collaboration in class following the concept of Grasha-Riechmann : Roles of sex and important causes. Females participates in “Participant learning style group more than male.” Male participates in Independent Style and Avoidant style more than female. However, it depends on a teacher and environment in the class similar to the research of Hamidah, Jaafar Sidek and Sarina, Muhamad Noor. (2009). They studied about social interaction of students in scientific and social by using a questionnaire from Grasha Riechmann. It showed that social interaction of those students depend on a different learning style.

Since their learning style has variety and independency, teachers can design the good instruction based on the learning style of students.

2. Learners who practiced the Jigsaw collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique have a higher average score than the Think-Pair-Share collaborative online learning on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique since Jigsaw method focuses on collaborative learning, exchange knowledge, and helping each other. It also motivates them to achieve the group's goals. Students who are excellent can help others improve themselves since a group score will be calculated by averaging all members' scores. Moreover, the process of collaborative learning supports and educates students to collaborate with others. Teamwork can support harmony, solve the problems, open an opportunity for being good leader and follower, and systematic planning. (Jeethom, K. 2007: 9). Collaborative learning is the method that will divide students into sub-groups and support students to work together as a team to achieve the goal. In addition, it creates good environment in the class which students have an interaction between each other based on democracy and support each other. (Office of the Basic Education Commission. 2006 : 109)

3. According to The Think-Pair-Share collaborative online learning and the Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique in this study, it took 2 hours for each activity. As for researcher's observations, we found that learners with the Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique having seriously done activities and maintaining a good relationship between members in a group. However, they finished their activity slower

than The Think–Pair–Share collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique. Because the Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique has more complicated steps than The Think–Pair–Share collaborative online learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique but both methods focus on collaborative learning and learning achievement of learners.

4. Remarks and problems during data collection in case of students who participated in the Jigsaw online collaborative learning activities on Facebook using 5W1H questioning technique integrated with KWL-Plus reading technique group includes; has complicated steps, many learners, difficulty to arrange learner groups. The researcher has solved the problem by preparing with learners before starting in computer room. Learners are divided into Home Groups, for choosing leader and collect member's name, and Expert Groups, where each member has to remember which group they are going to join. After all, students join the online activity.

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