

THE ROLE OF BUDDHIST MONK IN LOCAL DEVELOPMENT: SCIENCE COMMUNICATION FROM THAI LOCAL CONTEXT

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Abstract

After the capitalist economy has circulated extensively in the country for the last few decades, traditional ways of life have been gradually destroyed. Problems of migrant labor, debt crisis, and deforestation have turned more serious especially in the rural part. Like other villagers in the remote areas, *Pongkhum village* in Amphur Santisook, Nan province (668 kilometers from Bangkok) in the northern part of Thailand has faced difficulty to be self-reliance because the expansion of commercial economy and consumption-oriented notions have influenced the village to import more and more material merchandises from the outside. Even though the textiles woven from natural-dyed fabric, a heritage craft handed down from generation to generation has been deliberately replaced by the industrial chemical-dyed fabric and slowly disappeared along with the elders. To conserve and to systematically develop this splendid treasure to be an alternative to nurture village self-reliance, *Phra Somkit Jaranathummo*, Buddhist monk from Wat (temple) Pongkhum who is a native to this village, launched the research named "The development processes of natural-dyed fabric production: case study of ", a participatory action research which had financial support from Thailand Research Fund (TRF). Because of the difficulty to link between Thai local wisdom and science & technology, in this case Phra Somkit Jaranathummo as mediator plays significant role to connect these two sides of knowledge. This study aims to identify and analyze the role and processes of mediator in bridging the two knowledge by using the SECI Model of Ikujiro Nanaka as the tools to investigate knowledge creation directed by mediator.

Keywords: Buddhist monk, mediator, science communication, local development

1. Introduction

Most of local communities in Thailand still depend much more on outsiders. In order to become self-reliant and self-sufficient, some have turned back to use their local wisdom/practice as the capital in their sustainable development action. Unfortunately in some communities, their local wisdom/practice is inadequate. To add more value, science and technology is required to fulfill. Referred to Saneh Chamarik*,

'Modern scientific knowledge and learning therefore has always a great role to play, not to supplant or suppress, but to supplement indigenous knowledge and scholarship. One should, however, be aware that knowledge and theories (or technology for that matter) are not neutral but are part of a greater knowledge construction.'

In addition, most of local communities do not have know-how in using and acquiring science and technology as Seri Phongphit said:

'People like to see examples and often want to know more about 'how to do' but not 'how to think'.

Therefore, appropriate strategies are needed in transferring modern science and technology to local communities and integrating these new knowledge into their daily lives. This is to be sure that modern science and technology will not destroy the local wisdom and the way of living of local people, on the contrary it will help strengthen local people to become self-reliant. To interconnect science and technology with local wisdom/practice to the community, **mediator will play the significant role.**

2. Objective

The objective of this study is to study the roles of a mediator in linking modern science and technology to local wisdom/practice.

* Saneh Chamarik is the Chairperson of the National Human Rights commission of Thailand and being regarded as "one of the three senior citizens", a title of honor bestowed on him by the general public.

3. Methodology

To collect data in this case study, author used documentary study to gather the background of Pongkhum village, learnt and understood local life and the role/processes of mediator through observation, and interviewed key informants. In this case, author used qualitative research method to study the role and processes of mediator in bridging local and science knowledge. To analyze the processes of mediator, the SECI model of Knowledge Creation conceptualized by Ikujiro Nonaka was applied to understand the processes of mediator in the Thai context.

4. Case Study

Bann Pongkhum, a 108 year village, is located in Du Phong sub-district, Santi Suk district, Nan province, in the northern part of Thailand. Most of the areas are mountainous with well-preserved forests and watershed areas. Most of inhabitants are Lao Phuan or Tai Phuan, a minority ethnic group. At present, Pongkhum Village's inhabitants gradually increased by 220 households, the total population is 902; 489(54.21%) are male and 413(45.79%) are female. About 170 households work in agricultural sector; growing glutinous rice and milled rice paddy, farming rice, corn and peanut plantation. Most rice plantation is mixed rice with pumpkins or local melon by growing in the same hole. The farmers can harvest many crops from such mix plantation. This production method is an original wisdom that has been passed on among the community from the past to the present. 20 households work as labor and service workers. The other residual 30 households, after harvest season, they will work in other province. Moreover, some usually earn more income from weaving cloth, doing basketry, and buying and selling goods. Average income per household is 7,000 to 12,000 Baht a year depends upon their diligence and endurance.

The Pongkhum Temple (Wat in Thai) and Buddhist monks have interwoven along with its history. Wat is the next most significant institution for Pongkhum villagers' life besides their family. Buddhist monks stand as the symbol of the villagers' commitment and the core of village unity. The monks are the villagers' spiritual leaders, the source of respect, trust and co-operation. Before 1972, "Wat Pongkhum" served as the educational center of the community. The elderly villagers recounted that boys and young men between age of 12 and 20 came to study (*buad rian*[†]) at the temple. They would learn and orally practice *Mukhapatha* included Buddhist doctrine, write, read, calculate, and gain the knowledge of herbal medicine by using temple as their classroom and having the Buddhist monks as their teachers. After the educational reform in 1972, children both girls and boys had the opportunity to study at "Baan Pongkhum School", a primary school providing a compulsory education (6 years). However, the Pongkhum Temple and the monks is still the center of Pongkhum villagers up to the present. All of their rites and ritual ceremonies take place at Pongkhum Temple. The villagers also use the temple as a meeting place because the villagers believe and pay respect to the temple, as their sacred place. They normally announce their rules and agreements in the temple and put their faith in the Buddha image as the eyewitness. Then all the villagers must strictly observe the rules. The children, youth and adults will come together to pray every evening leading by **Phra Athikarn Somkid Jaranathummo**, the abbot of Wat Pongkhum.

The wisdom of natural dyed cotton woven textile has been a long-held traditional skill of Pongkhum women from their ancestors to their descendants. The natural-dyed cotton woven textile of Pongkhum is distinctively unique in term of natural materials from locality and its dye production. The patterns and designs also reflect the local artistic and creative skills of local, culture passing on from many generations. The handloom for natural dye cotton weaving was a part of their traditional way of life for producing their own clothing. Every woman had to produce her own family's garments. The production process began with growing cotton, spinning, dyeing, weaving, and manufacturing textiles. Various products were produced such as clothes, blankets, mosquito curtains and other fabric things for their households. Pongkhum women had to make her own wedding dress and her groom's suit, then her children's clothes, the bed set and finally the veils for family members' corpses. Moreover, they wove long flag, colloquially known as *tung* for presenting to merit-making ceremonies. This *tung* is required meticulous skill for elaborate weaving. This weaving tradition was passed on generation to generation. The following are the accounts of weaving history from elders in Pongkhum village:

"When I was a teenager, my mom taught me to weave. Every household had cotton fields. If they didn't have any, they would not have cotton to produce their clothes." said Mae Feuy Bungmek

"The man in the past chose his woman by recognizing her cloth. If she wore old dress, it meant she was lazy. So he would not choose her to be his wife." said Mae Fong Bungmek

"Young girls spun the cotton in front of their house every evening. Young men would show their interest in a particular girl by going to see her while she was spinning the cotton. In case of no growing cotton, the girl would have no cotton to spin; consequently, she might not have a chance to get marry" said Mae Tib Parbvuth

[†] *Buad rain* is a term used to refer to person who is an ordained monk; *buad* means to be ordained as a monk or novice, while *rian* means to learn. (Seri Phongphit and Kevin Hewison, 1990:21-22)

These elderly also told about their processes of weaving. The first step was *Planting and Picking the cotton*: every family planted cotton in their own field. The approximate harvest time was four to five months after planting, (when the cotton pods were ripe), Pongkhum villagers picked these ripe pods by hand in the morning for not making their soft white hair dispersed.

The second step was *Ginning the cotton*: the cotton was dried in the sun for four or five days and then its seeds were picked out.

The third step was *Fluffing the cotton*: the cotton was put in the round bamboo basket (*Chalom*) and dried for a while to be warm because it was easier to work with. Then they lied the basket sideways on the floor and used a string to fluff the cotton in the basket.

The fourth step was *Rolling*: after fluffing up the cotton, they readied it for spinning by rolling the cotton tufts round wooden dowel from eight to ten inches in length.

The fifth step was *Spinning*: they spun the cotton into thread by using spinning wheel in which the cotton was spun on very small cones (bobbins) prepared for next step.

The sixth step was *Dyeing*: they dyed the cotton thread by local plants such as hom (*Baphicacanthus cusia Brem*) giving black or dark blue color, the wood of jackfruit tree (*Artocarpus heterophyllus Lamk*) giving a dark yellow color, and others found in the vicinity of Pongkhum village. Many organic dyes came from various parts of plants such as leaves, fruits, bark and seeds or a combination. The villagers would search and remember the colors, which each plant gave.

The seventh step was *Weaving*: they wove fabric from natural dyed thread. And the last step was *Sewing*: they sewed clothes, trousers, simple skirts, blankets and other necessary dresses for daily use. The housewife of every family must did seven processes especially 2nd to 8th step. For the 8th step, they sewed by hand because there was no sewing machine. The purpose of Pongkhum traditional textiles was used only for household not for commerce.

This knowledge has been transferred from generation to generation for more than one hundred years. Young girls are taught at young age. There was no school or class for them. These young girls would observe older women such as their mothers, aunts or grandmothers, weaving and remember the techniques. The older women would also give them personal instruction.

The heritage of Pongkhum's local wisdom has been for the persons who have an interest in learning. There is no hard and fast rule about communal wisdom pursuit. That one must have a willing heart then she will gain complete knowledge.

“The pride of instructor, who passes down natural dyeing method and natural dyed cotton weaving, is not remuneration but her students' attention and their works. Though the results are not good enough, their attention of learning makes the instructor happy.” said Aunt Hlor Jun-Aon

It shows that the value of wisdom's heritage of Pongkhum's natural dyed cotton weaving doesn't depend on any factors but *Happiness* of the instructor, who has a chance to play her role and present her ability from which the others can learn and practice.

It is regrettable that this traditional textile is being lost in recent times as a consequence of rapid changes in social and economic of the country. Peaceful and self-reliant way of living has been replaced by urban life. Villagers brought more materials and resources included their necessities from outside in which they thought that these moderns were the best and expressed civilization. Most of their basic needs today are imported, thus people must use cash to exchange them. Pongkhum community passed from subsistence economy to market economy, from barter to a monetary system. As well as their heritage of natural-dyed cotton weaving by hand, its popularity has been waned because of its complicated process and time consuming, then gradually being replaced by chemical-dyed machine weaving which is easier and quicker to produce. Pongkhum villagers decreased to grow cotton. Some grew for selling instead of growing cotton to produce their own garment, then they brought that earnings to buy readymade clothes with more modern and convenient. Besides, this local knowledge is gradually extinct and out of use because of western development processes, swift population growth, and educational systems as well as much of the knowledge has come from the weavers own experience, there are virtually no written records or instruction. Anything taught is passed down orally. Consequently, knowledge is limited and much has been lost along with village elders.

Fortunately, Pongkhum villagers have *Phra Somkid Jaranathummo*, a thinker and development monk from Wat Pongkhum who was born and raised in Pongkhum village, devoted himself to conduct numerous correctives and development actions with the harmonious collaboration between governmental development policy and village life and means in order to help villagers coping their hardship.

“The monk is a part of society and the temple is the main institute of community. When the community has problem, the monk plays important role on the villagers' difficulties. If the villagers have no food, they will suffer less than they don't have any monk or Buddhism novice in the temple because they can ask for some food from the others. If the monk ignores their troubles, it seems that he abandons them. Due to be a part of society, the monk therefore must do his duty according to each sagacity.” said Phra Somkid Jaranathummo.

Phra Somkid Jaranathummo plays an essential role in giving Pongkhum villagers' will power, idea and intelligence. Then they have great faith in him and this is one of the important reasons that they come together to solve the problems of their community. Phra Somkid sees that everyone in the village has his own duty to participate in problem solving. Though the government sector enters to take care of it, most solutions do not meet the target because of cultural differences. Some solutions are not sustainable whereas some are ineffective. Therefore, the most effective problem solving is everybody in the community joins to share idea to find his own proper solution with outside support. In addition, Phra Somkid says that everyone is comparable in intelligence but different in skill of perception and instruction. For this reason, he arranges for a forum to be mostly held in Wat Pongkhum, which is used to be a condition for the masters to present their wisdom. Then he analyzes and systemizes the outcome of the meetings.

As one of members of Bann Pongkhum, Phra Somkid sympathized and deeply comprehended the conditions of the villagers under such circumstances. His understanding has led him to undertake many activities to encourage Pongkhum villagers to be self-reliance.

Among these is the activity concerning their local knowledge in weaving. By gathering housewives and elders who were expert and interested in dyeing and weaving, Phra Somkid established *Bann Pongkhum Naturally-Dyed Hand-Woven Lao Phuan Textile Group* in 1995 aimed at reviving the art of the natural dyeing and fabric weaving of Bann Pongkhum and generating supplementary income. In Phra Somkid's own words:

"I was born and grown up here. When I was young, I saw our aunts weave fabric for making their clothes. Pongkhum villagers were men of great weaving and dyeing abilities and therefore I had an idea to revive all such knowledge. At the beginning of the project, there were only 3 master participants. I tried to gather all weaving instruments as I could. Though our aunts said that the antique dealers bought almost all the things, someone still kept them. Then I arranged the a meeting for discussion about a revival of cotton dyeing and weaving knowledge because it was our pride. At that time, many people worried that they could not sell their products so I told them that I would buy all of them." (The Knowledge Communities, 2004)

At first there were only 10 members. They made the cotton fabric by their own knowledge and skills. However, they could not sell their woven fabrics as much as they expected because of low quality of dyeing, weaving and design. Therefore, later in the year 2000, weaving of Pongkhum villagers has been revived again. Phra Somkid conducted the project on *"The development processes of natural-dyed textile production: case study of the natural dyed fabric women work group in Bann Pongkhum, Nan province"* financed by Thailand Research Fund (TRF). Its objectives were to 1) study local knowledge of the natural-dyed fabric production in Bann Pongkhum, 2) conserve and develop this local knowledge including production process, marketing, and management 3) create learning group network of producing natural-dyed fabric throughout Santi Suk district in Nan province. Starting by organized a group meeting (local language called khuang-Gum-Gued) with a friendly environment, 60 members both elders and youngsters and a research team who mostly were members of the group shared what they learned from her mother, grandmother, and great-grandmother. The research team took note during their storytelling. At the end, they could conclude that there were 2 methods of Pongkhum natural dyeing, which was passed on from generation to generation: boiling and soaking.

Some local plants were used for dyeing such as leaves of *teak (Tecton grandis Lin.f.)* provided red color, the wood of *Betel Palm or Cutch (Acacia catechu willd)* given brown color, the wood of jackfruit tree (*Artocarpus heterophyllus Lamk*) given dark yellow color. Soda ash was also used as natural mordant[‡] to adhere dye color to the cotton yarn. These materials could easily find in the village. However, the standard formulas of dyeing have rarely been found in written form since the dyers used their own skills and experiences by estimating the size of the cotton yarn in relation to the volume of dye ingredient.

During practice these dyeing methods, Phra Somkid and Pongkhum group found that the strong sunlight and washing easily faded the color of natural-dyes of the cotton textile. These caused their products below the standard. With his research skill gained from systematic education, Phra Somkid studied the method of using mordant to adhere dye to the cotton fiber and to be firmly fast by searching through the textbooks, dyeing research reports, academicians, and dyeing experts outside the village. He found that using mordant could solve this problem.

Although mordant is important for firmly attaching the cotton fibers to the dyestuffs, they will also change the color that will differ according to the mordant. That's why Pongkhum group can create numerous shades of color, though using few local plants. In order to introduce this new technology to the group, Phra Somkid set up an experiment with an assumption that use of appropriate mordant will support dyestuff to efficiently fix with cotton fiber to have more light and wash fastness. Phra Somkid and research team designed the experiment by separating all participants into 5

[‡] *Mordant* is a substance used to set dyes. A mordant is either inherently colloidal or produces colloids and can be either acidic or basic. Mordants include tannic acid, alum, chrome alum, and certain salts of aluminum, chromium, copper, iron, iodine, potassium, and tin. [Available at <http://en.wikipedia.org/wiki/Mordant>]

groups, each group consisted of 6 members. All members in the same group soaked their own cotton yarn in the same mordant. Then they immersed mordant soaking cotton in 6 different types of plants.

From the experiment, all participants not only understood how to use mordant for assisting cotton fiber in efficiently clinging to the dyestuffs, they also knew more various shades of color as well. Aunt Nang, one of four leaders of weaving group, said

“Our group tries to find local materials to use most for not spending too much on outside materials. At present, we buy cotton yarn only. The dye can be found from our community forest. We can create 100 shades of colors from 5-6 original colors consequent upon our experiment.” (The Knowledge Communities, 2004)

For the part of weaving, the expert members revived and developed more 2 new patterns: Kled- Tao and Num-Hlai, from 4 original patterns: normal pattern, Song, Sam and Mook. However, most members could not weave all of the patterns. They basically learned to weave all original patterns and additional 2 new patterns afterwards. From this project research, the villagers gathered holistic knowledge of natural-dyed cotton weaving and make the experiment of color, pattern and design development. These activities made them produce more acceptable production that resulted in more income. A number of members increased from 10 persons to 60 persons with revolving capital of 100,000 baht.

All members are now proud of their own products from sustainable natural-dyed cotton weaving. They also satisfy with increasing income. Recently, they can earn approximately 2,400 baht per month beyond their regular income.

“I really appreciate natural-dyed fabric weaving activity. Though I am too old, capable to invest money without getting any support from my children. I am happy and very proud of myself.” said Mae Fong Bungmek.

The benefits that Pongkhum participants gained from their research are more than expect. These benefits include:

1. Sharing and learning between *expert* and *beginners*; the beginners, who are less skillful, have opportunity to learn natural-dyed creation and various patterns of fabric woven from the masters to enhance their expert.
2. Sharing and learning between *elders* and *youths*; the youths learn local knowledge from the elders and practice its activity with them. They also share both knowledge and opinion, which gradually help to bridge the generation gap between them. In addition, the elders' lonely feelings have been very much reduced and they achieve much more happiness in their rest of life.
3. Sharing and learning among *local groups of natural-dyed fabric weaving in Santi Suk district*; in this project, the agent of Pongkhum group has chance to visit other village groups with 'best practice' to learn and share their knowledge in fabric production and management. After that Pongkhum group transmits this lesson to other group members in Pongkhum village through the record.

Nowadays, Baan Pongkhum is acknowledged among community development organizations to be the vigorous village and model community. It is also an information resource for the students and interested people. This great pride and willpower encourage Pongkhum villagers to maintain their value and virtue for years to come. Baan Pongkhum is an example of small community whose villagers practice their own knowledge and enhance their original and local wisdom to be new knowledge, which can be applied properly for the practice based on cultural way and local resources.

5. Analysis

Phra Somkid Jaranathammo acts as mediator trying to link new dyeing technique using mordant to a weaving group who have already had her own knowledge and skills in natural dyeing. The Pongkhum group needs modern science and technology of mordant to solve the defective natural dyed cotton of the local technique, which is less receptive to dyestuffs. As the mediator, Phra Somkid applied scientific experiment to transfer and integrate this new dyeing technique into the local technique for better quality of products. Additionally, Pra Somkid also has a research team as his co-mediator.

Knowledge Spiral 1 *Reviving local dyeing technique*

Mediator: Phra Somkid Jaranathammo

Co-mediator Research team

Local Knowledge 0 (LK₀): Pongkhum dyeing technique embodied in individual

Modern Science and Technology 1 (MST 1):

scientific techniques including observation, analysis and taking note

New Knowledge 1 (NK 1): - dyeing technique of Pongkhum villagers

- skills in scientific techniques

From the group meeting initiated by Phra Somkid, the members of Bann Pongkhum Naturally-Dyed Hand-Woven Lao Phuan Textile Group would share their idea, knowledge, opinion and experience which embodied inside and co-mediator (the research team) would act as the notetakers (Socialization-Externalization). With the help of co-mediator

in taking note and motivating, they could revive their own knowledge and skills and formalized these knowledge in a written form as manual (Combination). After the meeting, Phra Somkid let them spend time in practicing this new and let them spend time to practice this Pongkhum dyeing technique. Acquired knowledge and skills from practicing became new tacit knowledge in individual (Internalization). Through these processes, a group was also taught about scientific technique including systematic thinking, observation, analysis and taking note. At the end of this step, the group gained the skills in scientific techniques, as well.

During practicing the new Pongkhum dyeing technique, Phra Somkid and his co-mediator closely followed up the group. This follow up step enabled the mediator to move up to the second spiral of knowledge.

Knowledge Spiral 2 *Processes of new dyeing technique using mordant*

<i>Mediator:</i>	Phra Somkid Jaranathammo
<i>Co-mediator</i>	research team
<i>Local Knowledge 1 (LK₁):</i>	Pongkhum dyeing technique
<i>Modern Science and Technology 2 (MST 2):</i>	use of various mordant to protect the natural dyed cotton against fading
<i>New Knowledge 2 (NK 2):</i>	new dyeing technique

Another meeting was organized again. This time Phra Somkid used After Action Review (AAR) technique by asking everyone to express what happened, why it happened, what went well, what needed improvement, and which lessons could be learned from individual experience (Socialization). From what they found and what Phra Somkid and his co-mediator observes, they all accepted that this was a weak point of their products. They mutually made a conclusion that their dyeing technique was insufficient to produce natural dyed cotton, which had the property of color against fading from wash and light fastness (Externalization).

At this point, therefore, it was easy for Phra Somkid to introduce the new technique in dyeing which he gained by searching from literatures and obtaining dyeing knowledge from academicians and experts outside Pongkhum village. As a result, everyone easily accepted. Phra Somkid and the research team integrated new knowledge with Pongkhum local knowledge of dyeing, systematized and recorded knowledge in a manual for using as the criterion for all members of the group. The content in this manual consists of 6-step method of dyeing and mordant process. (Combination). Through the experiment set by Phra Somkid, the new technology has been transferred and adjusted for use. Every member captured new dyeing technique of using various mordant to increase the color fastness of their natural dyed cotton against fading from light and wash. Moreover, all weavers also practiced 6-step dyeing method in order to produce standard and quality Pongkhum natural dyed cotton. A well integration between the new technology and the old one was occurred during the experiment. Meanwhile, these integrated knowledge becomes their new knowledge which is embodied again (Internalization).

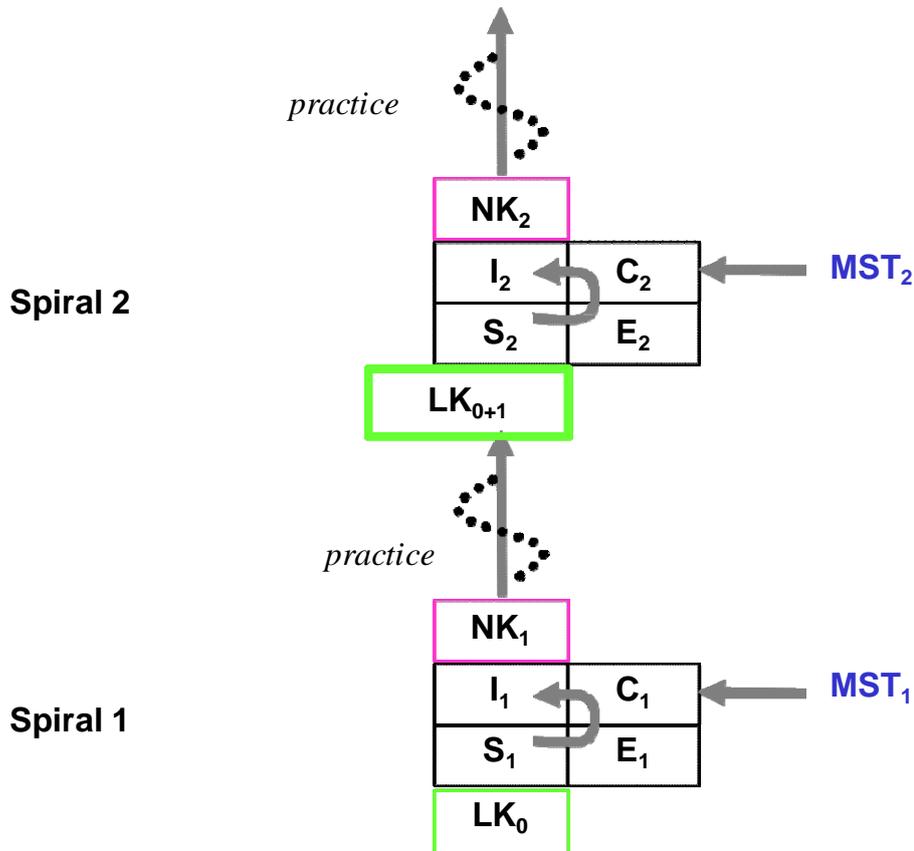


Figure. 1 The integration process of local knowledge (tacit knowledge) and modern science and technology (explicit knowledge) into new knowledge can be analyzed using SECI model of knowledge creation as follows:

6. Conclusions

In conclusion, to empower local people by raising up their local knowledge through the spiral of knowledge creation, Phra Somkid, who is a mediator, has performed many roles including:

1. As an initiator, to gather and establish a group which have the common interests and own the same skills and motivate them and show the value of their heritage.
2. As an facilitator, to encourage the group in telling stories, to motivate the group to think and to share, to provide information they needs, to organize meeting or workshop etc.
3. As a note taker, to capture and summarize into manuals by working with his co-mediator.
4. As a monitor, to follow up and supervise a group.

7. Key informant

Phra Athikarn Somkid Jaranathummo was born in Pongkhum village on June 1st, 1963. He was grown in a needy agricultural family. After finishing elementary school, his parents couldn't support him to pursue in higher education, hence he had to work hard in paddy farming in order to help with the family budget. Then in 1977, he was ordained at Pongkhum temple (*wat* in Thai) of his native village where *wat* is the best school of poor children. With his endeavor in studying, he ultimately passed the exam of the final grade called '*Nakdham Ek*' in Buddhist education and graduated Master of Arts(human and environmental management) in secular education.

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