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Challenges to Energy Efficiency on STEM and Cross-border Education"

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"Challenging Education for Future Change"

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FACULTY OF EDUCATION
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Message from the Host

Greeting to all participants and welcome to Khon Kaen University

The International Conference on Educational Research (ICER) 2016 is the 9th annual conference to celebrate the 48th anniversary of the establishment of the Faculty of Education, Khon Kaen University (KKU). It is jointly organized by **Khon Kaen University** of Thailand, the **Education University of Hong Kong** of China, **State University of Surabaya** of Indonesia, **Mindanao State University-Iligan Institute of Technology** of Philippines, **Thailand Education Deans Council**, and the **Consortium of Sixteen Education Deans** of Thailand (Group 16).

The goals of the ICER 2016 are to give international educators the opportunity to share ideas and form networks while working together on ***challenging education for future change***. It is anticipated that the exchange of ideas and research findings will contribute greatly to future generations.

During the ICER 2016 event, the APEC-Khon Kaen International Symposium 2016 with its theme "*Innovation of Mathematics Education through Lesson Study Challenges to Energy Efficiency on STEM and Cross-border Education*" is also held at KKU starting from November 12 to November 15, 2016. So the two events will share the plenary sessions during the first two days of APEC symposium.

On behalf of the Faculty of Education, KKU, I would like to express my gratitude and my sincere appreciation to our co-host institutions, the guest speakers and the organizing committees for their efforts. I also would like to thank all delegations and participants who come from afar to join this event.

Assistant Professor Maitree Inprasitha, Ph.D.
Dean, Faculty of Education
Director, Institute for Research in Teaching Profession for ASEAN
Director, Center for Research in Mathematics Education
Khon Kaen University
THAILAND

Message from Co-host

The Faculty of Education and Human Development is young faculty that aspires to contribute in meaningful ways to education development in the Asia Pacific Region. It is an integral part of The Education University of Hong Kong - a multidisciplinary education focussed institution with a strong research emphasis. The University has a growing international reputation for excellence in preparing globally aware professional educators, providing culturally enriched educational experiences, and producing research of distinction. Central to the University's values is a commitment to developing international and regional networks that will facilitate the integration of intercultural and global dimensions into its teaching, learning, and research.

At EdUHK we particularly value collaborative research with international partners. We seek to understand better the contexts that influence people in the Asia Pacific region and to identify ways of improving social outcomes for all. We see international partnerships as important opportunities for enhancing the impact of our research.

EdUHK is proud to join with Khon Kaen University to co-host the 2016 International Conference on Educational Research.

Professor Allan Walker
Joseph Lau Chair Professor of International Educational Leadership
Dean, Faculty of Education and Human Development
The Education University of Hong Kong
HONG KONG SAR
People's Republic of China

Message from Co-host

It is indeed an honor for the College of Education of Mindanao State University-Iligan Institute of Technology (MSU-IIT) to be a partner of Khon Kaen University, Thailand in hosting this 9th International Conference on Educational Research (ICER) held on November 12-13, 2016 with the theme: "*Challenging Education for Future Change*." This is a very significant gathering for educational leaders and school administrators, teachers, as well as researchers in the various disciplines to address specific concerns such as relevance of knowledge content, mode of delivery, and enhancing learners' competencies.

Like the rest of the excellent educational institutions of the Philippines and Asia, MSU-IIT is equally supportive of this academic endeavor to broaden scientific knowledge, enhance research practice and contribute valuable insights to spur innovations in the field. Certainly, the participants of this conference will have much to learn as they engage in discussions and share their contributions by presenting their productive outputs.

I wish to convey my sincere gratitude to Khon Kaen University for extending to us this partnership opportunity. I also congratulate the organizers, resource persons, facilitators, paper presenters and participants of this conference. May this event ignite in each one the passion to promote excellence for the love of education at the service of humanity and the whole of creation.

Associate Professor Josefina M. Tabudlong, Ph.D.
Dean, College of Education
Mindanao State University-Iligan Institute of Technology
Mindanao, Philippines

Message from Co-host

Welcome to the International Conference on Educational Research (ICER) 2016: Challenging Education for Future Change which will be held during November 12 – 13, 2016 in Faculty of Education Khon Kaen University.

The ICER 2016 is the 9th annual conference with aims to provide an opportunity for stakeholders to exchange experiences in the field of knowledge, the education practice and educational planning for improvement educational practice in the future. Besides, this conference hold other an essential purpose, that is to give international educators the opportunity to enhance ideas and form networks while working together on education aspect as a foundation of life.

As a co host International Conference on Educational Research (ICER) 2016, I know that the success of the conference depends ultimately to all of us who have supported our members of university to join the conference. In particular, we thank Khon Khaen University in organizing the technical program; the Program Committee for their thorough and timely reviewing of the papers, and all committee who have helped us to for all participants. Recognition should go to the Local Organizing Committee members who have all worked extremely hard for the details of important aspects of the conference programs and seminar. Admittedly, thank you to the partners who jointly organize this great and extraordinary event.

Thank you to all participants of ICER 2016 who have spread as well as shared idea, insight and cooperation concern with a better world civilization through education. We also expect to get technical insight and tremendous opportunities for formal and informal networking which will be useful for every aspect of life.

Sujarwanto
Dean, Education Faculty
State University of Surabaya
Indonesia

A Proposed of Competency-Based Framework for Measuring Transferable Troubleshooting Skills in Automotive Technology Education

Weerayute Sudsomboon[1] *(weerayute_sud@nstru.ac.th)*

Abstract

The transferable troubleshooting skill in automotive technology education (TTS-ATE) is a key factor in measuring learning outcomes to be competent in providing higher level technicians. The purpose of this study was to propose a competency-based framework to measure transferable troubleshooting skills in automotive technology education. The experts were 2 training mangers, 5 senior trainers and 2 technicians of Nissan Motors (Thailand) Co., Ltd invited to comment on the proposed TTS-ATE competency-based framework elements for measuring knowledge and skills. The 53 participants were obtained in completing the questionnaire who was vocational and technical education teachers in Nakhon Si Thammarat Vocational and Technical Institutions. These methods yield quantitative collected the data of the current teaching and learning practices. The results revealed that it typically quantitative analysis consisted of three common themes in participants' perception of the competency-based framework elements: 1) using the TTS-ATE competency-based framework model was appropriateness; 2) the TTS-ATE competency-based framework model was absolutely to conduct into teaching and learning in automotive technology education; and 3) in order to develop a competency-based framework model of troubleshooting, we should begin by reviewing existing conceptions of the troubleshooting process of the first four steps. Additionally, the development and implications can also be utilized in automotive technology education context.

Keywords: *Automotive Technology Education, Competency-Based Framework, Learning Outcomes, Transferable Troubleshooting Skills*

Introduction

According to the implementation of the 1999 National Education Act, has prompted a revise in the education sector in terms of both teaching and learning methods, as well as in learning environments and authentic assessment (Ministry of Education, 2008). The aim of Thai Vocational and Technical Education (TVTE) is to produce higher level technicians, and they require specific skills based on career path. The higher level technician is a highly skilled worker; in other words, such a student gets an intermediate level education between engineer and specialized worker, and this define of education can be given only by a vocational institution. In spite of National Council for Peace and Order (NCPO) efforts to promote TVTE and enhance skills competitiveness, provides a policy framework that guides country on how to produce higher level technicians for supporting functions and boosting economic growth (Office of the Vocational Education Commission, 2015)

In the context of the higher level technicians' crisis, TVET have to contribute to these revised as follow as: (1) developing the specific skills for the knowledge-based economy; (2) incentivizing the participation of industrial sectors in the labour market through retraining; and (3) fostering skills standards that contribute in detailing attributes and characteristics for

[1] *Lecturer, Graduate Program in Industrial Technology, Faculty of Industrial Technology, Nakhon Si Thammarat Rajabhat University, Thailand*

measuring competence. The problems in automotive technology teaching and learning is transferable troubleshooting skills (Sudsomboon, 2011), and the social demand standards have driven competence assessment from contribute in detailing attributes and characteristics for measuring competence. As a result, the study of TTS-ATE is a key factor for up-skilling in teaching and learning of TVET. It provides the measuring learning outcomes to be competent in providing skills with a competency-based framework. Despite requirements for TTS-ATE competency-based framework in TVET, regulation and practice in automotive service technicians, this practice can be utilized within any vocational and technical education context.

The automotive service industry or after sale service is predominantly a service sector which dependent on business activity across a range of automotive dealerships. Compliance with higher level technicians' and business competitions are major costs to automotive businesses particularly smash repairers, specialist repairers and tyre retailers (Sabbagha. et.al, 2016). Access to new automotive technology is a high priority across this business sectors in an increasingly competitive market largely controlled by automotive manufacturers. Automotive dealerships and specialist troubleshooters' have access to automotive product technology and repair specifications through their respective manufacturing networks underlying competence and competency.

With consideration, competency is described as an underlying characteristic of performance based on automotive dealerships and supporting employers in the creation of highly skills functions (King, 2009; Thorn & Schleicher, 2013; Sudsomboon, 2010, 2013a, 2013b; UNESCO, 2012). Both meanings of competence and competency are similar in that 'multiple attributes' and 'performance' are frequently used inconsistently. As summarize, competency defined a person's ability to perform those tasks within the context of professional practice (Jackson, 2010). Although the TTS-ATE has currently defined competence as "the ability to analyze

The practice of competency-based educational assessment is viewed as a teaching and learning process that emphasizes learning outcomes, in which an individual must know and be able to complete certain tasks. There are the cognitive, psychomotor, affective, and attribute aspects to enhance an individual's performance (Sudsomboon, 2013). This study towards competency-based educational assessment proposed the development of new ways of evaluating learning outcomes in automotive technology education. Jonassen and Hung (2006) defined that "troubleshooting is a common form of problem solving. Automotive service technicians diagnose faulty systems and take direct, corrective action to eliminate any faults in order to return the systems to their normal states".

Constructive strategies were required to identify the measurable criteria; with key performance indicators throughout the process of 'hypothesis generation and testing' cycles, classified specific skill acquisition for a profession could be evaluated into five levels: system, sub-system, device, component, and evaluate. Therefore, the TTS-ATE competency-based framework with explicit measurement criteria is important in facilitating the measurement tools through the generic 5-procedures competency-based framework model.

Purpose

The purpose of this study was to propose a competency-based framework to measure transferable troubleshooting skills in automotive technology education.

Methods

Design

The purpose of this study was to propose a competency-based framework to measure transferable troubleshooting skills in automotive technology education. A survey design was used (Jonassen & Hung, 2006) to produce the desired learning outcomes for vocational and technical students. The research question was as follow as: What are the points of views of teachers concerned the framework for measuring competency-based framework of transferable troubleshooting skills in automotive technology education?

Development of a competency-based framework for transferable troubleshooting skills in automotive technology education

First, the initial of TTS-ATE competency-based framework was constructed following a document analysis within National Automotive Technicians Education Foundation (Anastassova & Burkhardt, 2009; NATEF, 2013; Sudsomboon & Hemwat, 2012; Sudsomboon, 2013, 2014; Thorn & Schleicher, 2013) in engine performance (computerized controls, fuel, air induction, and exhausted systems, and emission control systems). The TTS-ATE competency-based framework as shown in Table 1 was designed to measure TVET students' knowledge and skills. The framework was developed as a matrix of three columns and five rows, each step of the TTS-ATE competency-based framework model consisted of system, sub-system, device, component, and evaluate across the grid of competency elements.

Participants

The 9 experts were 2 training mangers, 5 senior trainers and 2 technicians of Nissan Motors (Thailand) Co., Ltd invited to comment on the proposed TTS-ATE competency-based framework elements for measuring knowledge and skills. The index of congruence (IOC) was developed to collect their views. The 10 competence elements and 14 competency elements were chosen by expert's panel that higher than 0.6 all elements. The 60 participants were recruited through the invitation letter of vocational and technical education teacher's in Nakhon Si Thammarat Vocational and Technical Institutions.

Instrumentation

The instrumentation was a questionnaire. The questionnaire consisted of two parts:

1. Rating of questions about the structure and relevance of the TTS-ATE competency-based framework using a 5-point Likert Rating Scales with 1 = strongly agree, 2 = disagree, 3 = moderate, 4 = agree, and 5 = strongly agree.
2. The open-ended question were collected participants' opinions about that the TTS-ATE competency-based framework.

Data Collection

The 53 participants were given complete the survey either through face-to-face in *Nissan Automotive Technology Transfer Project on behalf of Rajabhat Academic Day* on February 15, 2016 at Nakhon Si Thammarat Rajabhat University.

Data Analysis

Quantitative data were analyzed by means and standard deviations. The content analysis was used to collate and synthesize participants' opinion about proposed knowledge and skills elements of survey.

Table 1
The TTS-ATE competency-based framework for TVET students

TTS-ATE competency-based framework	Attributes of TTS-ATE competence	Attributes of TTS-ATE competency
System	1.1 Identifies the relevance of measuring voltage or fuel pressure, sensors tests, signal processing tests, electronic control tests, and actuators to inspect, service, or replace engine performance outcomes 1.2 Identifies issues/problems in engine performance practice which is/are suitable for procedures	1.3 Perform retrieved and record diagnosis trouble codes, use Nissan Consult III monitor status and clear codes. 1.4 Describe the important of operating Nissan Consult III monitors for repair verification.
Sub-system	2.1 Demonstrate a sequence of troubleshooting actions. 2.2 Demonstrate procedural training performed more accurately and conducted more correct checks	2.3 Inspect fuel pressure and replace fuel filters. 2.4 Inspect, service, or replace air filters, filter housings, and intake manifold. 2.5 Inspect, service, or replace exhausted manifold and parts. 2.6 Inspect condition of exhaust system. 2.7 Diagnose the problems of fuel, air induction, and exhaust systems.
Device	3.1 Demonstrate analytical reasoning skills in evaluating automotive mechatronic elements (sensors, signal processing, electronic control module, and actuators) 3.2 Applications to use analog/digital multimeter in considering its application to practice	3.3 Inspect, test, and service sensors (e.g., camshaft position sensor, crankshaft position sensor, coolant temperature sensor, intake temperature sensor, and etc.) 3.4 Inspect, test, and service signal processing 3.5 Inspect and test the electronic control module 3.6 Inspect and test actuators (e.g., fuel pump, ignition coil, injectors, and etc.)
Component	4.1 Use electronic service manual to confirm current practice 4.2 Conjecture the fault at the component and result in the identification of a single component as the potential fault causes	4.3 Explains evidence and discusses condition with current practice 4.4 Applies evidence into engine performance
Evaluate	5.1 Reviews the outcome of engine performance 5.2 Discusses implications of engine performance with colleagues	5.3 Assesses outcome of engine performance through application of the first four steps of TTS-ATE competency-based framework model

Results and Discussion

Of 60 participants were 53(88%) completed the questionnaire. Participants were agreement on the structure and relevance of the TTS-ATE competency-based framework found that the highest means were using the TTS-ATE competency-based framework model was appropriateness ($\bar{x} = 4.77$, SD. = 0.42); the TTS-ATE competency-based framework model was absolutely to conduct into teaching and learning in automotive technology education ($\bar{x} = 4.68$, SD. = 0.50); and in order to develop a competency-based framework model of troubleshooting, we should begin by reviewing existing conceptions of the troubleshooting process of the first four steps ($\bar{x} = 4.65$, SD. = 0.52). The lowest means was the document and

literature selected to construct the TTS-ATE competency-based framework model were appropriateness ($\bar{x} = 3.82$, SD. = 0.96), respectively.

Table 2
Participant agreement on the structure and relevance of the TTS-ATE competency-based framework

Items	Description	Mean (N = 53)	SD.	Ranking
1	The competency elements set for competence were relevance to the TTS-ATE competency-based framework model	4.25	0.82	9
2	The competency elements set for competency were relevance to the TTS-ATE competency-based framework model	4.56	0.58	5
3	The document and literature selected to construct the TTS-ATE competency-based framework model were appropriateness	3.82	0.96	10
4	The structure of TTS-ATE competency-based framework model was well implications	4.63	0.50	4
5	The TTS-ATE competency-based framework model was absolutely to conduct into teaching and learning in automotive technology education	4.68	0.50	2
6	The TTS-ATE competency-based framework model was utilized to employ in relevant of curriculum, instruction and assessment development	4.41	0.62	6
7	The TTS-ATE competency-based framework model was a useful guiding tool for measuring competence of students	4.34	0.74	8
8	The TTS-ATE competency-based framework model was experienced troubleshooters categorize problem based on prior experience	4.40	0.69	7
9	In order to develop a competency-based framework model of troubleshooting, we should begin by reviewing existing conceptions of the troubleshooting process of the first four steps.	4.65	0.52	3
10	Using the TTS-ATE competency-based framework model was appropriateness	4.77	0.42	1
Total		**4.45**	**0.63**	-

The feedback was appeared in open-ended questions that there were understood challenges to the TTS-ATE competency-based framework implementation from Nissan experts. In the context of TVET students, they were being perceived and accepted as best practice in assessment underlying the participation of industrial sectors in the labour market through retraining. Participants were the most feedback perceived the competency-based curriculum should be done. The results showed that a utilize guide for measuring competence and competency in the TTS-ATE competency-based framework model underlying stakeholders demands. In order to use this competency-based framework, teachers/trainers can be characterized each knowledge and skills assessment criterion with regard to the 5-procedures implementation model (King, 2009; Sudsomboon, 2010a; Sudsomboon 2013).

This finding is yield consistent characteristics of the existing higher level technicians. Author can propose the core concept of the TTS-ATE competency-based framework model is to apply an optimal teaching and learning in automotive technology education that enhance an individual's performance. The implication is appropriateness to promote in automotive technology, because of integration of electronic computer management systems and electronic

control system (engine performance). Throughout new vehicles will increasingly focus skills training in the automotive industry on diagnostics and reprogramming of automotive management systems on electronically fuel injection control system and common-rail diesel direct injection control system. The TTS-ATE competency-based framework model for TVET teachers' implements in automotive mechatronics and a systems approach to diagnostics is a high priority (NATEF, 2013; Sabbagha. et.al, 2016)

Limitations

The limitations of this study are the small sampling sizes. Using of the purposive sampling through vocational and technical education teacher's in Nakhon Si Thammarat Vocational and Technical Institutions was insufficiently. This may have one direction the findings. In this study, a questionnaire was used to collect participants' agreement and feedback from vocational and technical education teachers. The future research should surveys solicit agreement and feedback from all vocational and technical education teachers in Thailand based on automotive technology education area. Moreover, the experimental research should construct and bring the TTS-ATE competency-based framework model to conduct into teaching and learning in automotive technology education.

Conclusion

The TTS-ATE competency-based framework model can be conducted to establish automotive service technicians that expectations regarding the consistency performance of higher level technicians for supporting functions and boosting economic growth. This study offers a policy of NCPO in order to up-skilling in teaching and learning of TVET. The finding of this study suggest that this framework could be obtained the practice of competency-based educational assessment is viewed as a teaching and learning process that emphasizes learning outcomes. The further challenge implicates the research for instructional system development supporting the TTS-ATE competency-based framework with broader groups of stakeholders in automotive technology education.

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Enhancing Graduate Students Engagement by Integration Experiential Learning in Instructional Coaching: An Action Research Study

Weerayute Sudsomboon[1] *(weerayute_sud@nstru.ac.th)*

Abstract

The instructional coaching is an innovative pedagogical approach that enhances graduate student outcomes and building coach educators to utilize experiential learning. The objective of this research was to explore the methods of experiential learning within "Krabuankorn Technique" namely Facilitator approach and Workplace coaching namely NISSAN Ways approach. The coaches were provided with coaching involve with graduate students in 5907201 Learning Management in Industrial Technology course, Graduate Program in Industrial Technology, Faculty of Industrial Technology at Nakhon Si Thammarat Rajabhat University. Data was collected by 12 semi-structured student interviews conducted and organized around a theme of predetermined questions and reflections and focus group discussion within students to identify the crucial factors that can be enhanced building coach educators to utilize experiential learning. The results found that an innovative pedagogical approach can be generated three key challenges to employ as follow: 1) the graduate students were described coaches dealing with encouraging, self-awareness and self-actualization to perform learning management in the contextual dimensions; 2) the graduate students themes emerged to enhance learning environment by employing reflection and critical thinking and real-world situation relationships; and 3) students contained a wide variety and depth of learning environment and learning outcomes includes active learning approach in the actual coaching contexts that coaches experience. The process described in the research was discussed from graduate students. The findings of this study found that the methods of experiential learning within Facilitator approach and NISSAN Ways approach, this has not been yield discussed in the literature previously. The study revealed that 1) development of dialogue with graduate students; 2) the methods to address the challenges of graduate students; and 3) learning approach that towards an inverted classroom influences cooperation, innovation and task orientation.

Keywords: *Active Learning, Higher Education, Instructional Coaching, Learning Outcomes*

Introduction

Currently, Thai higher education educators have developed that the in-class lecture continues to enhance learning outcomes as the predominant instructional strategy in most classrooms. In traditional learning, the classroom lecture alone has been criticized by many as an ineffective way to gain students acquires needed knowledge, skills and attitudes (Hattie, 2008; Schwerdt & Wupperman, 2010). The numerous researches on lectures has resulted that a student's attention declines after the first 10 minutes of class, and although it may affect to effective teaching and learning at the end of a class. Students will be engaged remember only about 20% of material presented during the lecture (Merry, Price, Carless, & Taras, 2013; Staryer, 2012; Wilson, 2014).

[1] *Lecturer, Graduate Program in Industrial Technology, Faculty of Industrial Technology, Nakhon Si Thammarat Rajabhat University, Thailand*

When applied as the sole modality for a 5907201 Learning Management in Industrial Technology course, Graduate Program in Industrial Technology, Faculty of Industrial Technology at Nakhon Si Thammarat Rajabhat University, this type of passive learning takes classroom time away from challenging student generate ideas and thinking skills, guiding them to solving practical problems, real-time situations, and encouraging direct application of material through active learning with the instructor present. Although lecture has been criticized, it is well experienced that this form to improve directed instruction is necessary to teach graduate students in real-time situations where they hold little or no prior knowledge, skills and attitudes must be taught for graduate students to apply later in the career path.

Ruayruay et al., (2015) generated ideal of the guide on the side is rooted in the use of change classroom to active learning. This idea indicates that a framework for active learning in a way of Facilitator Approach (FA) or "Krabuankorn Technique" in Thai. The FA have integrated the coaching interactions of expertise's and graduate students around practice in this course.
This practice-based turn brings to the forefront the critical role that cooperating instructors play in teacher preparation as the primary mediators of graduate student outcomes and building coach educators to utilize experiential learning. There is five keys principle to develop the graduate students into the effects of practicum experiences and the influences of learning contextualization have the following:

1. Learning management holistic;
2. Developing a feature class coupled with the graduate students knowledge;
3. The use of activity-based learning;
4. Opening the graduate students have the opportunity to reflect on learning through as esthetic dialogue; and
5. Creating a safe area in the classroom through a connection between instructors and learners.

Because of this course much of the experiential learning in a practice-based context, it is important to consider not only the structure of the experiences and context for cooperative instructors in the workplace coaching namely NISSAN Ways approach as follow as: Attention, Interest, Desire and Action. They are working together but also the interactions that occur between them. A 5907201 Learning Management in Industrial Technology course provides increased ability to deal with industrial technology concepts in generating and representing experiences to build the suitable learning strategy for teaching and learning in career basic education, vocational and technical education and undergraduate industrial technology. Additionally, the interactions and practicum between cooperating instructors and undergraduate students around practice are imbued with content, perceptions, understandings, strategies and authentic stances taken.

Objective

The objective of this research was to explore the methods of experiential learning within Facilitator approach and NISSAN Ways approach.

Methods

A qualitative exploratory design was used to explore the methods of experiential learning within Facilitator approach and NISSAN Ways approach. Data were collected from 12 semi-structured student interviews conducted and organized around a theme of predetermined questions and reflections and focus group discussion within students to identify the crucial factors that can be enhanced building coach educators to utilize experiential learning.

The FA approach was conducted by Assist. Prof. Ekarat Ruayruay from Department of Civil Technology Education, Faculty of Industrial Technology at King Mongkut's University of Technology Thonburi, who was the trainer. The activity-based in one day was performed in panel discussion and focus group discussion with reflection. The NISSAN Ways approach was conducted by Mr.Thammanoon Sangkawan, General Manager in Training and Networking Mangement, Nissan Motor (Thailand) Co.,Ltd. The activity-based in three hours was performed in onsite observation and panel discussion.

Participants

The participants were graduate students who studied in 5907201 Learning Management in Industrial Technology course, Graduate Program in Industrial Technology, Faculty of Industrial Technology at Nakhon Si Thammarat Rajabhat University in the semester of 2/2015. An information sheet for participants was provided prior to the study. All participants provided informed consent prior to participating.

Data Collection

Data was collected from the participants through semi-structured, audio-recorded interviews guided by the open-ended questions. Prior to the interview the guiding questions were prepared to the participants and responses. Interviews conducted and organized around a theme of predetermined questions, coaches' reflections and focus group discussion within students and coach as experts' to identify the crucial factors that can be enhanced building coach educators to utilize experiential learning. Interviews were conducted face to face. Audio recordings were transcribed verbatim. The data were organized for analyze using protocol analysis.

Data Analysis

Interviews transcripts were coded line by line, highlighting important passages, creating memos and nothing insights (Morse & Richard, 2002) to identify and label nodes by using a process of open coding (Strauss & Cobin, 1990). The memos and insights from each interview transcript were analyzed by compare to the nodes developed with comparing concept and construct the map. The interview questions were:

(1) Can you describe me how the methods of experiential learning within Facilitator approach and NISSAN Ways approach is delivered the create knowledge construction at present?

Prompt

How do you use the methods of experiential learning within Facilitator approach and NISSAN Ways approach in 5907201 Learning Management in Industrial Technology course and apply later in the career path? If not why not?

(2) What is your experience in this course?

Prompt

How do the methods of experiential learning within Facilitator approach and NISSAN Ways approach maintain knowledge, skills, and attitudes?

(3) Can you generate ideas for promoting the methods of experiential learning within Facilitator approach and NISSAN Ways approach delivery?

Prompt

How could traditional learning and active learning to maintain knowledge, skills, and attitudes?

Results and Discussion

Table 1 represents the results of nodes, categories and themes.

Table 1
Results of nodes categories and themes

Nodes	Categories	Themes
1.1 Apply Dewey's experiential learning theory model	2.1 Barrier to change paradigm in change classroom.	3.1 Demand
1.2 Active learning dealing with encouraging, self-awareness and self-actualization to perform learning management in the contextual dimensions	2.2 Tailoring the methods of experiential learning within Facilitator approach and NISSAN Ways approach for a diversity of change.	3.2 Choosing alternative solutions to promote the best education.
1.3 The use of facilitator approach in higher education.	2.3 Demand for teaching and learning in the diversity of change. A wide variety and depth of learning environment and learning outcomes includes active learning approach in the actual coaching contexts that coaches experience.	
1.4 Factor affecting motivation for instructional coaching.		
1.5 Some institutions and industrial context experience frequent use of the methods of experiential learning within Facilitator approach and NISSAN Ways approach to enhance learning environment by employing reflection and critical thinking and real-world situation relationships.		
1.6 New paradigm or practice of the methods of experiential learning within Facilitator approach and NISSAN Ways approach to maintain knowledge, skills and attitudes.		
1.7 Promoting deliver the teaching and learning intervention to motivate students' active learning.		
1.8 Challenges with Thai educational and learning reform.		

Twelve participants were interviewed, including all male participants. The face to face interview was conducted and the interviews lasted between 10 and 15 minutes. The participants ranged from graduate students from teachers, entrepreneurs and Staff company with included educators in Nakhon Si Thammarat province settings. Eight nodes were initially developed by researcher, and the insights from the data were explored and discussed. Data analyze reflecting on the comparing memos and codes were conducted and the nodes were collapsed into three

major categories. As a result, the data between the categories allowed two themes to fit. Two major themes were identified as follow as:

(1) *Demand* is conceptualized as the real-world situations for teaching and learning needed the increasing demand for use of the methods of experiential learning within Facilitator approach and NISSAN Ways approach. The challenges were providing how to change, how to conduct an innovative pedagogical approach can be generated three key challenges to employ as follow: 1) the graduate students were described coaches dealing with encouraging, self-awareness and self-actualization to perform learning management in the contextual dimensions; 2) students themes emerged to enhance learning environment by employing reflection and critical thinking and real-world situation relationships (Ruayruay et al., 2015).

(2) *Choosing alternative solutions to promote the best education*

Many participants discussed ways to promote the methods of experiential learning within Facilitator approach and NISSAN Ways approach. The participants indicated that face to face traditional education is not support students' demand, time consuming and infrequent. Participants suggested that the students contained a wide variety and depth of learning environment and learning outcomes includes active learning approach in the actual coaching contexts that coaches experience. The process described in the research was discussed for both coaches and students.

The findings of this study found that the methods of experiential learning within Facilitator approach and NISSAN Ways approach, this has not been yield discussed in the literature previously. The study revealed that 1) development of dialogue with graduate students; 2) the methods to address the challenges of graduate students; and 3) learning approach that towards an inverted classroom influences cooperation, innovation and task orientation. Promoting deliver the teaching and learning intervention is to motivate students' active learning should be considered to maintain retention of knowledge, skills and attitudes. However, increasing the demand for training further will place a great course and covering on Thai educational and learning reform (Merry, Price, Carless, & Taras, 2013; Staryer, 2012; Wilson, 2014).

The challenges of this study on the methods of experiential learning within Facilitator approach and NISSAN Ways approach compared to traditional learning led to a slightly lower pass rate for knowledge and skills tests but comparable scores on a knowledge test. One major factor impacting on the use was the lack of social interaction for students. Furthermore, this study is at an action research study stage of development and less time and expertise is needed to develop education programs in this medium.

Limitations

This study took place in 5907201 Learning Management in Industrial Technology course, Graduate Program in Industrial Technology, Faculty of Industrial Technology at Nakhon Si Thammarat Rajabhat University; only twelve graduate students were interviewed, however theoretical framework was established with this sampling. In the next research, population was studied in enthusiastic about this.

Conclusion

This study is an increasing demand for promoting the methods of experiential learning within Facilitator approach and NISSAN Ways approach in 5907201 Learning Management in Industrial Technology course, Graduate Program in Industrial Technology, Faculty of Industrial Technology at Nakhon Si Thammarat Rajabhat University. There are challenges with the ideas of traditional face to face to a diverse Thai educational and learning reform for active

learning in a way of facilitator. The study suggested that using the methods would assist with educating the maximum of instructors who understanding offers opportunities. Also to explore the use of existents knowledge is required to explore what facilitator approach is best suited to constructivist or constructivism as a critique study.

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