

---

# The Investigation of Competency in Research and Development of Instructional Innovation of Higher Education Teachers in Lao People's Democratic Republic

Lanta Ketoukham <sup>1</sup>,  
Vijitra Vonganusith <sup>2</sup>,  
Pochaman Chumnankit <sup>3</sup>  
Brendan McKell <sup>4</sup>,  
Yatawee Chaiyamat <sup>5</sup>

## ABSTRACT

The paper was a preliminary study drawn from a major research project to explore the components of teachers' competencies in Research and Development of Instructional Innovation (RDII) in a university in Lao People's Democratic Republic. The collection of data was a two-step process, including 1) synthesizing 14 academic document papers and research related to RDII of higher education teachers; 2) determining the indicators of RDII of higher education teachers. The finding revealed that the three components of higher education teachers' competencies in RDII consisted Knowledge competency has 7 sub-components with 31 indicators; Skills competency has 4 sub-components with 16 indicators; Attribution competency has 3 sub-components with 12 indicators

**Keywords:** Teachers' Competency, Research and Development of Instructional Innovation

---

<sup>1</sup>Ph.D student of Research and Instructional Development, Faculty of Education, Sakon Nakhon Rajabhat University, Thailand

<sup>2-3</sup> Lecturers, Faculty of Education, Sakon Nakhon Rajabhat University, Thailand

<sup>4-5</sup> Lecturers, Faculty of Humanities and Social Sciences, Sakon Nakhon Rajabhat University, Thailand

Corresponding Author Email: lanta.ke63@snru.ac.th

---

## 1. Introduction

In rapid and unexpected changes in the 21<sup>st</sup> century, it is necessary to develop teaching and learning innovation for preparing human resources in line with national socio-economic development. As higher education institutions are one of the most significant contributors providing a range of services and facilities to attune to young people's outcomes and to create a labor force to compete in the global marketplace, the Government of the Lao Peoples' Democratic Republic (Lao PDR) has faced increasing demands to reform national education, thus the changes have been introduced to higher education institutions to meet the needs of a social new paradigm. Since 1996, the ten tertiary institutions have been harmonized to be the national university which was called the milestone of higher education reform (Bounheang Siharath, 2010). According to National Education Act, higher education defined in Article 17 refers to education following secondary, middle school levels, or equivalent offering the award of Associate, Bachelor, Masters, and Ph.D. degrees, to promote long-life learning, profession, science, and research (National Assembly, 2015, p.6). For expanding the access to higher education institutions, the regional universities under the Ministry of Education and Sports (MOES) were established in the 2000s, namely Champasack University (CU) in the South, Souphanouvong University (SU) in the north, and Savannakhet University in the center (MOES, 2015). The universities perform an important role in knowledge creation and its translation into innovative products and services for regional growth. McCann and Ortega-Argiles (2010, cited in European Union Regional Policy, 2011) agree that higher education institutions act as:

The players are regarded as being the agents who use the knowledge acquisition facilities and resources (human capital, ideas, academic and research collaborations) to scan the available local economic and market opportunities, to identify technological and market niches for exploitation, and thereby act as the catalyst for driving the emerging transformation of the economy. (2)

Research and Development (R&D) in education is a popular and vital strategy for educational development and reform that is a process aiming to find a new science through basic research and applied research to improve the quality of educational practices (Brog & Gall, 1979). In other words, R&D-scientific work being taken on a systematic basis- has been proved to play a significant role in improving economic growth as well as applications of increasing new knowledge in various fields, especially science, technology, and advanced

---

education. Besides, the higher education institutions as teaching universities have been transformed into a combination of teaching with research improving conditions for innovation and operating as a source of new knowledge and technological discoveries for societies (Government, 2015, p. 6). The universities are also responsible for both supporting teachers' skills and competencies for R&D-related skills and soft skills through education and training programs to improve innovation performance and transform their practices to prepare graduates to meet the needs of societies and businesses.

The importance of R&D is considered by the Government of Lao PDR as mentioned in Strategy 3: Support science research, technology development, and technical services to meet socio-economic development needs in higher education institutions (HEIs). The objectives of this strategy aim to increase the capacity for quality research, technology, innovation, and technical services under key activities such as providing training in research methods and publishing research for higher education researchers, to propose to the government to consider the policy and strategy for science research and research management, to encourage HEIs to set up science research centers; increase funding for science research funding to be printed in domestic and international journals, to support social-technical services based on research finding to inform socio-economic development planning, and to conduct a review of regulations to identify and make recommendations on reducing barriers to research (MOES, 2015, p. 68).

According to the Lao higher education institutions, the barriers to the development of R&D practices at a higher education level relate to individual initiatives workload, lack of peer researchers and consistent institutional approaches, and insufficient training (MOES, 2015; DHEIs, 2011). This is also true at the department level, many teachers take responsibility for administrative tasks (Knight, 2015, p. 4). One interesting finding was that novice researchers participated in the training yet did not develop and continue due to a lack of competencies (Boutphomvihanh, 2011). This finding is consistent with a study by Thepsombath (2020, p. 1382) that found a lack of research knowledge and skills. The research skills of teachers have not been developed to serve the need for teaching and learning and professional development. For example, a survey from 2015-2017 of teachers from three teacher training colleges-Pakse, Savannakhet, and Salavan in Lao PDR revealed that a total of 63 papers were published, including 28 papers at the national level, and 35 papers at the international level.

---

Due to the lack of research about RDII, the researcher has chosen a preliminary investigation of indicators (components) that would contribute to new knowledge regarding Lao higher education teachers' competencies in R&D in Instructional innovation. This paper is part of a big research project attempting to overview and synthesize higher education teachers' competencies in RDII in a university in the Lao People's Democratic Republic.

## **2. Objective**

The objective of this paper was to synthesize competencies in RDII for higher education teachers in a university in the Lao People's Democratic Republic.

## **3. Literature Review**

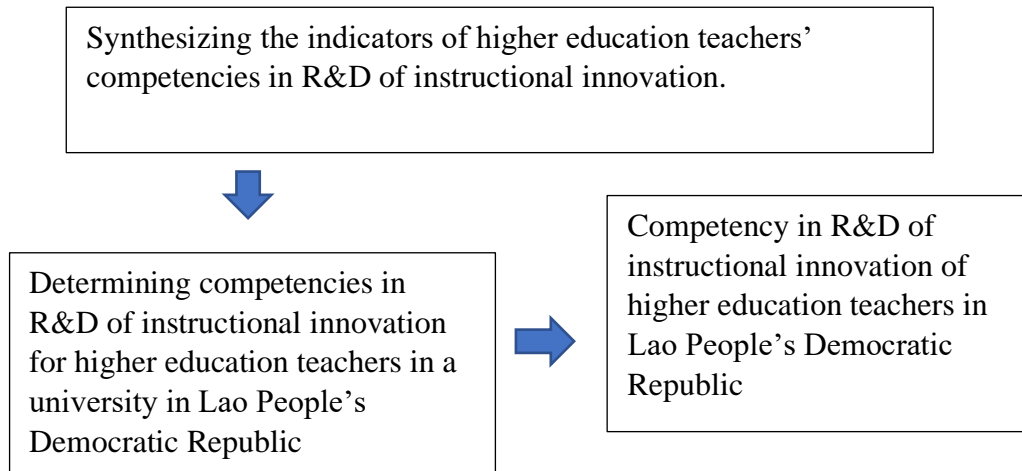
The research reviewed related literature and research towards competency in research and development of instructional innovation of Higher Education Teachers at home and abroad and found three principal terms that are main variables presented in the conceptual framework as follows:

Research and development competency is an ability acquired by a knowledge searching process that is based on research. It has three components, research knowledge, research skills, and research skills (Best, 1981; Bounphen, 2018; Bundit 2020; Freeman, 1998; Jamjeang, 2013; Paulson, 2001; Phayvanh, 2019; Phounsili, 2011; Saythong&Saythong, 2017; Sriphayroch, 2015; Somxay Kitirat and Jinnawatra, 2020; Souvanno, 2017; Supriyanto, Harti, Syamsudin, and Sutoya, 2019; UNESCO, 2015). Each component consists of sub-component and indicators to describe the task of conducting research and development. 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 (Paiwitayasiritham and Phonpanthin, 2016). Moreover, Swanburg (1995) also claimed that several methods of competency study in a specific task should appropriately be considered on need assessment from a targeted group; determining competency in task analysis by identifying contents and task goals of existing jobs, and classifying each of description tasks, and determining competency or targeted development systematically.

---

#### 4. Conceptual Framework

To study the competency in RDII of higher education teachers in Lao People's Democratic Republic.



#### 5. Research Method

The 14 relevant educational and academic documents for developing indicators of teachers' competency in RDII at a higher education level were examined (Best, 1981; Bounphen, 2018; Bundit 2020; Freeman, 1998; Jamjeang, 2013; Paulson, 2001; Phayvanh, 2019; Phounsili, 2011; Saythong&Saythong, 2017; Sriphayroch, 2015; Somxay Kitirat and Jinnawatra, 2020; Souvanno, 2017; Supriyanto, Harti, Syamsudin, and Sutoya, 2019; UNESCO, 2015). These primary sources are drawn from Lao PDR and international contexts. The research method was divided into two steps as follows:

Step1: Synthesizing the R&D-related academic document papers and research and competencies of teachers at a higher education level. In this step, the researcher analyzed 14 academic document sources and synthesized the indicators of higher education teachers' competency in RDII.

Step 2: Determining the indicators of RDII of teachers at a higher education level in Lao PDR. The indicators were analyzed using the content analysis approach from the sources and assessed the frequency of more than 50 % of them for drafting the indicators of RDII in a higher education institution in Lao PDR.

#### 6. Results of the research paper

The result of the study revealed that the competence of the teachers in RDII in a higher education institution has three core competencies: knowledge, skills, and attributes

with 14 sub-components and 59 indicators. Knowledge competency covered seven sub-components with 31 indicators; Skills competency covered four sub-components with 16 indicators; Attributes competency covered three sub-components with 12 indicators as follows:

**Table 1.** Indicators of Higher Education Competence in R&D in Teacher and Learning Innovation

Component	Sub-components	Indicators
Knowledge (K)	K1 Understanding Introduction	K1-1 know the background of research
		K1-2 know problem identification
		K1-3 know the key objectives of interest
		K1-4 know how to write research questions and/or hypothesis
		K1-5 know the scope of research
		K1-6 know the benefit of research
	K2 Understanding Literature review	K2-1 know how to define in a literature review
		K2-2 Know discipline and scope of research
		K 2-3 know how to search sources
		K 2-4 know related and relevant sources critically
		K 2-5 know a conceptual and theoretical framework
	K3 Understanding research methodology	K3-1 Know methodology approaches
		K3-2 Know instrument designs
		K3-3 know about the sample selection
		K3-4 know data collection procedures
		K3-5 know the ethical issues
		K3-6 know instruments' validity and reliability
		K3-7 know statistics for analyzing data
	K4 Understanding result and discussion	K4-1 know technical terms in statistical analysis
		K 4-2 know to indicate significant results
		K 4-3 know how to interpret and explain the result
		K4-4 know to justify a research approach
		K 4-5 know to critically evaluate a research study
	K5 Understanding conclusion	K 5-1 know how to summarize introduction, key findings in a conclusion section
		K 5-2 know how to acknowledge limitations and make recommendations for future work
	K6 Understanding research writing	K6-1 know how to write a research proposal
		K6-2 know how to write references
		K6-3 know about plagiarism
		K6-4 know how to write a full paper
	K7 Understanding the publishing process	K7-1 know how to publish the manuscript
		K7-2 know choose the right journal

Component	Sub-components	Indicators
Skills	S1 Language skills	S1-1 ability to comprehend the mean idea of documents and literature review
		S1-2 ability to translate international research and journals
		S1-3 ability to write concise and appropriate contexts
		S1-4 ability to write each part of a research
		S1-5 ability to write research and for publication
	S2 Communication skills	S2-1 ability to discuss with advisors on research
		S2-2 ability to build a friendly relationship with the target people to collect research data
		S2-3 ability to present research
	S3 Technology skills	S 3-1 ability to search and save sources
		S 3-2 ability to analyze data
		S 3-3 ability to present research results
		S 3-4 ability to use technology to assist in designing research
	S4 Planning and management skills	S 4-1 ability to make a plan for achieving research accomplishment
		S 4-2 ability to manage validity and reliability instrument
		S 4-3 ability to manage time and place for collecting data with a sample group
		S 4-4 ability to organize time for meeting deadline
Attributes	A1 Inquisitiveness	A 1-1 enjoy striving knowledge about research
		A 1-2 like searching knowledge and information continuously
		A 1-3 love seeking to explore other fields to find the appropriate solutions for scientific problems
	A2 Adaptability	A 2-1 take responsibility for all research processes
		A 2-2 accept others' recommendations in the changing process
		A 2-3 modify a research focus moving to a new opportunity
		A 2-4 have good attitudes in actively participating with a research team
		A 2-5 recognize self-capacity in successful R&D
		A 2-6 recognize the opportunity to seek the truth and reflect the benefit for the community
	A3 Innovativeness	A 3-1 look at something with a new perspective
A 3-2 extend or improve to an existing pedagogy in a different view		
A 3-3 find a new solution for developing research		

The Table shows the three core components, including knowledge, skills, and Attributes with 14 sub-components and 59 indicators of higher education teachers'

---

competency in R&D of instructional innovation in a university in Lao PDR. The details were described as follows:

**1) Knowledge**, the knowledge competency of higher education teachers in RDII in a higher education institute in Lao PDR covered seven sub-components with 30 indicators, including 1) *Understanding Introduction* consisting of the background of research, problem identification, the key objectives of interest, research questions and/or hypothesis, scope of research, benefits of research; 2) *Understanding Literature review* consisting of literature review, discipline and scope of research, searching sources, related and relevant sources, a conceptual and theoretical framework; 3) *Understanding research* consisting of methodology approaches, instrument designs, sample selection, data collection procedures, ethical issues, instruments' validity and reliability, statistics for analyzing data methodology; 4) *Understanding Results and Discussion*, consisting of technical terms in statistical analysis, indicating significant results, result interpretation and explanation, justify research approach, critically evaluating research study results; 5) *Understanding Concussion* consisting of summarizing introduction, key finding, outcomes in a conclusion section, acknowledge limitations and make recommendations for future work; 6) *Understanding Research Writing* consisting of writing a research proposal, writing references, plagiarism, writing full papers; 7) *Understanding publishing process* consisting of publish the manuscript and the right journal

**2) Skills**, the skills competency of higher education teachers covered four sub-components with 16 indicators: 1) *Language Skills* consisting of abilities to comprehend the mean idea of documents and literature review, translate international research and journals, write concise and appropriate contexts, write each part of the research, write research and for publication; 2) *Communication Skills* consisting of abilities to discuss with advisors on research, build a friendly relationship with the target people to collect research data, present research; 3) *Technology Skills* consisting of abilities to search and save sources, analyze data, present research results, using technology to assist in designing research; 4) *Planning and Management Skills* consisting of abilities to make a plan for achieving research accomplishment, manage validity and reliability of instruments, manage time and place for collecting data with a sample group, and organize time for meeting a deadline.

**3) Attributes**, the attributes competency refers to the quality of researchers comprising three sub-components, namely inquisitiveness, adaptability, and innovativeness, with 12 indicators. 1) *Inquisitiveness* consisting of enjoying striving research knowledge,



---

liking searching knowledge and information continuously, loving seeking to explore other fields to find the appropriate solutions for scientific problems; 2) *Adaptability* consisting of taking responsibility for all research processes, accepting others' recommendations in the changing process, modifying research focus moving to a new opportunity, having good attitudes in actively participating with a research team, recognizing self-capacity in successful R&D, recognizing the opportunity to seek the truth and reflect the benefit for the community; 3) *Innovativeness* consisting of looking at something with a new perspective, extending or improving to an existing pedagogy in a different view, and finding a new solution for developing research.

## 7. Conclusion and Discussion

Indicators of teachers' competency in RDII in higher education level were analyzed using document analysis through various academic sources in Lao, and international contexts from 14 sources for determining component, sub-component with indicators of competency. The research results reveal that there are three core competencies, namely knowledge, skills, and attributes in RDII in higher education which were determined for the context of Lao PDR. This pattern of research consistent with the previous concept of Swanburg (1995) claimed that there were several methods to study competency in a specific career or task, the consideration of appropriated methods such as determining competency in task analysis by identifying content and task goals of existing jobs, classifying each of description tasks, and determining competency or targeted development using a systematic competency analysis. From the findings, the three competencies are more specific in each competency, including knowledge competency with seven sub-components with 31 indicators; skills competency with four sub-components with 14 indicators; and attributes competency with three sub-components with 12 indicators. These findings are similar to those of a study carried out in Best (1981) which revealed that teachers' skills competence in research was determined in three core competencies include knowledge, skills, and attributes become a crucial element because these competencies were in the individuals or have been developed for achieving the objectives of implementing specific work. Furthermore, Phayvanh (2019) proposed classroom research competencies for high school teachers in Lao People's Democratic Republic indicated that the development of research knowledge, skills, and attributes covered with the knowledge of the research regulation, research scopes of problems and introduction, literature review, methodology, data analysis, and report writing; and attributes competency, including

---

inquisitiveness, academic critique, responsibility, and research ethics. The findings from the previous research projects suggest that RDII in a particular university has remained underdeveloped. The higher education institutions in Lao PDR might therefore provide infrastructure and funding to encourage a larger-scale work. The investment and efforts would facilitate a process for developing RDII of teachers' competence and achieve benefits for staff and the university's services.

## **8. Suggestions**

### *Application of Research Findings.*

Administrators or related stakeholders should consider the need for improving competency in RDII for higher education teachers to suit the changes in teaching and learning in the 21<sup>st</sup> century.

### *Recommendations for Future Research*

1. Those who are interested in the competency in RDII of higher education teachers in Lao PDR should analyze the gap between the need and expectation for determining significant competency in developing a model or curriculum in a format of quantitative research.

2. This research study was a preliminary investigation with document inquiries. Therefore, an experimental study in applying the competency in RDII is needed for further assessment and effects. The analysis would enable stakeholders to see whether RDII of higher education teachers could be feasible to enhance teachers' competency.

## **9. References**

- Best, J.W. (1981). *Research in Education*. New Delhi: Prentice-Hall of India Private Limited.
- Borg, W.R. & Gall, M.D. (1979). *Educational research: An introduction*. New York: Longman.
- Bounheang Siharath. (2010). The higher education in Lao LDR and Role of international Cooperation for its university-national university of Laos. Retrieved from [https://www2.gsid.nagoya-u.ac.jp/blog/anda/files/2010/06/19\\_bounheng-siharath.pdf](https://www2.gsid.nagoya-u.ac.jp/blog/anda/files/2010/06/19_bounheng-siharath.pdf)
- Bundit Thongsong. (2020). Research competency enhancement process based on knowledge management procedures for developing Routine to Research of support staff at Thaksin University. *Kasetsart Journal of Social*

- 
- Sciences*. 41 (2020) 441–448.
- Department of Higher Education Institutions DHEIs (2011). *Research Potential in Lao People's Democratic Republic*, Vientiane.
- Freeman, D. (1998). *Doing Teacher-Research: From Inquiry to understanding*. Canada: Heinle & Heienle.
- Government. (2015). Decree on Higher Education. Vientiane Capital, Lao PDR
- Knight, J. (2013). Strengthening Higher Education in Laos. *International Higher Education*. 73. 24-26.
- Ministry of Education and Sports (2015). *Vision 2030, Strategy Plan 2025, and Development plan of education and sports sector 2016-2020*, Vientiane Capital. Lao PDR
- Paiwitayasiritham, C., & Phonpanthin, Y. (2016). Ways to develop research competency of teacher students: Complete needs assessment. *Veridian E-Journal*, 9(2), 230–246. Retrieved from <https://www.tci-thaijo.org/index.php/Veridian-E-Journal/article/view/63250/51988>
- Paulson, K. (2001). *Using competencies to connect the workplace and postsecondary education*. *New Directions for institutional research*, 110, 41-45.
- Phayvanh, D. (2019). Indicators of Classroom research competency for high school teachers in Lao People's Democratic Republic. *Journal of Education Measurement, Mahasarakham University*. 24(1), 208-225.
- Thepsombath, S. (2020). The Strategy for Development of Research Competencies of Teachers in Pakse Teacher Training Colleges, Lao PDR. *Journal of MCU Peace Studies*, 8(4). 1381-1393.
- Somxay T., Kitirat S. and Jinnawatra, P. (2020). The Strategy for Development of Research Competencies of Teacher in Pakse Teacher Training Colleges, Lao PDR. *Journal of MCU Peace Studies*. 8(4), 1380-1393.
- Supriyanto, A., Hartini, S., Syamsudin, Sutoyo, A., (2019). Indicators of professional competencies in research of Guidance and counseling Teachers. *Counseling: Journal Bimbi Ngan Dan Konseling*, 9(1), pp 53-64
- Swansburg, R.C. and L.C. Swanburg. (1995). *Nursing Staff Development: A Component of Human Resource Development*. Boston: Jones and Bartlett Publisher, Inc.,
- UNESCO (2015), *Teacher Policy Development Guide*, Paris