

Pre-service Teachers' Perception towards the Implementation of the SECI Model for Reflective Knowledge Management

Jariya Sudtho

Abstract

This paper aims to examine the use of the SECI Model developed based on Nonaka's theory to promote interactions between the tacit and explicit knowledge for the creation of new knowledge. The study purposively selected 60 fourth-year students, or pre-service teachers (PSTs), who were enrolled in the course, "Developing and Evaluating English Teaching Innovation". To examine the use of the SECI Model, the researcher implemented the SECI Model over six steps, which are shared vision, free-writing, editing, sharing, talking to the expert and producing instructional innovation. The study employed both quantitative and qualitative research approaches, including survey, observation, and semi-structured interview to ascertain PSTs' thoughts about the use of the SECI model. The results were positive as the PSTs could see the potential of enhancing idea generation processes related to language education.

Introduction

Knowledge management has been a focus in the field of education where exchanging of information and learning strategies are regarded as an important matter. At the most basic level, knowledge management refers a set of practices that helps improve the sharing of information used in decision-making (Jones & Sallis, 2013). In teacher education, knowledge management is crucial for the development of teachers as a community of practice, but also for the institution (see Santo, 2005; Sheehy, 2008). Pedagogy based on the principle knowledge management is useful for encouraging collaborative learning, place value on one's experience or knowledge, and supporting independent learning (see Robertson, 2008; Wheeler & Wheeler, 2009). Because of the collaborative nature of knowledge management, it can be said that the learning process is similar to how an organization makes use of different expertise in the workplace because both requires bringing individual capacity to be shared in collaborative manner.

There are different frameworks for knowledge management but one that is of interest to the current study is the SECI model. This model combines aims to raise the level of knowledge within an organization. SECI stands for socialization, externalization, combination, internalization – a model of knowledge creation proposed by Ikujiro Nonaka. The model shows the combination of tacit knowledge and explicit knowledge generated from bringing ones' thinking to be united with others in the team in order to promote knowledge management in an organization. In education, the SECI model can be useful in making students experience new ways of learning and sharing in order to strengthen their ability and skills. In the context of this study, Thailand, the SECI model has been used minimally. To date, it has only been adapted into an English classroom by Thammaraksa (2013).

For teacher training institutions, various kinds of instructional activities have been used to ensure PSTs' learning achievement. Presenting pre-service teachers with various types of pedagogical principles and approaches is important as it guides pre-service teachers to gain access to new knowledge to improve teaching professionalism. Ways in which pre-service teachers are exposed to novel or different principles and approaches may come from different funds of knowledge, such as systematic, prescriptive, or personal (see Kennedy, 2002). Being involved in a knowledge management activity can also address some research issues in the area of teacher development. For instance, Pedro (2005) mentioned that minimal has been done regarding the examination of pre-service teachers' writing of what they thought of teaching. Communicating what they think through knowledge management also gives the chance to pre-service English teachers, especially those whose first language is not English, to think of their language proficiency and their status as non-native English language teachers (Pavlenko, 2003; Lim, 2011).

In the context of the current study, Sisaket Rajabhat University – a teacher training institution, it is expected that teachers are trained to be innovative, well-rounded, and progressive. For this reason, equipping them with different types of learning experiences such as that offered through knowledge management activities, and preparing them to teach in all diverse situations become necessary. With this premise, this study attempts to examine whether using knowledge management is helpful to support collaborative reflection among the participants, as well as their English communicative abilities.

Literature Review

Knowledge Management in Pre-Service Teacher Education

As mentioned earlier, knowledge management is a valuable concept that recognizes the sharing and forming of insights, expertise, and information that will be of value to others in a community of practice (Santo, 2005). In teacher preparation programs, knowledge management, through various formats such as face-to-face, collaborative, or online, have been acknowledged for allowing PSTs a space for notions about teaching can be consolidated or deconstructed (Wheeler & Wheeler, 2009). Typically, knowledge management involves the generation, codification, and transfer of information (Hoefling, 2001). This process includes going public with beliefs or attitudes that one holds, such as the dissemination of scholarly work through journals. Furthermore, this process also necessitates one to express his or her beliefs or attitudes in ways that are understandable to others. Knowledge management, then, can serve a two-fold purpose, that is to share thoughts and opinions, but also to provide PSTs with a space where they can practice how these thoughts and opinions may be expressed (see Wheeler & Wheeler, 2009 for example).

In teacher education, knowledge management has been used as a site for pre-service and in-service teachers to reckon with their existing, conflicting, or new-found notions about teaching (Hogan & Gopinathan, 2008). Learning opportunities which allow knowledge management may address the “changing expectations about the nature and importance of knowledge production and management in schools that are organized as professional learning communities and by growing calls for new forms of professional apprenticeship in pre-service education” (Hogan & Gopinathan, 2008, p. 378). Beliefs or attitudes which are typically implicit may emerge to allow examination. What this process does is it allows self and other relevant social entities to enhance or contest beliefs or attitudes, leading to a potential problematization. For instance, in the study by Van Driel, Beijaard, and Verloop (2001) on teacher knowledge in educational reform, examining existing beliefs and practices through a public and collaborative manner (akin to knowledge management) highlighted the need to change some pedagogical approaches, which have been reinforced through practical knowledge attained from experiences of being a PST or experiences as a teacher.

Aside from a door into implicit aspects such as beliefs and attitudes, knowledge management, whether face-to-face or virtual, will provide a safe space where teachers can share thoughts and opinions which may help them gain confidence in communication, and legitimize their status as a member of a particular community (Wheeler & Wheeler, 2009). Speaking or writing in a public space also allows PSTs to think of their communicative purposes: specifically, taking into account audiences beyond the realm of their class. This is vital as teaching in itself is a social act (Wheeler & Wheeler, 2009).

There have been various proposals for knowledge management systems. These systems may be contrasted based on their starting point. For instance, the ‘ba’ model takes into account of the context of knowledge creation; that is, knowledge is not context-free, and its creation takes into account who the participants (of the knowledge creation process) are, and who this knowledge is intended for. Another example is the identification of knowledge assets, which are crucial information one needs to innovate. In other words, changes for better knowledge need to consider existing knowledge (see Nonaka, Toyama, & Konno, 2000). Another model, which was utilized in this study, is the SECI model. This model takes an interest in transforming and consolidating tacit

knowledge into explicit knowledge. An extended discussion is provided in the next section, and its justification of use in this study is provided later.

The SECI Model

According to Nonaka and Takeuchi (1995), knowledge creation is a spiraling process of interactions between tacit and explicit knowledge (see also Nonaka, Toyama, & Konno, 2000). The interactions between the tacit and explicit knowledge lead to the creation of new knowledge. Nonaka and Takeuchi acknowledged Polanyi's work as their source for the concept of tacit knowledge and have developed its more practical side. In this context, Nonaka and Takeuchi proposed that tacit knowledge also includes cognitive skills such as beliefs, intuition and mental models as well as technical skills such as know-how. It is important to relate tacit knowledge to Nonaka and Takeuchi's SECI model of knowledge creation because the model places tacit knowledge at its heart and suggests that organizations have to find ways of communicating and capturing tacit knowledge. The SECI model is the interplay of four knowledge processes, namely, socialization, externalization, combination and internalization in converting tacit knowledge to explicit knowledge and vice versa. Each process can be further elaborated as following:

1. Socialization: From tacit to tacit

This first step explains the relationship between people in transferring tacit knowledge or knowledge that people do not get from being taught, or from proper classroom teaching method, etc. but get from personal experience. That means members of the group have chances to meet and discuss their experiences in order to let others learn from these previous life lessons.

2. Externalization: From tacit to explicit

The second process points out the importance of extracting tacit knowledge to become explicit knowledge. There are various ways to allow the conversion of tacit to explicit knowledge such as presenting ideas through book, conference presentation or common classroom practices. Explicit knowledge is the type of knowledge conveyed through articles, books, seminars, and video presentations. There is no need to have direct experience with something to have explicit knowledge about it but people can get this kind of knowledge from other's experiences.

3. Combination: From explicit to explicit

The third process refers the combination of different types of explicit knowledge collected from different sources. Then, this knowledge can be re-organized in order to be suitable with an organizational need.

4. Internalization: From explicit to tacit

The fourth process mentions the bonding between explicit to tacit knowledge in that the knowledge gained can be adapted individually. Members of the organization can learn through actual practices, with the support of guiding explicit knowledge extracted within the organization. Then, each member can attain the expected knowledge.

This model is considered to be in line with the learner centered approach since both modes of gaining new knowledge highlight the importance of the process and objectives of learning rather than to the content delivery alone. The following visual can aid the understanding of how to adapt knowledge management to create new knowledge for learners.

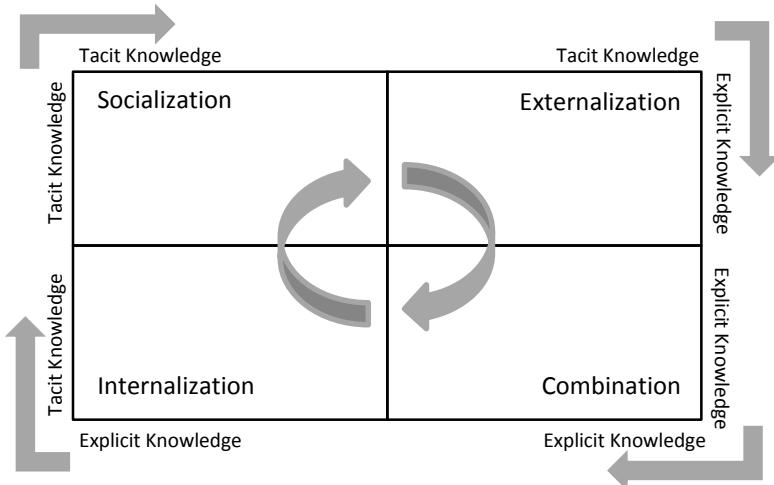


Figure 1. Spiral of knowledge creation (Nonaka & Takeuchi, 1995)

Collaborative Reflection in Teacher Development

Reflection is important in pre-service teachers' development as it supports the integration of content knowledge, pedagogical knowledge, and praxis. Praxis, according to Breunig (2005), is the transformation of an abstract idea or theory through reflection into a purposeful action. Hence, praxis is "reflective, active, creative, contextual, purposeful, and socially constructed." (Breunig, 2005, p. 111). In a similar vein, studies such as that by Pedro (2005) have shown that reflection can act as a bridge for pre-service teachers to connect the theoretical with the practical within the larger context beyond their teacher education classrooms. Reflection is also necessary for one to make sense of his/her position within the community of practice (Gelfuso & Dennis, 2014). It allows pre-service teachers "to explore possibilities, and to reflect on their pedagogical practices and their emerging roles as teachers" (Urzúa & Vásquez, 2008, p. 1945).

While reflection can be done individually, it is through working with others that "one is able to identify the issue(s), and hence ascertain possible solutions." (Loh, Hong, & Koh, 2017, p. 3). Furthermore, through collaborative reflection, one may be able to problematize monolithic discourses in the deconstruction of homogenous assumptions of the classroom or the broader learning environment (Loh, Hong, & Koh, 2017). Given a suitable setting, pre-service teachers may be able to utilize the communal nature of collaborative reflection to rethink pedagogical beliefs or attitudes and to build a sense of belongingness to a community that offers support (Martin & Double, 1998; Krutka, Bergman, Flores, Mason, & Jack, 2014).

While reflection individually or collaboratively may appear to be an abstract notion, it has been accepted as a mode of active learning. This is because reflection, if done well, can be an educative experience where reflective thoughts bring about new meanings leading to growth and concrete actions (Bringle & Hatcher, 1999). Aside from this, reflection can also help one identify issues or questions which are yet to be resolved (Eyler, 2002), especially when other perspectives are taken into account through collaboration. Wiemer (2002) proposed several principles for promoting students' active learning, with minimal intervention from teachers. These principles are elaborated briefly below, with references made to components of the SECI model (explanation of this model is provided in the next section):

1. *Learning involves the active construction of meaning.* This concept parallels the SECI model in that people within each context should be actively involved in sharing experiences and contributing to the task.
2. *Learning facts and learning to do are two different processes—which explains why students can seem to understand but still fail to apply theory.* This is why learners should be provided with opportunities to bring their existing knowledge to actual practice. For example, they should

learn how to express what they know (tacit knowledge) to ensure that they can apply the abstract notions or theories to real-world use.

3. *Students need practice in extrapolation and transfer of knowledge.* When students work in groups, as proposed by steps in SECI model, learners tend to have ample opportunities to transfer knowledge to each other, especially at the socialization stage.
4. *Learning with others is more effective than learning alone.* A major concept of the SECI model is to promote collaborative learners in order to socially construct new knowledge. This means learners will work in pairs or small groups to discuss concepts, or find solutions to problems.
5. *Meaningful learning is facilitated by articulating explanations to one's self, peers, or teacher.* Similar to the idea that two or three heads are better than one, it is expected that through peer instruction, students teach each other by addressing misunderstandings and clarifying misconceptions.

From the discussion of knowledge management and collaborative reflection, I believe it is now more apparent how these two notions can be complementary. Knowledge management in the area of language teaching, while possible to be conceived in isolation, is more fruitful when relevant social entities are engaged. The collaboration between different pre-service teachers may also guide in the process of articulating tacit knowledge, transforming it into explicit knowledge (and perhaps concrete actions); thus, fostering a sense of legitimization and ownership over knowledge that is relevant and contextualized. The collaborative approach to knowledge management, ultimately, may lead to a better understanding of various sources of knowledge, and how these sources interact with each other (Kennedy, 2000).

The Study

The Use of SECI among Pre-Service English Teachers

The reason of using SECI in the current research context lies in the fact that knowledge management is needed in order to allow the participants to engage in a knowledge generation process. Since the nature of teacher training school consists of collaborative learning, sharing best practices and applying skills learnt from class to teaching practices, adapting SECI model can be useful in providing opportunities for the participants to know how to bring the tacit knowledge from members of the class to generate new knowledge. Moreover, the content of the research setting also promotes innovation in teaching which includes learning approaches, instruction model and knowledge management. This is the appropriate setting for adapting SECI to the classroom where collaborative learning is valued, as well as stressing on the importance of bringing tacit knowledge to the explicit level.

The content of this course is to allow PSTs to engage in writing reflections, and to be confident in using English communicative skills while reflecting. The course was designed to let them reflect on 1) professional role identity 2) experience as language learners 3) factors contributing to success or failure when they use the target language

Using a written approach to the SECI Model will also give a particular condition under which pre-service teachers will need to reflect. As shown by Lee (2005), the ways in which teachers reflect may be influenced by the reflection setting. Changes in aspects such as personal background, mode of communication, content of the reflection, protocol of dialogue and questions, and placement context may be variables which affect the quality and content of reflection. Writing reflections was chosen because speaking in English, among foreign language learners, has been found to be an anxiety-inducing process (see Rahimi & Zhang, 2015).

Study Context

I was heading a module called “Developing and Evaluating English Teaching Innovation”, aiming at promoting pre-service teachers’ ability to grasp basic knowledge on how to integrate

various teaching innovations. Pre-service teachers being introduced to a variety of teaching models, together with instructional resources, and then evaluating these models and resources were important and a common pedagogical practices in the course. The class met weekly for three hours, 14 times in total. The common instructional methods included lecture, group discussion, and presentation. PSTs were also required to create teaching materials as a final project.

Data Collection

Taking into account the study of Thammaraksa (2013) and Parl (2014), I employed a mixed approach for data collection, namely, written reflective pieces by PSTs and exhaustive ethnographic observational notes by me, followed by a survey questionnaire distributed to all PSTs, and finally, a focus-group interview conducted with some of the PSTs. Prior to data collection, PSTs were informed about the nature and purpose of this study, and all of the PSTs agreed to participate.

The first phase of the research was the implementation of the SECI Model for knowledge management. To integrate the SECI model in the classroom, the researcher adapted the procedures proposed by Thammaraksa (2013). In her study, she used designed the 6 learning activities, in line with steps in SECI model in trying to encourage participants to bring tacit knowledge to become explicit knowledge in her Fundamental English class. The spread of the SECI components after various types of tasks support the notion of reflection on a notion continuously, with different tasks providing a slightly different shade of understanding of a belief or attitude (e.g. Eyler, 2002).

Table 1. Alignment of Learning Activities with SECI Model

Learning Activities (Thammaraksa, 2013)	SECI Model
1. Shared Vision	Socialization
2. Freewriting	Externalization
3. Editing	Externalization
4. Sharing	Combination
5. Talking to the Experts	Combination
6. Producing Instrumental Innovation	Internalization

This study used her methodology as a guideline since the previous study was also carried out in Thai university and the level of proficiency of both groups of students were similar. The alignment of activities with the SECI Model is presented in Table 1. The participants were 60 fourth year PSTs, who were purposively selected since all of them enrolled in the same class. The researcher was responsible for the first four steps of the model. For Step 5, the researcher invited an external expert. The six steps included are as follows:

1. Shared Vision

At the first week of the class, the participants (PSTs) were encouraged to think about their writing skills in relation to their reflective practices. After that, each group shared ideas briefly before the class. The class came to consensus to focus on writing skills since they agreed that this productive skill is very crucial for their expression of ideas and organize their thinking. The topic that the PSTs agreed to write about was “the role of teacher” as they think that they felt comfortable expressing their opinions about what a teacher should be. Before doing that, the PSTs and I had a brainstorming session where useful phrases and words that might be helpful for their writing were explicitly presented. We came up with phrases, which acted as reflective prompts, such as “the teacher needs to act like ...”; “In order to be a good teacher, I have to ...” and “To me, teacher means....”. This collaborative exercise facilitated by the researcher was necessary as expecting the PSTs to work independently seemed an arduous and novel task. This may stem from the Thai PSTs’ cultural system, where harmonious relationships and face need to be maintained through guidelines set by someone with authority (see Baker, 2008).

2. Freewriting

This activity was done by allowing each PST to write about the same topic, using the same groups of vocabulary, together with the writing prompts. For example, some of the PSTs chose to write about “teacher as a doctor”, so they could use some related words such as healer, modify, arrange or medical and emotional aid, etc. The topic aimed to motivate the PST to think about his or her teaching profession, as well as practicing writing. For this reason, the topic was “teacher role”. The writing prompt was, “I think teaching is like a (profession) because -- . They were assigned to include three supporting details to explain their ideas about their teaching role compared to other professions. The length of this writing was one hundred words.

3. Editing

This process was done when PSTs shared their written work to their classmates. At this stage, the researcher also pointed out common ideas and writing mistakes. Later, they were grouped in threes to re-write the paragraph before exchanging their work again with other groups for review and editing. Next, the group would share their writing process with their peers. This was done to transform tacit knowledge into explicit knowledge as proposed by the SECI model. When the participants exchanged the “best practices” from their peers, they were expected to use the knowledge to improve their writing performance in later tasks.

4. Sharing

Tips on how to write well were shared by circulating brochures made by each PST. The brochure represented the explicit knowledge of each learner. They set up small exhibits to showcase their writing tips. The researcher facilitated their learning process by asking them to summarize possible adaptations from their peers’ brochures presented to them. When evaluating the brochures in relation to what they have learnt from the SECI activities, they were reminded to have a clear purpose of writing. For example, they had to think about 5 Ws (Who, What, Where, When, Why) and how to provide a clear explication to answer those questions. Limited space in the brochure made them learn how to use variety of text features to convey specific information to the audience. Later, they had to go through group editing process where grammar, punctuation and spelling were checked.

5. Talking to the Experts

English experts from an external university were invited to share their experience of learning English. There were two experts who were invited. They came from a nearby university to ensure that they understood the nature of PSTs’ context, which is the northeastern part of Thailand. They shared their experience of learning English from movies and practicing English via PR (public relation) activities. The PSTs had the opportunity to ask and discuss ways to become better language learners, in order to be more sympathetic to their future English students. This process was done to allow the PSTs to learn several technique and strategies from experts. Furthermore, speaking with experts may guide or affirm PSTs’ beliefs and attitudes towards learners of English and pre-service teachers of English (Lim, 2011).

6. Producing Instructional Innovation

The participants worked in groups to create English learning materials according to their own interests. They were allowed to use their own creativity such as video recordings of the lesson learnt from the project, or creating lesson plans relevant to the topic that they have studied.

Throughout the six steps, the PSTs were asked to write a reflection after each process was done. Here, they were also guided by some prompts such as “What I have learnt is that ...”; “The steps of learning in SECI model were ...”; “Sharing ideas with my group made me.....” and “The challenges I have faced were ...” and “Next time, I think I will”. Providing them with these prompts helped them have a starting point of how to express themselves since reflection was quite new to them. The reflective process aimed to provide deeper learning by looking at situations through a

different lens and by asking themselves critical questions that challenged one's assumptions about the world around them (Breunig, 2005; Pedro; 2005; Urzúa & Vásquez, 2008; Loh, Hong, & Koh, 2017). In this case, it meant that they had opportunities to think about how they viewed the creation of knowledge in different way from they have had experienced. They were also asked to express their satisfactory level regarding the learning model of each stage.

During the six steps of implementing the SECI Model, I also took notes based on what I observed and what I heard through the discussion of the PSTs. This was akin to Park's (2014) study, where the researcher kept a keen eye and ear on what the PSTs were experiencing. Not only will this divulge my own subjectivities, it will also help me make transparent what I deem critical for my understanding of my PSTs' journey to becoming an educator. After the implementation of the SECI model, I distributed a short survey asking for the perceptions of the PSTs. This was the second phase of data collection. The results of this survey was tabulated descriptively. To better understand the PSTs' reflections, my observations, and the survey results, I also interviewed six participants. The interview is the third and final phase of data collection. There were six PSTs who were purposively selected for an in-depth interview about their learning experience through SECI model. The interviews were carried out face-to-face so that a rapport can be created with respondents. The interviews were structured as a focus-group discussion, where the researcher asked them to reflect how they deal with each process of SECI model. Bearing in mind that successful in-depth interviewers listen rather than talk, the interview was more of a guided conversation than a staccato question and answer session (Kelly, 2003). They were asked to express whether they felt like the process helped them learn or realize anything, or how they gained or did not gain knowledge. The interview was then transcribe verbatim, and content analysis was used to extract salient themes.

Findings and Discussion

To begin the discussion, I will describe some of the observations that were made throughout the implementation of the SECI model. Since the aim of the class was to encourage the use of the English language for reflective purposes, I took note of language use among the PSTs. When give the opportunity to express themselves, the PSTs seemed to be less passive than they used to be. Normally, the nature of writing tasks is based heavily on a teacher's feedback rather than on the result of socialization between PSTs. However, when using SECI model, PSTs were allowed to talk to their friends and in a safe environment. They appeared more relaxed when using language to talk about themselves, and because they were provided with writing prompts, they knew what they had to say, and they consult with their friends to produce longer stretches of interaction. While I was able to establish a space for reflective practices were encouraged, I discovered that both personal and collaboration reflections needed guidance. It appeared that this exercise was novel to almost all of the PSTs. This called for very explicit guidelines. Moreover, having to write was very challenging for the PSTs since it required cognitive load to express thoughts into precise words and sentences. Nonetheless, the challenge was alleviated because of help from peers.

I believe that the PSTs thought that the SECI knowledge management model was good in that it provided a novel approach to learning; instead of sitting quietly and listening to the instructor. The model allowed them to use creativity and innovation without the worry of making mistakes because they were allowed to consult with their classmates and teacher. They expressed that it was quite surprising to know that writing should start with a purpose, such as that which they had engaged in "shared vision". Normally, they would simply respond to something their teacher had asked them to do without thinking about the audience or reasons they had to do so. After engaging in-group work, they learnt that purpose was very vital because it could be an essential core for reflective practices, as well as writing. Moreover, they liked to work in the sharing sessions where fellow PSTs could look at each other's contributions and discussed them. It allowed them to consider how others have worked. For this reason, they shared some tips and techniques from other classmates to improve their writing in the future (through the brochures and classroom sharing).

To better gauge what was observed during the implementation of the SECI Model, I distributed a survey which asked for the participants' satisfaction level. As seen in Table 2, the PSTs were generally satisfied regarding the implementation of SECI, with a mean score of 4.40 and above. The PSTs' responses were also mostly aligned, seen through the standard deviation scores.

Table 2. Satisfaction Level of PSTs on Using SECI Model in Learning

Survey Items	Mean	S.D.
1. The sharing vision process allows PSTs to make decision about their own learning focus	4.60	0.49
2. Free writing activity makes PSTs express their idea with adequate scaffolding	4.60	0.49
3. Editing process makes PSTs examine others' works and reflects on their own writing	4.20	0.40
4. Sharing makes PSTs know how others learn and can use that knowledge to improve	4.20	0.40
5. Talking to the expert allows chances to learn new ways of studying English	4.80	0.40
6. Producing instructional innovation enhances PSTs to learn by doing things	4.80	0.40
7. Learning through SECI model allows chances to use creativity	4.80	0.40
8. PSTs are satisfied with learning by doing	4.40	0.49
Overall Mean Score	4.55	0.50

After the implementation of the SECI Model for knowledge management and the distribution and completion of the survey among the PSTs, I conducted a focus group interview with six PSTs who were purposively selected. These six were selected because they exhibited a range of qualities which I deemed interesting. Some of which were eager and enthusiastic to share, and those who were reserved, perhaps due to a lack of confidence in interacting with others. The focus group discussed about the six steps of the SECI Model implementation.

1. Shared Vision

With regards to the shared vision discussed by the PSTs, I discovered some common threads through phrases which recurred regularly throughout the focus group interview. These phrases are, "exchange ideas, group discussion, determine the scope of study, diversity in thinking and force to think", all of which were linked with the reflective process they were engaged in. In the interview, the participants shared that they did not actually know what they expected from this particular learning exercise, but when they were asked to think about it and share their ideas in groups, it made them learn how to conceptualize their ideas about learning English. One of the interviewees said, "I don't really know about my goal in learning English. I only know that I want to be able to use the language for reading, speaking and writing. Nothing specific, really. After this process, I kind of understand the reason behind learning, that it helps me with organizing my thoughts. That's why we need a structure for everything, including brainstorming with friends before doing the task".

2. Freewriting

For this particular step, there were interesting results. All six interviewees agreed that free-writing was a challenging assignment because of the content, despite the discussion that ensued beforehand. The reason was because it was not easy for them to provide reasons to compare between a teacher's roles with other professions. They had to think and jot down several ideas before commencing writing. Furthermore, they could not express what they wanted to say in English because of their limited vocabulary; hence, they used google and other online tools to help them. One of them said, "It's very challenging when I have to think about a term that is difficult to explain in English. I don't really know which word to use, so I use an online dictionary.

When it gave me options, I just picked words that I felt like they were familiar and put them in my piece of writing. Hopefully, they might be correct ones”.

Then, the stage of externalization starts when approaching the third step where PSTs learned from each other by editing their free-writing in groups.

3. Editing

A majority of the PSTs saw that the process of editing as the very “confusing and have a vague idea of what to do”. Since the PSTs thought of themselves as non-professional writers, it was very difficult for them to edit other’s work. Nonetheless, some of the interviewees were able to evaluate their peers’ writing and reflect on their own. One interviewee said, “I was noticing some common errors from my friends’ writing such as using wrong pronouns and repeated verbs and I thought that I sometimes do the same. It made me realize that I had to be careful when writing. It was embarrassing to make small errors like that, especially if we are planning to be English teachers.”

4. Sharing

Despite the challenges faced in the initial steps, the interviewees indicated that making the brochure was considered a fun process because the PSTs could reflect on what they have learnt freely. However, writing reflections became problematic for some of them as they did not know what to write, apart from a descriptive report without any evaluation about each step of the learning. One interviewee revealed that the process was a “moment of struggle about what to write” but “an enjoyable event when seeing friends’ brochures”. This presented a positive side of seeing explicit knowledge of their peers. Through this, they could compare their explicit knowledge and thought about what they could do to improve their learning process.

5. Talking to the Experts

After the sharing was done, the interviewees reflected that they “learned new ways to develop themselves by using different media” and “realized that using English in a different field could give creativity because it made us know new ways of English usage, as well as new vocabulary”. It also gave assurance to the PSTs to know that the experts had undergone similar experiences about language learning in the past.

6. Producing Instructional Innovation

The PSTs chose to do variety of innovation. For example, one of the interviewees chose to do a video clip by interviewing his classmates who were quite successful in learning the English language. He conducted a brief interview about tips and motivation that the person had when learning and how she overcame difficulties in communing in English. Another representative chose to conduct a pop-up book for teaching writing since the person had seen their own problems in writing during the free writing stage and thought that focusing on how to write various sentence structures was vital; hence, he decided to use his experience to be the starting point of making others learn about using different sentence structures.

Concluding Remarks

What I have observed in using the SECI Model in my teaching is that it has the potential to facilitate learning at different planes – communicative skills and professional development (see Robertson, 2008). Furthermore, its implementation paralleled an authentic environment where PSTs received feedback on the quality of their writing, as well as on their reflections, and when PSTs’ reflection on their professional identities prompted others to respond (Robertson, 2008)

While the SECI model garnered general acceptance among the PSTs, there were still some who were not receptive towards the model. This is probably due to the language challenges that the PSTs faced. PSTs who were reluctant to participate may have been hindered by their perceived lack of proficiency in English, and not about the quality of their contributions (Wheeler & Wheeler, 2009). Aside from language proficiency, cultural constraints may have also affected the productivity of

PSTs, such as the value of face in Thai culture, as well as the apparent hierarchy between teacher and students (Baker, 2008). Nonetheless, there was an agreement among the participants that the SECI Model provides an alternative avenue for generating ideas related to language learning approaches. It also allows the PSTs to consider the value of their own personal journey as English language learners in light of broader theoretical notions about language learning. The results were relevant to Wiemer's (2002) claim that collaborative learning could encourage people to learn more than working alone as the students from the current study seemed to gain more knowledge through examining their peers' explicit knowledge.

However, the process of making explicit knowledge becomes tacit knowledge did not occur easily, especially without teacher's assistance. Nonaka and Takeuchi (1995) stated that learning is a social process where exchange of types of knowledge can be promoted. In this current study, it showed that the lack of explicit instructions of certain of the SECI processes limits the knowledge creation and transfer knowledge and thereby the ability to innovate. Perhaps this is also linked with the PSTs' cultural system, where expectations of teachers need to be clearly outlined, and how these expectations can be achieved need to be provided (see Baker, 2008).

Though this study gleaned insightful details regarding the perceptions of the PSTs, the question of authenticity may still arise, such as that pointed out by Krutka et al. (2014). To address this issue, perhaps a longitudinal study needs to be carried out. Future studies could also consider other forms of data, such as observational data from PSTs teaching. In terms of the relevance of the SECI Model, it may be insightful to examine the model's application in other learning contexts for the purpose of comparative studies. Not only will we conceptualize attitude towards knowledge that is culturally nuanced, but we will be provided with examples of social processes pertinent to knowledge management. Aside from these research implications, an important take-away from this study is the necessity for a proper support system to be in place. Gelfuso and Dennis (2014) argue that while the study of the value of reflection in teacher education has been extensive, little attention has been paid to studying the process of facilitating reflection that is beneficial to both the pre-service teacher and his or her supervisor, especially in cultural contexts where there is an apparent distance or hierarchy between different social entities.

About the Author

Jariya Sudtho obtained a PhD in Applied Linguistics from the School of Liberal Arts, King Mongkut's University of Technology Thonburi, Thailand. Her research interests include teacher identity, English language education, reflective practices and discourse analysis. She has published extensively throughout Southeast Asia, namely in the *Asian EFL Journal* and *Pertanika Journal of Humanities and Social Sciences*. Email: gate.jariya@gmail.com

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