



## Research competency enhancement process based on knowledge management procedures for developing routine to research of support staff at Thaksin University

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### Abstract

This research aimed to study the research competency of the support staff at Thaksin University (TSU) and to present a research competency enhancement process based on knowledge management procedures for developing routine to research (R2R) for TSU support staff. Research instruments were questionnaires and group discussion, and research samples were 196 TSU support staff selected by stratified random sampling. Mean and standard deviation statistics were used to analyze the quantitative data of this research study, and PNI<sub>modified</sub> was used for content analysis of the qualitative data. The research findings presented that TSU support staff need a better understanding of the scope of the study, research report writing, research issues, literature review, research design, research framework, and research ethics and morality to enhance their research competency because they lack understanding and ability towards research methodology, including place, budgeting, learning resources, mentoring system and learning support projects. They also lack faith, confidence, and intention in doing research. A possible solution seems to be the application of research knowledge management procedures, including a plan for learning facilities such as place, budgeting, learning resources, mentoring team, learning support projects, research ethics, and faith encouragement. Moreover, a research competency enhancement process based on knowledge management procedures for developing R2R for TSU support staff is a 2P2R process consisting of four steps: plan, process, reflect and regard.

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### Introduction

The National Economic and Social Development Plan has caused significant changes to Thailand's economy, society, natural resources, and environment, as well as its federal administration. Despite the risks, the plan encourages Thailand to confront its weaknesses in such areas as government administration and economic infrastructure for sustainable

growth. An important method for national development is based on modern knowledge and technology (National Economic and Social Development Committee, 2016). The reliability of knowledge depends on the research process that builds it up or develops it since a research process is related to a systematic knowledge search that can be repeated and provide answers and alternatives for research questions. Research knowledge is also useful, and it is essential for economic and social development. As a result, the creation of new knowledge from research is a crucial task for any organization, notably higher education institutions.

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Doing research is an essential task for staff of higher education institutions. To effectively propel these institutions, it is necessary to continue developing the skills of existing staff, both academic and support staff. The support staff have sufficient capability to develop their own skills in many aspects (e.g., to work, to give services, critical thinking, academic skills and strategic working or creative thinking) as they are responsible for supporting the university's tasks and working routinely. However, daily repeated or routine actions may cause work-related boredom that negatively affects the institution. Administrators should, therefore, have a systematic plan to enhance staff performance and motivation based on correct and reliable information; in other words, the development of a routine to research (R2R) process that will enable the staff to gain new knowledge and also develop their professional and personnel skills (Jirawatkul & Jirawatkul, 2010; Sitalanuchit, 2015). To encourage systematic thinking through developing R2R, the institution must enhance the staff's research competencies related to research knowledge, research mind and research skills (Yamtim, 2016).

However, the support staff's research competency is still limited (Kerdboonsong, 2010). Many universities in Thailand, such as Thaksin University, Prince of Songkla University and Burapha University, have set the goal of developing their support staff's research competency and have specified it as a development strategy for their respective the universities. The universities, for example, provide activities to enhance the research competency of their support staff in the form of training workshops and seminars, such as New Researcher Training Project, Basic Research Training (Thaksin University, 2017). Although the training projects have many advantages; for example, the administrators can fix training content so that it can be specific (Invacevich, 2007), there are also limitations such as a limitation of trainee numbers and limited time, which may cause unreliable results. To decrease these restrictions, there should be other alternatives to enhance the research competency of support staff.

At present, professional development based on knowledge management is quite popular (Khakpour, 2015; Salo, 2011) as knowledge management specifies explicit target knowledge of people who are interested in learning. Moreover, there are not many people who prefer exchanging expertise and participating in finding out knowledge, applying it in daily life and systematically storing it. As a result, the experience is used as a development tool to develop research competency from their routine rather than training programs. Thaksin University also uses this strategy to enhance support staff's research competency.

### Research Objectives

1. To investigate the research competency of support staff at Thaksin University (TSU)
2. To present a research competency enhancement process based on knowledge management procedures from routine to research (R2R) for TSU support staff

### Literature Review

The researcher reviewed related literature and research

towards research competency enhancement based on knowledge management procedures for developing routine to research and saw four principal terms that are main variables presented in the conceptual framework as follows:

1. *Research competency* is an ability acquired by a knowledge searching process that is based on a research process that aims to solve problems, develop work and adjust it. It has three components, research knowledge, psychological skills, and research skills (Rungtuengwanichkul, 2013; Schweizer, Steinwascher, Moosbrugger, & Reiss, 2011; Yamtim, 2016). Each component consists of research knowledge – understanding of research problems, literature review, conceptual framework, designing research, and research report writing; research skills – specifying problems, reviewing literature, determining conceptual framework, developing research and writing research report; and research mind – research ethics, honesty, open mind, respect and research faith.

2. *Routine to research* (R2R) is a development process of repeated dull routine to research by searching for new knowledge to solve problems with the use of innovative tools until obtaining complete facts through observation, experiment, interview, knowledge management, analysis, and conclusion, in both quantitative and qualitative ways, leading to research for professional development (Jirawatkul & Jirawatkul, 2010). Active R2R development emphasizes working types and development for changes.

3. *Knowledge management* is a process of using existing knowledge or knowledge that is learned to be most beneficial for the institution following many steps such as the creation of knowledge, knowledge collection, knowledge exchange, and knowledge use (Khantong & Ahmad, 2016; Weerapreeyakul, 2012). Knowledge management should collaboratively proceed in two ways: production of knowledge from good practices of personnel and general information and creation of knowledge and knowledge sharing from individual to individual (Dani, 2006). There are five factors for successful knowledge management, which are strategy, evaluation, instruments, leader and organizational culture (Sukumaran, Mustapha, & Chandran, 2016). There are no ready-made answers for knowledge management because individuals have different perspectives related to administration, knowledge management in seeking, asking, searching, and summarizing the knowledge or learning from community that uses knowledge as a tool to achieve at least four organization a goals: a working goal, a professional development goal, an organizational development goal, and becoming a learning community (as a goal) (Phasukyud, 2010). There are five steps to achieve the goals that specify target knowledge, fixing a target group, searching for information, exchanging knowledge and ideas, and storing knowledge (Jai-aree, 2014; Thaksin University, 2012).

4. *Needs assessment* is a process to systematically analyze differences between what is and what should be to prioritize the needs. The evaluation identifies needs, considers conflicts, checks general conditions and finds out the cause of the needs, then prioritizes them (Altschuld & Kumar, 2010). A complete needs assessment process consists of three steps: specifying needs and prioritizing them, analyzing causes of the needs, and specifying alternatives to serve the needs (Wongwanich, 2015).

## Methodology

The research methodology of this research study was divided into two steps as follows:

### Needs Assessment

Needs assessment for research competency enhancement based on knowledge management for developing routine to research for support staff at Thaksin University (TSU) is the complete study of needs, which is divided into sub-steps: (1) specifying needs and prioritizing them (2) analyzing cause of needs, and (3) specifying alternatives to adjust its purposes. The researcher applied survey research methods for this study. The population of the target group was 385 TSU support staff, and they were selected by stratified random sampling to get 196 research samples. Most of the samples were female (72.70 %) who belong to the divisions of administration, academic affairs and other departments (36.10%, 32.50%, 31.40%, respectively). The majority of the research samples were administrative staff (49.00 %). The research instrument for a needs assessment was a Likert 5-point scale questionnaire about research competency enhancement for TSU support staff. The questionnaire consisted of 50 items with an Index of Item Objective Congruence (IOC) range of 0.60 -1.00, and a Cronbach's alpha coefficient of .925. Specification of needs and prioritization proceeded through the Modified Priority Needs Index (PNI<sub>modified</sub>) method (Wongwanich, 2015). The researcher continuously followed the steps, analyzed data via a fish-bone diagram, focus group discussions and content analysis, respectively. Six experts working at least at a professional level and having R2R experiences or other related experiences analysed the qualitative part of the study.

### Synthesis of Causes of Needs

### The development of research competency enhancement

based on knowledge management procedures for developing routine to research for TSU support staff was also processed by synthesizing alternatives to adjust causes of the needs and knowledge management procedures, 2P2R process, and evaluating appropriateness and possibilities of the process through focus groups with six experts who are specialized in research, knowledge management, and R2R. After that, an adjustment could be launched based on recommendations and the present research competency enhancement process based on knowledge management procedures for developing routine to research for TSU support staff, respectively.

## Results

### Needs Assessment

#### Needs for research competency enhancement for TSU support staff

Needs and its prioritization for research competency enhancement for TSU staff were assessed by PNI<sub>modified</sub>. The needs having higher or equal number with PNI<sub>modified</sub> were selected. The assessment was done separately based on working positions and other aspects. The steps for prioritization used a descending order of PNI<sub>modified</sub> values. The research findings showed that TSU staff from all working positions need further research knowledge towards conceptual framework and research report writing (PNI<sub>modified</sub> = 0.40–0.68), and academic-level staff need further knowledge towards how to specify a statement of problems and literature review (PNI<sub>modified</sub> = 0.39 and 0.37, respectively). Moreover, TSU staff needed to design a research task. They preferred learning how to design a research and conceptual framework (PNI<sub>modified</sub> = 0.42–0.61). In addition, administrative and professional-level staff additionally need to know how to write a research report (PNI<sub>modified</sub> = 0.58 and 0.44, respectively), and all staff need to learn about research ethics and faith (PNI<sub>modified</sub> = 0.15–0.23) as presented in Table 1.

**Table 1** Needs and its prioritization towards research competency enhancement for developing routine to research of support staff at Thaksin University

Research competency	Administrative level		Academic level		Professional level	
	PNI <sub>modified</sub>	rank	PNI <sub>modified</sub>	rank	PNI <sub>modified</sub>	rank
1. Research Knowledge	0.58		0.37		0.43	
1.1 Understanding statement of problems	0.53		0.39	3	0.42	
1.2 Understanding literature review	0.56		0.37	4	0.42	
1.3 Understanding conceptual framework	0.68	1	0.48	1	0.55	1
1.4 Understanding research design	0.44		0.23		0.28	
1.5 Understanding research report writing	0.67	2	0.40	2	0.47	2
2. Research Skills	0.54		0.39		0.42	
2.1 Problem statement	0.40		0.30		0.33	
2.2 Literature review	0.53		0.38		0.39	
2.3 Conceptual framework	0.56	3	0.42	2	0.45	2
2.4 Research design	0.61	1	0.46	1	0.48	1
2.5 Research report writing	0.58	2	0.37		0.44	3
3. Research mind	0.15		0.15		0.14	
3.1 morality	0.23	1	0.21	1	0.22	1
3.2 honesty	0.07		0.11		0.08	
3.3 open minded, listening to and respecting other people's ideas	0.07		0.13		0.10	
3.4 research faith	0.20	2	0.16	2	0.17	2
3.5 research ethics	0.20	2	0.16	2	0.15	3

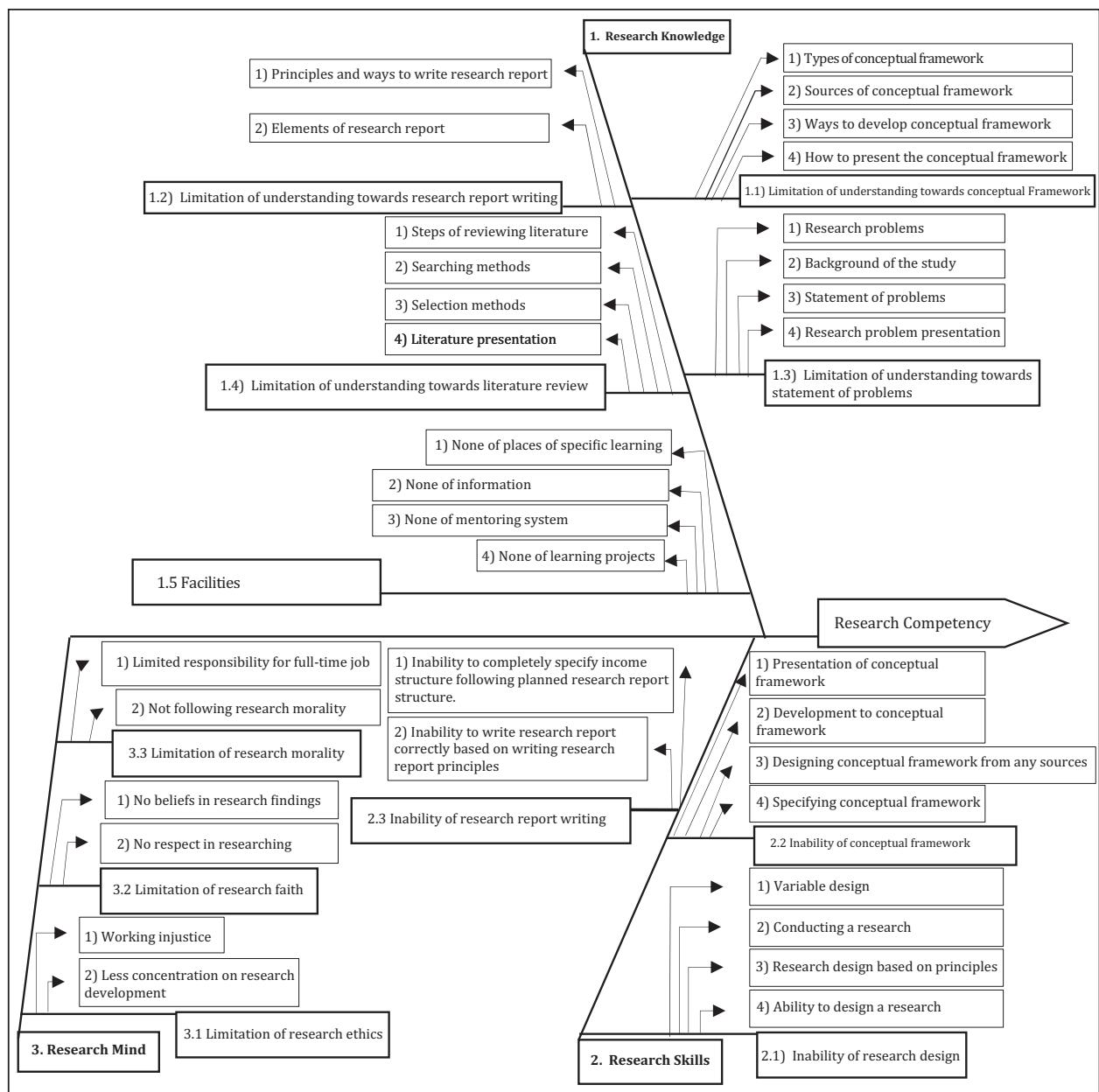
### Causes of needs for research competency enhancement of TSU support staff

The experts analysed the causes of needs for research competency enhancement of overall TSU staff and found that TSU staff still have insufficient and unclear knowledge and understanding of research knowledge towards conceptual framework, research report writing, statement of problem, literature review, including learning facilities such as insufficient learning places to serve the needs, specific resources and information, mentoring system, and projects serving the learning. Besides, they were unskilful in research skills, especially research design, conceptual framework and research report writing. Regarding research mind, TSU

staff in research ethics, morality and faith are as shown in Figure 1.

### Alternatives for cause improvement of needs for research competency enhancement based on knowledge management procedures for developing routine to research of TSU staff

The alternative for research competency enhancement based on knowledge management procedures for developing R2R for TSU staff showed that there are two alternatives concerning research knowledge. Firstly, using the knowledge management process to enhance research competency in the content of research. There are many steps in the process: specifying research framework (concepts, rationale, and ways



**Figure 1** Causes of needs for research competency enhancement of TSU Support Staff

to develop the framework, framework presentation), writing research report (principles and techniques to write research report, elements of research report, rationale of the study, statement of problem, rationale of the research problem, principles of specifying research problem, research problem presentation), reviewing literature and related research (reviewing literature, searching for information from different sources, literature selection methods, the review presentation). Secondly, providing learning facilities that are specific learning places for R2R research competency enhancement, providing learning resources such as books, textbooks, examples of R2R research, and access to information technology for learning, creating the mentoring team for the consultation, and creating research competency enhancement projects to support learning.

For research skills, there are alternatives for causes of needs towards research competency enhancement for developing routine to research of TSU support staff. The alternatives use knowledge management process regarding research design (specifying variables, doing research following the design, designing the research based on principles, designing research correctly), research framework (framework presentation, framework development, framework specification based on other related research), and research report writing (report structure specification and report writing based on research report writing principles).

For research mind, the alternatives are using knowledge management to enhance learning of knowledge and understanding towards, research ethics (fairness for routine

work, determination for self-development and organizational development by R2R), research faith (trust for research findings and research procedures), research morality (responsibility for routine works and following research ethics) as shown in Table 2.

*Development of Research Competency Enhancement Process Based on Knowledge Management for Developing Routine to Research for TSU Support Staff*

1. The researcher synthesized the alternatives for adjusting causes of needs for research competency enhancement for developing routine to research for TSU support staff. Thaksin University specified knowledge management steps used for setting the draft of a research competency enhancement process based on knowledge management for developing routine to research for TSU support staff. The results showed that: 1) Plan Preparation for knowledge management for developing routine to research consists of specifying target knowledge for sharing, learners, knowledge management projects, places, necessary resources and devices for sharing, mentoring system, and praise. 2) Process Searching for information about the development of routine to research that includes explicit knowledge and tacit knowledge and application of the knowledge to R2R research 3) Reflect Collaboratively proposing points of view towards strengths and weaknesses of R2R development of learners, sharers and stakeholders and 4) Regard Research evaluation and sharing should admire the advance of R2R development as presented in Table 3.

**Table 2** Causes and alternatives for causes of needs improvement for research competency enhancement to develop routine to research of TSU support staff

cause	alternative
<p>1. Research Knowledge</p> <p>1.1) Limitation of understanding towards conceptual Framework: 1) types of conceptual framework 2) sources of conceptual framework 3) ways to develop conceptual framework 4) how to present the conceptual framework</p> <p>1.2) Limitation of understanding towards research report writing: 1) principles and ways to write research report 2) elements of research report</p> <p>1.3) Limitation of understanding towards statement of problems: 1) research problems 2) background of the study 3) statement of problems 4) research problem presentation</p> <p>1.4) Limitation of understanding towards literature review: 1) steps of reviewing literature 2) searching methods 3) selection methods 4) literature presentation</p> <p>1.5) Lack of facilities 1) None of places of specific learning 2) None of information 3) None of mentoring system 4) None of learning projects</p>	<p>1. Research Knowledge</p> <p>1.1) The use of knowledge management to build up knowledge and understanding towards: 1) Conceptual framework: (1) conceptual frameworks of different research types (2) sources of conceptual framework (3) how to develop conceptual framework (4) how to present the conceptual framework 2) research report writing: (1) principles and ways to write research report (2) elements of research report 3) encourage knowledge about statement of problems: (1) research problems (2) background of the study (3) statement of problems (4) research problem presentation 4) literature review: (1) steps of reviewing literature 2) searching methods 3) selection methods 4) literature presentation</p> <p>1.2) Facilities: 1) providing places for specific learning of R2R 2) providing more information such as textbooks, books, samples of R2R research, including the access of information 3) creating the mentoring team for consultation and 4) launching R2R projects</p>
<p>2. Research Skills</p> <p>2.1) Inability of research design: 1) variable design 2) conducting a research 3) research design based on principles 4) ability to design a research</p> <p>2.2) Inability of conceptual framework: 1) presentation of conceptual framework 2) development to conceptual framework 3) designing conceptual framework from any sources 4) specifying conceptual framework</p> <p>2.3) Inability of research report writing: 1) designing conceptual framework from any sources 2) specifying conceptual framework</p>	<p>2. Research Skills</p> <p>2.1) The use of knowledge management towards: 1) encourage knowledge about research design: (1) variable design (2) conducting a research (3) research design based on principles (4) ability to design a research 2) Using knowledge management procedures to encourage knowledge about conceptual framework: (1) presentation of conceptual framework (2) development to conceptual framework (3) designing conceptual framework from any sources (4) specifying conceptual framework 3) Using knowledge management procedures to practice research report writing: (1) design conceptual framework from any sources (2) specify conceptual framework</p>
<p>3. Research Mind</p> <p>3.1) Limitation of research ethics: 1) working injustice 2) less concentration on research development</p> <p>3.2) Limitation of research faith: 1) no beliefs in research findings 2) no respect in researching</p> <p>3.3) Limitation of research morality: 1) limited responsibility for full-time job 2) not following research morality</p>	<p>3. Research Mind</p> <p>3.1) The use of knowledge management to build up research mind knowledge and understanding: 1) research ethics: (1) full-time working justice (2) enthusiasm of self-development and organizational development through R2R 2) research faith: (1) beliefs in research findings (2) confidence in research findings 3) Using knowledge management procedures to encourage knowledge about research morality: (1) responsibility for full-time work 2) following research morality</p>

**Table 3** A draft of research competency enhancement process based on knowledge management for developing routine to research of TSU support staff

Alternatives	Knowledge Management Process	2P2R process
1.arranging R2R learning Project	1. specifying target knowledge	1. Plan: preparation for knowledge management for developing R2R that consists of target knowledge, learners groups, knowledge management project, place, necessary resources and devices for knowledge sharing, mentoring system, and rewards for developing R2R such as action plan etc.
2.providing places for learning R2R		2. Process: searching for information towards R2R, both explicit and tacit knowledge and doing a pilot study
3.providing supporting R2R research resources		3. Reflect: collaboratively proposing views of strengths, weaknesses, and useful issues for R2R research competency development of related people
4. specifying rewards or budget for R2R development		4. Regard: summarizing knowledge of best practices, research evaluation, and knowledge sharing to admire success and R2R research development
5.arranging mentoring system for R2R	2. specifying target experts and learners	
6.collaboratively finding out information towards R2R	3. searching for explicit and Tacit Knowledge	
7. sharing ideas towards collaborative R2R, its application and research	4. sharing knowledge and launching a pilot study	
8. encouraging research inspiration and R2R knowledge	5. storing the knowledge	

2. Results of appropriateness and possibility of 2P2R process evaluation showed that principles, rationale and objectives were appropriate and possible (practical) at the highest level ( $\bar{x} = 4.50, 4.67, SD=0.55$  and 0.52, respectively), objectives and steps of 2P2R process were also appropriate and possible at a high level ( $\bar{x} = 4.50, 4.67, SD=0.84$  and 0.52 respectively), and 2P2R consists of four steps – plan, process, reflect and regard. These three steps were appropriate and possible at a high level ( $\bar{x} = 4.36, 4.04, SD=0.68$  and 0.87 respectively) as shown in Table 4.

### 3. Results of improvement and conclusion of 2P2R process

After the evaluation of appropriateness and possibility of 2P2P, the researcher adjusted the process based on suggestions and recommendations of the experts as follows:

1) Plan: Preparation for knowledge management for developing routine to research consists of specifying target knowledge for sharing, learners, knowledge management projects, places, necessary resources and devices for sharing, mentoring system, and praise, and there were two suggestions: creation of mentoring system and collaborative plan for research competency enhancement, and clear steps of activity operation.

*"To enhance routine to research work of the staff, there should be a team to collaboratively set the plan for research competency enhancement since the first step."*

(The first expert, November 17, 2017)

*"Management for the staff, each step must be obvious."*

(The second expert, November 17, 2017)

The researcher thus adjusted the plan in 2P2R process to present the clear 4 activities: Creating team, specifying plan, creating mentoring team, and providing facilities for learning support

2) Process: Searching for information about the development of routine to research that includes explicit knowledge and

tacit knowledge and application of the knowledge to R2R research. At this step, there were additional suggestions for 2P2R participants, that they had to participate in the process of knowledge search and conclusion

*"Participation of learners is the core focus of knowledge management, including knowledge search and conclusion."*

(The first expert, November 17, 2017)

The researchers therefore adjusted the Process in 2P2R process to present clear activities – knowledge search, knowledge conclusion, practice, consultation, and improvement.

3) Reflect: Collaboratively proposing points of view towards strengths and weaknesses of R2R development of learners, sharers and stakeholders, at this step, there were more suggestions toward ways to concretely evaluate R2R.

*"When the process is completed, how should R2R evaluation be done clearly?"*

(The second expert, November 17, 2017)

The researchers then adjusted the step of Reflect in 2P2R process by brainstorming towards perspectives, strengths, and weaknesses of R2R development outcomes.

4) Regard: Research evaluation and sharing should admire the advance of R2R development. This step had more suggestions towards the admiration of successful research and ways to cope with disappearance of team staff during the process.

*"The successful researchers should be admired to encourage learning and success praise."*

(The second expert, November 17, 2017)

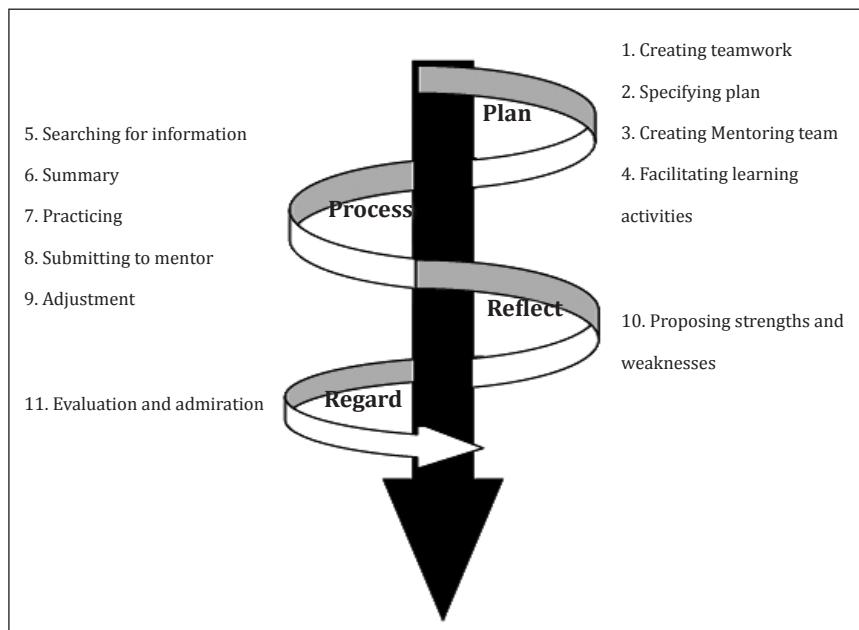
*"R2R process must have ways to cope with the disappearance of team staff during the process; for example, someone was sick during the process, so the researchers have to think how he could be in the team again after getting better."*

(The third expert, November 17, 2017)

After that, suggestions and recommendations led to research development as presented in Figure 2.

**Table 4** Appropriateness and possibility of 2P2R process

Statement	Appropriateness		Possibility	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.
1. Principles, rationale, and objectives of 2P2R process	4.50	0.55	4.67	0.52
2. Objectives and steps of 2P2R process	4.50	0.84	4.67	0.52
3. Four steps of 2P2R process – plan, process, reflect, and regard	4.36	0.68	4.04	0.87



**Figure 2** Research competency enhancement process based on knowledge management procedures for developing routine to research of TSU support staff

## Discussion

1. The results of needs assessment towards research competency enhancement of TSU support staff presented that the staff needs to develop all aspects of research competency because of their limited research knowledge, research skills, and research mind. The ways to serve the needs are using knowledge management process and supporting research skills to the staff. That is, the mentoring team should be set up to help the personnel search, exchange knowledge, and build up best practices. Moreover, research skill support can be done by providing places for specific learning of R2R, giving fund or grants for R2R development, providing more information such as textbooks, books, samples of R2R research, including the access of information, creating the mentoring team for the consultation, and launching R2R projects. Paiwityasiritham and Phonpanthin (2016) supported that there are several methods for developing research competency, which is mentoring and coaching (providing research experts and model teachers), arrangement of research workshops, research practices, research environment arrangement, including information technology for research, lessons learned, and a network system to collaboratively do study and learn from good researchers.

2. A research competency enhancement process based on knowledge management procedures for developing routine to research of TSU support staff is 2P2R process consisting Plan (Creating teamwork, Specifying plan, Creating Mentoring team and Facilitating learning activities), Process (Searching for information, Summary, Practicing, Submitting to mentor and Adjustment), Reflect (Proposing strengths and weaknesses), Regard (Evaluation and admiration). Yamtim (2016) proposed classroom research competency indicators that are

development of research knowledge, research skills and research reliance, creation or promotion of infrastructure and resource, creation or promotion of connection, partnership and collaboration, participation in transforming knowledge and knowledge sharing, and sustainable management. Moreover, the 2P2R process is consistent with personnel development concepts, which is learning aimed at continuously changing behaviors from individual practices. Learning enables individuals to adjust themselves, including self-adjustment, social adjustment and environmental adjustment for survival.

Due to rapid changes, the support staff need to have new knowledge, innovation, a new working process, positive effects of research, and andragogy. They have to use specific and appropriate methods such as experience transformation through many methods, which are story telling or sharing by experts or experienced staff to encourage confidence of participants for developing research knowledge, ability and faith, learning, problem solving, and creative thinking for R2R, R2R team learning or networking presenting collaboration, sharing and effective creation. Learning occurs while solving problems of both individuals and the team to encourage effective learning, understanding, and development, which is consistent with knowledge management success factors that are related to knowledge strategy, evaluation, instruments, leader, organizational culture (Chuenklin, 2010; Puangkam, 2008; Sukumaran et al., 2016) and RBBL process concepts related to learning support of both individual and team learners to encourage learners' research competency (Wannapiroon, 2014).

## Conclusion

Needs for research competency enhancement of TSU

support staff were in the same direction, so the experts identified the alternative solutions to enhance the research competency of TSU support staff in many aspects as follows: Research knowledge includes using a knowledge management process to create understanding about conceptual framework design and literature review, providing specific places for R2R learning, providing budget or grants for R2R, preparing learning resources such as textbooks, books, samples of R2R and thorough information access, creating mentoring team for R2R consultation, and arranging projects to support R2R learning. Research skills are the application of a knowledge management process for practices of research design, conceptual framework, and research report writing. Research mind is related to usage of knowledge for creating knowledge towards research ethics and morality.

A research competency enhancement process based on knowledge management for developing routine to research for TSU support staff is 2P2R process consisting of Plan (creating team, planning, creating mentoring team, and providing learning facilities), Process (searching for information, summarizing knowledge, practicing, sending products to mentors, and adjusting the products), Reflect (presenting views towards strengths and weaknesses of process, evaluation and admiration), Regard (evaluation and rewarding).

## Recommendations

### Application of Research Findings

1. 2P2R process was developed from the needs of TSU support staff. As TSU is a public university, other organizations that prefer using this process should have similar conditions, context, and general structure.

2. A research competency enhancement process based on knowledge management procedures for developing routine to research for TSU support staff applied five steps of knowledge management following an education assurance system. Therefore, the application of this process must begin with a needs assessment as the needs lead to target knowledge specification, learner selection, knowledge searching, knowledge exchanging, and knowledge storing.

### Recommendations for Future Research

1. There should be an experiment in applying the 2P2R process to see its effects. The analysis enables stakeholders to see whether a research knowledge enhancement process for developing routine to research for TSU support staff can enhance their research competency when conducted through an experimental study.

2. The research samples for this research study were TSU support staff; therefore, the same type of research should be done with the support staff of other universities to investigate differences among the staff from different contexts.

### Conflict of Interest

There is no conflict of interest.

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