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LEARNING BY TEACHING: Action Research into Changes in Metalearning Capacity of Taiwanese Secondary School Students

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LEARNING BY TEACHING:

Action Research into Changes in Metalearning Capacity of

Taiwanese Secondary School Students

A Thesis Submitted for the Degree of Doctor of Education

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by

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LEARNING BY TEACHING:

Action Research into Changes in Metalearning Capacity of Taiwanese Secondary School Students

SHU-WEN LIN

Abstract

This is an action-based study, aiming to investigate the design, implementation, and evaluation of a pedagogical innovation intended to encourage the development of metalearning capacity in Taiwanese secondary school students. Even though the customary approaches to learning may boost performance in examinations, the students may have also established ignorance of themselves as learners and of the appropriateness of various learning strategies in different situations. In order to develop students into lifelong and self-directed learners, it is valuable to promote their awareness of their learning processes in different contexts and encourage them to take control over their learning strategy selection and deployment (Biggs, 1985).

The innovative program was a year long English as a foreign language (EFL) elective course in a Taiwanese secondary school, developed and field-tested through a two-cycle action research project. The participants were grade 10 students (12 in the first cycle and 15 in the second) who took full part in the program. The first-round study collected data mainly from the students' reflective journals; the second-round study involved additional data sources, including a semi-structured interview and an open-ended questionnaire. Qualitative content analysis, using the coding schemes modeled after previous literature, was adopted to examine the data.

This study suggests the principles to facilitate the development of students' metalearning capacity, namely engaging students in counter-normative role-taking experience, guiding them towards a deeper level of reflection, and building reciprocal interactions among students and between students and teachers. Resistance to this process of transformation might be related to the contextual culture in which the innovative program was situated, and could possibly be addressed by encouraging a change in teacher role and responsibility as well as in overall school climate.

Declaration

No part of the material offered in this thesis has previously been submitted by me for a degree in this or in any other institution.

Acknowledgements

I wish to express my deepest gratitude to my supervisors, Dr. Julie Rattray and Dr. Caroline Walker-Gleaves, for their invaluable guidance and support throughout my research journey. My sincere thanks also go to all of those who participated in or assisted with this research program.

Chapter 1 – Introduction

1.1 Introduction

This thesis presents an action-based study of an innovative pedagogical program aimed at encouraging secondary school students to reflect on their learning and at enhancing their metalearning capacity. My motivation for this research stemmed from my anecdotal observations of and experiences in Taiwan's secondary education system, as well as the Taiwan government's promotion of the importance of learning-to-learn skills. I observed during my own learning and teaching experiences that, in a secondary school classroom setting in Taiwan, there is often a lack of learning about one's own learning, such as learning goals, strategies, and strengths and weaknesses. Reflection on the course of my own study in school revealed that I had been learning primarily for the purpose of obtaining the higher possible score on the Joint Entrance Exam. The learning environment was rather monotonous. My time in school was often filled with various types of tests and exams, with excessive time allotted for mechanical practice to memorize subject content. Teacher-directed instruction was the norm, and prescriptive, teacher-determined answers were viewed as the only "standard" answers. Soon after I started my teaching career, I began to grow increasingly dissatisfied with my teaching, as the process appeared to be a reproduction of my own school experience. My students grew dependent on me for directions for learning. For example, they often asked me how to score higher on English tests, expecting that I knew the "single best correct" answer. Having been stimulated by the students' questions, such as "Why do I constantly forget the vocabulary I have learned?" and "How do I find the meaning of a text?", I began to think about how I myself learn. This was a question that I had never explicitly thought about when I was a student. I could not help but ask myself how my students would be affected if they could go through a similar experience to the one I experienced.

In addition, shortly before I proposed my thesis plan, the Taiwan Ministry of Education updated the curriculum guidelines for senior high schools, with a new emphasis placed on logic and critical thinking, creativity, reflection, and learners' self-management (Ministry of Education, 2009). Some researchers and practitioners in Taiwan (e.g., Chen, 2012; Cheng, Yeh, & Su, 2011; Dai, 2011) have studied or addressed such an emphasis.

Despite the acknowledgement of the emphasis on thinking skills and learning process as the feature of the guidelines, it has been identified that there are perceived difficulties in putting it into practice (Chen, 2012; Cheng, Yeh, & Su, 2011). Furthermore, newspaper reports (e.g., Chen, 2015) have added that, five years after the implementation of the curriculum guidelines, secondary school students in Taiwan remain weak in planning for, monitoring, and reflecting on their own practices.

With the foregoing motivations, I aimed this research at contributing to the principles and practices of encouraging students to become aware of how they learn and to manage their own learning. The remainder of this chapter introduces Taiwan's educational context, establishes the importance of metalearning, and outlines how this thesis seeks to address the lack of thinking about learning of secondary school students in Taiwan.

1.2 Changing Taiwanese educational context

After starting my career as a secondary school English as a Foreign Language (EFL) teacher in 2008, I customarily began a new unit by making it clear to my students when they should expect to take the unit test, and I aimed to cover what they needed to learn by that time. I expected that, through this approach, my students would be able to accumulate adequate knowledge to perform well in the high-stakes examinations. This anecdote is similar to other practitioners' descriptions of the current state of secondary education in Taiwan, where teachers usually play a dominant controlling role in class. They tend to adopt a uniform schedule, standardized tests, and a whole-class lecturing format as their dominant teaching approach. This situation has been legitimized through the content-packed curriculum, national joint examinations, large class size, and limited class time (Hwang, 2014). During Taiwan's educational reform efforts, which began in 1994, there has been a lopsided emphasis on modifying the examination system by replacing the high-stakes paper-and-pencil Joint Entrance Exam with multiple assessment methods and entrance schemes (see, for example, Chang Chien, Lin, & Chen, 2013; Hsieh & Brock, 2013; Hwang, 2014). However, this is an oversimplified means of achieving the aims of reform. In suggesting an alternative approach, the following aspects of the reform must be addressed.

First, the reform has attempted to facilitate change from the current authoritarian system towards one in which power and responsibility are shared, and to increase flexibility within the education systems. In addition to a more diverse assessment system and more open admission policy, less prescriptive curriculum guidelines enabling more interpretation by teachers have replaced the centrally prescribed curriculum standards that detailed the content of each subject and pedagogy practice (Murphy & Liu, 1998). Another educational reform movement has called for students to "work smart" (Li & Fischer, 2004). Traditionally, a general belief has existed in Taiwan that a great amount of time and effort dedicated to learning ensures familiarity and mastery. Learners are expected to engage their minds and hearts throughout their learning processes from the beginning to the end, over a long period of time. In addition, students and teachers acknowledge that building a solid foundation is necessary for a higher level of learning. These attitudes are reflected by the relatively ordered and well-organized learning process, which progresses from shallow to deep, simple to difficult, and concrete to abstract. Memorization and repetition are two concrete practices employed to this end (Hwang, 2014; Li, 2001; Li & Fischer, 2004; Ren, 2014; Van Egmond, Kühnen, & Li, 2013; Wong, 2008). Alternatively, students are currently more often encouraged to use effective strategies, such as managing tasks, organizing time, and avoiding boredom, to promote task efficiency (Li & Fischer, 2004).

Finally, a more individualist and demonstrative mentality has recently been introduced into secondary schools (Chen, 2014; Li, 2009; Li & Wegerif, 2014). It has been suggested that conventional beliefs about learning in the Taiwanese context can be characterized as a pursuit of self-perfection for the purpose of contributing to society, which leads to constant self-examination, self-criticism, admission of inadequacies, and continual self-improvement. Verbal exchange is routinely postponed until the achievement of mastery and thorough understanding. Students are encouraged to engage in verbal interaction, such as discussion, debate, and argument, only in a responsible manner, after the consideration of collective interests (Li & Fischer, 2004; Li & Wegerif, 2014; Van Egmond et al., 2013). Power relations also determine the extent to which verbalization is acceptable. Customarily, students are likely to be less critical of respected others and cautious in questioning those who are regarded as more knowledgeable than themselves (Chan & Rao, 2009; Flowerdew, 1998; Haller, Fisher, & Gapp, 2007; Ren, 2014).

Regarding peer relationships, social norms in Taiwan require students not to elevate themselves above others (Flowerdew, 1998). This concept of humility leads students to downplay their performance and be reluctant to give comments or feedback to their peers (Flowerdew, 1998; Haller et al., 2007; Phuong-Mai, Terlouw, & Pilot, 2005). However, different from tradition, a growing emphasis is being placed on self-generated involvement in learning. Students gain greater autonomy and choice, which amplify the intrinsic source of positive affect towards learning, such as curiosity, interest, and enjoyment (Li, 2009; Li & Fischer, 2004). Furthermore, adopting a challenging attitude and the enthusiastic involvement in discussion and debate are more strongly advocated than before. Teachers not only support students in sharing and exchanging ideas with each other, but also engage their students in discussions, critiques, and debates so as to improve their understanding of an area of study or practice (Li, 2009; Li & Fischer, 2004).

Notably, Taiwanese secondary education has been aiming to more flexible, strategic, self-directed, and communicative approaches to learning and teaching. Students and teachers are allowed more autonomy and choice in decision making. In this respect, I think the current timing is advantageous for teachers to initiate and research innovative projects, and for students to be more actively engaged in their own learning.

1.3 Importance of metalearning

As described in the previous sections, students in Taiwan appear to have established a reliance on memorization and repetition for scoring high on tests. However, although these traditional approaches may boost performance on a test, they do not necessarily ensure good learning. Rather, these approaches are likely to limit the depth of learning. Learners who rely on these methods might be less able to adapt and transfer learning from one situation to another (Bowden, 2015; Erfani, 2011; Rush, 2008). On the other hand, students who are capable of metalearning are able to identify their assets and liabilities regarding the requirements of different learning tasks (Lemke, Budka, & Gabrys, 2013). Rather than rely exclusively on the conventional approaches to learning, metalearners can adapt themselves to various tasks and select corresponding strategies. It can be suggested that, faced with the challenges of the rapidly changing knowledge society, students flexible with cognitive skills and learning strategies are more

resourceful in terms of choice making and problem solving than their peers who passively accumulate content knowledge (Ertmer & Newby, 1996; Rush, 2008).

1.4 Research questions and study design

Given the importance of metalearning, the principal question asked in this thesis is: "How might teachers take pedagogical action to encourage students to think about their own learning?" An action research approach was adopted so that the practitioner researcher could answer this question arising from her own observations and experience in learning and teaching. A review of literature suggested guiding principles for the pedagogical action. Further, the research addressed the question: "What impact does the pedagogical action have on the participant students?" Data were gathered as the students verbalized their reflections on learning. Finally, an intended outcome of this research was to provide suggestions for teacher development that is more closely aligned with the emphasis on student thinking about learning.

1.5 Thesis outline

This introductory chapter presents the rationale and purpose of the thesis. The subsequent two chapters provide a review of the literature that is related to the concerns of this thesis (Chapter 2) and that suggests pedagogical strategies for addressing these concerns (Chapter 3). Specifically, Chapter 2 considers the concepts of metalearning and reflection, as well as their relationship. Chapter 3 suggests that sociocultural theories of learning can serve as a structure guiding the development of an innovative program that might encourage students to reflect on themselves as learners.

After the literature review, the methodology chapter (Chapter 4) explains why action research is the most appropriate method for this study. This chapter also discusses the research design and methods of data collection and analysis.

Chapter 5 details the context and participants of this research. This chapter also describes the program developed and implemented in this study, including its underlying principles and how it was carried out in practice.

This study contains two rounds of action. Chapters 6 and 7 present the results of the first and second rounds, respectively. In Chapter 6, the results (the changes of the participant students) are structured according to the framework of levels of reflection developed by Bain, Ballantyne, Racker, and Mills (1999) and framework of metalearning capacity informed by McCormick (2003) and Tarricone (2011). This chapter also presents additional themes that emerged beyond the literature-derived frameworks. In addition to the changes in the process of the action cycle, Chapter 7 investigates the students' levels of reflection and metalearning capacity one year post participation, as well as their attitudes and perceptions about reflection.

Chapter 8 discusses the main findings of this research, including the effects of the innovation and the challenges facing the innovation. The implications of this study for teaching practice and research are also suggested. Finally, this chapter identifies the limitations of this research.

1.6 Chapter summary

This chapter begins by giving an overview of my learning and teaching experience as a means of illustrating secondary schooling in the Taiwanese context. The apparent lack of student thinking about how to learn provided one source of motivation for conducting this research. In addition, Taiwan has been undergoing educational reform for the last two decades. The contemporary changes in secondary education differ to an extent from the more conventional beliefs of learning and teaching regarding agency, processes, and unity and multiplicity in thought. However, despite the emphasis of the reform on thinking skills and the learning process, students are still found to be inadequate in overseeing their own learning processes. Given the importance of metalearning, this study addressed how students might be encouraged to think about how they learn, by exploring how an innovative program might encourage them to reflect on themselves as learners.

Chapter 2 – Theoretical Framework (I)

2.1 Introduction

This study was aimed at providing an alternative to the predominant passive-receptive learning and direct instruction teaching in the Taiwanese context, to encourage students to be more reflective, and to support the development of their metalearning capacity. Metalearning involves the state of students being aware of themselves as learners and taking control over their learning strategy selection and deployment (Biggs, 1985), doing which can contribute to their success in difficult and demanding learning situations and their development as independent learners (Norton, Owens, & Clark, 2004; Ward, Connolly, & Meyer, 2013). To enhance metalearning capacity, students should be encouraged to reflect in problem solving and decision making, as suggested by Lizzio and Watkins (2004) and Tarricone (2011). This chapter reviews the concepts of metalearning and reflection, and then draws linkages between them. The results of the current literature review served as the basis for developing and evaluating the innovative program used in this study.

2.2 Metalearning

As outlined in Chapter 1 (see 1.3), metalearning is argued to be a critical part of learners' development. It refers to high-level thinking about learning (Rush, 2008) and was adopted as a key conceptual framework in this study, thus determining the scope of this research and forming the basis against which data were analyzed.

2.2.1 Metalearning as a sub-process of metacognition

In this study, the term metalearning was adopted because of its emphasis on students' learning. Biggs (1985) defined metalearning as a "sub-process of metacognition that refers specifically to learning and study processes in institutional settings (p.192)." Jackson (2004) also indicated that "the idea of metalearning sits fairly and squarely within metacognition: that part of metacognition that is devoted to the act of learning (p.395)." Since Flavell (1976) coined the term "metacognition", defining it as knowledge concerning one's cognitive processes and products in the pursuit of goals or objectives (Flavell, 1976, 1979; Flavell, Miller, & Miller, 1993), many researchers have examined the

concept. They have suggested that metacognition could be generally categorized as knowledge about cognition and as the regulation of cognition (Brown, 1987; Baker & Brown, 1984). Knowledge about cognition requires that "learners step back and consider their own cognitive processes as objects of thought and reflection (Brown, 1987, p.68)." On the other hand, the regulation of cognition comprises the activities used to regulate and oversee learning (Brown, 1987). Numerous other researchers have defined regulation mechanisms in various ways. McCormick (2003) concluded that these regulation processes share the following traits: "initial analysis of what to do, making a plan to do something, evaluating the usefulness of that plan, and then making appropriate revisions or modifications to the original plan (p.80)." Paris and Winograd (1990) continued to discuss the two dimensions of metacognition. They identified two essential features in their definition of metacognition: the "self-appraisal" and "self-management" of cognition. Self-appraisal requires an element of judgment about one's knowledge state and abilities, including what he or she knows, how he or she thinks, and when and why to apply knowledge and strategies. According to this judgment, the individual can plan and implement appropriate strategies and monitor, adjust, and "trouble shoot" their performance (self-management) (Paris & Winograd, 1990).

As mentioned, metalearning is a state of students being aware of themselves as learners and taking control over their strategy selection and deployment (Biggs, 1985). Following the pioneering works of Flavell and Biggs, research characterized metalearning as a complex mixture of learners' knowledge about learning, particularly their own learning and how they learn in different contexts, their beliefs that self-regulating is the right thing to do, and their capacities and skills to think and act on thinking in manners that make use of their self-knowledge (Jackson, 2004; Norton et al., 2004). What is more, cultivating students' metalearning capacity can aid them in adapting successfully when studying becomes more difficult and demanding, and facilitate their development as independent learners (Norton et al., 2004; Ward et al., 2013).

Ertmer and Newby (1996) shared several ideas with Biggs in their discussion of "expert learners". They posited a relationship between the concepts of expertise and metacognitive knowledge and regulation, and presented a model of the metacognitive knowledge and regulatory processes that underlie and support expert learning. Their

work illustrated that metacognitive knowledge and control interact in a dynamic fashion, and that neither one alone can facilitate the entire expert learning process. According to Ertmer and Newby (1996), expert learners not only are aware of what is essential to their learning, but also know how, when, where, and why to apply the appropriate knowledge and actions. "By using the knowledge they have gained of themselves as learners, of task requirements, and of specific strategy use, they can deliberately select, control, and monitor strategies to achieve desired goals and objectives (p.5)." Ertmer and Newby (1996) indicated, "Metacognitive knowledge provides learners with the personal insights needed to regulate their learning process in relationship to changing task demands. Together, this knowledge of and ability to regulate one's cognition are thought to facilitate expert learning (p.6)." In the context of rapid change, expert learners' metacognitive strategies provide distinct advantages: "When asked to deal with novel situations, the specific cognitive skills and learning strategies we have available become more critical than the limited content knowledge we may possess (Ertmer & Newby, 1996, p.7)."

Aside from Ertmer and Newby, work by Phelps and her colleagues adds further support to Biggs' notions of metalearning. Phelps, Ellis, and Hase (2001) developed the notion of "capable learners" and introduced metacognitive approaches to designing and delivering a computer unit offered to pre-service teacher education students at Southern Cross University, Australia. They argued that capable learners are more aware of their attitudes towards learning tasks (metacognitive knowledge) and their past and current learning approaches with regard to these tasks (metacognitive experience and strategies). All in all, expert or capable learners have not only content knowledge, but also understanding of their own learning processes and control over the selection and use of strategies for achieving their learning goals. Therefore, it has been suggested that discipline-based learning should incorporate metalearning aspects (Winters, 2013), which relates back to the fundamental rationale for proposing this study.

2.2.2 Taxonomy of metacognition

Because of the connection of metalearning to metacognition, this study was able to adopt the taxonomy of metacognition to develop a framework for analyzing metalearning capacity. Tarricone (2011) developed a comprehensive taxonomy of metacognition that,

by building on previous research (e.g., Baker & Brown, 1984; Brown, 1987; Ertmer & Newby, 1996; Jacobs & Paris, 1987; Livingston, 2003; Paris & Winograd, 1990; Schraw & Moshman, 1995; Schraw, 1998; Wenden, 1998), categorizes the construct of metacognition into two components: knowledge about cognition and control over cognition. Knowledge about cognition refers to the knowledge that a person has about "what factors or variables interact in what ways to affect the course and outcomes of cognitive enterprises (Vrugt & Oort, 2008, p.126)." The component is further divided into three subcategories: declarative, procedural, and conditional aspects of knowledge. Declarative metacognitive knowledge refers to individuals' understanding of themselves and what factors influence their performance in the course of cognitive processing (McCormick, 2003; Jacobs & Paris, 1987; Schraw, Crippen, & Hartley, 2006). As discussed as early as 1979 by Flavell, the various dimensions of declarative knowledge include knowledge of person, task, and strategy. Flavell (1979) explained that knowledge about person encompasses understanding the characteristics of oneself (intraindividual variables), similarities and differences between oneself and other people (interindividual variables), and universal properties of human beings in learning (universal variables). Another type of declarative knowledge concerns task nature and demands as well as their implications (Flavell, 1981). More specifically, it includes, for example, identifying similarities and differences across tasks, clarifying task demands and purposes, judging the level of task difficulty or complexity, and defining tasks on the basis of pre-established criteria or previous knowledge (Livingston, 2003; Tarricone, 2011; Wenden, 1998). The other dimension of declarative knowledge is that of strategy—knowing what means, processes, or actions are likely to achieve what goals in what types of cognitive activities (Flavell, 1981). Procedural metacognitive knowledge concerns knowledge about procedures of thinking about something and how to sequence them. Conditional knowledge includes knowledge of why and when to use a specific strategy, which enables an individual to assess the demands of a particular cognitive activity and make a flexible decision on appropriate strategies for it (McCormick, 2003; Jacobs & Paris, 1987; Schraw et al., 2006).

The definitions of control mechanisms are varied. For example, Tarricone (2011) included control over judgments and feelings about knowing as metacognitive control components, despite Moseley et al. (2005) having warned of the danger of such an all-

encompassing expansion of constructs. Therefore, the current study centered the focus of the taxonomy of metacognitive control on the commonly agreed executive processes of planning, monitoring, and evaluating (McCormick, 2003). Planning occurs before the undertaking of a cognitive activity, which involves metacognitive processing such as selecting appropriate means of proceeding with the activity and allocating necessary resources that affect performance. Monitoring refers to the on-line testing, revising, and rescheduling of a person's approach to a cognitive task. Finally, an individual evaluates the quality of any strategic action according to its effectiveness (Brown, Bransford, Ferrara, & Campione, 1983; Jacobs & Paris, 1987; Livingston, 2003; McCormick, 2003; Schraw, 1998).

Although presented as discrete components, knowledge about cognition and control over cognition (and the subcategories of each) are not independent of one another, and are even reciprocal (Bråten, 1991; Schraw & Moshman, 1995; Wenden, 1998). For example, according to people's knowledge of their own strengths and weaknesses as well as abilities (knowledge about person) or perception of the task nature and demands (knowledge about task), they set task objectives to be attained and manage the resources necessary for achieving the objectives (planning). During the process of reaching the objectives, people must make a decision about whether to maintain, revise, or reject the earlier choices made at the planning phase (monitoring) according to knowledge about themselves or that of a repertoire of effective practices (knowledge about strategy). In the end, knowledge about person or task also affects the evaluation criteria that people establish to measure performance (evaluating). What is more, the results of examination of the process and outcomes feed back to people's metacognitive knowledge (Wenden, 1998).

Figure 2.1 illustrates the taxonomy of metacognition. Because of the close relationship between metacognition and metalearning, a framework for identifying aspects of metalearning demonstrated by students could be derived from this taxonomy. In order to make this high-level thinking explicit, learners should step back and consider the process as an object of their reflection. The next two sections (2.3 and 2.4) review the literature on means of accomplishing this.
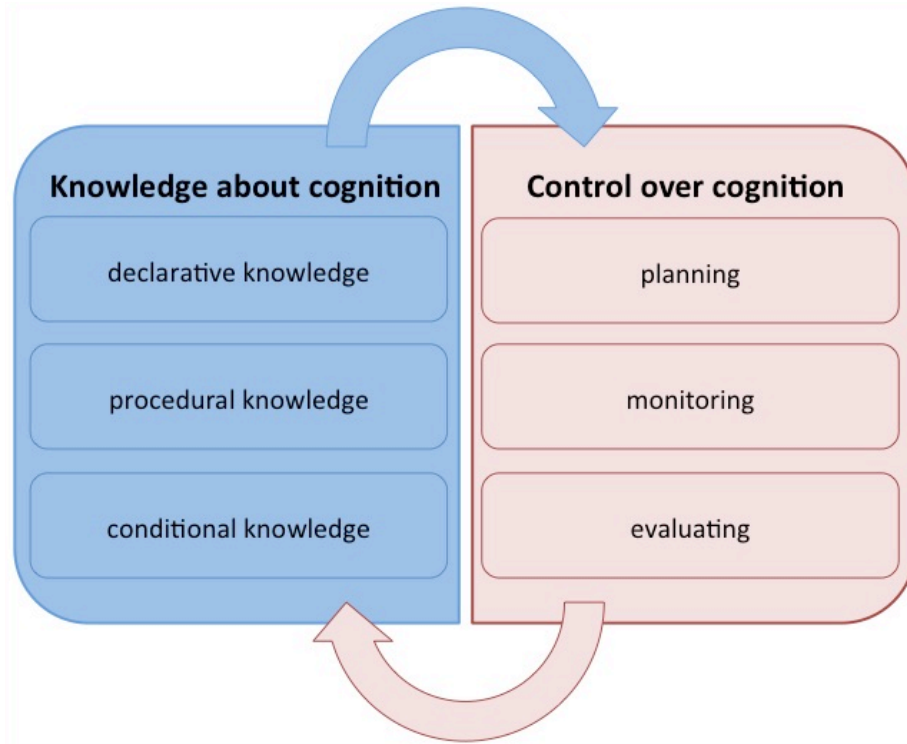
Figure 2.1
Taxonomy of Metacognition

2.3 Reflection

In recognition of reflection as a process for achieving metalearning capacity (Jackson, 2004; Lizzio & Wilson, 2004; Tarricone, 2011), this section introduces and explains the concept of reflection, and describes the approaches through which reflection can be observed and analyzed.

2.3.1 Demystifying reflection

Dewey's perspective on reflection has laid an important theoretical foundation for understanding this concept. According to Dewey (1933), "active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it, and the further conclusions to which it tends, constitutes reflective thought (p.6)." When people observe a situation that is ambiguous, puzzling, or necessitates alternatives, they require the postponement of immediate action. They need to search in memory for potential solutions, following which the succeeding action is expected to be intelligent (Dewey, 1933). Concurring with Dewey's idea that reflective thinking involves "willingness to endure a condition of mental unrest and disturbance (Dewey, 1933, p.13),"

Schön (1983) reassured the importance of the state of uncertainty and encouraged confrontation with confusion or ambiguity. Finally, Boud, Keogh, and Walker (1985) defined reflection as "a form of response of the learner to experience (p.18)." They also proposed attending to both the affective and cognitive aspects of reflection.

The process of reflection is different from routine action that is not based on careful thought or assessment (Rodgers, 2002a), and comprises the following phases. First, reflective thinkers observe and describe an experience in rich detail, and then compare and contrast it with other events. Throughout this process, people may experience uncertainty, confusion, or ambiguity. To address these issues, they must examine evidence as well as ascribe meaning and interpretation to it. Finally, a particular course of action is implemented according to the explanation generated for this experience (Rodgers, 2002a, 2002b; Valli, 1997). Researchers (e.g., Rodgers, 2002a; Valli, 1997) urged that reflection not be limited to individual, isolated ways of thinking. Fuller and more complex reflection takes place in community, through collective effort. Learners may be engaged in dialogue about what they know and how they know it (Çimer, Çimer, & Vekli, 2013; Rodgers, 2002b).

In spite of its significance, reflection for learning is not customarily recognized as part of the performance-driven, exam-focused pedagogy. Student thinking and the consequences of and alternatives to action have consistently been neglected by teachers (Hung, 2014; Valli, 1997). Certain situations in teaching contexts, such as a curriculum without flexibility and tests that must be taught to, hinder the development of reflection. Moreover, feelings of vulnerability that result from exposing one's perceptions and beliefs to others, or of self-blame for any perceived weaknesses uncovered through reflection, may lead to resistance to integrating reflection into the class experience (Hatton & Smith, 1995; Rodgers, 2002a; Spalding & Wilson, 2002; Wildman & Nile, 1987). In Chapter 3, pedagogical strategies that facilitate students' development of reflection and thus capacity for metalearning will be discussed.

2.3.2 Typology of reflection

Valli (1997) emphasized the criticality of improving the quality of learners' reflection. They should be supported to progress through a developmental continuum of levels of

reflection. Applying a typology offers an opportunity to guide and analyze the quality of reflection.

Bain and colleagues (1999) developed a five-point level of reflection scale comprising reflections that are *reporting*, *responding*, *relating*, *reasoning*, and *reconstructing*. At the very surface level of reflection, *reporting*, people only report, describe, or retell what has happened, without providing personal insight. Moving onto the *responding* level, people respond to the source data with little transformation or conceptualization. They make judgments according to observation of the present event. However, they neither make additional inferences nor justify their judgments in detail. Level three, *relating*, refers to the type of reflection that relates an event to other experiences and conveys personal meaning. Adopting this form of reflection, people identify their strengths, weaknesses, mistakes, or what they learned from practical experience. However, these are merely superficial relationships. The people cannot provide an in-depth explanation of why something has happened, or identify a plan or change for the future. As the reflection reaches level four, people exhibit profound reasoning. They demonstrate a deep understanding of why something happened by integrating the event into an appropriate relationship with theoretical concepts or personal experience. In other words, a relationship between theory and practice is demonstrated. Additionally, personal insight, inferences, experiences, or previous learning is used to explain one's own or others' behavior or feelings. At the subtlest level of reflection, *reconstructing*, people show a high level of abstract thinking and the ability to generalize from an experience. They can formulate personal theory, take a position on an issue, and reframe or reconstruct future practice on the basis of reflection (Bain et al., 1999; Ryan, 2013). This scale of Bain and his colleagues is more inclusive than those proposed by other researchers, such as Hatton and Smith (1995), and can discriminate more precisely between the *responding* and *relating* levels of reflection. Table 2.1 compares the framework of levels of reflection developed by Bain and his colleagues (1999) and that proposed by Hatton and Smith (1995).

Table 2.1

Comparison Between the Frameworks of Hatton and Smith (1995) and Bain et al. (1999)

Author	Levels of reflection				
	surface				deep
Hatton and Smith (1995)	descriptive	dialogic		—	critical
Bain et al. (1999)	reporting	responding	relating	reasoning	reconstructing

The typology of reflection should not be regarded as an "increasingly desirable hierarchy (Hatton & Smith, 1995, p.35)." Rather, it is a developmental sequence that involves "successive levels of depth, transformation or criticality (Fook, White, & Gardner, 2006, p.13)." A descriptive mode of reflection often serves as the basis that leads to other types of reflection. Beginners start with the relatively simplistic or partial technical type, work through different forms of reflection, and finally reach a critical or transformational level (Fook et al., 2006; Hatton & Smith, 1995). Furthermore, people move from a largely personal focus to a contextual focus on the broader society as they work through different levels of reflection along the depth continuum (Ryan, 2012, 2013).

2.4 Relationship between metalearning and reflection

Because of the emphasis of this study on students' learning in a school setting, the remainder of this thesis uses the term "metalearning" to refer to students' knowledge about and control over their learning. As discussed at the beginning of this chapter (2.1), metalearning was selected as the research domain in response to the predominant approach to learning and teaching in Taiwan. Reflection, whose linkage with thinking about how to learn has been drawn (Winters, 2013), is believed to be able to bridge a complex problem-solving experience and metalearning.

Numerous researchers have contended that metalearning capacity can be taught and is modifiable (e.g., Livingston, 2003; McCormick, 2003; Schraw, 1998; Tarricone, 2011; Wenden, 1998; Whitebread et al., 2009). Others (e.g., Lizzio & Wilson, 2004; Tarricone, 2011) have suggested that metalearning can be developed through reflection in problem solving contexts. These contexts challenge and stimulate uncertainty about prior

knowledge, understandings, and experience, and thus foster reflection. Deeper, more critical reflection raises awareness of the self, tasks, and learning strategies, which then becomes available for the applications of planning, monitoring, or evaluating (Baird, Fensham, Gunstone, & White, 1991; Ertmer & Newby, 1996; Tarricone, 2011). Additionally, more sophisticated reflection takes learners' focus beyond the one that is immediate, personal, to consider broader contextual aspects of learning (Johnson, 2002; Kurtts & Levin, 2000; Ryan, 2012, 2013; Valli, 1997). On the other hand, reflection, including verbalization, serves as meditational means of taking formerly unconscious, implicit, or tacit knowledge and processing and making it explicit (Alanen, 2003; Desautel, 2009; McCormick, 2003; Shraw & Moshman, 1995; Tarricone, 2011). Reflection can come from within a learner or from other people. Supported by techniques such as journaling and discussion, reflection involves a purposeful turning inward that mediates the transition from social to individual processing (Kuhn, 2000; McCormick, 2003; Paris & Winograd, 1990; Tarricone, 2011).

In short, a main thread of this research is the development of reflection to promote metalearning capacity. I hope to draw on an analogy of the science of sonar to explore the relationship between metalearning and reflection, as shown in Figure 2.2: learners who are more deeply and critically reflective can possibly reach a greater capacity of awareness and control of their own learning.
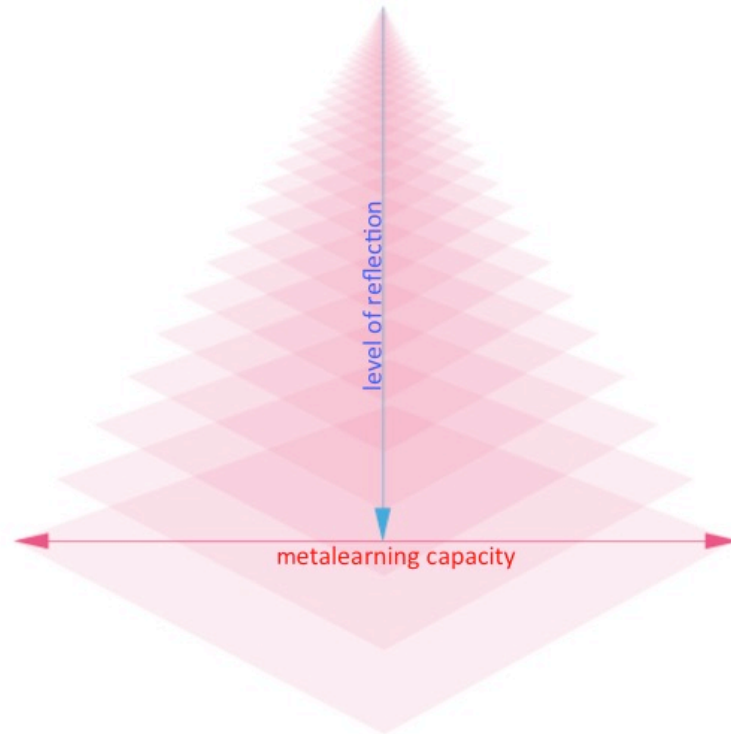
Figure 2.2
Relationship Between Metalearning and Reflection

2.5 Chapter summary

This chapter describes the development of students' metalearning capacity as a response to Taiwan's dominant learning and teaching approach, and highlights the significance of metalearning in transforming students into expert or capable learners. Students' knowledge and control of learning in the school setting constitute the scope of this study. Under these two main categories, the construct of metalearning comprises declarative, procedural, and conditional forms of knowledge, as well as mechanisms for planning, monitoring, and evaluating learning processes. Reflection serves as a vehicle to promote students' metalearning capacity, and bridges the concrete and abstract and the affective and cognitive aspects of learning. The process embraces uncertainty, potentially leading to reframing and reconstructing students' understanding and practice of learning. The typology of reflection and taxonomy of metalearning constitute the preliminary frameworks for analyzing the quality of students' reflection and their metalearning capacity. However, after initial data analysis, further modification is necessary to adapt the frameworks to the current context.

Chapter 3 – Theoretical Framework (II)

3.1 Introduction

Chapter 2 concludes by suggesting that learners who are more deeply and critically reflective can possibly possess a greater capacity for awareness and control of their own learning. However, focusing the reflection of students on their own learning processes is an alien way of thinking and practicing for most secondary school students in Taiwan. This is because, as noted in Chapter 1, the students traditionally do not claim ownership of their learning in school. Therefore, the present chapter aims to propose a pedagogical framework for enhancing the students' reflection on themselves as learners. This chapter first introduces the theories that informed the pedagogical strategies that could advance the goal of this research. These theories posit that students' unique experience with the world serves as a catalyst for reflection, and suggest relationships and interaction among students and between students and teachers that lead to deeper, critical reflection. The remainder of this chapter elaborates on the specific pedagogical strategies to engage students in reflecting on how they learn.

3.2 Sociocultural learning theories

A coordinated sociocultural perspective of learning was adopted for this research. Without downplaying the differences among various approaches, Stetsenko (2008) argued for the "distributed, situated, embodied, dialogical, and dynamical nature (p.475)" of learning, as opposed to a knowledge-transmission or positivist view of learning. She contended that learning is necessarily shaped by various social and cultural factors and exists at the intersection of individuals and their environments (Stetsenko, 2008). The following theories, which broadly agree on the aforementioned nature of learning, were drawn on to inform the pedagogical strategies employed in this study.

3.2.1 Philosophy of experience

The ideas of Dewey with regard to experience and reflection have been recurrent educational themes. Dewey (1938) questioned the traditional scheme of education for its imposition of knowledge from above and outside. The required subject matter and methods of learning are disconnected from the concrete experience of learners. He

argued that it is more sensible to base education on learners' personal experience. However, he added, "Experience and education cannot be directly equated to each other (Dewey, 1938, p.25)." The quality of an experience is determined by (1) its connection with further experiences, and (2) whether and how the experience enhances interaction between an individual and the environment. The former factor is termed the principle of continuity, and suggests that present experiences must be built upon past experiences and prepare learners for future experiences. Teachers must ensure that what their students learn becomes an instrument of understanding, and that the students can effectively deal with subsequent experiences of a deeper and more extensive quality. The latter factor, the principle of interaction, makes it clear that teachers must be able to utilize objective surroundings, physical and social, to build up experiences that interact with their students' internal aspects, such as personal needs, desires, purposes, and capacities. Because the condition in which learning situates change constantly, teachers cannot exercise personal authority throughout the process. Rather, everyone involved in this condition is obliged to contribute to the learning experience (Dewey, 1938). Dewey (1938) perceived the principles as the "longitudinal and lateral aspects of experience (p.44)."

Aside from emphasizing experience, Dewey (1933), as discussed in an earlier section (2.3.1), also acknowledged the importance of reflection in connecting the concrete and abstract. He viewed reflection as a conscious and systematic approach to thinking that is distinct from "mere haphazard mulling over something (Rodgers, 2002a, p.849)" and modes of thought that are "unsystematic, lack evidence, based on false beliefs or assumptions, or mindlessly conform to tradition and authority (Valli, 1997, p.68)." Dewey (1933) argued that individuals learn more from reflecting on experiences than they do from the actual experiences. Therefore, to stimulate reflection and support learning, teachers must create a learning experience that is appropriately challenging to their students' prior knowledge and understanding.

3.2.2 Social constructivist perspective of learning and teaching

From a social constructivist view, social and interpersonal factors can facilitate the construction of knowledge, that is, people's subjective interpretation of experience in their individual context (Vygotsky, 1986). Woolfolk, Hughes, and Walkup (2008) noted

that Vygotsky's theory highlights "the social sources of individual thinking, the role of cultural tools in learning and development, especially the tool of language, and the zone of proximal development (p.52)." Language is important in that knowing and learning are constructed between people before being internalized (Daniels, 2001; Vygotsky, 1979; Woolfolk et al., 2008). People's development, particularly in higher mental processes such as "voluntary attention, logical memory, the formation of concepts, and the development of volition (Vygotsky, 1981, p.163)," emerges from their sociolinguistic processes at the social institutional level (Kanuka & Anderson, 1999; Wertsch, 1985). In addition, Vygotsky's theory of the zone of proximal development emphasizes the assistance of others in the individual construction of knowledge. By co-constructing learning with significant others, such as teachers and peers, individuals can achieve a greater capacity than they could on their own (Wells, 2000; Vygotsky, 1978).

As applied in teaching practices, the zone of proximal development concerns how the aforementioned sociolinguistic processes can be structured to maximize the growth of mental processes within an individual. First, the sociolinguistic processes can be embodied as dialogic processes that engage students and enable teachers to determine the levels of the students' understanding. Then teachers lead their students from there to a higher level of development (Christou, 2011; Verenikina, 2003). Rather than imposing a prescribed objective on students, teachers challenge their students to set goals that have personal significance to the students (Wells, 2000). Furthermore, according to Wells (2000), language plays a central role in coordinating and facilitating joint activity within the zone of proximal development. Language, as well as other forms of communication, is an artifact that mediates learning and development (Daniels, 2001; Wells, 2000). Language contains meanings related to social pragmatics, environment, timing and the beliefs of people, and passes them from one individual to another. By committing to the mastery of such an artifact, an individual is able to assimilate culturally shared knowledge and understandings (Kanuka & Anderson, 1999; Papadopoulou & Egglezou, 2010; Vanderburg, 2006; Wells, 2000).

A social constructivist perspective views the classroom as a community of inquiry. The formation of individuals, their identities, values, and knowledgeable skills depend on the events in which the individuals are involved, the institutions of which they are members,

and the wider cultures in which those institutions are embedded. Social interaction in a formal educational setting involves collaborative groups engaging in both dialogic knowledge building and individual discovery (Wells, 2000). In addition to the interaction between students and teachers, those among students facilitate their learning with and from each other. Students and their peers are sources of alternative ideas, against which they can test their own ideas. Through processes of shared meaning making, such as discussion and negotiation, students first imitate socially situated speech and then internalize the language or experience, resulting in learning and development. The individual learning and development, in turn, contribute to the transformation of one's community (Kanuka & Anderson, 1999; Vanderburg, 2006; Wells, 2000).

3.2.3 Emancipatory perspective of learning and teaching

In opposing the "banking" approach to learning and the metaphor of students as sponges or empty vessels (Freire, 2000; Shor, 1993), an emancipatory perspective argues for a democratic, mutual, and transformative student–teacher relationship. First, the democratic character of the relationship involves teachers sharing class ownership with their students through dialogue and negotiation and emphasizes students' self-discipline and collaboration. Students' "power to discuss, to work, to create (Freire, 2013, p.33)" is recognized. Applying Freirean educational philosophy to practice, Shor (1993, 1996) replaced authoritarianism and teacher-centeredness with pedagogies that were dialogical and constructivist in nature, inviting students to participate in constructing their own learning (Reilly, 2013). Intertwined with the first character, the character of mutuality refers to a denial of one-way lectures to students. Instead, teachers learn "with" and "from" their students. From an emancipatory perspective, the content and materials of education are situated in students' life experiences. Teachers pose problems derived from student life, social issues, and academic subjects. They receive student responses that inform them of their students' characteristics such as needs, conditions, speech habits, and perceptions (Shor, 1993, 1999). Finally, the transformative character of the emancipatory perspective suggests that authority be transformed into a co-constructor of knowledge, passive individuals into active subjects in learning, and conformity into dissident awareness. Students are engaged in critically examining, questioning, and interpreting the lives they lead; in discovering their meaning and value; and in considering means of changing instead of accommodating reality. The students are also

encouraged to act according to how they perceive the world, hence avoid dichotomizing reflection from action (Freire, 2000; Reilly, 2013; Shor, 1993, 1999).

An emancipatory classroom is a meeting place where all the participating subjects (i.e., teachers and students) collaborate to construct knowledge in a horizontal fashion. They speak with each other about the topics and themes within their context, making use of the knowledge they previously constructed. Shor (1993) suggested that teachers in a Freirean classroom must be a problem poser, dialogue leader, and researcher. As mentioned, teachers should pose problems drawing on their students' experience and existing knowledge and then present the problems in language accessible to the students, guaranteeing the students' equal speaking rights as themselves in dialogues. Furthermore, teachers must ensure that the dialogues are rigorous, with a sense of structure and direction (Roberts, 2012; Shor & Freire, 1987). To fulfill these responsibilities, teachers are suggested to undertake school- and community-based research into various domains of their students (Shor, 1993). It is maintained that teachers will not lose power as a result of sharing power and responsibility in learning with their students. Rather, they will gain power to counteract the deprofessionalization of teaching as they become less dependent on prescriptive curricula and standardized measurements (Butin, 2003). Over all, the emancipatory perspective suggests that teachers cease to control students and that the students become active subjects in learning. Implementing this approach may be beneficial in transferring learners from a dependent role to assuming control and agency over their own learning, which is a critical component of metalearning capacity.

The aforementioned theories of learning provide a foundation for designing pedagogical strategies for attaining the goal of this study. These theories suggest that an emphasis be placed on engaging learners in concrete experience, encouraging them to reflect on their experiences, and establishing a dialogic relationship not only among learners but also between students and teachers. The following section describes strategies of enacting the sociocultural theories, including experiential and service-learning strategies.

3.3 Pedagogical strategies for promoting conceptual change

Because the aim of this research—encouraging students to become aware of how they learn and take control over their own learning processes—runs counter to the dominant exam-driven teacher-controlled approach to learning in the Taiwanese context, pedagogical strategies alternative to the traditional ones, such as transmission and accumulation, are necessary. Instead of merely mimicking whatever works for others, it is crucial to examine existing assumptions, identify and validate alternative perspectives, and ultimately develop a transformed mode of subjectivity and discourse (Mezirow, 1985, 1990, 2009; Stacey & Stickley, 2012; Taylor & Jarecke, 2009).

The previous section (3.2) argued for a theoretical framework encompassing the philosophy of experience as well as social constructivist and emancipatory perspectives of learning and teaching to support the pedagogical practices of this study. This framework, illustrated in Figure 3.1, comprises interlinked axes of experience, reflection, and interaction. Experience, compared to students' prior knowledge and understanding, can lead to a state of uncertainty and stimulate reflection. A deeper, critical level of reflection potentially encourages a reexamination and reconstruction of students' understanding and practice of learning. Interaction among different parties of participants in an education community mediates such a process from the interpersonal to the intrapersonal plane.
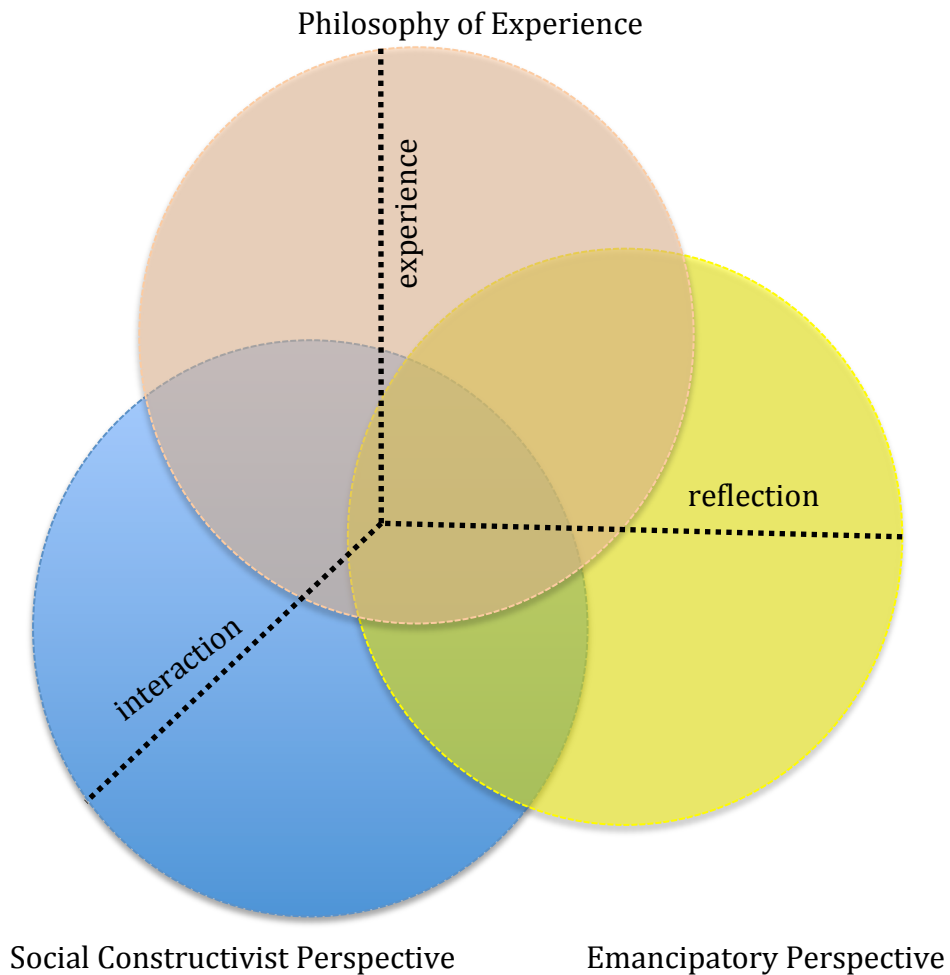
Figure 3.1
The Study's Theoretical Framework of Pedagogical Design

According to these theoretical considerations, it is argued that individuals are most inclined to learn when they are challenged by uncertainty and, simultaneously, comfortably supported by interpersonal relations (Taylor & Jarecke, 2009; Wilhelmson, Åberg, Backström, & Olsson, in press). Hence, pedagogical strategies are employed to strike a balance between challenge and comfort (Cousin, 2006; Land, 2014; Walker, 2013). Moreover, an alien concept can be understood and internalized through reflection and argumentation. These processes first arise from external relations among people and are then transferred into their hearts and minds, shaping their language (McCulloch & Field, 2014). Studies have further suggested that students become engaged in learning a concept through "socially situated learning processes that facilitate a reconstitutive change in practice (Yip & Raelin, 2011, p.334)," and that it is one of the teachers' roles to challenge students' assumed ways of thinking and behaving (Burch, Bradley, & Burch,

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2014). Some practical recommendations are described as follows. First, students should experience variation, so that they become more aware of multiple perspectives and more able to challenge personal or cultural assumptions (Yip & Raelin, 2011). This proposition concurs with that of Perkins (2006), which suggests the comparing and contrasting of perspectives. In addition to realizing that there are diverse views regarding a particular concept, students are obliged to observe how others translate the concept into operation in different circumstances. According to Yip and Raelin (2011), before personally experimenting with new practices, the exposure and observation of various perspectives and practices allows students psychological safety. Second, students should participate in experiential exercises so as to develop the concept into a concept-in-use. Although Yip and Raelin (2011) appreciated experience within the classroom setting, they valued even more highly students' engagement in solving problems in real time. The authors also suggested that interaction in a group setting produces the most conceptual and behavioral change because dialogue among the group members serves as a sounding board for underlying assumptions. As students become more conscious of the application or misapplication of a certain concept through experience and discussion, they are more likely to take clearer, better informed, and more defensible actions. Third, students should receive feedback from their peers to enhance reflection. Journaling, self-assessment, and peer feedback are methods through which students connect their prior knowledge and practice with their current stage of development, making sense of their own learning processes (Raelin, 2006; Yip & Raelin, 2011). In addition, it is pivotal for teachers to construct appropriately sequenced experiential exercises, and to provide scaffolding when necessary to engage students in evaluating both their existing and emerging understanding (Burch et al., 2014; McCulloch & Field, 2014). To do so, teachers must remain attentive to "where students are coming from and what their uncertainties are (Land, Cousin, Meyer, & Davies, 2005, p.53)." With these theoretical underpinnings and practical recommendations established, the remainder of this chapter presents the pedagogical strategies applicable to this study.

3.3.1 Experiential learning

Experiential learning ties in closely to the current research goal of promoting students' capacity for reflection and metalearning, and to the aforementioned sociocultural pedagogical framework. Experiential learning defines learning as "the process whereby

knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience (Kolb, 1984, p.41)," and posits that the more personal and immediately relevant aspects of an experience are the most appropriate starting points for reflection (Knowles, 1993). The principles of experiential learning hold that learning is shaped by dynamic but balanced tensions between observation and judgment, thinking and practice (Kolb 1984). Learners are encouraged to base their ideas upon observation and judgment of surrounding conditions, and then to put the ideas into practice. Their practice may extend to include critical social action, moral accountability, and socio-political responsibility. (Andresen, Boud, & Cohen, 2000).

With experience playing the central role, experiential learning actually means learning by reflecting on experience, either individually or collectively (Andrese et al., 2000; Beaty, 2003). Personal experience gives "life, texture, and subjective personal meaning to abstract concepts… [and provides a] concrete publicly shared reference point for testing the implications and validity of ideas (Kolb, 1984, p.21)." Information feedback following such a test leads to a continuous process of goal-directed action and even further evaluation of the consequences of that action (Kolb, 1984; Baker, Jensen, & Kolb, 2002). Experiential learning constitutes a process in which learners engage with not only their thinking but also their emotions, perceptions, and behavior (Andresen et al., 2000; Kolb, 1984). Teachers who use experiential learning assume relatively equal relationships with their students and are willing to accord them considerable control and autonomy (Andresen et al., 2000). Teachers' ideas are not considered the sole, dominant source of learning, and learners are invited to observe and reflect on their experiences from various perspectives. In addition, teachers are willing to expose their inner worlds and weave them together with the course content, so as to get their students fully and openly involved in experiences (Passarelli & Kolb, 2011).

However promising it may be, critics question the uncertainty, unpredictability, and indeterminacy inherent in experiential learning. The ethics of working with the deeply felt experiences of learners is another concern. The learners may feel uncomfortable at being expected to reveal their private domains. Furthermore, difficulties could arise in organizational contexts where learners may become confused about the boundaries between the personal and the public, fail to respond to their own needs and interests, or

reveal too much of themselves, thus causing a sense of unease in the organization (Andresen et al., 2000).

3.3.2 Service learning

With roots in experiential learning, service learning places particular emphasis on social values and community responsibility. This emphasis is relevant to one of the purposes of education in Taiwanese culture—to teach students to contribute to society. As with other variations of experiential learning, reflection is fundamental to service learning, which prioritizes reciprocity (Giles & Eyler, 1994; Harrison & Clayton, 2012). Butin (2003, 2010) argued that service learning is an active pedagogy that connects the cognitive and ethical and engages students with both academic and civic values. Service learning proposes that students should participate in communal associations, and that they should "experience the mutuality of social life through service (Giles & Eyler, 1994, p.82)." Cooperating and associating with others teaches, for example, respect and tolerance of diversity and awareness of complex societal issues (Butin, 2003, 2010). In addition, reciprocity can be manifested as service learning "positions all participants as simultaneously teachers and learners, servers and served and thereby evokes radically different identities, roles, and responsibilities than those into which most of us have been socialized (Harrison & Clayton, 2012, p.29)." Students are engaged in co-educating, co-learning, and co-generating knowledge with their teachers and other community members, which disrupts the presumed hierarchical power relations in a traditional classroom (Harrison & Clayton, 2012). Researchers have suggested that taking on such a "counter-normative (Harrison & Clayton, 2012, p.31)" role in service learning could lead students to transform their "current preferred systems of meaning making" into "more complex modes of reasoning (Reiman, 2002, p.8)."

3.3.3 Reflection activities

As indicated repeatedly earlier, reflection is a major tenet, means, and end of this study. As a means, reflection is a key phase of the socioculturally based pedagogical strategies including experiential learning and service learning. The linguistic representation of reflection, either in written or spoken form, mediates both the personal and academic development of students (Eyler & Giles, 1999; Werner & McVaugh, 2000). As an end,

reflection determines how much students are aware of and able to control their own learning processes.

Journaling is highly recommended among all approaches to enhancing reflective capacity (Bain et al., 1999). Substantial research has supported the idea that journaling aids internal dialogue by making the covert process more open to reflection and discussion (Colton & Sparks-Langer, 1993; McCormick, 2003; Spalding & Wilson, 2002). At the surface level, journaling enables individuals to revisit thoughts and feelings at a later time to determine whether and how they have changed (Garmon, 2001; Peyton, 1993). As reflection moves beyond recalling facts and knowledge, it shifts towards "connected learning", an approach to active and critical analysis of knowledge in different environments.

Dyment and O'Connell (2010, 2011) warned, however, that a lack of guidance, motivation, or regular time allotted for reflection threatens the effectiveness of journaling in promoting reflective learning. In order to address these challenges, first, teachers' expectations and purpose of journaling must be clarified. Teachers' expectations can include specifics such as the medium of journaling, required length of each entry, and due date for submission. Aside from clear expectations, teachers should explain how journaling fits into the overall program, who the prospective readers of the journals are, and what the assessment criteria and standards are, if any. Teachers are also encouraged to share their own journals with students as examples. Additionally, using prompts is another method of supporting reflective journaling (Dyment & O'Connell, 2010). Second, Dyment and O'Connell (2010) argued for using grades as a motivator for reflection. Grades are an undeniably powerful stimulus for numerous students who have an external locus of control. However, this strategy appears to retain an authoritarian concept of teaching, which conflicts with the pedagogical paradigm underlying this study. Finally, regular allocation of time for journaling aids learners in getting into the habit of reflection. Particularly in a busy school schedule, there must be dedicated time and constant inspiration for learners to reflect in their journals (Dyment & O'Connell, 2010; Lauterbach & Becker, 1998).

Researchers (e.g., Ballantyne & Packer, 1995; Francis, 1995; Garmon, 2001; Hatton & Smith, 1995; Peyton, 1993) have argued that, in addition to journaling, students should share and discuss their reflective thoughts with a critical friend. Learning can be enhanced this way because it facilitates learners giving continual thought to what they understand in class as well as their progress, and provides them with feedback on their ideas and questions (Peyton, 1993; Garmon, 2001). An emphasis on transparent and trusting relationships is central to this strategy, which addresses one of the difficulties in developing reflective skills mentioned earlier (see 2.3.1)—feelings of vulnerability after revealing one's inner self through reflection. Students need to feel that they are not being judged by their interpretations of their own learning, and that they would not put themselves at risk by openly sharing their developing thinking (Hatton & Smith, 1995; Keys & Golley, 1996; Vickery, 2014).

My decision to incorporate experiential and service learning as a pedagogical component of this study was a practical one. The school in which I worked valued community service as a meaningful extracurricular activity. However, the pedagogical strengths of service learning for involving students in actively constructing their own understandings in the context of their experiences and in critically reflecting on their real-time decision making and problem solving were not emphasized. Experiential and service learning may be effective in prompting the development of metalearning capacity because of the attention they draw towards student agency in learning. In addition, knowledge and regulation of learning, which is largely unconscious, may be brought to the surface by an integral component of experiential and service learning—reflection. How experiential and service learning were incorporated into the pedagogical practices of this study will be detailed in Chapter 5.

3.4 Chapter summary

This chapter challenges the dominant conventional approach for its insufficiency for enhancing the development of students' reflection and metalearning capacity, and argues for the application of pedagogical strategies grounded in sociocultural theories of learning. This pedagogical ground suggests that teachers' role must be transformed into a supportive one, and that students must gain more autonomy. Learning should become

a process shared by students and their teachers. It should take place in a community within which the members are constantly influenced by the situated events and social processes, and vice versa.

I considered the possibility of using experiential or service learning to transform the concept of learning from a passive–receptive activity to one in which students are actively involved in decision making. Some researchers have argued that such a transformation process can be supported by exposing learners to various experiences and perspectives, and by having them solve problems in real time. Feedback from members of one's community also contributes to this process. Experiential and service learning are considered appropriate for the purpose of conceptual transformation, in that it stimulates the dynamics of tensions such as reflection and action, and autonomy and social contribution. In addition, experiential and service learning strike a balance between these seemingly opposing considerations in learning. A commitment to experience and reflection is shared by experiential and service learning. The final section of this chapter highlights two forms of reflection activities: journaling, a written internal dialogue within a student self, and discussion, an oral interactive exchange among students. Both activities require guidance and support from teachers and peers for the concrete to be more effectively connected to the abstract, and for new implications for action to be more readily drawn.

In summary, in consideration of the definitions of experiential and service-learning strategies as well as their concurrence with the theoretical framework of this study, these two approaches informed the concrete practice of the innovation of this study. In addition, not only did the reflective activities serve as a pedagogical means to facilitate metalearning in this study, but the reflections from these activities were also used as data for analysis. Data collection and analysis and other methodological issues will be discussed in Chapter 4. A detailed description of the design and implementation of the innovative program will be presented in Chapter 5.

Chapter 4 – Methodology

4.1 Introduction

In Chapters 1 and 2, the importance of metalearning and its relationship with reflection is established. Chapter 3 suggests applying sociocultural theories as a framework for developing a pedagogical action for facilitating the development of reflection and metalearning. This attempt represents a move away from traditional pedagogies used in Taiwan and its conventional focus on test taking and teaching to the test. The current chapter outlines the approach taken to determine whether the aspects of pedagogy considered in Chapter 3 might be effective. It describes, first, the purpose of the present research; second, the methodology most appropriate for the study of learning and teaching metalearning in my context; third, the design of the methodology for this research; and finally, how validity, quality, and ethical issues of the study were approached. The information about study participants and context, nevertheless, will come in Chapter 5, along with an introduction of the pedagogical program developed for this research.

4.2 Study purpose

As stated in Chapter 1 (1.3), it was problematic that my students tended to unwittingly accept the prevailing approach to learning, and seldom thought about their own strengths and weaknesses pertaining to different learning tasks and corresponding learning strategies. Following the purpose of this study, which is to facilitate the development of students' metalearning capacity, the subsequent questions were addressed:

1. *How might an innovative program be developed based on theoretical and pedagogical foundations to promote the development of students' metalearning capacity?*

This question was addressed by reviewing the literature on reflection and metalearning and on pedagogical strategies to enhance student thinking about their learning in a school setting. The answer to this question contributed to the construction of the preliminary principles of a metalearning capacity development program.

2.   What are the changes in students' metalearning capacity as a result of the implementation of the innovative program?

The question was intended to determine the effects of the principle-based innovative program on the students' capacity to reflect on and make sense of their own learning. It was answered by conducting a qualitative content analysis of the students' journal entries according to the framework drawn from the literature. In round two, the final journal written after the summer service-learning experience was replaced with an interview with the students in order to obtain as many final reflections of the participating students as possible. Furthermore, an additional follow-up questionnaire was given to the students one year post participation, evaluating the extent to which they retained the capacity for metalearning.

3.   What influences students' changes in metalearning capacity?

This question was answered by analyzing the students' reflective journal entries, interview transcripts, and questionnaire responses. The answer to this question suggested how the feasibility and practicality of the pedagogical principles could be improved by addressing the challenges faced during the implementation of this innovative program.

4.   What changes would my colleagues and I need to make in our practices in order to promote the development of students' metalearning capacity?

This question was answered using the teacher's self-reflection data. By examining the critical incidents that I faced in my interactions with the other participants in this program, some directions for professional change and development are proposed.

4.3 Action research

This section explains the reasons for selecting action research as the most appropriate methodology for addressing the above research questions, and describes means of ensuring the quality of action research results.

4.3.1 Rationale for using action research methodology

The rationale for selecting action research as the design for this study is twofold. First, the notion of action research closely corresponds to the theoretical framework of this research, which was structured around three axes: experience, reflection, and interaction. Second, my role as a practitioner on site placed me in a unique position to conduct action research.

4.3.1.1 Action research corresponds to this research's theoretical framework

In consonance with the philosophy of experience, action research is inspired by a search for potential solutions to problems, puzzles, or ambiguities experienced in practice, through the process of reflection. Elliott (1978) described action research as "reflection related to diagnosis (p.355)." Action research is a style of research in the practice context that is aimed at constructing theories of unique cases for changing and improving teaching practice (Schön, 1983; McKernan, 1996; Valli, 1997). A fundamental first step to this end is clearly defining the problem, which provides the grounds for appropriate further action (Elliott, 1978; McKernan, 1996). Meanwhile, the tone of constructivism is captured in the subjective meanings ascribed to action research (Elliott, 1978). Action research is not value-neutral. While conventional positivistic educational researchers seek to be objective and adopt a neutral stance, action research acknowledges that researchers bring to situations their values and interests and aim to realize these in practice (Carr & Kemmis, 1986; Day, 1999; McNiff, Lomax, & Whitehead, 2003; McNiff & Whitehead, 2005; Popplewell & Hayman, 2012; Reason, 2006).

Action research is a participative and democratic process that challenges implicit, taken-for-granted "theory" (Carr & Kemmis, 1986; Reason, 2006). Popplewell and Hayman (2012) contended that action research "involves a collective process of knowledge generation and ultimately aim to democratize the process (p.1)." During this process, it is crucial that a trusted relationship and an ethical framework are set up to ensure a free information flow (Elliott, 1978; Peters & Robinson, 1984). The fact that action research emphasizes collaboration distinguishes it from other forms of social research. Nevertheless, the degree and type of collaboration can be influenced by the nature and history of the context of a specific action research project. The spectrum ranges from researchers remaining in control of research design, data collection and analysis, and the

interpretation of results, to researchers and participants jointly developing a research model, generating information, and making decisions (Chisholm & Elden, 1993). The quotation below describes how action research responds to customary approaches to building theory:

> Much teacher action is the product of custom, habit, coercion and ideology which constrain action in ways that the teachers themselves do not recognize, as ways in which they would not deliberately choose if their sources in custom, habit or coercion were recognized. It is a misuse of the notion of 'theory' to assert that it is something which one can hold 'implicitly' or unconsciously. Indeed, for the concept of 'theory' to have any power at all requires that it is something consciously held by the person whose theory it is reputed to be, and that it is the product of reflection rather than mere habit, custom or coercion. (Carr & Kemmis, 1986, p.189)

With such critical awareness, teachers as action researchers are able to create their own knowledge, improve their practices, and develop more control over their own situation.

4.3.1.2 Teachers are in a unique position to conduct action research

It has been indicated that action research most suits studies conducted by teachers who seek to improve their understanding so as to increase the effectiveness of their practice and ultimately achieve educationally worthwhile changes (Elliott, 1996). I decided to undertake this study in the spirit of action research because I believed, first, that a teacher experiencing a certain problem is in the optimal position to research it, and, second, that a phenomenon is preferably investigated within and in relation to the context in which it naturally occurs. External researchers may possibly affect or interfere with the research setting (McKernan, 1996). These aforementioned points are congruent with the sociocultural framework that grounded the present research: education issues are context-contingent and constituted by the interactions of individuals, who are members of a certain community. Members of a community are better able to discern their own values, beliefs, and practices than are external researchers.

There may be, however, potential for bias because action research involves researchers in analyzing their own practices (Kelly, Davey, & Haigh, 2000) and because there is close proximity between the researchers and participants (Williamson, Bellman, & Webster, 2012). Therefore, some guidelines for ensuring the quality of action research will be

provided in subsection 4.3.3. Despite the potential bias of action research, it can be argued that as teachers research their own teaching and their students' learning, they further gain in professional status, becoming independent of external research experts. Students, in the meantime, cease to be objects being researched. Instead, they are involved to contribute their voice to research findings.

4.3.2 Action research in the Taiwanese educational context

In Taiwan, although "action research" has become a buzzword in schools, whether teachers are genuinely empowered to construct practical theories is questionable. Lin (2011) discovered some problems with regard to the implementation of action research in Taiwan. First, instead of emancipation and liberation, action research in Taiwan is flooded with the ideology of mainstream values. For example, having critically analyzed a compilation of action research papers published by Taipei City Government, Lin (2011) observed that the teachers placed particular stress on mainstream academic subjects, such as Mandarin, English, and mathematics, mainly because of public interest in international student assessments. If the teachers are not thoughtful about their research and practices, they are highly likely to conform to prevailing norms and structures (Ou, 2012). In addition, a knowledge and authority hierarchy exists among administrators, experts, and teachers. Action research becomes commercialized and teachers labeled. This is because administrators and teachers value prize winning over development and growth. Lin (2011) illustrated this point by revealing that school administrators tend to invite external research experts to supervise teachers' research. The experts offer guidelines for action research, while the teachers carry out research on protocols mostly for competition sake. What is more, the teachers' performance in such competitions is linked to school accountability. Finally, the notion of action research has some political connotations such as teacher appraisals. According to Lin (2011) and Ou (2012), action research tends to be a mere technical problem-solving strategy. Contrary to such a technical approach to action research, I am committed to a deeper level of reflection that, on the one hand, encourages my students to do likewise and, on the other hand, demonstrates the transformative potential of action research as a means of inquiry, challenge, change, and improvement.

4.3.3 Quality criteria for action research

Despite the affirmation that "each individual may legitimately theorize about her own practice (McNiff, 1993, p.18)," potential weaknesses may exist in the rigor of the validity, reliability, and transferability of action research (Wilson, 2004). Some criteria for determining the quality of action research will be discussed next, followed by the efforts I made to satisfy these criteria.

4.3.3.1 Validity, reliability, and transferability

Regardless of a recent tendency to challenge the existence of a unified truth about the world, many social scientists maintain their pursuit of "truth about the object of study (Fox, 2003, p.84)." The criteria for such objectivity concern (1) the extent to which a study investigates what it claims to investigate, (2) whether consistent results can be obtained, and (3) the extent to which research findings are transferable beyond the immediate sample or setting (Nunan, 1992; Wilson, 2013). First, to obtain internal validity—establish a persuasive connection between research outcomes and methodology—researchers are likely to privilege particular methods, and follow prescriptions and precedents. Presumably, they favor randomized controlled trial study design over more qualitative experience-oriented research methods (Fox, 2003). Nevertheless, as mentioned before, action research embraces the complexity and contingencies of social situations. Researchers do not aim to draw simplistic causal conclusions from their research. Second, reliability is established when a study can be replicated by another researcher. In this case, action research is problematic because of its premise that phenomena can be more effectively investigated by insiders in relation to contexts where the phenomena naturally occur (McKernan, 1996). The relationships between different researchers and other participants as well as their contexts may threaten reliability (Fox, 2003; Wilson, 2004). Third, with regard to transferability, whether the findings of action research studies can be generalized to a wider population or context is still open to debate. On the one hand, because action research is contextually bound, action researchers may show little or no interest in the transferability of their research findings. They may further question or challenge a highly generalized assertion (Chisholm & Elden, 1993; Costello, 2011; Lincoln & Guba, 1985; Pine, 2008). On the other hand, Wilson (2004) argued that action research has greater external validity because it is aimed at combining theory and practice into a cyclical

process. Substantive theory generated from research is translated into practice, and evaluated for another cycle of investigation.

4.3.3.2 Alternative quality criteria

The preceding discussion suggests that action research requires a set of quality criteria that differs from that of conventional forms of quantitative and qualitative research. Action research is often narrative in nature; researchers tell stories from their everyday practical contexts (Elliott, 1978; Heikkinen, Huttunen, & Syrjälä, 2007). The relationships among events within the context are illuminated by the researcher's concrete description (Elliott, 1978). According to Coghlan and Brannick (2010), the quality of action research is determined by action researchers' ability to tell a good story, provide rigorous reflection on that story, and deduce practical knowledge or theory by reflecting on the story.

Heikkinen and colleagues proposed five principles for judging the quality of action research, namely historical continuity, reflexivity, dialectics, workability, and evocativeness. First, the principle of historical continuity involves action researchers becoming aware of the socio-historical frame of their research projects that shapes and constrains the human activity. Historical continuity also demands that the narrative proceeds logically and coherently (Heikkinen et al., 2007; Heikkinen, Huttunen, Syrjälä, & Pesonen, 2012). The reflexive sensitivity of action researchers is another matter of research quality. Because data collection, analysis, and interpretation in action research studies are mediated by researchers' sense of self and identity, the researchers must be aware that their personal experiences can affect the participants. Moreover, the researchers must be conscious of how they produce reality, clearly explain their process of knowing, and transparently describe the research material and methods they use (Heikkinen et al., 2012; Somekh, 2006). Third, the principle of dialectics is based on the idea that social reality is constructed in interpersonal discussions rather than in a researcher's monologues (Heikkinen et al., 2007; Heikkinen et al., 2012). In relation to the first and second principles, action researchers should realize that they inevitably add a particular perspective to the phenomena under study, and that they must also let the text talk. The researchers must maintain a balance between the two (Graneheim & Lundman, 2004). Fourth, the principle of workability concerns the pragmatic, political,

and ethical utility of a piece of action research (Heikkinen et al., 2007; Heikkinen et al., 2012). According to McKernan (1996), the validity of a piece of action research is generated according to its "utility in helping practitioners to act more effectively, skillfully and intelligently (p.4)." In addition to this view, being able to provoke discussion or debate and disclose power mechanisms also constitutes quality action research (Heikkinen et al., 2007; Heikkinen et al., 2012). What is more, the principle of workability also requires researchers to "analytically approach ethical questions and to propose solutions to them (Heikkinen et al., 2007, p.15)." As far as the final principle is concerned, quality action research evokes mental images, memories, or emotions related to the research theme. This final principle is to view the quality of action research from an aesthetic perspective. Action research as a narrative should be able to convince its readers "both logico-cognitively and emotionally (Heikkinen et al., 2007, p.17)."

In response to the aforementioned principles and criteria, first in Chapter 1, I provide the background to learning and teaching in Taiwan, which serves as a macro-level frame that shapes my students and myself. Moreover, in Chapter 5, I will give a description of the setting being researched, namely the Taiwanese secondary school where I worked as an EFL teacher. I was aware that this micro-level frame also constituted contextual factors that influenced my students' and my personal experience as well as our interaction. Second, I maintained a research journal throughout the process. I resolved to describe, as clearly as I could, the process, materials, and methods in each section devoted to these subjects, and to reflect on them in the discussion chapter. Through such reflection, my value and role within the present study became more explicit. Third, according to the participative and democratic worldview that informs action research, I was mindful that I should build a trusting relationship with my students. I had been their teacher for at least one year, and some for three years. These long-term relationships could be paradoxical: on the one hand, I could have developed sufficient confidence in the confidentiality of the class environment to allow the students to engage in honest dialogues with me. However, on the other hand, a hierarchical power relationship between my students and I could have been formed long before my awareness of its threat. Fourth, throughout the research process, I held frequent discussions with other teachers, administrators, and the principal. During the process, I also presented my research at various conferences (Appendix 1) to other practitioners and researchers

outside my context and had fruitful discussions with them. This contributed to the trustworthiness of my study as it had been reviewed and discussed by different audience groups.

4.4 Research design

According to the conclusion drawn from the literature, the initial idea of the present study was that the pedagogical strategies aimed at promoting conceptual change, including experiential and service-learning strategies, can influence the development of metalearning capacity. Accordingly, I developed an innovative program and then conducted two cycles of yearlong action research in my class. Each cycle involved developing or adjusting the innovative program, implementing the program, and reflecting on the program. Figure 4.1 displays the research design for this study.
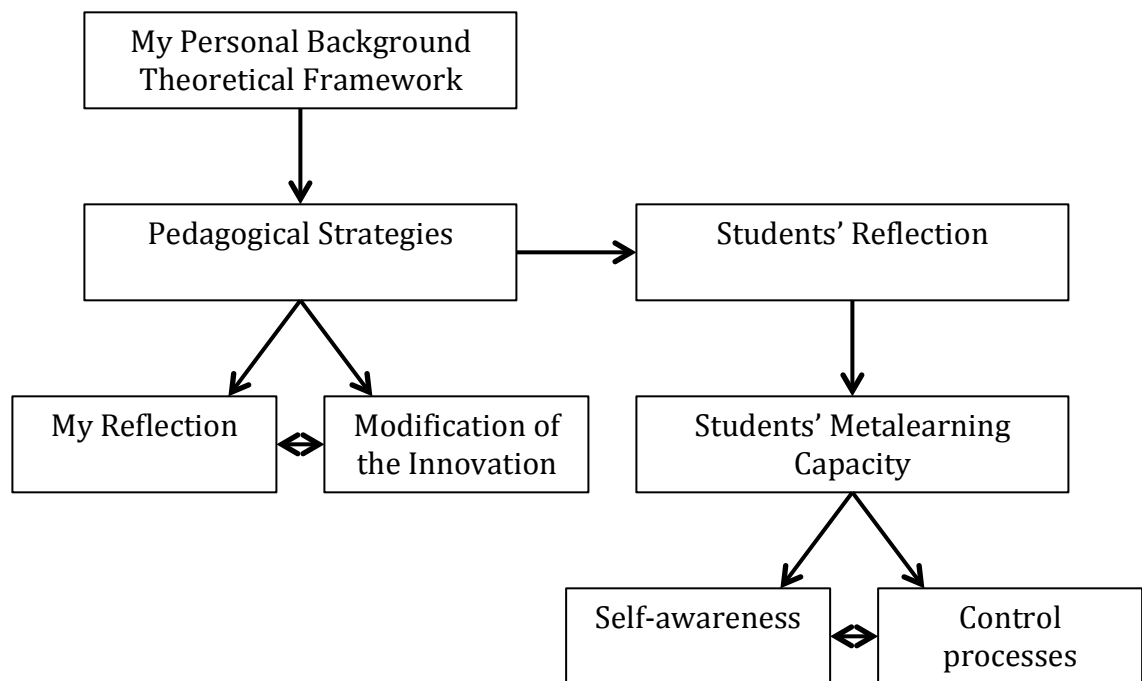
Figure 4.1
Research Design for the Study

The innovative program was implemented as an EFL elective course offered to grade 10 students, and comprised both term-time activities and a one-week service-learning experience during summer vacation. More details of the innovative program will be

presented in Chapter 5. The focus of the cycle one research was exploring the feasibility of the program and the data collection and analysis methods. My and my students' reflective journals were the sources of data in this cycle. Before proceeding to the second cycle, I presented the rationale behind my study and preliminary outcomes at a school staff meeting and to the evaluation committee of the GreaTeach-KDP Award for Creative Teaching. The articulation process aided me in reviewing and consolidating my thoughts about reflection and metalearning, and in clarifying the modifications required in the second cycle. These modifications will be described in more detail in Chapter 7, following the first-round analysis outcomes. Table 4.1 presents the research schedule, focus, and the data gathered to suit the focus.

Table 4.1
Research Schedule, Focus, and Data Gathered in Each Cycle

Time	Focus	Data Collected
Cycle One		
Before September 2011	• Principles of developing and implementing the innovative program	—
September 2011– June 2012	• Effects of the term-time activities on the students' reflection and metalearning capacity	• Students' journal entries • Researcher's self-reflection
July 2012	• Effects of the one-week service-learning experience on the students' reflection and metalearning capacity • Feasibility of student journaling as a data collection technique • Feasibility of the data analysis frameworks	• Students' final journal entries • Researcher's self-reflection
August 2012	• Modifications necessary for the innovative program • Revisions to the data collection methods and analysis frameworks	• Researcher's self-reflection
Cycle Two		
September 2012– June 2013	• Effects of the term-time activities on the students' reflection and metalearning capacity	• Students' journal entries • Researcher's self-reflection
July 2013	• Effects of the one-week service-learning experience on the students' reflection and metalearning capacity • Students' attitudes and perceptions about the innovation	• Interviews with the participating students • Researcher's self-reflection
September 2014	• Retained effects of the innovation on the students' reflection and metalearning capacity	• Students' responses to the follow-up questionnaire • Researcher's self-reflection

4.5 Data collection

In this study, qualitative data were collected because such data were viewed as the most appropriate for addressing the research questions. The data could reveal how teacher practices influence student learning, and meanwhile, be fed back to facilitate the teacher's professional development. I adopted various data collection methods, including using written documents and conducting interviews. My self-reflection was also used as a data source. This section explains the focus of each data collection method.

4.5.1 Student reflective journal

In order to research metalearning processes, the learners must be made to be conscious of and able to identify the involved processes, and in turn, the processes become available to researchers (Conner & Gunstone, 2004). For the purpose of recording the changes in my students' metalearning capability, during term time in both research cycles, every student was requested to keep a reflective journal with a partner. I asked question prompts related to the topic of each session. A list of term-time activities and the corresponding question prompts posed to the students will be included in the next chapter (see Table 5.1). Journaling, in the present study, served both pedagogical and research functions.

The question prompts can be classified into two categories. The first category contains questions that elicited knowledge about learning, for example:

- What did you learn about yourself from this week's task?
- Describe your role model for learning English (e.g., your classmate or your brother or sister), and talk about his/her way of learning.
- What are some similarities/differences between your own learning approaches and those of your role model?

The second category contains questions regarding control mechanisms of learning, for example:

- How did you approach the task this week?
- What did you do well in the process of accomplishing the task this week? Why do you think so?

- What could you have done better in the process of accomplishing the task this week? How are you going to improve?
- How are you going to apply what you have learned from this week's task?

There were, however, some adjustments to how and what questions were framed in the second cycle of research, which will be presented in Chapter 7.

4.5.2 Student interview

After the summer service-learning experience of the first research cycle, I expected the students enrolled in this cycle to submit a final journal, which I intended to use to determine how the experience affected their capacity to think about their learning. However, only slightly more than half of the students completed this assignment. For the purpose of richer data analysis, in the second round of research, instead of journaling, I conducted semi-structured in-depth interviews with the students after they held summer camps for children in two different remote areas in Taiwan. In the interviews, I asked the students to describe incidents that were critical to them during the summer service-learning experience, the impacts of these incidents on their own English learning processes, and their attitudes and perceptions about the reflective activities. Additional timely questions contingent on the students' responses were posed to encourage them to expand their reflection.

4.5.3 Follow-up questionnaire

In round two research, a follow-up questionnaire was given to each student who took full part in the innovative program one year after the program was concluded, in order to uncover whether there was a long-term influence of the program on the students. The students were encouraged to openly respond to the following two questionnaire items:

- Have you observed any changes in your approaches to learning (e.g., English) during this year? If so, please describe the changes. If not, what might be some reasons for that?
- Have you ever reflected on your learning process (e.g., for English learning) during this year? If so, please describe the experience. If not, what might be some reasons for that?

4.5.4 Researcher's self-reflection

By definition, action research is a form of self-reflective inquiry undertaken by practitioners in the hope of improving their practice and personal understanding. According to Somekh (2006), the researcher's self is an instrument for data collection. In recognition of the fact that my personal experience may have affected my students, and that we formed a reciprocal relationship, I recorded critical incidents and reflected on them every time I completed a learning task with my students. My interpretations of my own reflections were later associated with those of my students to identify what practices might have influenced the changes in the students' metalearning capacity.

4.6 Data analysis

Qualitative content analysis was deemed appropriate for this study. The rationale for choice of analysis method and the measures undertaken to ensure the quality of data analysis are described in the following subsections.

4.6.1 Qualitative content analysis

All the data collected for this study—reflective journal entries, interview transcripts, and questionnaire responses—were written or verbal texts. They are suitable for qualitative content analysis, a method "for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Hsieh & Shannon, 2005, p.1278)." A deductive approach to content analysis enables researchers to construct initial coding schemes according to existing theory (Elo & Kyngäs, 2007; Potter & Levine-Donerstein, 1999). In this study, I based the coding scheme used to analyze the level of students' reflection on the framework of Bain and his colleagues (1999), and based the scheme for analyzing different types of knowledge about and control over learning on the works of McCormick (2003) and Tarricone (2011). Then, within the data I had gathered, I looked for cues related to a particular reflection level or component of metalearning, and interpreted them by adopting the coding schemes derived from the literature. However, not every piece of text fit into the initial coding schemes. I had to determine whether these data "represent[ed] a new category or a subcategory of an existing code (Hsieh & Shannon, 2005, p.1282)." This, as Hsieh and Shannon (2005) indicated, contributes to extending or refining existing theory.

4.6.2 Ensuring the quality of data analysis

In order to achieve a high quality data analysis, it is advised that an auditor review be performed to ensure the definition of each code is clarified (Hsieh & Shannon, 2005). In addition, Graneheim and Lundman (2004) suggested that researchers present representative quotations from the text to show how well categories within a coding scheme cover the data. Considering that a coder may bring subjectivity to the analysis process, Potter and Levine-Donerstein (1999) suggested that utilizing multiple coders benefits the quality of data analysis. They believed that if a certain judgment is shared across coders, the sense made of the patterns in the data is sufficiently trustworthy to be conveyed to readers. However, a dilemma emerges here. To enable a higher percentage of coders to make the same inferences, more detailed coding rules are likely to be included in a scheme, which can jeopardize interpretation and resonance with readers. In addition, coders may conform to the rules for avoidance of more difficult judgments to be made about the content (Potter & Levine-Donerstein, 1999). Furthermore, researchers should be cautious about the possible bias that can arise from theory-based coding schemes. They might be more likely to find evidence that is supportive rather than non-supportive of a theory, or be blinded to contextual aspects of the phenomenon (Hsieh & Shannon, 2005). Before being put in use, my coding schemes were reviewed by my thesis supervisors. The definition of each code within the coding schemes along with corresponding representative quotations are given in Tables 4.2 and 4.3. In addition to myself, I invited two colleagues to confirm the coding results. We discussed thoroughly when there were disagreements or difficult judgments.

Table 4.2

Definition of Each Code Within the Coding Scheme of Levels of Reflection and Its Corresponding Representative Quotation

Codes	Characters	Representative Quotations
Reporting	• describe, report, retell • "current" experience • technical, mechanical	The host of the game thinks of the name of one of the players. Every player has to chant in time with a beat while they try to guess the person that the host is thinking of. The game lasts until someone guesses it correctly; this person is the winner of the game. During the game, if anyone cannot stay up with the beat, she loses. (1st semester_S02_W1)
Responding	• respond (may be emotional) • "current" experience • instinctive, quick-fix • lack of explanation • lack of alternatives	I was so happy to see them play crazily…. I like the method of playing music. It made me relax and feel more comfortable. (1st semester_S01_W3)
Relating	• associate • personal weakness or strengths • relationship between past, present, and future • superficial, apparent	In the group lesson, we taught some little kids, and we prepared a lesson that was too difficult for them. I should have tried to know their English level before we went there. Maybe I can ask some younger relatives in my family what they learn in school. By doing so, I hope I can avoid this kind of situation in the future. (2nd semester_S15_W4)
Reasoning	• integrate, synthesize, improve • analyze, explain • examine causality • infer • link the abstract, conceptual with the practical	First, we thought about what we wanted to teach the kids. Then we started to make plans. We came up with the activities we would like to do, and then we placed the activities into the schedule. It was a bit hard because we had to make sure that every day the kid would not only learn something, but also play some games or activities. We finally had some agreement. It is nice to work with a team, as a saying goes: "If you have two apples, you can eat two. But if you have two people, you can have more than two ideas." This is what happened in my group. We have a bunch of people, so we can have more than a bunch of ideas. (1st semester_S05_W5)
Reconstructing	• change, transform • confront bias • question, challenge • invite alternative perspectives	In the past, I always thought I was the only person who could do a certain thing. But sometimes there wasn't enough time, and it was not perfect in the end. I know I have to believe in my teammates. I don't have to do everything by myself. That is not a wise method. That is what a team is for. (2nd semester_S02_W5)

Table 4.3

Definition of Each Code Within the Coding Scheme of Metalearning Capacity and Its Corresponding Representative Quotation

Codes	Characters	Representative Quotations
Knowledge about Person	• refers to one's own strengths or difficulties in learning • refers to one's own prior knowledge, skills, and experiences • refers to others' strengths or difficulties in learning compared with oneself • refers to universal properties of human beings in learning	I always remember what my teachers in the church taught me, and what kind of class I considered boring and what I considered fun, so I can avoid giving some boring lessons. (2nd semester_S02_W4)
Knowledge about Task	• compares across tasks, identifying similarities and differences • clarifies task objectives • makes a judgment about the level of difficulty or complexity of tasks • rates tasks on the basis of pre-established criteria or previous knowledge	This final presentation is not like the presentations we did before. This one is the biggest, and we don't have anything to follow. We did everything ourselves. (1st semester_S05_W5)
Knowledge about Strategy	• refers to strategies involved in a particular task • refers to the effectiveness of strategies in relation to the context or task	When I am memorizing vocabulary, I will read the words out and look at the example sentences. If I encounter a long, difficult word, I will see if it has a root. The word can be easier to be memorized in this way. (1st semester_S12_W4)
Procedural Knowledge about Learning	• defines or articulates how one has learned something	Before watching a movie, I will ask them some questions. For example: (1) Who is the main character? (2) Which is the character you want to be? (3) What do you think about the film? I just want them to think about the film, to do a little brainwork. (1st semester_S01_W5)

Decisional Knowledge about Learning	• defines when one uses a particular strategies • is able to decide and distinguish appropriate strategies	It [the presentation] was still not perfect because this was our first time to present in the real situation. We were kind of lost when something unpredictable happened, and we didn't know what to do. (2nd semester_S05_W4)
Planning for Learning	• sets goals and targets • decides on ways of proceeding with the task • seeks and collects necessary resources • allocates individual roles and negotiates responsibilities	We got together and talked about our ideas and plans. We encouraged each other, so I didn't have to be shy about sharing my ideas or worry about whether the others would laugh at me. There are many ways to make a good plan for kids. (2nd semester_S02_W4)
Monitoring Learning	• self-commentates • keeps track of procedures currently being undertaken and those that have been done so far • rates effort or performance • detects errors • self-corrects • checks or corrects performance of peers • considers alternatives	We approached the task by working together, finding out our weaknesses, and trying to fix them. We helped each other to do the preparation, so we can move on faster. Then we practiced and checked if there was something we had to do better. (2nd semester_S05_W4)
Evaluating Learning	after a learning episode: • rates the quality of performance • tests strategy effectiveness • comments on task progress	We did one thing well. That is, we distributed the work among the members so that everyone knew the rundown and could actually join in this activity…. Sometimes things may happen suddenly, and it's always better to make a plan B before doing things. Even if you face a sudden situation, you can still handle it calmly. (2nd semester_S17_W4)

4.7 Ethics and participant rights

I was aware of my ethical responsibilities for the school principal, my colleagues, and my students. The principal provided verbal consent for the study, and approved the innovative program as one of the elective EFL courses. We frequently had discussions about the study afterwards. My colleagues were informed of the purpose and progression of the study. They consented to the collection and use of all the information they provided. With the students who enrolled in this elective course, I made it clear the course requirements, the purpose of my study, and the fact that the course work would be used as research data. For the convenience of school administration, the students could choose to drop out of the course only at the beginning of each semester. They were free to transfer to any other elective course before the second lesson of the first semester, and they had another opportunity to transfer to another course at the beginning of the second semester. Only the students whose chaperones had consented to their participation were included as the participants for this study. The reflective journals were the course assignments; however, only when I received consent from a student did I analyze and present her journal entries as research data. For the purpose of keeping track of changes in my students' metalearning capacity, their names were included in their journals, but only I knew who provided the information. A code was given to each journal entry, interview, and questionnaire to ensure anonymity and confidentiality. I was aware of my obligation to observe good ethical conduct, and that all related promises must be taken seriously.

4.8 Chapter summary

This chapter describes the design of study, and data collection and analysis. First, I explain the rationale behind my adoption of action research. I contend that action research approaches learning and teaching in a manner that is coherent with the theoretical framework of this study, with a focus on experience, reflection, and interaction. As a secondary school teacher and researcher, I found that this methodology could help me resolve an unsatisfactory state in my classroom, improve my understanding and practice, and ultimately produce a practical theory.

I collected qualitative data through reflective journals, interviews, and open-ended questionnaires—methods that can derive the data most appropriate for answering my research questions. A deductive approach to content analysis was employed. Already developed frameworks of reflection and metalearning, as discussed in Chapter 2, were used in framing the coding schemes. Finally, attempts to ensure research quality and ethics were made.

In the next chapter, I will present how, in response to the first research question, the innovative program used in this study was devised and implemented to enhance student thinking about their learning in a school setting.

Chapter 5 – Devising and Implementing Innovation

5.1 Introduction

This chapter describes the design of a one-year innovative program that was devised to enhance secondary school students' metalearning capacity. The term-time activities included weekly lessons or tasks, and field teaching practices and observations. Afterwards, the implementation of a one-week service-learning experience was carried out during summer vacation. The following sections describe the school micro context and participants of this innovative program, summarize the principles of the innovation drawn from the literature review, and detail the design and implementation of the program.

5.2 Context and participants of the innovation

The innovative program was conducted in a girls' boarding school with a history of holding summer camps for underprivileged children in remote areas of Taiwan. Since 2005, the topics of the camps have ranged from environmental protection to performance art. The first English camp was held in 2010. A small number of administrative staff has been responsible for organizing students to serve in the summer camps. Before the launch of the present innovative program, however, students' serving in these summer camps had been extracurricular, and the staff members encountered difficulty in inviting teachers to assist the students in preparing for the camps. A long-term development plan could not be made, and the themes of the camps were inconsistent because they were based on the specialties of different assisting teachers. It was not until the development and implementation of the present program that the concept of combining community service experience and learning was officially incorporated into the school-based English curriculum as an elective course.

In addition to the administrative staff members, the participants in the innovative program were grade 10 secondary school students, aged 15–16 years, whose metalearning capacity was examined through the contexts mediated by the school's EFL elective curriculum. In the first study round (i.e., the 2011–2012 school year), 12 students participated in the complete program, from the in-class activities to the summer service-learning experience, and 15 students did so in the second round (i.e., the 2012–

2013 school year). The students' English proficiency reached at least the A2 level, according to the Common European Framework of Reference for Languages (CEFR). That is, they were able to understand and communicate in English in the areas of most immediate relevance. A junior partner teacher joined in the program towards the end of the first-round implementation, and a different partner teacher took part towards the end of the second round. These partner teachers did not contribute to the design of the innovative program, but we frequently had reflective conversations. Although not collected as data for this study, their comments and feedback had an impact on my reflection on teaching and research.

5.3 Principles of the innovation

The literature review provides a theoretical framework and background to the present study, offering a rationale for promoting reflective learning as a means of facilitating metalearning among Taiwanese secondary school students. Because there remain differences between more contemporary educational ideas and conventional cultural beliefs about learning and teaching, some pedagogical strategies have been suggested for encouraging conceptual change. In principle, these strategies promote (1) breaking with the hierarchical student–teacher relationship and (2) learning as a communal, reciprocal, and interdependent process. These strategies are aimed at (3) supporting reflection on experience through both individual and interactive activities. The following subsections discuss these principles in turn.

5.3.1 The program breaks away from hierarchical student–teacher relationships

Although viewing the relationship between learners and teachers with different lenses, both social constructivist and emancipatory theories posit that learning is co-constructed by reciprocal members of a shared community. Learners and teachers are suggested to step out of the customary hierarchy and engage in conversations on a more even footing. In practice, this innovation invited participating students to take on the role of teacher. In this study, the students and teacher shared decision-making and responsibility when approaching the task of teaching English to younger children, instead of the students being instructed to simply follow the teacher's lead. In other words, the students were encouraged to be autonomous from their teachers. They were

mainly in charge of selecting and designing English learning activities for children, and of choosing and presenting learning materials. A sense of ownership of their own thoughts and actions could be derived from these experiences. On the other hand, instead of transmitting information and directing what and how learners should learn, I, as a teacher, assumed the role of role model, facilitator, and guide for my students. Traditionally, Taiwanese students show respect for their role models primarily according to the social norms of hierarchy. The present innovative program was intended to challenge this convention and portray a different image of a role model. The teacher as a role model shared knowledge, experience, and skills in classroom demonstrations and by providing feedback to learners. I was also committed to believing in my students' ability to take the initiative in achieving their own goals of various English learning activities. Although direct, explicit instruction was suspended, active teacher involvement in this innovation was illustrated by the coaching and guidance provided to the students through planned experiences, guided discussions, and question prompts.

5.3.2 The program develops a community that appreciates interdependence and connection

More learner autonomy does not mean detachment from other people and community. The pedagogical framework of this study concurs with a critical component of Taiwanese cultural beliefs about learning and teaching: acknowledging the significance of the contribution of individual learning and development to the community. The service-learning approach, in particular, attends to not only personal cognitive or affective development, but also social values and community responsibility. The service-learning component of the present innovation was not a novel inclusion. In fact, community service has always been a school priority, but it used to be extracurricular rather than integral to the regular school curriculum. This innovative program incorporated structured in-class and field activities as preparation for the ultimate service-learning experience. The students and teacher involved in the innovative program should work in a reciprocal and interdependent partnership; this principle is closely intertwined with the first principle of breaking from the hierarchical student–teacher relationship. Supporting and challenging each other throughout the innovation process was necessary for encouraging both the students and teacher to reflect on their perception and practice

of learning and teaching.

5.3.3 The program facilitates reflective practical experiences through individual inner dialogues and sociolinguistic communication

Both Taiwanese cultural beliefs about and progressive theories of learning and teaching lay emphasis on learning from practical experiences. In the Taiwanese educational context, reflection is customarily conceived as inner dialogue and not necessarily involving verbal interaction. However, a social constructivist view of reflective learning highlights the central role of sociolinguistic communication in coordinating and facilitating this higher mental process. Furthermore, the emancipatory perspective views dialogic interaction in an educational setting through a different lens. A challenge–response process among students and teachers addresses the power relationship that positions learners in a passive, objective place, and thus ensures a sense of autonomy and ownership of learning. The innovative program encouraged both intrapersonal and interpersonal communication. Journaling is fundamentally an individual experience—an aid to internal dialogue. The tasks in the program were collaborative and required participating students to work in a group to design and implement English learning activities for younger children. Discussions before or after a task could provide a space for socially generated ideas about learning to be mediated into individual consciousness.

5.4 Design and implementation of cycle one program

The first of the two action research cycles was conducted during the 2011–2012 school year. The innovative program in this research was designed to encourage Taiwanese secondary school students to think about and have control over how they learn, instead of simply being receivers of what their teachers have to offer. The program comprised term-time activities and a one-week service-learning experience during summer vacation. The subsequent parts of this section describe in more detail the term-time activities and one-week service-learning experience.

5.4.1 Term-time activities

Not only did the term-time activities prepare the students for the service-learning experience in summer, but they also served as triggers for student reflection on learning. In these activities, the students were exposed to different approaches to learning English. Every time she completed an activity, each student maintained a reflective journal with her partner. In the journal, the students responded to question prompts related to the theme of each activity, reflecting on their in-class or field experiences. A list of the question prompts posed after the term-time activities may be found in Table 5.1.

5.4.1.1 Orientation and warm-up activity

At the beginning of the school year, clear course description and requirements were explained to the students at the orientation. For ethical reasons, I also gave a brief explanation to them of my research purpose and of their rights to decide whether they would participate or not.

The warm-up, in which the students worked in pairs to design an ice-breaking activity for the whole class, served as an event that triggered reflection, whereupon, following the prompts of the teacher, the students made their first attempt as part of the program to bring their thinking processes to consciousness.

5.4.1.2 Comparison and contrast activities

Two comparison and contrast activities were included in this program. Both were used as a stimulus for establishing analogical or contrastive relationships among various approaches to learning English.

In a film-viewing activity in the first semester, the students watched the movie *Akeelah and the Bee*. At the beginning of the film, Akeelah, the lead character, learns vocabulary by rote. As the movie goes along, Akeelah becomes aware of and able to use different strategies for learning vocabulary with the aid of her teacher, Dr. Larabee. (The link http://www.imdb.com/title/tt0437800/ gives details of the movie.) The students were prompted to identify the various strategies adopted by the characters in the film, and to suggest others according to their own knowledge about learning.

The other comparison and contrast activity, undertaken in the second semester, had the students think of a role model for learning English and identify the similarities and differences between their own approaches to learning English and those of their role models. By doing so, their knowledge of learning was made explicit. Complementary to this activity, I gave a presentation, extracted from the book *The Learning Strategy Handbook* (Chamot, Barnhardt, El-Dinary, & Robbins, 1999), about applying this knowledge in planning, monitoring, and evaluating learning processes. Appendix 2 presents the PowerPoint slides used in this presentation.

5.4.1.3 Teacher demonstration and student presentation activities

During these activities, I first demonstrated to the students the procedures for designing and implementing an English-learning activity, such as goal setting, lesson planning, and assessment and evaluation, by using various materials other than conventional textbooks (see Appendix 3 for sample lesson plans). In addition, unlike in a typical English class, in which the students passively receive subject matter, the students in this innovative program were viewed as teacher apprentices and expected to learn how to learn English so as to take on the role of teacher during the service-learning summer camp. After my demonstration, I explicitly explained to the students how and why I made certain choices among learning strategy alternatives, in the hope that they would grow mindful of the means of proceeding with their task.

Following my demonstration, the students formed groups, planned for, and undertook, in front of their peers and me, learning activities for children. First, such a hands-on activity provided the students with an opportunity to prepare for their teaching at the service-learning site. They received feedback from their peers and teacher on their performance. Second, the activity could spark the students' thinking about the effectiveness of the learning strategies they used during the activity.

5.4.1.4 Field teaching practice and observation activities

Towards the end of the second semester, the students formed two groups and took turns practicing teaching in local churches. The field teaching practice activities involved team building as well as carrying out corresponding English lessons for children of different

ages. When one group held a teaching practice class, the other group observed and then gave feedback during a post-practice discussion session. The question prompts in the reflective journal were designed to encourage the students to derive knowledge about learning from the teaching practice experience.

5.4.1.5 Evaluation activities

The feedback and journals had evaluation functions, allowing the students to reflect on and assess their own and each other's performance. A major evaluation of the term-time activities was performed by the students at the end of the second semester. In each evaluation activity, the students were prompted to not only reflect on their current experiences but also express their future intentions to adopt what they had become aware of in their own learning, bringing their reflection to a deeper, more critical level.

5.4.2 Summer service-learning experience

After two semesters of preparation, the participant students, staff members, and I embarked on the one-week service-learning experience. During this week, the students served the role of teachers, putting the English learning activities they had planned, including songs, stories, short plays, and games, into action. Similar to the discussion they had after teaching practice, discussions were held every evening, with the students sharing their experiences of the day and receiving feedback from the other participants.

Table 5.1

Description of Each Term-time Activity and Its Corresponding Post-activity Prompts

Activity	Description of the Activity	Reflective Journal Question Prompts
First Semester		
1. Orientation and warm-up	• Teacher introduces the course description and requirements to the students. • Students, in pairs, design an ice-breaking activity for the whole class.	• Describe the ice-breaking activity that you came up with. • How did you come up with the ice-breaking activity?
2. Film viewing	• Students watch the film *Akeelah and the Bee*. • Teacher guides the students to think about the differing approaches to learning English adopted by the characters in the film.	• What was Akeelah like at the beginning of the movie? • What was Akeelah like by the end of the movie? • What caused the changes in Akeelah? • If you were Dr. Larabee, how would you teach Akeelah to learn vocabulary?
3. In-class teaching practice (I)	• Teacher demonstrates teaching a lesson using the story *The True Story of the Three Little Pigs*. • Students practice using stories to teach English.	• How did you approach the task this week? • What did you do well in the process of accomplishing the task this week? Why do you think so? • What could you have done better in the process of accomplishing the task this week? How are you going to improve? • What effect does the learning experience this week have on your learning English?
4. In-class teaching practice (II)	• Teacher demonstrates teaching a lesson using the song *Room on the Broom*. • Students practice using songs to teach English.	• What did you do differently from the first time? • What did you do well in the process of accomplishing the task this week? Why do you think so? • What could you have done better in the process of accomplishing the task this week? How are you going to improve? • What effect does the learning experience this week have on your learning English?
5. Final in-class presentation	• Students design and present a plan for a five-day English program for children. • Teacher gives feedback on the students' presentations.	• What did you learn about yourself from this week's task? • What is the importance of what you have learned from this week's task? • How are you going to apply what you have learned from this week's task?

		Second Semester	
6.	Nomination of a role model	• Students compare and contrast their own approaches to learning English with those of their role models. • Teacher guides the students to think about the differing approaches to learning English.	• Describe your role model for learning English (e.g., your classmate, your brother or sister), and talk about his/her way of learning. • What are some similarities/differences between your own learning approaches and those of your role model? • Based on what you have mentioned, what do you think may help the children who attend the summer camp learn English?
7.	In-class teaching practice (III)	• Students, in groups, apply what they have learned about planning and giving a lesson to prepare English learning activities for children at church. • Teacher gives feedback on the students' teaching practices.	• What did you learn? What is the difference/relationship between the new idea and what you used to know? • How specifically did you learn it? • Why does this learning matter? • In what ways will you use this learning?
8.	Group 1 field teaching practice	• One group of students practice teaching the activities they have planned for the children at church. • The other group of students observe and examine their peers' teaching practice. • Teacher gives feedback on the students' teaching practices.	For the presentation group: • How did you approach the task? • What did you do well? Why do you think so? • What could you have done better? How are you going to improve? • What effect does the learning experience this week have on your learning English? For the observation group: • What did you learn? What is the difference/relationship between the new idea and what you used to know? • How specifically did you learn it? • Why does this learning matter? • In what ways will you use this learning?
9.	Group 2 field teaching practice		
10.	Final evaluation	• Teacher guides the students to review the term-time activities. • Students evaluate the term-time activities.	• What is the most impressive part of this course? • Why is what you have mentioned above impressive to you? • How has this learning experience impact how you learn?

5.5 Design and implementation of cycle two program

The second-round program's structure and content were modified according to analysis of the first round's implementation. These changes involved (1) applying a better structured and guided process to the innovative program as a whole and each weekly lesson or task, (2) reducing the number of checks and controls from the perspectives of teachers and administrators, and (3) adding more field teaching practices. More details of the modifications to the program can be found in Chapter 7.

5.6 Chapter summary

The innovative program in this study was characterized by a rethinking of the roles of students and teachers, an interdependent and reciprocal partnership among the students and between the students and teacher, a contribution to community service, an emphasis on practical experiences in relation to learning, and a focus on reflection on practices. As a part of the school-based EFL curriculum, this innovation comprised term-time activities including an orientation session, a film viewing, the observation of teacher demonstrations, group teaching practices in class and in local churches, as well as a one-week service-learning experience carried out in a remote area in Taiwan. Throughout the program, reflection activities such as discussions and journaling were assigned to aid the students in developing a habit of learning by examining their own and others' experiences. This chapter describes the design and implementation of the innovative program. The evaluation of the program will be reported in the following two chapters, with a focus on its effects on the students' capacity for reflection and metalearning.

Chapter 6 – Cycle One Evaluation

6.1 Introduction

The innovative program used in this study was developed according to the theoretical frameworks and principles derived from the literature review (see 5.3). The program's first-round implementation was conducted during the 2011–2012 school year. This chapter evaluates how the program affected the students' reflection levels and metalearning capacity. The evaluation involved a content analysis of the students' reflective journals, which was conducted using the framework of levels of reflection developed by Bain and colleagues (1999) and framework of metalearning capacity informed by McCormick (2003) and Tarricone (2011) (see Tables 4.2 and 4.3). This chapter also establishes whether the coding schemes were sufficiently exhaustive to cover all the reflections expressed by the students.

6.2 Effects of the innovative program

The effects of the innovative program were analyzed from two perspectives: reflection and metalearning capacity. Reflective journals, written by the 12 students who took full part in the term-time activities and summer service-learning experience, were used as the data source for analysis.

6.2.1 Reflection

To analyze the levels of reflection demonstrated in the students' journals, I employed the framework developed by Bain and colleagues (1999), which consists of five levels: *reporting*, *responding*, *relating*, *reasoning*, and *reconstructing* (see 2.3.2 for a more detailed description of each level of reflection). The students' description of or personal response to an issue or situation was categorized as surface-level and non-reflective. As their level of reflection deepened, the students began to exhibit the capacity to relate an issue or situation to their strengths, weaknesses, or other personal experiences, and theorize about a practical issue or situation. Ultimately at the critical, reconstructing level of reflection, the students would reframe their concept and practice of learning (Bain et al., 1999; Ryan, 2013). Table 6.1 provides a definition of each level of reflection and its associated characteristics.

Table 6.1
Levels of Reflection and Corresponding Characteristics

Levels of Reflection		Characteristics
non-reflective	reporting	• describe, report, retell • "current" experience • technical, mechanical
	responding	• may be emotional • "current" experience • instinctive, quick-fix • lack of explanation • lack of alternatives
reflective	relating	• associate • personal weaknesses or strengths • relationship between past, present, and future • superficial, apparent
	reasoning	• integrate, synthesize, improve • analyze, explain • examine causality • infer • link the abstract and conceptual with the practical
critical	reconstructing	• change, transform • confront bias • question, challenge • invite alternative perspectives

The analysis of journal entries adopted the following guidelines:

(1)   The unit of analysis was usually the answer to a question prompt, which expressed a single idea or consistent theme. If a student communicated a single idea or consistent theme across the answers to multiple questions, the answers would make up one integral unit. On the other hand, if a student communicated more than one idea or theme in her answer to a question prompt, the answer would be divided into separate units.

(2)   If more than one level of reflection was present in a single unit of analysis, the unit would be coded as the most sophisticated level of reflection observed within it.

The analysis of the levels of reflection evident in the students' journals indicates that the earliest journal entries had the highest proportion of reflections categorized as surface-level and non-reflective (see Figure 6.1, time points 1 and 2). After the second entry of the first semester, this form of reflection declined as the students adopted more sophisticated forms of reflection (see Figure 6.1). The following subsections discuss each

level of reflection in more detail.
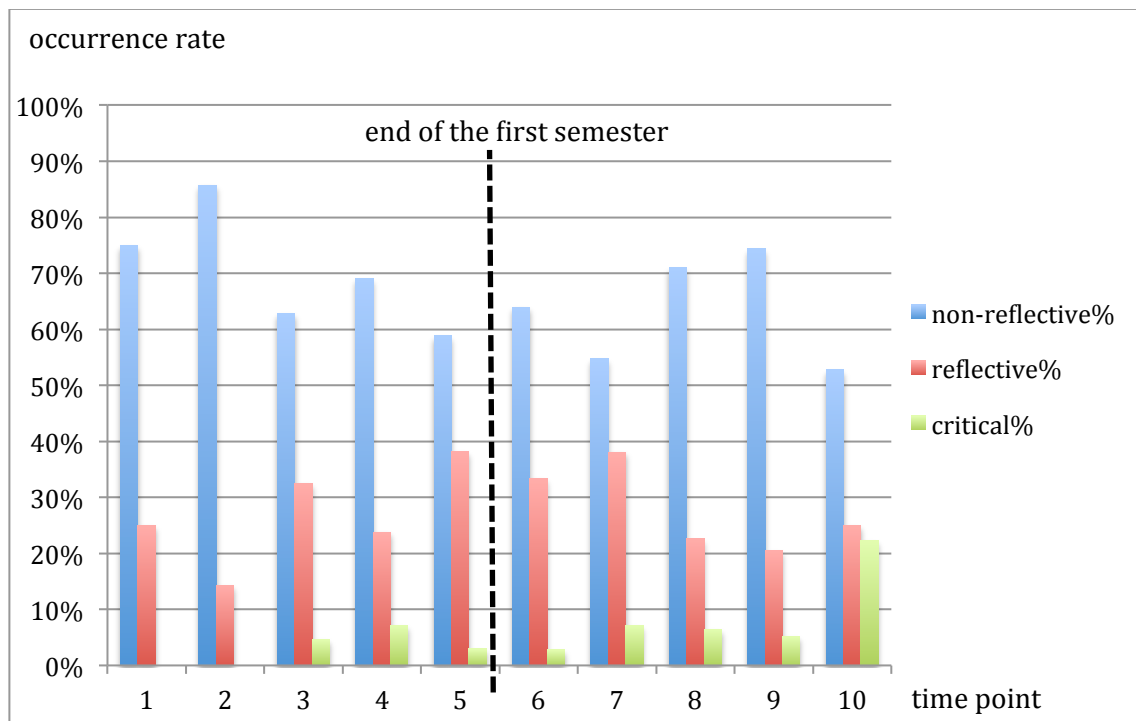
Figure 6.1
Frequency of the Non-reflective, Reflective, and Critical Reflections in Each Journal Entry

6.2.1.1 Reporting

At this highly surface level of reflection, the students only reported what had happened in a term-time activity without any personal insight. The percentage of the analysis units coded as *reporting* was the highest (58%; see Figure 6.2, time point 1) in the first journal entry of the school year, made after the students were prompted to reflect on their attempt to design an ice-breaking activity for the class (see 5.4.1.1 for more details of the orientation and warm-up activity of the program). In response to the question prompt: "How did you come up with the ice-breaking activity?" some students merely described the procedures for playing the activities that they had designed, without explaining, for example, why the procedures were appropriate for the circumstances or participants. The following excerpts illustrate this point:

We played rock–paper–scissors. The person who loses has to answer a question…. You can choose whether you want to answer the question. You can ask one question if the winner makes you unhappy; for example, if the winner asks an impolite question. (1st semester_S01_W1)

The host of the game thinks of the name of one of the players. Every player has to chant in time with a beat while they try to guess the person that the host is thinking of. The game lasts until someone guesses it correctly; this person is the winner of the game. During the game, if anyone cannot stay up with the beat, she loses. (1st semester_S02_W1)

Some other students described a past experience that was similar to the current one. For example:

We learned the game from a variety TV show. One can only use English to describe each letter of her name. For example, to describe the name *Ivy*, one may say, "If the weather is hot, we may buy and eat this kind of food. It's cold and sweet." And the other students may guess the first letter of her name is *I*. (1st semester_S07_W1)

It could be inferred that the similarities between the students' prior and current experiences were utilized in designing their ice-breaking activities. However, no effort was made to elaborate on the connection between the two experiences. If the student had explained, for example, that the activities both served as icebreakers when the participants were unfamiliar with each other, the excerpts would have fallen into at least the subcategory of *relating*.

A pair of students was invited to present the activity they had designed and play it with the class. One of the students described this experience in her journal:

My partner and I went to the front and talked about our idea. What do you think about what we did? Is that OK? That was such a cool experience—that we went to the front in the first class. I think this will be a fun activity to make everyone remember each other's name. Our art teacher played a similar game with us, right? But I think we could have done this better because we did not talk about the game very clearly at first. I hope next time when we need to go to the front to share our ideas, we can do better than this time. (1st semester_S08_W1)

Although this student identified a weak point in her presentation—her inability to clearly describe the rules of the game—she did not include any methods for improving

her performance. The student could thus be inferred as possibly being unable to connect the present experience with past or future ones. This reflection failed to meet Dewey's (1938) principle of continuity and was thus categorized as a surface-level reflection.

Although Thorpe (2004) argued that this type of report is of little value because neither strategies nor objectives are identified for future experience, other researchers have suggested that descriptive reflections should not be considered the least desirable in the hierarchy. Rather, researchers have indicated, surface-level reflections should be viewed as an essential basic stage for students to reflect on their experiences, and could subsequently lead to other levels in the developmental sequence of reflection (Hatton & Smith, 1995; Rodgers, 2002a; Valli, 1997). Therefore, in the subsequent journal entries, I often began with questions that prompted my students to report events in each experience before guiding them through other levels of reflection. For example, prior to asking the students to evaluate their performance in an activity, I asked, "How did you approach the task?" Some example answers included the following:

> We thought of a simple idea in class. Then we discussed the lesson plan and worksheet on the weekend. The day before the presentation, we even practiced during the lunch break. (1st semester_S15_W3)

> We worked together, planned everything carefully, and tried to make every part perfect. And we had clearly written down what we were going to do, so that we knew every detail and we could help each other straight away. (2nd semester_S18_W4)

After answering this question, the first student reflected on the preparation of the first in-class teaching practice, explaining the rationale behind the lesson design. This experience led her to empathize with her teachers. In addition, the second student, in the remaining part of her journal entry, expressed internalization and generalization of the notion of planning. As illustrated below in Figure 6.2, towards the end of the first semester, the occurrence rate of the reflections coded as *reporting* remained below 30%, whereas that of the deeper levels of reflection, such as *reasoning* and *reconstructing*, showed an increasing trend (see later analysis in 6.2.1.4 and 6.2.1.5). This finding is consistent with those of previous studies (e.g., Bain et al., 1999; Ryan, 2012, 2013). The descriptions of personal events served as the bases of more sophisticated levels of reflection, which involved other people in the student's context and resulted in the

attempt to generalize an idea to other environments. Without a key issue being identified at the outset of the reflection, the students can lose focus of how they may reconstruct their learning approaches (Ryan, 2013).
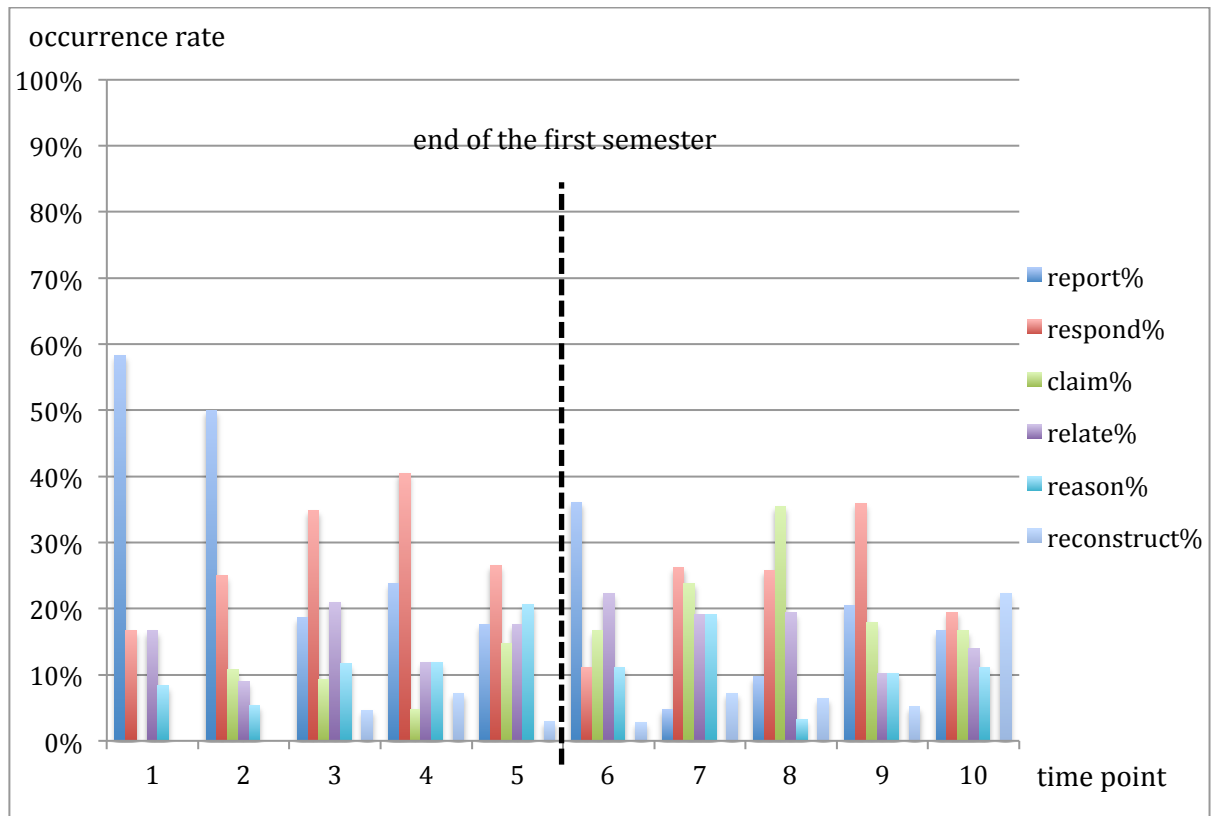
Figure 6.2
Frequency of Different Levels of Reflection in Each Journal Entry (Cycle 1)

6.2.1.2 Responding

A reflection categorized as *responding* indicated that a student's judgment was based on her observation of a current event, without further inferences or justification. The occurrence rate of this level of reflection increased from the earliest journal entry and peaked at 40% in the fourth entry of the first semester (Figure 6.2, time point 4). Afterwards, it decreased to the lowest point at 11% in the first journal entry of the second semester (Figure 6.2, time point 6).

Throughout the program, I continually asked my students to consider the following questions:

What did you do well?
Why do you think so?
What could you have done better?
How are you going to improve?

My intent was to have the students evaluate their own performances, make judgments, and synthesize changes. However, many of the students gave emotive responses without explanation. For example, when asked about her performance during the first in-class teaching practice, one student wrote: "I was so <u>happy</u> to see them play crazily…. I <u>like</u> the method of playing music. It made me <u>relax</u> and feel more <u>comfortable</u>. (1st semester_S01_W3)" In another instance, a student mentioned that she felt "proud (2nd semester_S15_W4)" of the fact that her group was able to manage their time well during their teaching practice at church.

Other responses were concerned with the students' techniques for dealing with the tasks. They looked for quick-fix solutions to solve their problems. A student mentioned that she could improve her presentation performance by "using bigger and more colorful flashcards next time, and thinking of some interesting ways to tell a story. (1st semester_S07_W3)" Another student noted that the song her group used during the presentation was too fast-paced. She wrote: "Next time we can make copies of the lyrics for everyone, so they will know what we are singing about and join us. (1st semester_S13_W4)" A different student wrote the following after the teaching practice at church:

> We can start with teaching some vocabulary or explaining the song to the kids. This way, they will understand the song better, and we will be able to finish the lesson in time. (2nd semester_S09_W4)

The following quotes demonstrate the third type of *responding* reflection presented by my students in their journals. In these reflections, the students maintain a focus on their performance in the in-class or field teaching practice.

> The game was a little too difficult. Maybe the children could not understand how to play the game, and they may have felt bored. We have to make it easier. (1st semester_S01_W4)

> This time a group used a song to attract children. It really was a good idea. (1st semester_S08_W3)
>
> We controlled the time well, and we prepared our lesson well. Although the computer did not work, we tried to think of another method. The song teaching was still successful. (2nd semester_S18_W4)

The emotional, technical, or commentative features represented in these reflections constitute what Bain and his colleagues (1999) termed the *responding* level of reflection. As far as the emotional response is concerned, it is regarded as integral to the process of reflection. Boud and Walker (1998) argued against oversimplifying reflection as a matter of thinking rigorously and making a variety of reflection seem inappropriate. However, in an academic setting, a deeper level of reflection has to develop from emotional responses into intellectual meaning making or further into transformed learning practices (Bain et al., 1999; O'Connor, Obst, Furlong, & Hansen, 2015).

Most technical responses were observed after the students' presentations and field teaching practices. According to Valli (1997), this type of reflection focuses on comparing a person's techniques or skills with criteria prescribed by an authority. In the present program, the authorities were the teachers, the administrative staff members, and even the church staff involved in the field teaching practices. For example, I frequently reviewed the English lessons my students planned to teach with the underprivileged children, and asked the students to rehearse their planned teaching techniques. The pressure of satisfying the expectations of the authorities may have driven the students to devise quick fixes that seemed timely and efficient. However, if the students' reflections were limited to technical or instrumental judgments, there would have been little room for further contemplation about why something works or not, or about how alternative approaches could have been used to solve a problem (Day, 1993; Hoffman-Kipp, Artiles, & Lopez-Torres, 2003; Shakra, 2013).

Finally, the commentative responses to a current experience were referred to as surface, non-reflective because the students expressed their opinions without any explanation. In the earlier student comments about their performances in the in-class or field teaching practice, justification was not provided by the first student when criticizing the game as being difficult, by the second student when describing the use of the song as a good idea,

or by the third student when positively appraising the field teaching experience. However, the comments were valuable because they showed that the students had begun to evaluate and make judgments, demonstrating attributes of deeper levels of reflection.

I would argue that the preceding analysis illustrates the importance of scaffolding—acknowledging the students' emotional responses as well as developing intellectual reasoning, improving quality of teaching experience without overemphasizing techniques, or substantiating the students' comments on their own performance. Previous studies (e.g., Whipp, 2003; Wu & Looi, 2012) have suggested that providing more scaffolding, by using more question prompts, can elicit more sophisticated reflection. However, overly prescriptive questions may limit the authenticity of the students' natural reflection (Boud & Walker, 1998). A more detailed discussion of the notion of scaffolding will be provided in Chapter 8 (see 8.3.2).

6.2.1.3 Relating

For their reflections to be categorized as *relating*, the students had to draw linkages between their personal, current experiences and the experiences of other people or of other times and places. However, these are merely superficial relationships. The students were unable to provide an in-depth explanation of why such connections exist. During the first semester, the general pattern of the occurrence rate curve of this form of reflection was a fluctuating one. In the first three journals of the second semester, this rate reached a stable level of approximately 20%. The lowest occurrence rate of this type of reflection was found in the second journal entry of the first semester, when the proportion decreased to 9% (Figure 6.2, time point 2). The highest rate occurred in the first entry of the second semester, when the proportion increased to 22% (Figure 6.2, time point 6).

One type of reflection categorized as *relating* demonstrated the students' ability to associate their strengths or weaknesses with their experiences in a task. For example:

> I think I wrote the lesson plan well. I spent much time on it and used a dictionary to double-check. <u>I think I am good at arranging data and putting them in order.</u>
> I could do better in the presentation. After watching the other groups'

presentations, I think there are still many things that our group needs to improve. I think <u>I have to do better when I teach dialogues. Although I tried hard to explain, the children couldn't understand.</u> Maybe next time I can use Mandarin and then practice in English. I can also try to act out the dialogues. (1ˢᵗ semester_S17_W3)

The first in-class teaching practice made this student realize her strength in information management and her lack of information communication ability. If led to deepen her reflection, the student might be able to apply this reflection to future course or even career selection.

This level of reflection also took the form of comments relating the students' current experience to a prior or future one:

In the group lesson, we taught some little kids, and we prepared a lesson that was too difficult for them. <u>I should have tried to know their English level before we went there. Maybe I can ask some younger relatives in my family what they learn in school. By doing so, I hope I can avoid this kind of situation in the future.</u> (2ⁿᵈ semester_S15_W4)

In becoming aware of the link between children's prior knowledge and current learning as a result of the field teaching practice, the student resolved to improve the quality of future teaching by first determining children's level of English proficiency. This realization may also enable the student to perceive the link between her own prior knowledge and learning and to develop strategies for analyzing her own learning needs.

The students also demonstrated, in the reflections categorized as *relating*, their mindfulness of distinguishing among experiences or people. One student learned, from her observation of the other group's field teaching practice, that "watching and listing carefully and absorbing what others do are important ways to improve. (2ⁿᵈ semester_S12_W4)" This student became determined to observe her teachers' teaching methods, and was also aware of the difference between teenage students and children, saying: "I'll see if some of our teachers use those methods when teaching, though we're not 'kids'. (2ⁿᵈ semester_S12_W4)"

6.2.1.4 Reasoning

This level of reflection focuses on the ability to explain and conceptualize. Since the third journal entry of the first semester, the occurrence rate of the reflections coded as *reasoning* continued increasing, and peaked at 21% in the last journal entry of the first semester (Figure 6.2, time point 5). The occurrence rate curve fluctuated between the first and fourth journal entries of the second semester, with the lowest value (3%) occurring in the third journal entry (Figure 6.2, time point 8).

In the following excerpt, for example, the student explained, after the first in-class teaching practice, why planning, rehearsal, and mutual comments were critical to the preparation for a group task.

> I thought we made a perfect plan before we rehearsed. When we rehearsed we found some problems, and we corrected them. So rehearsal is very important. I had to communicate with my partners. It helped our group to reach the goal. We made comments about our plan so that everyone knew each other's feelings. (1st semester_S14_W3)

In another excerpt, a student generalized her experience of planning for a five-day English program for children as a metaphor to explain the effectiveness of positive interdependence among the group members.

> First, we thought about what we wanted to teach the kids. Then we started to make plans. We came up with the activities we would like to do, and then we placed the activities into the schedule. It was a bit hard because we had to make sure that every day the kid would not only learn something, but also play some games or activities. We finally had some agreement. It is nice to work with a team, as a saying goes: "If you have two apples, you can eat two. But if you have two people, you can have more than two ideas." This is what happened in my group. We have a bunch of people, so we can have more than a bunch of ideas. (1st semester_S05_W5)

6.2.1.5 Reconstructing

This is the subtlest level of reflection and indicates a high level of abstract thinking and the ability to generalize from an experience. The students who exhibited the *reconstructing* level of reflection were able to challenge their established perceptions and approaches to learning, realize alternatives, and transform their future practice on the

basis of reflection. The critical, reconstructing reflections were first observed in the third journal entry of the first semester. Their occurrence rate, in contrast to those of the reflections falling into the other subcategories, remained stable below 10% throughout most of the school year. Only in the last journal entry of the second semester did it increase, peaking at 22% (See Figure 6.2).

Five percent of the analysis units from the third journal entry of the first semester were coded as *reconstructing*. Some examples included:

> I think teaching is really hard work. Teachers need to prepare a lot before class. They also need to pay attention to time, or they cannot finish the whole lesson in time. <u>I will be more attentive in class.</u> (1st semester_S15_W3)

> Teaching is really tiring. Sometimes the teachers spend a lot of time preparing before class, but during the class the students don't listen to them. They may feel frustrated. <u>I used to be distracted in some classes, but now I understand that every lesson represents the teacher's motive. I will concentrate in class and observe the teachers' characteristics. [I will] learn to be a good teacher.</u> (1st semester_S18_W3)

These excerpts reveal that the students appeared to have developed a sense of empathy towards their teachers, and a sense of responsibility for and commitment to their own learning, which could indicate transformation of their existing approaches to learning.

Because the percentage of the *reconstructing* reflections peaked at 22% in the last journal entry of the second semester (see Figure 6.2, time point 10), when the students were required to evaluate the term-time activities as a whole, it could be surmised that these activities were adequate for encouraging my students to reflect critically on their learning. The following examples highlight the *reconstructing* level of reflection:

> In the past, I always thought I was the only person who could do a certain thing. But sometimes there wasn't enough time, and it was not perfect in the end. I know I have to believe in my teammates. I don't have to do everything by myself. That is not a wise method. That is what a team is for. (2nd semester_S02_W5)

I didn't review at all, but now I will. I wasn't used to taking notes or concluding notes after I learned them, but now I will do both. It was impossible for me before. There is one thing I am pretty sure of: I do double checks now. (2nd semester_S05_W5)

In the past, I didn't really care about my study, but now I know how to figure out what I have done well and not really well. And I have learned how to make good notes. (2nd semester_S08_W5)

Before doing something, we have to make a plan so that we can do it more easily during the process. I have learned how to make a detailed plan and try to fix it until it becomes the best. I also learned to use my imagination. I used to do what others told me to do, but during the activities I have tried to design lessons and games by myself. That's a challenge to me. I'm no longer a person who just listens to others. Now I show initiative to help. (2nd semester_S18_W5)

Overall, the students' old attitudes were challenged, which could result in transformation of their behavior. The students also realized alternatives in learning strategies. In the first and final preceding excerpts, the students acknowledge improved efficiency and creativity as benefits of engaging in a task with their peers. In the second and third excerpts, note taking is explicitly referred to as a practical skill to be practiced. The foregoing excerpts imply that the students, by generalizing from their teaching experience, may become more capable of planning (e.g., 2nd semester_S02_W5, 2nd semester_S18_W5), monitoring (e.g., 2nd semester_S05_W5, 2nd semester_S18_W5), and evaluating their own learning (e.g., 2nd semester_S08_W5).

6.2.1.6 Claiming (a new code added to the levels of reflection)

In this round of analysis, I discovered that some of the students' reflections did not fit squarely into any of the categories of the literature-based coding scheme. For example, in the second journal of the first semester, the students were prompted to reflect on the movie *Akeelah and the Bee*, which they watched in class. The question prompts included: "What was Akeelah like at the beginning of the movie?," "What was Akeelah like by the end of the movie?," and "What caused the changes in Akeelah?" This final question was intended to lead to deeper levels of reflection by building upon the students' responses to the first two questions. Listed below are some of the students' answers:

> The challenge and the teacher [caused Akeelah to change]. (1st semester_S01_W2)
>
> Akeelah started to change because she knew she had the ability. (1st semester_S15_W2)
>
> Akeelah started to change because she knew that if she wanted to do this [win a spelling bee] she had to give it all her attention. (1st semester_S18_W2)

To me, these answers appeared nearly reflective. The students intended to explain the cause of a particular phenomenon in learning but failed to provide sufficient reason or justification. Other examples of this form of reflection are present in the journal entries written after a field teaching practice. Expressing what she had learned from her teaching practice experience, one student wrote:

> Precautions are very important. Being able to handle the unexpected is important, too. <u>I think the relationship between the new idea and prior knowledge is close. With both prior knowledge and new experience, new ideas are inspired....</u> I can use this learning in many ways. (2nd semester_S14_W4)

The student attempted to explain how her new ideas about learning were inspired, but did not provide specific details to explain the relationship between experience and ideas. The occurrence of this form of reflection could imply partial or limited understanding by the student (Land, 2014; Land et al., 2005; Land, Rattray, & Vivian, 2014). Alternatively, the students could lack the discourse to express their reflective thinking clearly (Meyer & Land, 2003; Meyer & Land, 2005). This form of reflection first appeared in the second journal of the first semester (Figure 6.2, time point 2), and its occurrence rate peaked at 35% in the third journal entry of the second semester (Figure 6.2, time point 8).

6.2.1.7 Potential factors influencing the effects of the innovative program on the changes in the student reflection levels

The data analysis indicates, first, that fresh, challenging, counter-normative teaching practice experiences could have led to change in levels of reflection. Such change would have required appropriate scaffolding. By contrast, the abundant checks and rehearsals for the purpose of ensuring the students' readiness for teaching were less likely to encourage deeper, more critical reflection. Because only slightly more than half of the

participating students submitted the final journal entry after completing the summer service-learning experience, data from this time point were not included in the graphical illustration of the occurrence rate of each level of reflection. However, analyzing the final entries that were completed reveals the language and interaction factors that could influence the effects of the innovative program on the changes in the levels of the students' reflection.

The counter-normative character of the students taking on the role of teacher could be argued to have constituted the freshness and challenge of the teaching practices in this program, possibly leading to change in levels of reflection. Within the traditional hierarchical relationships of Taiwan educational settings, students have little decision-making autonomy in their learning. However, during these teaching practices, the students were empowered to select appropriate learning materials, use different strategies in various contexts, guide learning progression, and rate the quality of effort or performance. Such new experiences involved uncertainty, which stimulated deeper levels of reflection (Dewey, 1933; Harrison & Clayton, 2012; Hawkins, 2013; Schön, 1983). In addition, taking on the role of teacher challenged not only the conventional position of the students in power relations in education but also their established methods of learning. It took the students beyond the limitations of their own experiences in typical English classes and provided them with an opportunity to view their learning through a different lens (Brookfield, 1995; McLean, 2009).

The potentially beneficial effects of the teaching practices, however, might be jeopardized by an overemphasis on performance. As indicated previously in this chapter (6.2.1.2), abundant checks and rehearsals were conducted to ensure the students' readiness for teaching during the summer camp, and their performance was measured against authoritarian criteria. Such an approach could be argued as having limited the students' reflection to a technical level (Day, 1993; Hoffman-Kipp et al., 2003; Shakra, 2013; Valli, 1997).

Language could also have influenced the effects of the program. After completing the summer service-learning experience, the students were asked to record their "gan xiang (感想)". This Mandarin term refers to thoughts and emotions, in this instance towards

the English camp. The students, in describing their gan xiang, were inclined to put more emphasis on expressing their feelings. It could be argue that the Mandarin term may not be a satisfactory equivalent of the English word "reflection". In addition, the students were encouraged to write their journals in English, because the innovative program was one of the school's EFL elective courses. The students might have struggled to communicate clearly and accurately in English, and hence may have written less than they would have in Mandarin. These issues could raise concern of misinterpretation or misrepresentation. In addition, the use of language could have effected a change in concept, and this possibility deserves further discussion (see also Wang & Byram, 2011).

Aside from the language considerations, analyzing the final journal written immediately after completion of the service-learning experience suggests that close and personal contact with the disadvantaged indigenous children who attended the summer camp possibly raised the students' awareness of the social, cultural, or political differences between the children and themselves. This may have led the students to question the meaning of justice in Education. For example, S17 noted that while students in urban areas view English as the most important second language, the indigenous children put more effort into learning their tribal language. Additionally, multiple students discussed the fairness of education resource distribution. The students' concern about the lack of education resources in underprivileged areas might have caused changes in their own learning. The findings imply that the service-learning experience may have a transformational effect on the students. Their perceived approaches to learning may have been challenged. They may also have been empowered to confront the issues of diversity and justice in learning settings (Baldwin, Buchanan, & Rudisill, 2007; Butin, 2010; Cone, 2009; Warner & Esposito, 2009).

6.2.2 Metalearning

The coding scheme for analyzing the students' metalearning capacity was detailed in Chapter 4. In short, this scheme, derived from the works of McCormick (2003) and Tarricone (2011), consists of two categories—*knowledge about learning* and *control over learning*. The *knowledge about learning* category contains three subdividing classifications, namely *declarative*, *procedural*, and *decisional* knowledge about learning. *Declarative knowledge about learning* can be further classified into *knowledge about*

person, *knowledge about task*, and *knowledge about strategy. Control over learning* can be subcategorized into three learning control mechanisms: *planning*, *monitoring,* and *evaluating.* Table 6.2 presents the descriptions of the categories, subcategories, and themes of metalearning capacity.

Table 6.2
Components of Metalearning and Corresponding Descriptions

Categories	Subcategories	Themes	Descriptions
knowledge about learning	declarative knowledge	knowledge about person	• refers to one's own strengths or difficulties in learning • refers to one's own prior knowledge, skills and experiences • refers to others' strengths or difficulties in learning compared with oneself • refer to universal properties of human beings in learning
		knowledge about task	• compares across tasks, identifying similarities and differences • clarifies task objectives • makes a judgment about the level of difficulty or complexity of tasks • rates tasks on the basis of pre-established criteria or previous knowledge
		knowledge about strategy	• refers to strategies involved in a particular task • refers to the effectiveness of strategies in relation to the context or task
	procedural knowledge	—	• defines or articulates how one has learned something
	decisional knowledge	—	• defines when one uses a particular strategies • is able to decide and distinguish appropriate strategies
control over learning	planning	—	• sets goals and targets • decides on ways of proceeding with the task • seeks and collects necessary resources • allocates individual roles and negotiates responsibilities
	monitoring	—	• self-commentates • keeps track of procedures currently being undertaken and those that have been done so far • rates effort or performance • detects errors • self-corrects • checks or corrects performance of peers • considers alternatives
	evaluating	—	after a learning episode: • rates the quality of performance • tests strategy effectiveness • comments on task progress

The students' metalearning capacity was analyzed from a transactional perspective, which posits that what the students selected to attend to in their journal writing must have resonated with their belief systems (Dewey & Bentley, 1960; Rosenblatt, 1994). In other words, the features of the movie, role model, or teaching experience that the students reflected on were likely those that they considered valuable and meaningful in their own learning. In accordance with this premise, one of the analysis guidelines was that the identified units of analysis should either directly refer to the students' knowledge about their own learning or how they control their own learning processes, or indirectly infer what they possessed or operated in their course of learning. For example, a student (1st semester_S01_W5) designed a plan to teach children English through movies. She planned to provide some questions for the children to consider while watching a movie. This unit was categorized as *planning* because it demonstrated that the student had selected a particular means of proceeding with the teaching of children before actually taking action. It also implied that the student possessed *procedural knowledge* that she had to direct her attention before engaging in a learning task. She knew that pre-posed questions are effective in directing and focusing one's attention on specific essential information.

The two other guidelines for analysis were as follows: A unit of analysis could be as long as a paragraph on a certain topic, thus providing sufficient contextual detail. Different words, phrases, or sentences in a unit could be deemed representative from different perspectives. Therefore, a unit of analysis could be placed in more than one subcategory. For example, one student wrote about how she and her group members approached the field teaching practice:

> We got together and talked about our ideas and plans. We encouraged each other, so I didn't have to be shy about sharing my ideas or worry about whether the others would laugh at me. There are many ways to make a good plan for kids. (2nd semester_S02_W4)

This unit of analysis fell into the subcategory of *planning* because the student talked about how the group members encouraged each other to create various plans for children. The unit could also be coded as *monitoring* if the focus was placed on how the student worked with her peers to complete the task through communication and peer

support.

The remainder of this subsection presents the analysis results.

6.2.2.1 Knowledge about learning versus control over learning

Compared with the number of analysis units coded as *knowledge about learning*, the units coded as *control over learning* were much fewer, particularly in the first two journal entries of the first semester and the first entry of the second semester. In the first journal entry of the first semester, eight of the 22 units of analysis were coded as *control over learning*. In the second entry of the first semester, the number decreased to its lowest point, with only one of the 38 units of analysis classified into this category. In the first entry of the second semester, nine of the 50 journal reflections fell into this category. Figure 6.3 shows the ratio between the occurrence rates of the reflections categorized as *knowledge about learning* and those categorized as *control over learning*.
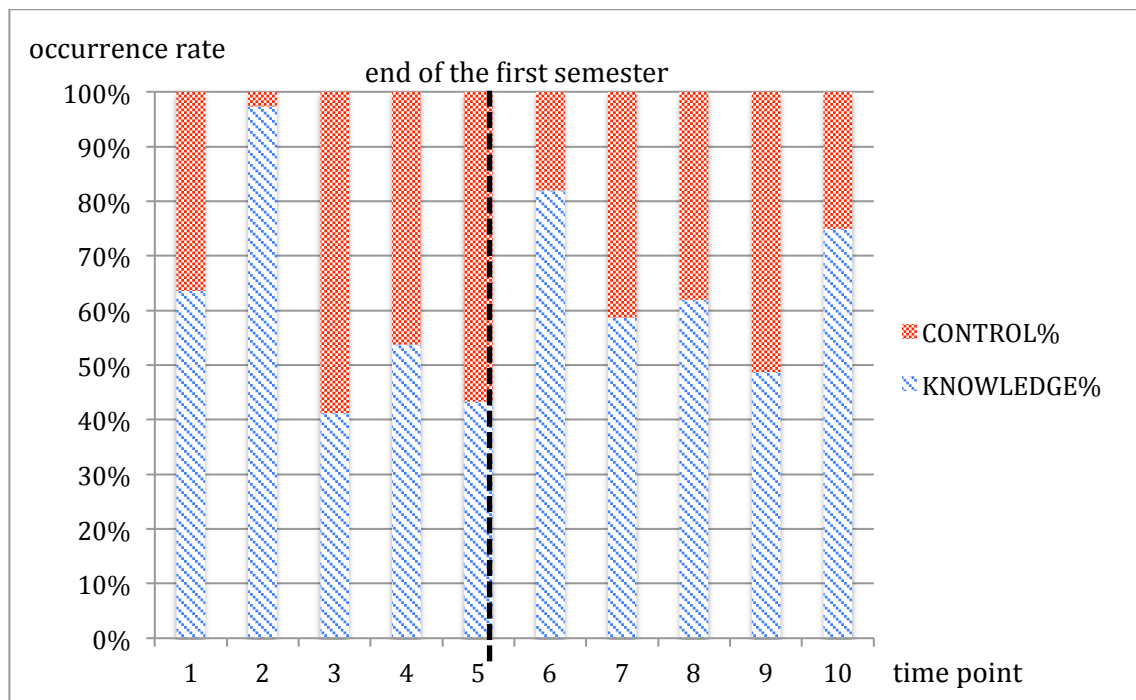
Figure 6.3
Frequency of Knowledge about Learning versus Control over Learning (Cycle 1)

As mentioned, at the first meeting held as part of the program, the students were asked to design an ice-breaking activity. Towards the end of the meeting, one pair was selected to explain and perform the activity with the class. After class, every student was required to answer the question prompt: "How did you come up with the ice-breaking activity?" This question was intended to elicit information about the students' thinking processes; however, they tended to describe their specific activity. A small number of the reflections revealed the students' control abilities, including keeping track of their thinking and the changes to their ideas, and rating the quality of their performance.

> At the beginning, my partner and I had no idea about this activity. Then, we started to think about the game that we had played before. After two minutes, we had a simple idea from a famous TV program. But we changed some rules to make our game different. (1st semester_S15_W1)

> But I think we could have done this better because we did not talk about the game very clearly at first. I hope next time when we need to go to the front to share our ideas, we can do better than this time. (1st semester_S08_W1)

In the first example, the student was able to report the sequence of controlling activities that led up to the accomplishment of the task. She and her partner combined prior knowledge with their own creativity. The student who wrote the second excerpt explained and performed the activity with the class. The excerpt suggests that the student viewed her own performance as being poor.

Extremely few units of analysis were coded as *control over learning* in the second journal entry of the first semester and the first entry of the second semester. Both the learning tasks of the lessons corresponding to these journal entries were similar in that they were more static than the other tasks in each semester. One of the tasks required the students to present a written reflection on the movie *Akeelah and the Bee*, and the other required them to compare the characteristics of their own learning approaches to those of their role models. Becoming aware of the ideal learning strategies utilized by their role models, my students began to plan for their future learning tasks. They set their goals and decided on means of proceeding with the task.

Teachers want students to understand what they teach. Using interesting ways to teach children is better. Learning English shouldn't be so painful. If we force them to study, they will be afraid of learning. That's not our expectation, right? (2nd semester_S01_W1)

The textbooks are hard enough for me to work them through, so I can't read novels as my tutor does. I just try to do my best on tests. I think what I need to do is to master the lessons. (2nd semester_S07_W1)

I hope to learn what my mother used to do and try to read more English books. Maybe I can start from a short novel. I hope I can improve my English vocabulary and grammar in this way. (2nd semester_S09_W1)

I want to teach the children how fun English is. We can listen to songs and sing together, or we can play games with the rhymes or vocabulary. (2nd semester_S18_W1)

These excerpts suggest that the students made a plan on the basis of their knowledge about learning. In the first excerpt, the student acknowledges that applying strategies that generate interest in learning is more effective than simply putting stress on learners. This student might have had some painful, frightening, or otherwise negative learning experiences in the past, thus she decided to help children approach their learning by a different route. The student who wrote the second excerpt appeared to hold an exam-oriented attitude toward learning English, which she considered a highly difficult task. Therefore, she approached the task by extensive textbook study. The English-learning goal of the student who authored the third excerpt appeared to be learning vocabulary and grammar, and she appeared to consider reading an effective strategy for reaching this goal. Finally, the student who wrote the fourth excerpt chose to adopt audio and kinetic strategies, in addition to reading activities, in her lessons for children.

6.2.2.2 Substantial representation of the students' declarative knowledge about learning

In each entry, of all types of knowledge about learning, most (more than 60%) of the units of analysis were categorized as *declarative*, which refers to the students' understanding of themselves and what personal characteristics influence their performance in the course of learning (see Figure 6.4). This finding concurs with the study by Dart, Boulton-Lewis, Brownlee, and McCrindle (1998). Despite the participants differing in age, both the study of Dart et al. (1998) and the current study have noted that

students' declarative knowledge was verbalized in their journals in the early stage of their course, whereas knowledge regarding how, when, and why did not develop until the latter stages.
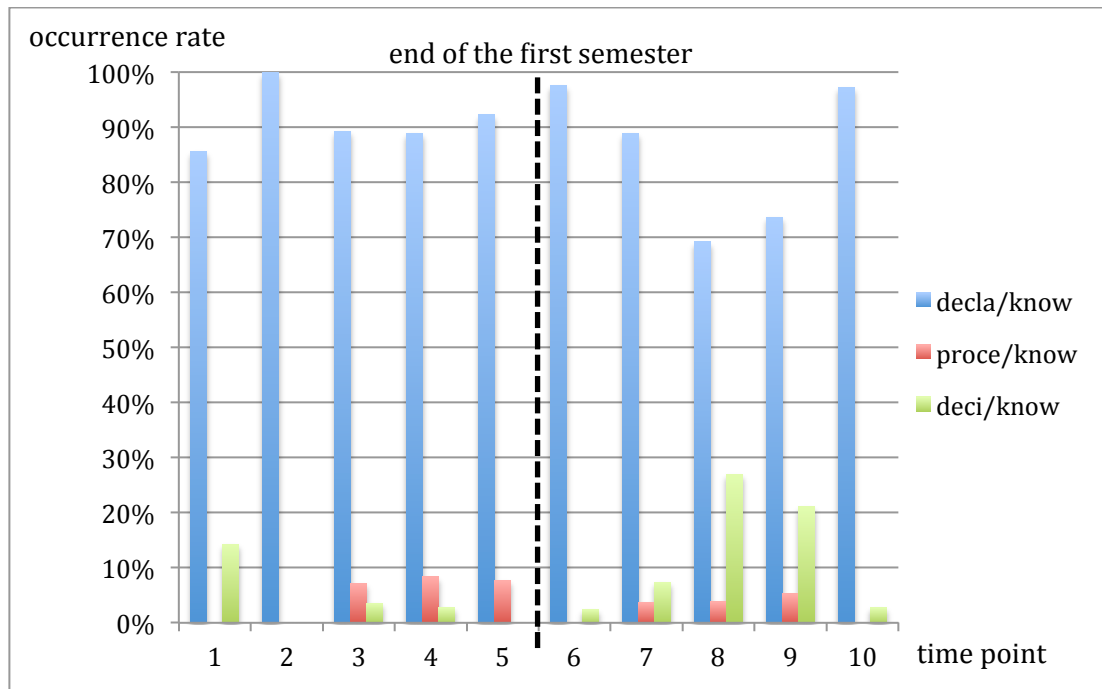
Figure 6.4
Frequency of the Three Subcategories of Knowledge about Learning in Each Journal Entry (Cycle 1)

6.2.2.2.1 Knowledge about person

At the beginning of the course, the mass of declarative knowledge mainly concerned personal variables; however, at the end of the second semester, there was relatively balanced amount of representation of knowledge about person, task, and strategy (see Figure 6.5). The journal reflections illustrated the students' knowledge about person by referring to their past experience, their own strengths or weaknesses in learning in comparison with other people, and the universal properties of human beings in learning.

When reflecting on their attempts to design an ice-breaking activity in the first class, the students commonly referred to their past experiences with similar activities:

> We came up with this idea because I went to an English conversation lesson this summer. The teacher there also played a name game. We added beats to the game to make our own new name game. (1st semester_S09_W1)

> I remember when I was in elementary school, my English teacher brought a teddy bear with her and then played a song. When the music stopped, the person holding the teddy bear had to answer a question. (1st semester_S13_W1)

The association between a current experience and a past one might be the result of a comparison and contrast of time occasions, contexts, or participants.

In another example, a student discovered more about her learning difficulties by comparing herself with the lead character in the movie *Akeelah and the Bee*:

> She [Akeelah] didn't think she had power. I am a little bit similar to her…. [By the end of the movie,] Akeelah enjoyed her life, and she was brave enough to face challenges. I like this part. I don't have this strength. I'm not good enough. (1st semester_S01_W2)

This student identified a trait of the character that resonated with her—a fear of challenges. This excerpt also captures the student's inadequate or false understanding of her own strengths: "She [Akeelah] didn't think she had power. I am a little bit similar to her. (1st semester_S01_W2)" It could be assumed that the student did not recognize her own strengths. However, it could also be assumed that she was being modest or felt a sense of inferiority regarding her learning abilities. This is a concern in education in Taiwan and can be linked to a cultural tradition that encourages self-effacement (Flowerdew, 1998; Martin, Mullis, Gonzalez, & Chrostowski, 2003; Ren, 2014).

This type of knowledge also took the form of an understanding of universal properties of human beings in learning. For example, a student acknowledged that personal change may be reinforced by successful experience (1st semester_S05_W2), and another student recognized that an individual who is focused and has a positive attitude towards learning is likely to obtain more positive outcomes (1st semester_S07_W2). Such principled understanding might have been induced based on an analogy between the learning experiences of the movie character and those of many students.

Finally, it was observed that the students considered their relationship with teachers, peers, or family members as a human factor that facilitates or inhibits their learning. Therefore, I included this as a description of the theme *knowledge about person*. In the second entry of the first semester, 16 of the 25 reflections coded as *knowledge about person* concerned how the students engaged with other people in the process of learning. The film-viewing activity served as an impetus for my students to consider what role their teachers, peers, or family members play in their learning processes.

Two types of images of teachers were found in the students' reflections on the movie: strict teachers and caring teachers. A student indicated that her ideal teacher would "pretend to be strict" and set his or her students "a high goal (1st semester_S02_W2)". She stated that students need pressure as well as support from their teachers. By contrast, a different student expressed her dislike of "mean (1st semester_S09_W2)" teachers. Her ideal teacher would give unfettered support and encouragement to students. Furthermore, by observing the interaction between my students and the children they taught, I was able to infer what types of teacher roles and images they were emulating. Some of them expected teachers to be content experts: "We must know the song very well. Otherwise, we couldn't teach them [the children]. (1st semester_S17_W4)" Some thought that a teacher's role should be of a friend to the children (e.g., 2nd semester_S13_W1). Still some expected to form a reciprocal student–teacher relationship.

> I learned how student response affects teachers. When the children were willing to answer the questions we asked, we would get more confidence and the lesson would be smoother. And that also happens in our school. We should be more active in class so that the teachers can teach us more. (2nd semester_S15_W4)

The students indicated that peers could either inhibit or facilitate learning. On the one hand, they attributed Akeelah's poor performance at school to negative interdependence between the character and her peers.

> Akeelah didn't want to be laughed by those "cool" students who called her a freak. (1st semester_S12_W2)

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Akeelah is good at spelling, but she doesn't want her classmates, except for her best friend, to know her ability. She thinks the classmates will think of her as a freak. (1st semester_S17_W2)

In addition, the students acknowledged that knowing their peers more closely had a positive influence on their performance in the program (e.g., 1st semester_S13_W4), and a part of the content of my students' reflection was about developing cohesiveness with their peers. Not only peer support but also peer challenge (or even pressure) can affect learning (Murphey & Jacobs, 2000).

In addition to teachers and peers, family members were a source of influence on my students' learning, according to the journal analysis. For example, in the first entry of the second semester, some students referred to their mothers (e.g., S09 and S18), brothers (e.g., S01, S02, and S03), or cousin (S17) as their role models for learning English. The interaction between the students and their family members was not included in the design of the innovative program; however, social exchanges among family members in the home was confirmed as consolidating learning in academic settings (Bråten, 1992). In fact, from a social constructivist perspective, a learner first needs interaction and cooperation with people in his or her environment, and then he or she becomes able to tackle learning tasks independently (Vygotsky, 1978). Closely examining the relational factors can provide information about how the changes in students' metalearning capacity may be influenced.

Generally, the preceding excerpts illustrated that the students' awareness of personal variables in learning could be an effect of conscious comparison and contrast. The determination of differences or similarities can challenge the existing habits of students or enhance the generalization of a particular perspective (Burch et al., 2014; Harkrider et al., 2013; Ming, 2009; Perkins, 2006).
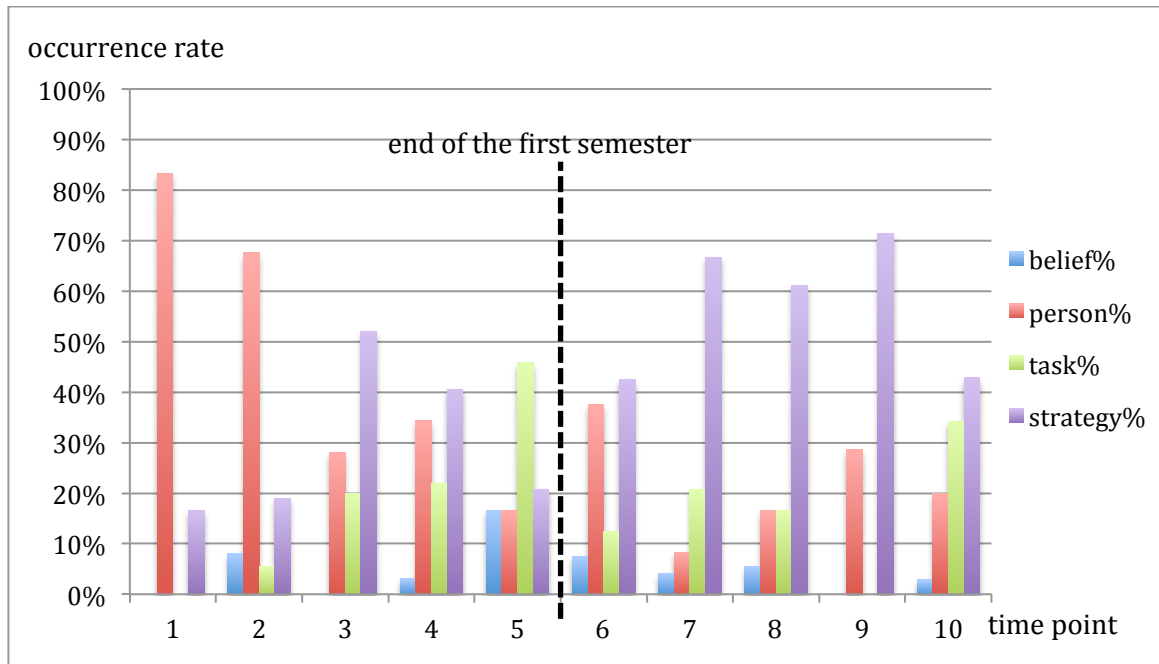
Figure 6.5
Frequency of the Four Themes of Declarative Knowledge about Learning in Each Journal Entry

6.2.2.2.2 Knowledge about task

Another type of declarative knowledge is about learning tasks; this refers to the students' clarification of task objectives, judgments about the level of difficulty or complexity of tasks, and comparisons of tasks. Two peaks of the rate of occurrence were observed at the end of each semester (see Figure 6.5, time points 5 and 10). The final task of the first semester was for the students to design a five-day English summer program for underprivileged children. The in-class presentation simulated an information session for the students to explain the program rationale and demonstrate a sample lesson. In their journals, some students exhibited their understanding of the task objective. For example: "My last assignment is to work with my group members and sell our program. (1st semester_S17_W5)" In addition, this student judged the task to be challenging. Another student compared the final task with the previous tasks they had completed, and described it as the largest-scale presentation throughout the semester. She wrote: "We didn't have anything to follow. We did everything ourselves. (1st semester_S05_W5)" In addition to the large scale of the task, the fact that the students had to give the presentation in English increased the level of difficulty of the task. One student said that she would probably "pass out (1st semester_S02_W5)" if she had to teach lessons in

English ever again.

In the final journal entry of the second semester, the students were required to reflect on the term-time activities as a whole. Many of them focused the task objective on teaching children and designing lessons for them (e.g., S09, S12, S13, S14, and S18). For the students, satisfying this objective was challenging (e.g., S14 and S18) and exhausting (e.g., S12). The students clearly expended great effort in participating in the innovative program and took it seriously. One student concluded that the "English project is not a joke or a game. (2nd semester_S01_W5)" From the analysis, it appeared that the more challenging tasks could stimulate my students' awareness of task characteristics. This finding is related to those reported in a previous subsection (6.2.1.6), which concerns the degree of challenge and the uncertainty it may result in.

It is also worth noting that my students tended to contrast the tasks in this innovative program with those in their "normal" English class. For example:

> The most special thing in this class is that it's not only an English lesson. In the second semester, we are not only learning how to teach children English but also enrich ourselves. We learn, for example, how to lead children to sing and act, and how to design games and make sure kids know how to play them. We also train ourselves in how to control time and how to be a host of activities. All of these are things that can't be learned in normal classes. (2nd semester_S12_W5)

The students found the learning experience in the innovative program distinct from that in a typical English class. English language teaching in Taiwan has been described as traditional, teacher-centered, and exam-oriented in both secondary and tertiary education and in both general and vocational education. In the definition of learning tasks, more emphasis is placed on learning the knowledge of grammar rules and vocabulary than on learning communication and interaction skills. In addition, the students tended to consider formal learning strategies (Oxford & Nyikos, 1989) more effective. Repetition is a common strategy employed by the students when they memorize vocabulary. They learn the meanings of words with example sentences, synonyms, or the words' roots (e.g., 1st semester_S02_W4, 1st semester_S05_W3, and 1st semester_S12_W4). Another common strategy is doing pattern drills. "If you change a

small word [in a sentence], the whole meaning will change. (1st semester_S12_W4)" Therefore, the student found "getting a reference book full of patterns (1st semester_S12_W4)" and drilling herself with exercises to be useful. Even prepositions were carefully studied (e.g., 1st semester_S13_W4).

On the other hand, instead of the repetitive and mechanical practice of sentence structures and words, my students valued functional strategies (Oxford & Nyikos, 1989), such as learning through authentic materials, when they had to teach English to others.

> We can create some games in PowerPoint, include a video, or link to a website that children are interested in. We can also add some sound effects. (1st semester_S12_W3)

> We brought the things mentioned in the lyrics, and made the students know what these things are and their functions. We played a spelling game that could make the students memorize the vocabulary well. We also thought of some dance steps to accompany the song. We led the students to dance with us. This would be a good method that would keep the students awake in class. (1st semester_S13_W4)

> I think we must show a sense of humor. Students tend to enjoy jokes. If we tell stories in a more interesting way, then those children may pay more attention in class. (1st semester_S14_W3)

The reflections may suggest that the students found functional strategies more effective in generating interest in learning English. What resulted in their divergent perceptions regarding learning and teaching might be an overemphasis on passing examinations in secondary education. If there were no pressure from entrance exams, as the students were in kindergarten, they would "sing cute English songs with classmates and teachers, and teachers would tell some interesting stories in English. (1st semester_S09_W4)" However, in secondary school, even though "learning in a normal way" made the students feel "bored (2nd semester_S15_W2)", formal learning strategies were more effective in relation to their context of situation.

6.2.2.2.3 Knowledge about strategy

The preceding examples not only illustrate my students' awareness of task characteristics and demands, but they also reveal in what way my students' knowledge

about task may influence their understanding about the effectiveness of different learning strategies. This finding concurs with the argument of Elbaum, Berg, and Dodd (1993) that an individual's knowledge about the effectiveness of strategies is related to how he or she defines learning tasks.

In addition to the functional strategies mentioned in the previous subsection (6.2.2.2.2), positive interdependence strategies are another form of strategy regarded as more applicable to the present innovative program than to typical English classes. In this innovative program, because the students engaged in various tasks with their peers, they became more explicit regarding the effectiveness of teamwork, particularly in the second semester.

> We have to spend time learning about each other. We have to respect or understand others' methods, and then we will try to work with them, starting our task. (2nd semester_S01_W3)

> I know I have to believe in my teammates. I don't have to do everything by myself. That is not a wise method. That is what a team is for. (2nd semester_S02_W5)

It is suggested that learners' connections with group members and beliefs in their group members' capability to perform a task contribute to effective language learning (Dörnyei, 1997, 1998; Dörnyei & Murphey, 2003). However, in nations, such as Taiwan, where entrance exam stress is high, competitive learning is likely to be promoted. Students have little or no interdependence, and may even be forced to work against each other (Maruoka, 2013).

In addition to enabling observation of the effectiveness, the teaching experiences allowed the students to discover the ineffectiveness of their own strategies. Neither sheepish collaboration nor overly self-centered autonomy (Murphy & Jacobs, 2000; Doré, 2004) was considered a desirable strategy:

> I used to think that if I have already done lots of behind-the-scenes work, I could let other people do the public speaking part of the presentation. But [now] I know everyone in the group needs to prepare for the presentation and give ideas, and everyone needs to show themselves during the presentation. (2nd semester_S09_W2)

> Even though we assigned each person a part to present, in the end there were only me and [the other group member] speaking. I'm really sorry that they didn't have the chance to speak, but I also didn't want everyone to stand there in embarrassment and silence. So I think more practice and group tacit [knowledge] is really important. (2nd semester_S12_W2)

The first student challenged her original understanding of how to approach a group task. In order to reach the common objective of the group (i.e., all group members becoming teachers of children), she began to take a more active part in the tasks. On the other hand, that she and another member of the group dominated the presentation made the author of the second excerpt feel regretful. The statement suggests that this student considered the unfair distribution of roles and responsibility as having jeopardized the effectiveness of the presentation.

Aside from identifying the differences between the innovative program and typical English classes, encouraging the students to compare themselves with a role model in learning could also raise awareness of learning strategies. Of all the units coded as *declarative knowledge about learning* in the first journal entry of the second semester, 43% were categorized as *knowledge about strategy* (see Figure 6.5, time point 6). This result is related to what has been reported earlier (6.2.2.2.2). Although functional strategies were regarded as ideal, the students found applying these strategies to the tasks focusing on grammar and vocabulary to be difficult. For example:

> I don't think my friend really studies English very hard. She just uses it a lot. I know she reads English magazines, listens to English songs, watches American TV series, and chats with her friends in English. Because she goes abroad every winter and summer vacation, she has lots of friends that use English. I think that's why her English is so good.... I can't remember new words quickly. <u>My vocabulary bank is so poor that my English can't improve. I feel a little bit weird when I speak English around my classmates. I guess that's the reason why I can't practice more and improve my grammar and phrases. My role model's life is full of English but mine is not.</u> (2nd semester_S12_W1)

The students also found that positive interdependence strategies contributed to their learning.

> I can teach my students to use a better way to learn English, such as finding a friend to reach their goal together so that they won't give up easily. (2nd semester_S17_W1)

In summary, in spite of the ups and downs of the occurrence rate of the aforementioned three forms of declarative knowledge about learning, there was relatively equal concentration of the articulation of knowledge about person, task, and strategy in the final journal entry of the second semester (see Figure 6.5, time point 10). The present study provides an alternative to typical English classes. Through conscious comparison and contrast, the students became aware of a wider variety of personal, task, and strategic factors that could lead to variation in learning. However, confirming whether such awareness could be applicable to the students' current or future settings may require longitudinal study. This is particularly so if the situation they are in remains strongly exam-oriented.

6.2.2.2.4 Beliefs and values (an additional theme of declarative knowledge about learning)

In addition to *knowledge about person*, *task,* and *strategy* consisted within the literature-based coding scheme of metalearning capacity, a set of more value-related knowledge emerged as I analyzed my students' journals. This knowledge has been referred to as "learner beliefs" (a part of learners' knowledge reservoir) by researchers including Wenden (1999) and Alanen (2003). The concept of "soft cognition", as termed by Van Dijk (1985), is closely related to learner beliefs, referring to the "opinions, attitudes, values, norms, feelings or emotions, interests, etc. (Van Dijk, 1985, p.54)" of an individual. Kenny (1993) added that such soft cognition is a source of disadvantage as well as potential. He argued that real education is to provide opportunities for learners to reveal their soft cognition and find its validity (Kenny, 1993). I agree with Kenny's (1993) argument that when learners become aware of their belief systems, they are more likely to realize their motives and purposes of learning. They can, therefore, make responsible choices and even challenge their own assumptions. The reflections coded as *beliefs and values* began to occur in the second journal of the first semester (Figure 6.5, time point 2), and were most frequently found in the final journal entry of the first semester (Figure 6.5, time point 5).

> I like this project because I think it's really meaningful. It's important that students can help the people who are in need. It makes life colorful and meaningful. (1st semester_S01_W5)

> I hope I can join the service team this summer to make my life more colorful and meaningful. Most importantly, I would really like to help others with my abilities. (1st semester_S09_W5)

Both of the students reflected on the meaning of their learning and their life. The excerpts suggested that they set the goal of learning to develop their ability so as to help the disadvantaged.

6.2.2.3 Small occurrence rate of the reflections representing the students' procedural and decisional knowledge about learning

In addition to declarative knowledge, the students' knowledge about learning also determines the procedures of how they learn something and the decisions they make to use particular strategies. However, compared to declarative knowledge about learning, the reflections that illustrated the students' procedural and decisional knowledge about learning were of rather small numbers. This finding coincides with the argument of Dart et al. (1998) that declarative knowledge is developed earlier than the other forms of knowledge. It deserves attention that only in the third and fourth journal entries of the second semester did the percentage of units coded as *decisional* exceed 20% (see Figure 6.4, time points 8 and 9). During this period, the students engaged in teaching practice at church in which they actually taught children rather than practiced teaching with each other, as they had done in the first semester.

A body of knowledge that supports the students' decision-making, particularly in a contingent situation, was illustrated by the following examples:

> I approached the task by changing the method that we used. When the teacher told us what we could add or change, I thought about if I could use it in other ways or not. This could also train us to think quickly. I learned adaptability in our teaching. (2nd semester_S08_W3)

> It [the presentation] was still not perfect because this was our first time to present in the real situation. We were kind of lost when something unpredictable happened, and we didn't know what to do. (2nd semester_S05_W4)

Contingent knowledge is in relation to the different situations someone is faced with in unforeseeable future. The first excerpt suggests that the student was aware that one learning strategy could not fit all. Although she did not explicitly discuss the appropriateness of a particular strategy in various situations, she could be seen as likely to select a strategy suitable for each situation she encountered. The second excerpt, on the other hand, illustrates the student's awareness of her lack of contingent knowledge. Unforeseen occurrences were a challenge to the second student, further suggesting that what the first student mentioned—adaptability—is necessary for an individual to deal with unexpected circumstances. Johnston (1998) suggested that contingent knowledge, which contributes to the ability to manage unexpected situations, could be brought about through on-the-spot learning. This can explain why more reflections fell into this subcategory when the students engaged in actually teaching children.

6.2.2.4 Stable occurrence of the reflections representing the students' capacity to plan and evaluate their learning

The number of the journal reflections classified into the category of *control over learning*, as alluded to in a previous subsection (6.2.2.1), was notably small in the first two journal entries of the first semester and the first entry of the second semester. The number was so small that it was not practical for use in calculating the ratio between each subcategory (*planning*, *monitoring*, and *evaluating*) and the category of *control over learning*. Therefore, Figure 6.6 presents the occurrence rate of each subcategory of control over learning from only the third journal entry of the first semester.
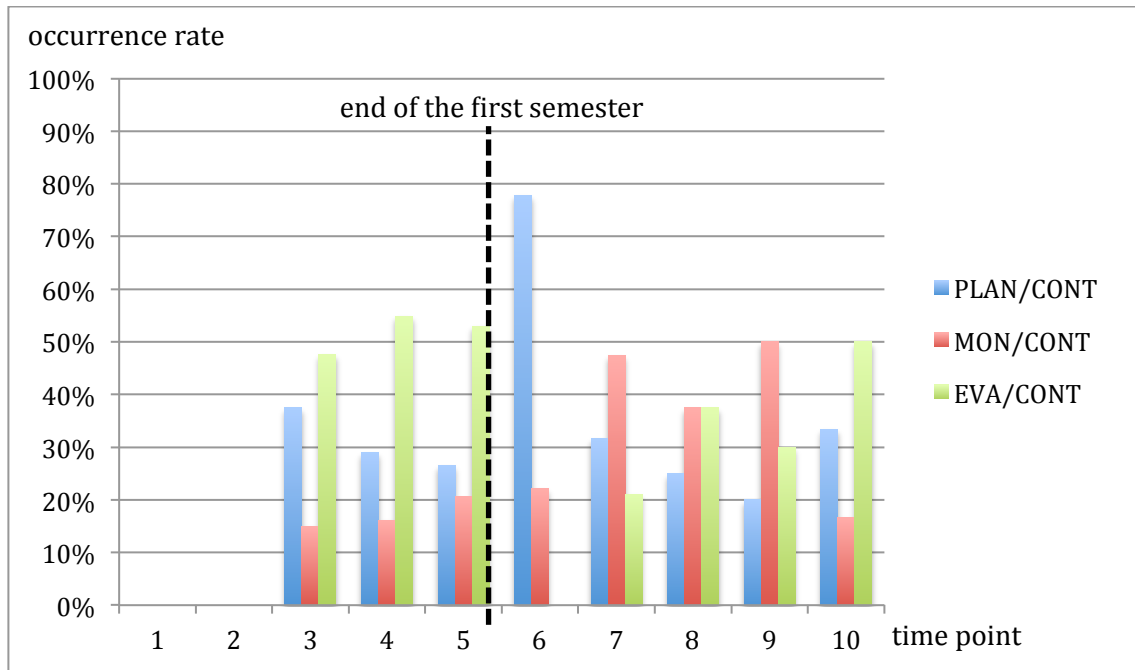
Figure 6.6
Frequency of the Three Subcategories of Control over Learning in Each Journal Entry (Cycle 1)

Except for in the aforementioned journal entries, the occurrence of the reflections categorized as *planning* or *evaluating* was relatively stable over the remaining weeks in each semester (see Figure 6.6). This may suggest that, compared with the more static tasks (film viewing and nominating a role model), the more dynamic tasks (acting in the role of teacher) were more effective in encouraging the students to exert control over their learning processes. An explanation for this could be that dynamic activities provide opportunities for learners to make a choice. Students become involved in making their own choices regarding what type of mental activity they intend to engage in during their learning processes (Wilson, 1996).

After participating in these activities, the students evaluated their learning processes or outcomes according to their knowledge about learning. For example, in the subsequent excerpts, the students considered their learning outcomes in relation to their understanding about themselves.

> I have learned to work in cooperation with others. I found that I often worried about whether other people could do things right, and therefore exhausted myself. What was worse, my group members did not necessarily understand my ideas. <u>It messed up our presentations.</u> It is

important to share the work with each other. (1ˢᵗ semester_S02_W5)

I was really nervous when I was talking. I thought I would make pronunciation mistakes or forget what I wanted to say. <u>However, when I tried, I did really well.</u> (2ⁿᵈ semester_S08_W3)

In both of these excerpts, the students note their weaknesses and then evaluate how these shortcomings influenced their performance in teaching practice.

The students also found that a task might or might not progress as planned. For example:

<u>We did one thing well.</u> That is, we distributed the work among the members so that everyone knew the rundown and could actually join in this activity.… Sometimes things may happen suddenly, and it's always better to make a plan B before doing things. Even if you face a sudden situation, you can still handle it calmly. (2ⁿᵈ semester_S17_W4)

The task progressed in accordance with the students' knowledge about strategy. The student knew that the group had to share responsibilities and that she must anticipate problems and prepare for them. This ensured the achievement of her goal.

On the other hand, the students sometimes found that despite their knowledge about the effectiveness of strategies, a task might not necessarily progress as expected, as illustrated by the following example:

I think we can improve on the use of the time, because we didn't have time to play the second game. <u>That was bad.</u> I think we spent too much time on singing the song and explaining the colors. But it's necessary to teach the colors, so I think we should plan more clearly for the next time. (1ˢᵗ semester_S05_W4)

In addition to referring to knowledge about learning, some of the students regarded their plans for learning as a baseline for their own evaluation, as the following examples demonstrate:

When we got onto the stage, we did our best. Although <u>it wasn't exactly the same as we thought it would be (it wasn't that perfect)</u>, we still had a great experience. (1ˢᵗ semester_S09_W3)
<u>I think our group teaching did not go as expected.</u> Our plan was not

comprehensive. There were many questions that we did not think of when preparing for this lesson. (2nd semester_S14_W3)

6.2.2.5 Late-developing occurrence of the reflections representing the students' capacity to monitor their learning

In contrast to the reflections categorized as *planning* and *evaluating*, which have relatively stable occurrence throughout the later weeks of each semester, the reflections coded as *monitoring* increased from a small proportion of occurrence in the first semester and, in the fourth journal entry of the second semester (Figure 6.6, time point 9), peaked at 50% of the units of analysis in the *control over learning* category. This finding echoes that of Schraw and Moshman's (1995): Learners' monitoring capacity develops slowly compared with their other controlling capacities. The relative difficulty people encounter in eliciting their monitoring capacity may lie in its on-the-spot characteristic.

> We got together and talked about our ideas and plans. We encouraged each other, so I didn't have to be shy about sharing my ideas or worry about whether the others would laugh at me. There are many ways to make a good plan for kids. <u>I always remember what my teachers in the church taught me, and what kind of class I considered boring and what I considered fun, so I can avoid giving some boring lessons.</u> (2nd semester_S02_W4)

> We approached the task by working together, finding out our weaknesses, and trying to fix them. We helped each other to do the preparation, so we can move on faster. Then we practiced and checked if there was something we had to do better. (2nd semester_S05_W4)

Posed after the field teaching practice, the question prompt "How did you approach the task?" was aimed at having the students recollect what they did in the middle of a continuous sequence of learning. I coded the first excerpt as *monitoring* because the student reported what was in her mind while the group met to plan for a lesson. Although not explicitly stated, it could be inferred that she constantly referred to her prior experiences to modify the plan. Monitoring activities, including working with others to give and receive feedback, error detection and self-correction, and rehearsal, are observable in the second excerpt. The author of this excerpt applied monitoring strategies to ensure that her group could follow the procedures they had planned. These

activities had immediate significance for the student's preparation for her teaching practice.

6.2.2.6 Potential factors influencing the effects of the innovative program on the changes in the students' metalearning capacity

The analysis results suggest that the dynamic activities within the innovative program, such as the field teaching practice, could have affected the students' metalearning awareness and executive processes in learning. Furthermore, the static activities, along with the comparison and contrast mechanisms, could have had a major effect on the students' knowledge about learning. Both types of activities were valuable and necessary. While analyzing the students' capacity to exert control over their learning processes, it was challenging for me to distinguish monitoring activities from evaluation activities because the students' journal entries were typically reflections on what had occurred as opposed to on-the-spot reports of "hot and rapid (Eraut, 1995, p.9)" actions. I had to regularly remind myself that only those reflections that attended to the students' immediate reactions to the tasks during their learning processes could be categorized as *monitoring*.

6.2.3 Reflection as a vehicle and bridge

This section explains, in the first round of implementation of the innovative program, how reflection served as a vehicle for metalearning and a bridge between awareness and control of learning.

6.2.3.1 Reflection made overt student choice in the learning process

As noted previously (see 6.2.2.4), the dynamic activities of the present program provided the students with various choice-making opportunities, which could encourage the students to exert control over their mental processes—to plan, monitor, or evaluate. And it was reflection that made the processes of planning, monitoring, and evaluating overt (Wilson, 1996). The use of reflection enhanced the students' awareness of the various options available to them, and even challenged the choices they customarily made. In addition, it could be inferred from the final journal entry of the second semester (the students' reflection on the term-time activities as a whole) that by consciously

distinguishing between the alternative activities within this program and typical English classes, the students became aware of a wider variety of personal, task, and strategic factors that could lead to variation in learning.

6.2.3.2 Reflection linked the students' knowledge about and control over learning

As argued in a section of the literature review (2.4), reflection links an individual's knowledge about learning to their control over learning (Ertmer & Newby, 1996). Karmiloff-Smith (1994) and Schraw and Moshman (1995) have also contended that reflection promotes the integration of knowledge and control of learning, enabling learners to explain and predict wider learning contexts. The present analysis suggests a comparable result. One example is that the students demonstrated, in the journal entries, their knowledge about how relationships among members of their communities could facilitate or inhibit learning. Meanwhile, the journal excerpts illustrated that the students were aware of the applicability of interdependence strategies in regards to different task demands. They got together with their group members, communicating with one another to form a plan. They then adjusted the plan as they progressed with the task.

6.3 Uncertainty about the teacher's thinking and practice

Implementing the first-round program rendered me uncertain about my role as a schoolteacher. The pedagogical paradigm of this action research study suggested that I perform the role of a problem poser and dialogue leader, and have an in-depth understanding of the different domains of my students (Chapter 3), in contrast to my routinized everyday practice (Chapter 1).

Different from the comprehension questions I had been accustomed to asking about material content, I posed questions to the participating students to elicit their awareness of themselves as learners. The students then responded to these questions after their in-class or field experiences. It occurred to me, however, that such practice might be ineffectual because the questions did not necessarily connect the students' recent experiences to prior or future ones. I recognized that this insufficient change in my practice of posing questions could be an aftereffect of the conventional post hoc comprehension questions, which require soliciting adequate detailed information for

answers. Although I was deemed more experienced than the students, in this program, I was not supposed to exercise authority over them. Nevertheless, I frequently could not prevent myself from giving quick-fix directions to the students, especially for preparing field teaching practices, or demanding the students' submissive acceptance of authoritarian decisions on, for example, allocation of a student to a particular service-learning site. The expected dialogic learning relationships with the students were jeopardized under these circumstances. However, during the summer service-learning experience, I spent one week at the summer camp with my students and made contact with them that was more intimate and personal. Having seen the private aspects of each other's day-to-day life enabled the students and me to develop relationships that were more humane. Although I had experienced emotional tension from such unconventional student–teacher interaction, I realized that there could be alternative possibilities for constructing student–teacher relationships. Having recognized the uncertainty about my thinking and practice as a teacher, I became more aware of how the second-round implementation could be improved.

6.4 Chapter summary

In this chapter, I first evaluated the effects of each component of the innovative program on the students' level of reflection. Overall, the analysis suggests a descending trend in the occurrence rate of the reflections categorized as surface, non-reflective, and an increasing trend in the occurrence rate of those categorized as reflective and critical, reconstructing. More specifically, at the beginning of the program, there was a more frequent occurrence of reflections in which the students descriptively reported or emotionally responded to a current experience, which could form the basis of the developmental continuum of levels of reflection. The static activities, along with the comparison and contrast mechanisms, allowed the students to draw apparent connections between their personal, current experiences and the experiences of other people or of other times and places. On the other hand, the dynamic activities encouraged the students to reason about or to reconstruct their existing approaches to learning. However, an overemphasis on techniques for the preparation of teaching may have shifted the students' attention from the learning process to performance.

Regarding knowledge about learning, a reflection on the movie the students watched in class and a comparison with their role models promoted the students' knowledge about what personal characteristics influence their performance in the course of learning. Appreciation of the strategies employed by their role models also increased the students' awareness of their knowledge about strategy. The students particularly appreciated functional and positive interdependence strategies, and they adopted these strategies in their teaching practices. In addition, it could be inferred that more challenging tasks encouraged the students to define the task of "learning English". Contrary to the earlier developed declarative knowledge, the students' decisional knowledge about learning only developed later when they engaged in actual field teaching practice.

There were overall a smaller number of units coded as *control over learning* than *knowledge about learning*. According to this round of analysis, the more dynamic components of the innovative program could be more effective in inspiring the students to exert control over learning. The stable occurrence of units falling into the subcategories of *planning* and *evaluating* could be attributed to the dynamic components, namely the in-class and field teaching practices. On the other hand, although the occurrence of the units categorized as *monitoring* began as a small proportion, it grew as the students engaged in field teaching practices. The analysis results confirmed that reflection could make the students' choice-making processes in this program overt, and that reflection was the key to the students linking their knowledge about learning to their control over learning.

The final journal entry of the program was collected from only seven of the 12 participant students. Whether this sample size is adequate for proportion comparison among the frequencies of occurrence of various reflection levels and metalearning aspects is questionable. Regardless, analysis of this entry suggests that the students' language competence or interpretation of the notion of reflection could jeopardize their development in reflection. Furthermore, it could be argued that interaction with the children at the service-learning site allowed the students to personally experience alternatives in educational settings, which could possibly encourage them to challenge or reconstruct their perceived knowledge and control of learning.

Finally, I found that the literature-based coding schemes did not cover all the reflections expressed by my students. I propose that a new code, *claiming*, be added to the framework of levels of reflection, to refer to the reflections that represent students' insufficiently reasoned or justified claims in terms of cause and effect. I also argue for the inclusion of an additional theme, *beliefs and values*, under the subcategory *declarative knowledge about learning*. The students' opinions, attitudes, or expectations regarding learning should be classified with this theme. Additionally, I propose a further description of the theme *knowledge about person*, which concerns how the students engage with their teachers or peers in learning.

In conclusion, the findings of this round of analysis suggest that the following questions warrant further consideration:

1. How can the innovative program of this study be modified to promote a more sophisticated level of reflection and the integration of knowledge and control of learning?

2. How do the students approach learning after the innovative program?

Chapter 7 – Cycle Two Evaluation

7.1 Introduction

In this chapter, I first introduce the modifications to the innovative program according to the results of the first-round analysis, and then analyze the effects of the modified program by using the adjusted coding schemes. In addition to examining the changes in the students during and immediately after their participation in the program, I also analyze and report the changes I observed one year after completion of the program. Finally, this chapter examines the students' attitudes and perceptions about reflection, which may suggest possible answers to the research question: What influences students' changes in metalearning capacity?

7.2 Modifications for Cycle 2

Cycle 2, conducted during the 2012–2013 school year, provided the participant students with more systematic structure and guidance for thinking about their learning. The details of the modifications, based on the findings in Cycle 1, will be described in the following three subsections.

7.2.1 Modifications to the structure and guidance of the program

This subsection describes the procedural structure of the program. First, for the purpose of preparing the students for learning, question prompts were used to elicit a prior experience of learning English, the students' feelings towards such an experience, an explanation of the feelings in relation to their experiences, and a plan for further learning. Second, like in Cycle 1, the students were involved in in-class and field activities. A movie-viewing task and the students' comparisons of themselves with their role models in learning, as included in the first-round implementation, were preserved because of their effectiveness in promoting the students' understanding of person, strategy, and relationships. An additional field teaching practice for each group of students was incorporated into the term-time activities in the first semester, in addition to the field practice in the second semester. The first-round analysis indicated that field teaching practice experience could raise the students' knowledge of learning and encourage them to exert control over their learning processes. It was recognized to have particular effects

on later-developed decisional knowledge about learning and the monitoring of learning. Moreover, an outcome of my reflection on Cycle 1 was that there should be fewer checks on the students' techniques for teaching younger children. Instead, sessions on various learning strategies and positive interdependence strategies were employed, because these strategies had been observed to be applicable for accomplishing the tasks of the present program. Third, the students evaluated their learning by reflecting in their journals, responding to a series of questions prompts. This process served a pedagogical function in fostering the students' internal dialogue.

7.2.2 Modifications to the data collection methods

Cycle 2 used an interview and questionnaire, in addition to journaling, for data collection. The semi-structured interview was conducted immediately after completion of the one-week summer service-learning experience. In the interview, I asked my students to

- describe incidents that were critical to them in the summer service-learning experience;
- reflect on the impacts of these incidents on their own English learning processes;
- talk about their attitudes and perceptions about the reflective activities; and
- answer additional timely questions contingent on their responses.

Interviewing the students in person ensured that I could obtain as many of their final reflections as possible. The interview format allowed the students to expand and develop their responses.

The questionnaire was given to the students one year after completion of the innovative program to follow up on how they were approaching learning after participating in the program. The students responded to the following two open ended questions in written format:

- Have you observed any changes in your approaches to learning (e.g., English) during this year? If so, please describe the changes. If not, what might be some reasons for that?
- Have you ever reflected on your learning process (e.g., for English learning) during this year? If so, please describe the experience. If not, what might be some reasons for that?

Journaling remained an essential data collection method and pedagogical strategy in Cycle 2. Question prompts were used to scaffold productive learning strategies that "learners are, in principle, capable of, but do not spontaneously demonstrate, or demonstrate to an unsatisfactory degree (Berthold, Nückles, & Renkl, 2007, p.566)." Compared with the 2011–2012 cohort, the students enrolled in the program in the second round received more systematic support to facilitate deeper reflection and metalearning. Table 7.1 illustrates how the question prompts corresponded to the levels of reflection and aspects of metalearning that they were intended to elicit.

Table 7.1

Levels of Reflection, Aspects of Metalearning, and Their Corresponding Question Prompts

Reflection \ Metalearning	Knowledge about Learning	Control over Learning
surface, non-reflective	• Have you ever learned English through movies/songs/picture books? Describe such an experience. What did you learn from the experience? • Is it a good/bad experience? • What was Akeelah like at the beginning of the movie? What was Akeelah like by the end of the movie? • What did you learn about yourself from this experience? • Identify a proficient or capable English learner you know (e.g., your classmate, your brother or sister), and then talk about the characteristics of their learning approaches. • What did your classmates who practiced teaching do well? • How do you feel about that event (e.g., satisfied, sorry…)?	• What do you expect to get out of the English Project? • What do you expect to get out of the teacher's demonstration? • What did you do during the preparation phase? Talk about one or more critical incidents. • What did you do during the presentation phase? Talk about one or more critical incidents. • Talk about one or more critical incidents during your observation. • Looking back on the English Project lessons, what events are critical to you? • What have you learned from those events? • What did you do well? • What could you have done better?
reflective	• What caused Akeelah to change? • Did what we talked about in the reflection session after the previous teaching practice help? Why or why not? • What are the similarities/differences between your own learning approaches and those of your identified model? • Based on what you have mentioned, talk about what you think may help your future "students" learn English. What are your values for "teaching"? • Why do you think it is a good/bad experience? • Why do you think your classmates who practiced teaching do well? • Explain the reason why you have such a feeling.	• Did this experience live up to your expectation? Why did/didn't this experience live up to your expectation? • Why do you think you did well/poorly? • Why do you consider the events you mentioned critical?
critical, reconstructing	• How are you going to improve? • How can your classmates who practiced teaching improve? • How are you going to use what you learned? Explain the results you expect to achieve. • How are you going to apply what you've learned from the events to your future English learning?	

7.2.3 Modifications to the coding schemes

A code termed *claiming* was added to the literature-derived framework of levels of reflection. It refers to the students' making claims relating to cause and effect without providing sufficient reason or justification. Figure 7.1 shows the modified coding scheme of the levels of reflection.
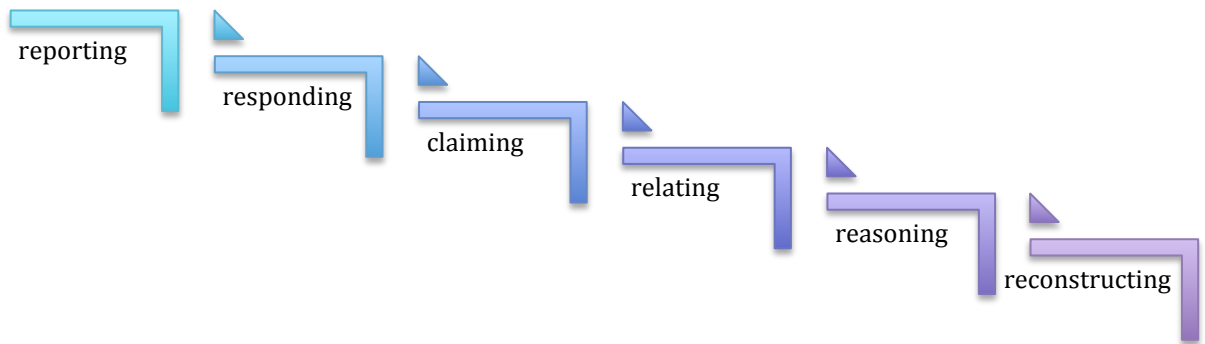
Figure 7.1
Modified Coding Scheme of Levels of Reflection

An additional theme was also added to the subcategory *declarative knowledge about learning* of the scheme of metalearning capacity. Termed *beliefs and values*, this theme refers to the students' attitudes, opinions, or expectations towards learning. The scheme also included an additional description of *knowledge about person*. The *relational* dimension of knowledge about person concerns how the students engaged with other people in the learning process. Figure 7.2 presents the modified scheme.
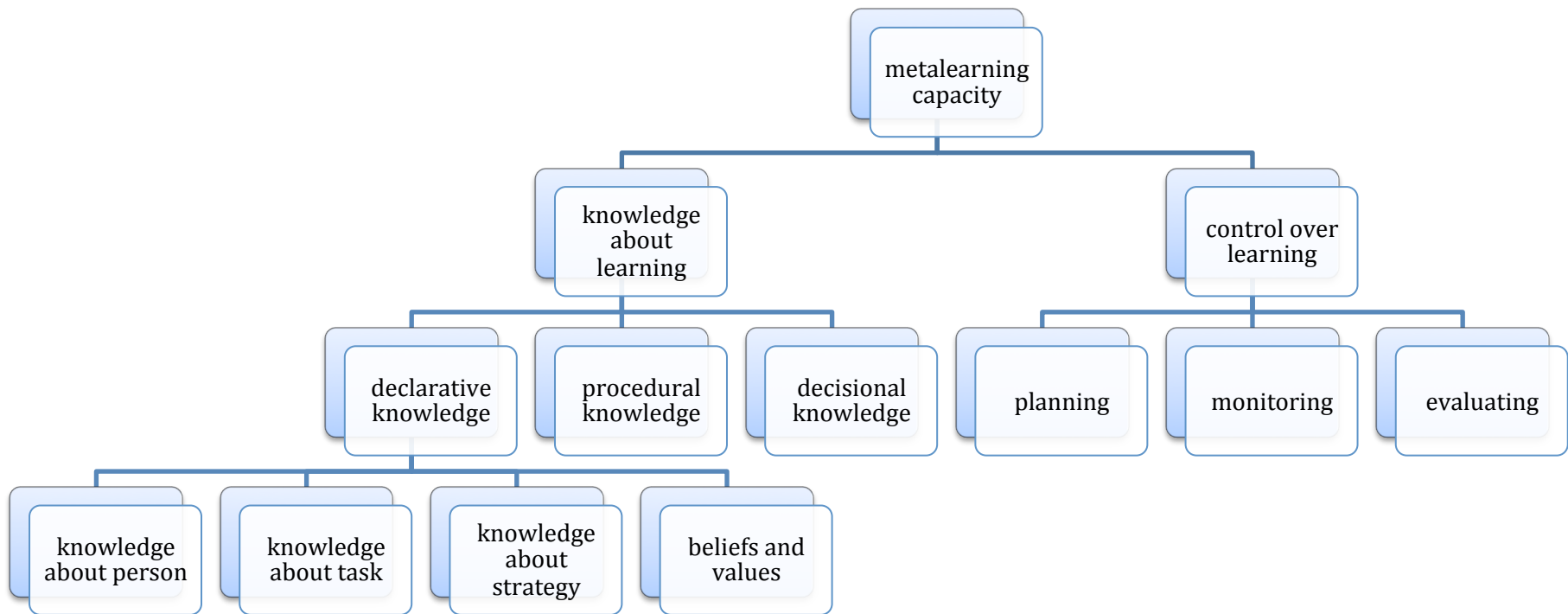
Figure 7.2
Modified Coding Scheme of Metalearning Capacity

7.3 Evidence of changes in students' reflection levels

This section identifies the changes in the levels of my students' reflection during the school year, at the end of the summer service-learning experience, and one year after their participation in the program according to the analysis of the students' responses to the journal questions, interview, and follow-up questionnaire.

7.3.1 During the school year

Content analysis of the students' journal entries reveals the changes in their reflection levels over the school year. It was observed that a high proportion of the reflections categorized as *claiming* or *relating* occurred in the journal entry in which the students were asked to identify the similarities and differences between their own approaches to learning and those of their role models. Despite the modification, a high proportion of the reflections coded as *responding* occurred in the journal entry in which the students reflected on their field teaching practices. Furthermore, throughout the term time, few reflections were categorized as *reconstructing*.

7.3.1.1 Reflections coded as claiming or relating increased after comparison activities

The occurrence rate of the reflections coded as *relating* observed when the students compared their own approaches to learning with those of their role models was notably high (29%; Figure 7.3, time point 5). The following excerpt is an example of this level of reflection:

> There are some similarities between my sister and me. We both love to read English novels and watch English movies. When there are some good sayings or slang, we will pause the video and ask my mom about it. One difference is how good we can memorize the vocabulary or sayings. She can remember them all, but I will forget them easily. In addition, she speaks English with full confidence, and she can read English quickly. So she learns English better than I do. (2nd semester_S13_W1)

This and many other reflections coded as *relating* illustrate that the students were able to identify personal weaknesses and strengths in comparison to their role models. From

a developmental perspective, before the students arrived at the critical, reconstructing level of reflection, this type of reflection could suggest how they should change or improve in future learning (Ryan, 2013).

However, it is noteworthy that, as the students attempted to identify the similarities and differences between their own learning approaches and those of their role models, 29% of the students' reflections represented their intention for attribution without providing sufficient reason or justification. Coded as *claiming*, a new category added to the literature-derived framework of levels of reflection as a result of the first-round analysis, this type of reflection occurred as frequently as the reflections coded as *relating* in the first journal entry of the second semester (see Figure 7.3, time point 5). An example of a *claiming*-coded reflection is as follows:

> My friend has an EXTREMELY STRICT mother, and she is a really hard-working girl who is clever, well organized, and careful. All these characteristics have contributed to her success in English learning. (2nd semester_S20_W1)

This student listed a series of adjectives without identifying concrete behaviors of a "successful" English learner. This excerpt could imply a vague understanding of what exactly are effective approaches to learning. As argued in the first-round analysis (6.2.1.6), such an excerpt could be a representation of the student's partial grasp of reflection. Teachers explicitly explaining what reflection constitutes and what should be reflected on, and providing further linguistic and discourse resources may aid in eliciting deeper levels of reflection (Russell, 2005; Ryan, 2012). Overall, the result of analysis could indicate the students' need for support to move further along the developmental continuum of reflection (see the discussion in 8.2.2 and 8.3.2).
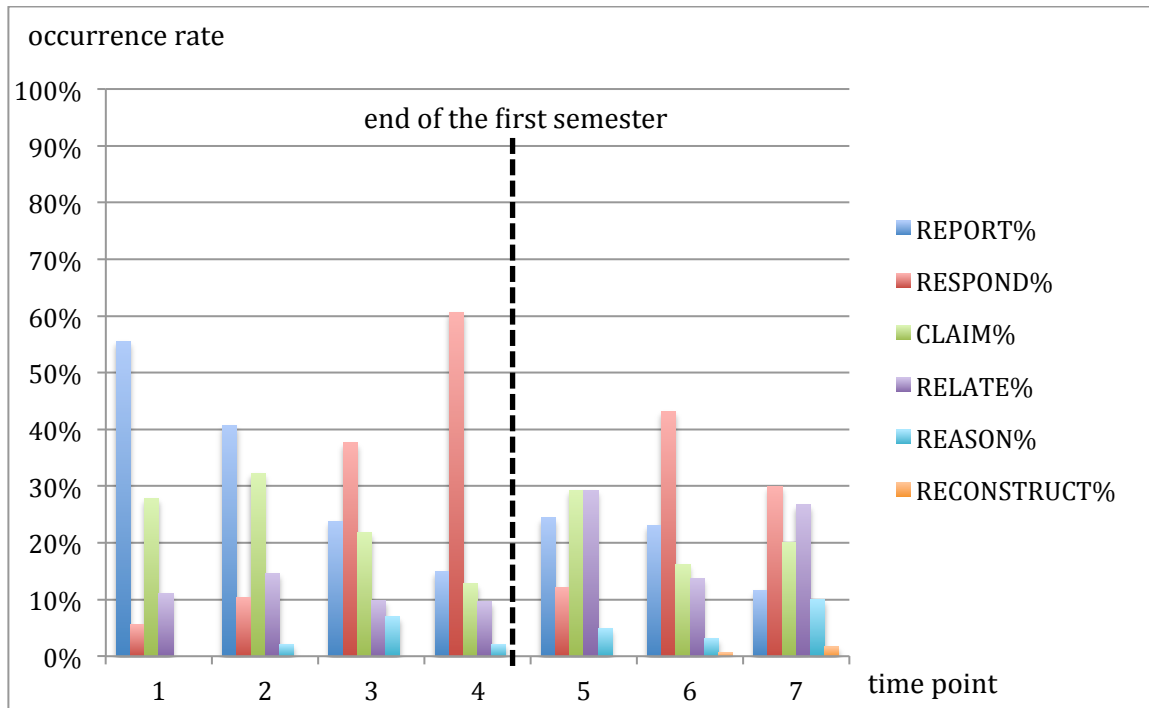
Figure 7.3
Frequency of Different Levels of Reflection in Each Journal Entry (Cycle 2)

7.3.1.2 There was discrepancy between the expected and observed effect of the field teaching practices

I incorporated an additional field teaching practice because the first-round analysis suggested its dynamic and challenging character could possibly encourage the students to become aware of and exert control over learning. However, a discrepancy appeared between the expected and observed outcomes.

The occurrence rate of the reflections coded as *responding* was the highest of all in the journal entries in which the students reflected on their field teaching practices (see Figure 7.3, time points 4 and 6). One of the characteristics of this level of reflection, as described by Bain and his colleagues (1999), is that it refers to the students' instinctive (and perhaps emotional) response to a current experience, without considering alternatives. The following examples illustrate this point:

> I was in a muddle then. I didn't do well this time although I had reminded myself that the kids would be out of control, and that I had to stay calm. When it came to reality, I couldn't stay calm. My head was blank. I didn't know what to do. I just fell into chaos. (1ˢᵗ semester_S14_final)

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The song we taught was kind of difficult for the children, and <u>we should speak more Mandarin because they couldn't understand too much English. But the children really did their best.</u> (1ˢᵗ semester_S16_final)

In the first example, the student reported a feeling of confusion by using the expressions "muddle", "blank", and "chaos". However, she did not provide any reason for why she was in this emotional state. Without an understanding of what caused her to feel as she did, the likelihood that she could make a plan for improvement is low. The second example contains a quick-fix solution. This student did not explain, for instance, the pros and cons of using the first language of the children and herself, as opposed to the target language. In addition to providing Mandarin translation during the English lesson, there supposed to be alternatives that the students could have used to help the children more clearly understand what they were being taught. Both students might again report an identical difficulty in the future if they are in a similar situation. It could be argued that the students' negative emotional experiences or desperation for a quick fix might be a result of a norm of performing well. A detailed discussion of this topic will be presented in the next chapter (8.3.1).

7.3.1.3 There was little occurrence of critical reconstructing reflections

As shown in Figure 7.3, critical, reconstructing reflections occurred rarely in the journal entries. Following are the few examples of this form of reflection:

I learned that lesson plans are really important, and we should make sure everyone does their work in time. <u>Aside from planning in this class, our own study plan is important, too.</u> A study plan can save time and let us do things quickly and properly. <u>I made my study plan this weekend and I really saved a lot of time. But I think we have to leave some spare time for extra work because we can't know what's going to happen.</u> (2ⁿᵈ semester_S13_W2)

The lessons have resulted in subtle changes in our lives. <u>These changes are small but critical. For example, I now do things more carefully, with contingencies in mind.</u> (2ⁿᵈ semester_S21_final)

The first excerpt reveals that the student did not simply pay lip service to the importance of planning; she transferred the idea from her teaching experience to her own learning. This deep level of reflection raised the student's awareness based on which she could

make an informed choice regarding her own learning. The student became conscious of the contingencies and uncertainties in her learning process, writing, "We have to leave some spare time. (2ⁿᵈ semester_S13_W2)" The second student also affirmed the importance of being prepared for contingencies. As she noted, these changes might seem small, but they are critical.

The observation that there was little increase in the students' critical reflection about learning despite my pedagogical efforts sheds light on the suggestion by Baird and his colleagues (1991) that teacher change, including attitudes, perceptions, conceptions, and abilities, must precede student change. To enhance the effects of the program, I should probably reflect on not only my pedagogical practice in the program but also my self-belief and identity as a teacher (see the discussion in 8.4.1).

7.3.2 After the service-learning experience

After completing the one-week service-learning experience in the summer vacation, the students underwent a semi-structured interview, which served my purpose of obtaining as many of their final reflections as possible. The analysis of the interview transcripts suggested that the students had continued moving forward along the developmental continuum towards deeper levels of reflection. The sum percentage of the reflective and critical reflections exceeded that of the non-reflective ones by 15%. From the end of term to the end of the service-learning experience, the proportions of reflections that fell into one of the three non-reflective categories—*reporting*, *responding*, or *claiming*—decreased from 12% to 8%, 30% to 27%, and 20% to 8% respectively. The occurrence rate of the reflections coded as *relating* or *reconstructing* increased from 27% to 39% and 2% to 9%, respectively, while that of the reflections categorized as *reasoning* remained stable. Table 7.2 summarizes the results.

Table 7.2
Comparison of the Occurrence Rate of Each Form of Reflection Between Two Times (I)

Time	Occurrence Rate					
	surface, non-reflective			reflective		critical, reconstructing
	reporting	responding	claiming	relating	reasoning	
the end of term	12%	30%	20%	27%	10%	2%
the end of service-learning experience	8%	27%	8%	39%	10%	9%

7.3.2.1 Contrast between the students' own learning and that of the children they taught could have stimulated changes in the students' reflection levels

As mentioned, from the end of term to the end of the service-learning experience, the occurrence rate of the reflections coded as *relating* or *reconstructing* increased from 27% to 39% and 2% to 9% (see Table 7.2). The gap that the students observed between their own learning and that of the children they taught could have stimulated the comparison of different learning approaches, objectives, or contexts. Take following representative excerpt from the interview transcripts for example:

> I don't think the experience of service learning is going to affect how I study English because <u>what we taught the children was what we had learned when we were little. However, what we are going to learn in the 11th and 12th grade is going to be far more difficult.</u> One thing that I think is going to be relevant is <u>when I feel like I am being forced to memorize vocabulary words, I will recall how I helped the children learn vocabulary.</u> (S12_interview)

This excerpt implies that the experience of teaching younger children had personal meaning for the student. She stated that what she taught the children and what she was going to learn in the following years of secondary education were not comparable. On the other hand, the student was able to associate the problem-solving experience at the English camp with the ones she may be faced with in her own English learning. The excerpt, however, was coded as *relating* rather than a deeper level of reflection. Whether the student would actually transform her approach to learning was uncertain. She did not explain, for example, how she aided the children to overcome the feeling of being forced to memorize vocabulary, or how she would apply such a method to her own situation.

A conscious awareness of the differences among individuals in learning might challenge the students' routines and habitual ways of thinking. Compared with the previous excerpt, the following example exhibits a deeper level of reflection—*reconstructing*.

> There is great difference between children in urban and rural areas. <u>Children in urban areas learn A to Z when they are in kindergarten, but children in rural areas are not fully familiar with the 26 letters of the English alphabet even when they are in the third or fourth grade.</u> When we did our teaching practice at church in the city, we felt the lessons we

prepared were too basic, and the children thought they were too easy. <u>We were frustrated because of this.</u> The children at church learned so fast that we had to play games with them to fill time. But the children we taught in the remote area learned very slowly. (S19_interview)

The student described the distinction between the children they taught at church and in the remote area as well as her emotional response to the difference. Because she had also been schooled in the city, the student was likely to experience "a disorienting dilemma (Mezirow, 2009, p.94)": a circumstance that disturbs existing assumptions or expectations. She then made an attempt to explain the cause of such a problem and validate the explanation with an example:

> We played "name bingo" with the children at the camp. To give them an example, I drew a 5×5 bingo matrix on the blackboard and wrote everybody's name in each square space. <u>The children didn't know it's better to write the names in order. Instead, they wrote randomly. So, in the end, they didn't know which name they missed out. They didn't have a strategy. I think this is because they don't think in a logical way.</u> (S19_interview)

The student attributed the ability of city children to think in a logical manner to their constant practice in school, whereas the underprivileged children at the camp "seldom have this kind of experience. They play in nature more often. (S19_interview)" The student not only learned that there are multiple learning approaches, which may result in different processes and outcomes, but also received firsthand experience of concepts such as sociocultural capital and development divide. This student could be expected to be less likely to pay lip service to variety in perspectives; instead, in her own learning, she might engage in a different course of learning, acquire alternative knowledge and skills, adopt a new role, or develop new relationships with her teachers and peers. The rationale for such an inference is that the student explicitly explained how and why learners from different backgrounds could approach a similar task differently. The service-learning experience provided the students with opportunities to experience "trigger events (Mezirow, 1990, p.14)" that revealed to them the constraints placed by their old ways of knowing on their perceptions, understandings, and feelings about the world (Kiely, 2005; Mezirow, 1990, 2009).

7.3.2.2 Interview questions acted as a scaffold for student reflection

After reaching the highest at the end of term, in the interview to the students after the service-learning experience, the occurrence rate of the reflections coded as *reasoning* remained stable at 10% (see Table 7.2). An explanation for the students demonstrating a deeper level of reflection could be that they were better scaffolded while being interviewed. During the interviews, I asked questions aimed at encouraging the students to expand on their responses, as demonstrated in the following example:

> Researcher: How did you decide how to proceed with your lesson?
> S03: I taught the children some vocabulary. Then I wrote some sentence patterns on the blackboard and asked them to use the words in the sentences. Finally, we read the sentences together. I couldn't think of other ways of teaching because my teacher taught me like this when I was younger.

The student could have stopped at this point, after having only stating what she taught the children. However, a timely question (Martino & Maher, 1999) invited her to expand her reflection on her own English learning practice in the light of the current experience of planning a lesson for children.

> Researcher: So you brought your own learning experience to teaching. But are there any differences between your learning experience in primary and secondary school?
> S03: <u>In primary school, my English teacher always played games and sang songs with the class.</u> Primary school English was easy because I had learned what was taught in kindergarten…. <u>My junior high school teacher used mnemonic phrases to help us remember vocabulary words.</u> After teaching the class the words and their uses, the teacher would have us read the text in the textbook. Whenever we encountered a vocabulary word, we read the use of the word once again. We practiced the words many times, in the text and in the workbook, so I learned the words by heart. I didn't have to make special efforts in junior high school…. <u>In senior high school I have to depend on myself to study English most of the time. Without the teacher's help of repeating the vocabulary words and their meanings, I can barely memorize the vocabulary.</u> I almost always fail the English tests.

After being prompted by scaffolding questioning, the student brought to the conscious surface her innate knowledge of approaches to learning at different levels of English study. If the question had not been asked, she would not have made the comparison

among her English learning approaches at different levels of education. As shall be discussed in a subsequent section (8.3.4), written and oral approaches could vary in their effect and influence on students' attitudes and perceptions about reflection.

7.3.3 One year after the program

One year after the innovative program was completed, the students received a follow-up questionnaire which asked them whether they had observed any changes in their approaches to learning English, and whether they had reflected on their learning processes after returning to the role of student. Analyzing the questionnaire data revealed a decline in the occurrence rate of surface reflections and an increase in the occurrence rate of critical, reconstructing reflections.

7.3.3.1 Decline in the occurrence rate of surface reflections

The sum percentage of reflections coded as *reporting*, *responding,* or *claiming* declined from 43% upon completion of the service-learning experience to 36% one year after the entire innovative program had concluded—the lowest point since the implementation of the program. Of all the surface reflections, most were categorized as *claiming* (see Table 7.3).

Table 7.3

Comparison of the Occurrence Rate of Each Form of Reflection Between Two Times (II)

Time	Occurrence Rate					
	surface, non-reflective			reflective		critical,
	reporting	responding	claiming	relating	reasoning	reconstructing
the end of service-learning experience	8%	27%	8%	39%	10%	9%
one year post participation in the innovative program	4%	7%	25%	14%	14%	36%

The following is one of the reflections coded as *claiming*:

> My attitude to learning English has changed. In the past, I learned English only for myself. Having had the service-learning experience, I realized learning English may enable me to help more people in need. I also saw the needs of the underprivileged. This has become my drive, making me more enthusiastic about learning English. (S05_questionnaire)

In this excerpt, the student claims that a cause-and-effect relationship existed between the service-learning experience and the change in her attitude to learning English. This is a desirable outcome of the innovative program. However, it could be argued that this excerpt exhibits a lower level of reflection because the student does not provide specific evidence supporting her claims. For example, what are the needs that she saw? How might her learning enable her to meet the needs of the underprivileged? The excerpt may illustrate a "stuck" situation in which the student maintained a reliance on prompts and cues to aid reflection instead of internalizing a repertoire of questions to ask herself as a means of identifying connections, explanations, or generalizations of experiences and concepts.

Another excerpt attracted my attention for the recurrent emotional response to learning exhibited within it.

> Since I entered senior high school, English has been difficult for me. There are many difficult vocabulary words, so I have to develop new learning methods. I feel all right experiencing frustration a few times. However, I have lost confidence in myself because of the constant failures in tests and examinations…. <u>Although the entrance exam is approaching and I have to force myself to study, I seize every opportunity to escape from studying.</u> (S03_questionnaire)

It can be inferred that the student's learning was still driven by exams, which in turn could be a reason for her negative emotional responses to learning. Examples are the expressions "difficult", "frustration", "lost confidence", "failures", and "escape". In fact, these responses warrant attention from teachers. As most of the students indicated in the interviews (discussed in a following subsection; 7.6.1), their teachers never or only occasionally engaged them in reflecting and learning from their experience. For students on the verge of having their conceptions transformed, continual participation and the exposition of practice is integral to completing the transformation (Lave, 1996). Otherwise, they might be engaged in superficial change. This finding could suggest that teachers, in addition to myself, should work collegially for the sustained emphasis on and use of reflective learning, thus ensuring student changes receive sufficient support (McLaughlin, 2005).

7.3.3.2 Increase in the occurrence rate of critical reconstructing reflections

In contrast to the decreased percentage of surface reflections, the occurrence rate of critical, reconstructing reflections increased from 9% upon completion of the service-learning experience to 36% one year after the students' participation in the innovative program. It could be argued that a noticeable transformation occurred in the students—most of them demonstrated autonomy in their learning. Although academic performance remained important to the students, they ceased to let examinations be the major driving force of their learning. Take the following response to the questionnaire for example. Being engaged in resolving the children's English learning difficulties empowered the student to be actively involved in overcoming her own problems.

> After the English camp, I like to write down the problems I encounter in the learning process and then figure out the causes of the problems. I will consult resources or discuss with others in order to solve the problems. When I realize the causes, I am even more motivated to seek the solutions. (S14_questionnaire)

If the response had ended here, it would have been categorized as *relating*, and whether the student would make changes to benefit herself or others would have been doubtful. However, the student continued:

> This year I have been preparing for the TOEFL and SAT tests. <u>Being faced with such difficult examinations makes me feel at a loss over what to do.</u> Meanwhile, I have started to examine my own learning practice in order to successfully sit the examinations. <u>I have realized, for example, that verbal phrases are preferred in spoken English.</u> A friend of mine suggested that I read children's books because there are more colloquial expressions…. <u>I have learned verbal phrases and gained a sense of the English language through reading children's books.</u> (S14_questionnaire)

This excerpt illustrates that the student felt unsettled with her preparation for upcoming exams and strove to determine how to develop speaking proficiency in English. Not only did she generate a personal theory regarding this issue, but she also put it into practice and determined its applicability and effectiveness in her case.

As mentioned (see 7.3.2.1), the gap between the learning environment of my students and of the underprivileged children promoted the students' reflection. This round of

analysis, as the first did, reveals that the students acknowledged the educational deprivation that those children had experienced. This led to the students appreciating the advantages they enjoyed and changing their approaches to learning and studying. One student asserted that seeing the lack of learning resources in the remote area made her realize that she should make better use of the resources available to her. This reflection demonstrated the student's capacity to connect the issue with her own learning. The following example is a specific representation of her understanding.

> I have resolved to become proficient in English. Now I read articles from English magazines every day. On holidays, I like to listen to English songs. I always make sure I understand the lyrics of the songs. Sometimes I discover grammatical points in the songs. (S01_questionnaire)

The analysis thus far shows that the students demonstrated higher levels of reflection as the innovative program progressed into the summer service-learning experience. One year after participating in the program, the students exhibited even more critical-level reflections in their responses to the follow-up questionnaire. They might have reconstructed their approaches to learning on the basis of the lower levels of reflection. I am aware that these changes cannot be completely attributed to the innovative program. However, the students' participation in the program can be viewed as a critical factor that triggered their development in reflection.

7.4 Evidence of changes in students' metalearning capacity

This part of analysis explores indications of knowledge about learning and control over learning in my students' journal entries, my interviews with them, and the students' responses to the follow-up questionnaire. A modified framework of metalearning, which was created on the basis of the findings of the first-round analysis, was used. Within this framework, a relational dimension of learning was incorporated as a description of the theme *knowledge about person*. In addition, students' attitudes, opinions, or expectations towards learning, termed as *beliefs and values*, were considered as part of a learner's declarative knowledge.

7.4.1 During the school year

Content analysis of the students' journal entries reveals the changes in the students' metalearning capacity over the school year. Some findings replicate those of the first-round analysis, including:

(1) The static activities, which involved comparing and contrasting the approaches to learning of different individuals, exerted an enhancing effect on the students' knowledge about learning.

(2) The dynamic activities, which engaged the students in making authentic choices, could encourage them to exert control over their learning processes.

(3) The students' capacity to monitor their learning processes was relatively slowly developed compared with their capacity to plan or evaluate.

(4) The students' procedural and decisional knowledge about learning remained to be of low occurrence during the school year, but could be enhanced by the field teaching practices.

In addition, this round of analysis showed that the reflections demonstrating the students' knowledge about the relational dimension of learning occurred more frequently in the journal entries reflecting on their field teaching practice experiences. The analysis also reveals that by comparing and contrasting the students' own approaches to learning and those of their role models, the students were encouraged to make their beliefs and values about learning explicit.

7.4.1.1 Changes in metalearning capacity that concurred with those in Cycle 1

As found in the first-round analysis, the percentages of reflections that fell into the category of *knowledge about learning* were the highest in the journal entries made after the movie-viewing task (68%) and in which the students compared their own learning approaches with those of their role models (77%) (see Figure 7.4, time points 2 and 5).
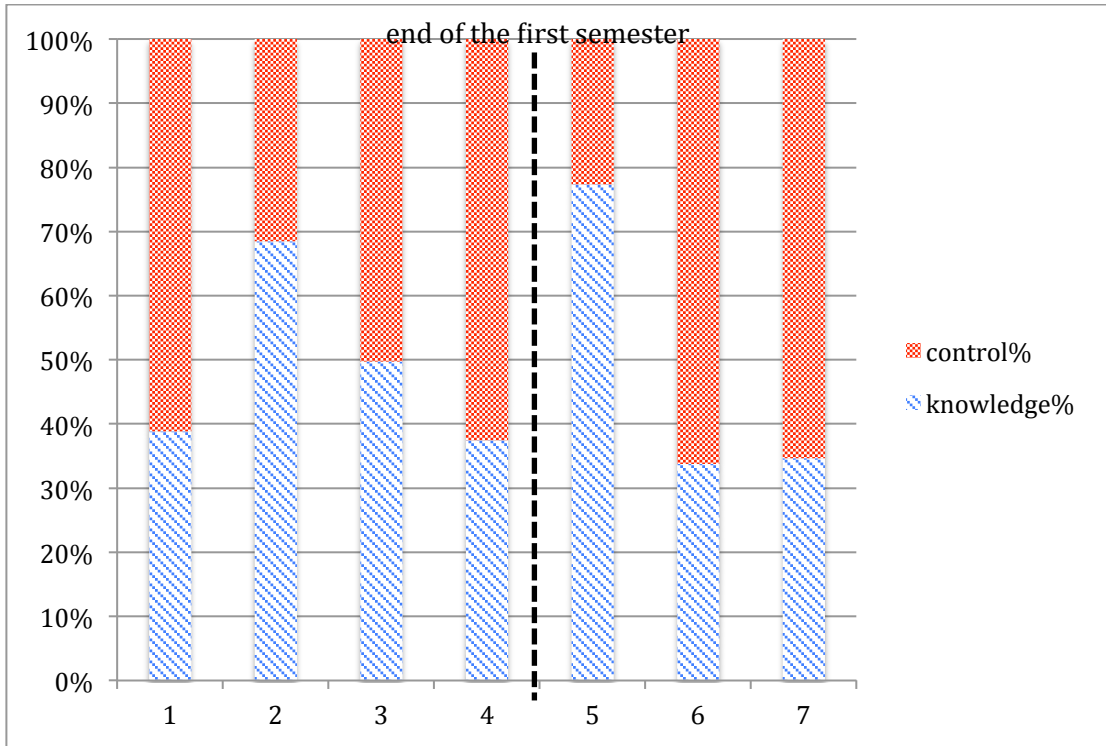
Figure 7.4

Frequency of Knowledge about Learning versus Control over Learning (Cycle 2)

Aside from these two entries, in both semesters, there was an increase in the occurrence rate of reflections illustrating the students' control over learning in the latter journal entries. This could support the finding from the previous round that the dynamic teaching practice activities engaging the students in making authentic choices could elicit executive processes. Figure 7.5 compares the curves of the occurrence rate of the reflections categorized as *control over learning* for Cycles 1 and 2.
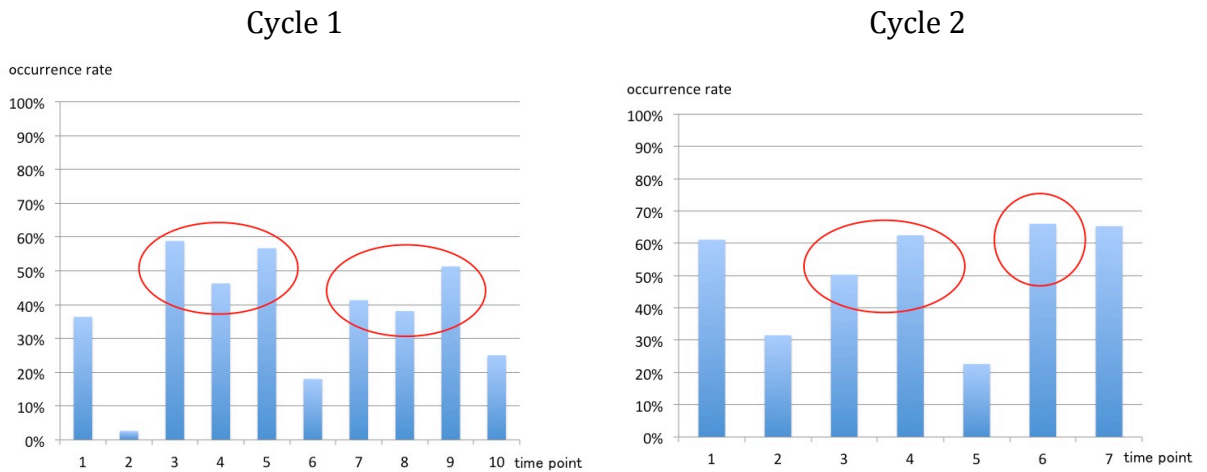
Figure 7.5

Comparison of the Occurrence Rate Curves Between Cycles (Control over Learning)

If considered individually, among the subcategories within the category of *control over learning*, the reflections coded as *planning* occurred most frequently at the beginning of each semester, when the students were explicitly asked to set a goal for themselves and decide how to proceed with the term-time activities (see Figure 7.6, time points 1 and 5). On the other hand, the occurrence of the reflections categorized as *evaluating* peaked at the end of the second semester, when an appraisal of their progress was required (see Figure 7.6, time point 7). Both the percentages of the reflections categorized as *monitoring* and *evaluating* reached a high point when the students reflected on their final teaching practice in the field (see Figure 7.6, time point 6).
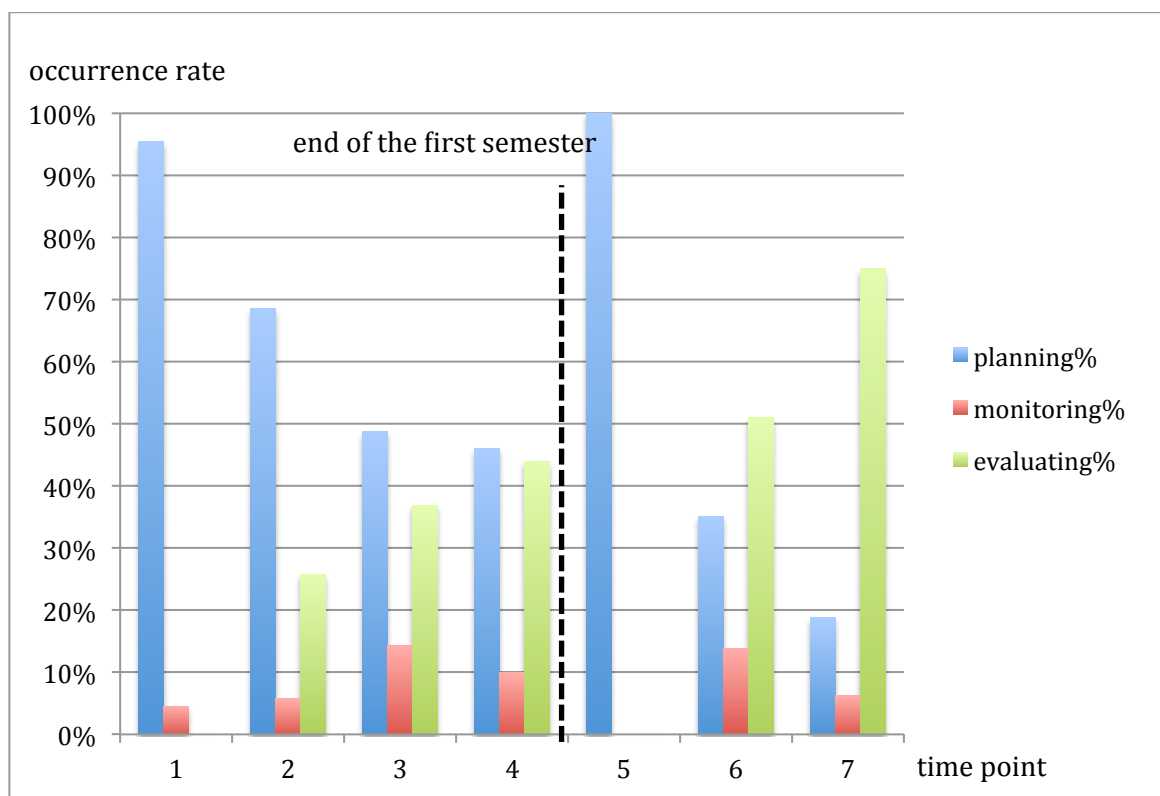
Figure 7.6
Frequency of the Three Subcategories of Control over Learning in Each Journal Entry (Cycle 2)

The current results supported the finding of the first round and earlier researchers, such as Schraw and Moshman (1995), that monitoring capacity develops relatively slowly compared with the other controlling capacities. In this cycle, it was not until after the service-learning experience that the occurrence rate of reflections coded as *monitoring*

exceeded 20%. Figure 7.7 compares the curves of the occurrence rate of the reflections categorized as *monitoring* for Cycles 1 and 2.
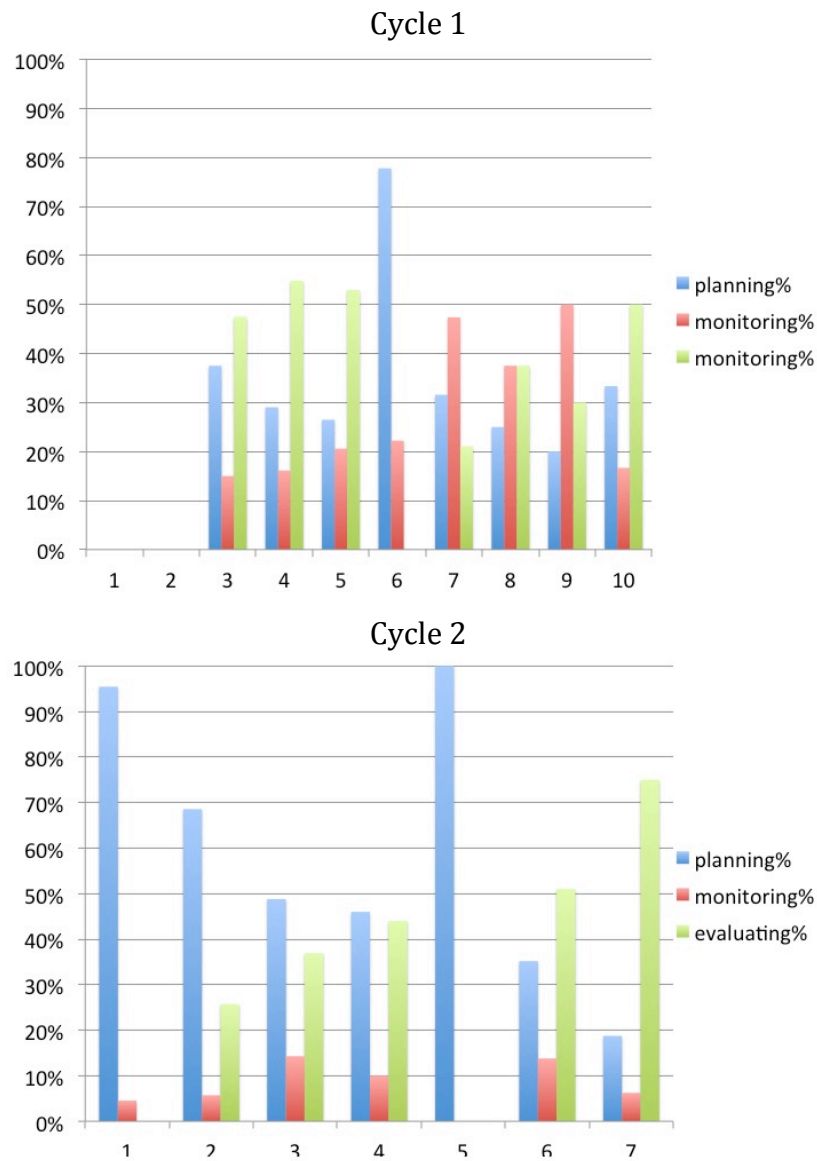
Another reoccurring finding is that the students' *procedural* and *decisional* knowledge about learning remained to be of low occurrence during the term time (see Figure 7.8).
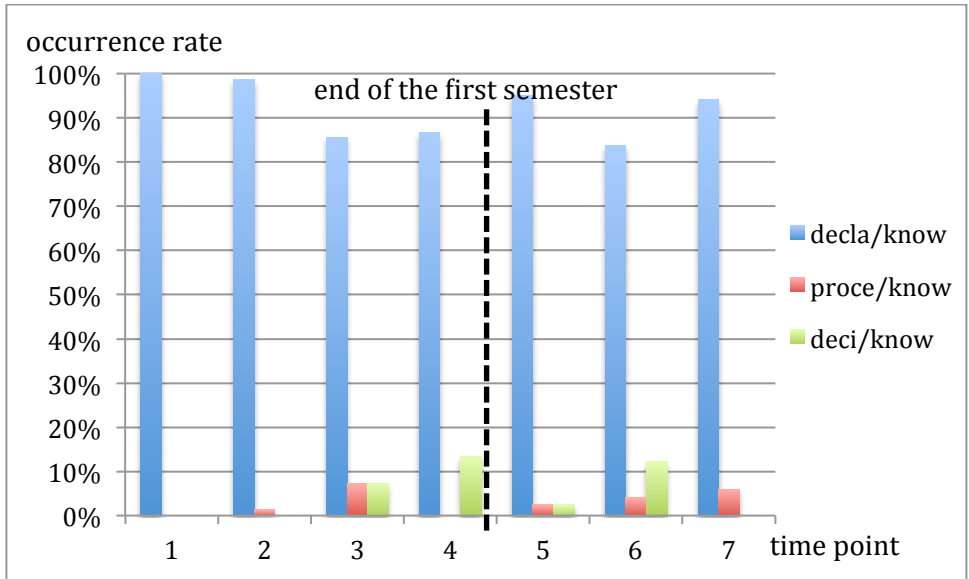
Figure 7.8

Frequency of the Three Subcategories of Knowledge about Learning in Each Journal Entry (Cycle 2)

The teaching practices, particularly the ones in the field, fostered the students' awareness of why and when to use a specific learning strategy (see Figure 7.8, time points 4 and 6). More specifically, when the students reflected on these experiences, they became more aware of their "lack" of decisional knowledge. A student reported that she "panicked (2nd semester_S17_W2)" when faced with contingencies during the teaching practices, and some other students claimed that gaining more experience would be helpful for developing their contingent knowledge (e.g., 1st semester_S04_final). Figure 7.9 compares the curves of the occurrence rate of the reflections categorized as *decisional knowledge about learning* for Cycles 1 and 2.
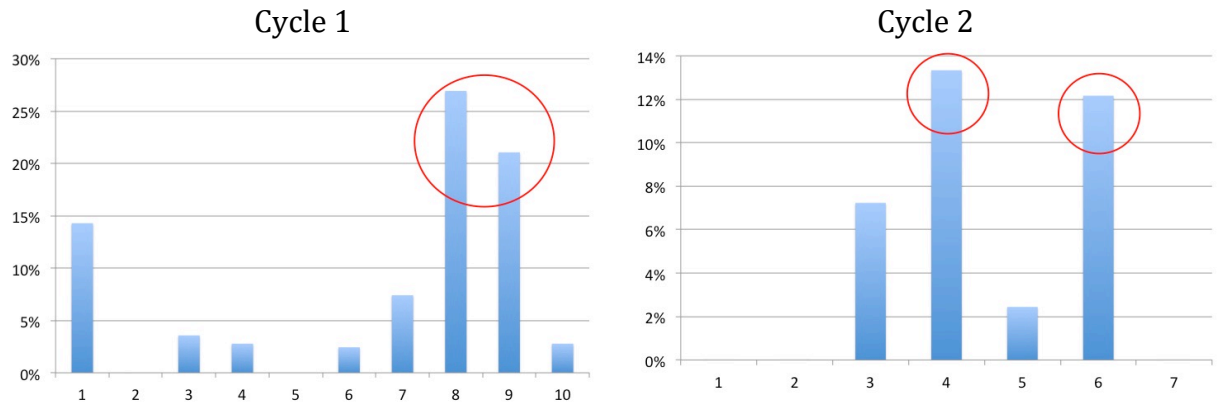
Figure 7.9

Comparison of the Occurrence Rate Curves Between Cycles (Decisional Knowledge about Learning)

7.4.1.2 Changes in students' knowledge about the relational factors in learning

The relational dimension of learning, which was added to the description of knowledge about person to refer to how the students engaged with other people in the process of learning, was noticeable in the journal entries reflecting on the field teaching practices. For example, a student wrote: "The situations were really different. We learned how to teach the children clearly, but the uncontrollable children changed everything. (1st semester_S15_final)" This excerpt suggests that the student might be encouraged to expand her knowledge of different approaches to learning so as to assist her in overcoming the challenges brought by "the uncontrollable children." This finding echoes with that of Edwards and D'Arcy (2004), who suggested that learners "draw on the histories and interpretations of others" and "engage with the unpredictability (Edwards & D'Arcy, 2004, p.150)", thus facilitating the awareness of themselves as learners.

Additionally, what the students wrote could also imply that there had been growing positive interdependence among the students. For example, one journal entry read: "The rapport among teammates is really important. We'll have to remind each other and help the other teammates when they need help. (2nd semester_S14_final)" Another excerpt stated: "One of our classmates said, 'We are supposed to help each other, aren't we?' It is the mutual trust and assistance that support our bonded relationship. (2nd semester_S20_final)" It could be inferred that the students became aware of peer relationships other than competitive relationships, which are a result of the exam-oriented approach to learning.

Finally, an expected student–teacher relationship could be inferred from a student's hope of being "a person that children will respect and like at the same time. (1st semester_S15_final)" In Taiwan, students have traditionally been expected to respect their teachers, and this dynamic is shaped by the power distance between students and teachers (Li & Du, 2013). The student who wrote the preceding excerpt seemed to assume that respecting and liking a teacher simultaneously might be difficult. To "like" the teacher might presume a closer, more equal relationship. A democratic and dialogic student–teacher relationship is one of the principles of the program, but it could be contradictory to the traditional expectation of a teacher (Li & Du, 2013). The transformation of role relationships in the program constitutes an interesting topic for discussion.

7.4.1.3 Changes in students' knowledge about the beliefs and values in learning

In addition to *knowledge about person*, *task*, and *strategy* in the literature-derived coding scheme of metalearning capacity, a body of more value-related knowledge was included as one of the themes of declarative knowledge about learning as a result of the first-round analysis. The reflections that conveyed the students' beliefs and values about learning were the most observable in the journal entry in which they reflected on the differences and similarities between their own learning approaches and those of their role models. This finding differs with that of the first-round analysis (see Figure 7.10). In the first round, the highest occurrence rate of this type of reflection was in the first semester's final journal entry, in which the students reflected on the term-time activities and looked ahead to the next semester. However, the finding of this round could be supported by the works of Dewey and Bentley (1960), Lave and Wenger (1991), and Rosenblatt (1994). According to Lave and Wenger (1991), role models in learning embody the values and attitudes as well as knowledge and skills that are required to be a successful learner. As the students saw the ideal beliefs and values in their role models, from the transactional perspective (Dewey & Bentley, 1960; Rosenblatt, 1994), they revealed the beliefs and values that resonated with those of their own.

Cycle 1   Cycle 2
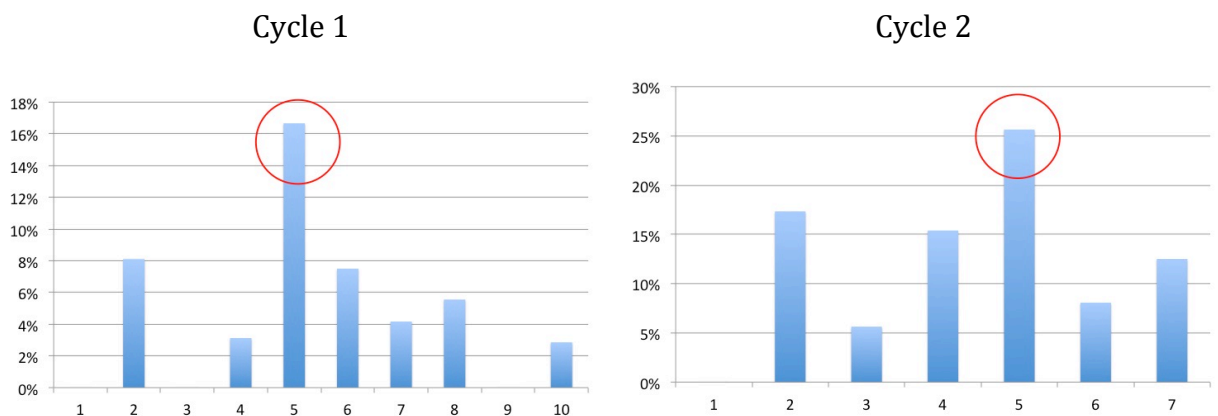
Figure 7.10
Comparison of the Occurrence Rate Curves Between Cycles (Beliefs and Values)

7.4.2 After the service-learning experience

The students participated in a semi-structured interview after their service-learning experience. Analyzing the interview data confirmed that for the students to practically apply their knowledge about learning, they should serve in "responsible roles that

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require real time decisions with actual consequences (Lizzio & Wilson, 2004, p.472)." The following three subsections describe the effects of having decision-making opportunities on the students' control over learning, and their declarative and decisional knowledge about learning.

7.4.2.1 Authentic opportunities for decision making encouraged the comprehensive application of the learning control mechanisms

Analyzing the interview data showed that the percentages of the response segments falling into each subcategory of *control over learning*—*planning* (44%), *monitoring* (24%), and *evaluating* (32%)—were relatively even. This suggests that the service-learning experience provided a platform for the students to comprehensively apply the learning control mechanisms. During the interview, the students were asked to recall critical incidents at the summer camp, where they taught English to younger children, and this discussion was followed up with questions derived from the incidents.

> Before we went to teach at the camp, the other team told us they were unable to follow their plan, so I thought we probably couldn't either. But I think at least we were able to carry out the most essential part of our plan. Although we printed out the lesson plans, we sometimes forgot which activity to do in a particular lesson because we were nervous. But we couldn't read the plans in class. We had to immediately come up with another activity.... After practicing teaching at church, I thought maybe we could divide the children into smaller groups and have our group members each lead a group. Learning and competing in groups can make learning more effective.... If the children had worked in groups, they could have discussed and shared their learning together, just like what we did in the evening. (S18_interview)

That the students had to select means of enhancing the children's English learning, make adaptive choices in response to real-time classroom situations, and judge the quality of their own performance required them to comprehensively apply the control mechanisms. For example, in the preceding excerpt, the student demonstrates her capacity for planning through collecting information from experienced peers and anticipating events accordingly. Furthermore, she planned to employ small group learning strategy, drawing on her field teaching experience. In spite of the plan, the student had to consider alternatives because her nerves interfered with the procedures, and because "the class size was not as big in the remote-area school as at church. (S18_interview)" This

illustrates her capacity for monitoring. Finally, in the excerpt, the student comments on the extent to which she fulfilled the plan. She was also able to explain the rationale for preferring the group learning strategy.

7.4.2.2 Overall application of declarative knowledge about learning supported the students' intention to control their learning processes

The summer service-learning experience was expected to elicit learning control mechanisms because it involved a dynamic characteristic—the students taking on the role of teacher. In contrast to the dynamic activities during term time, less than 50% of the reflections on the service-learning experience were coded as *control over learning* (see 7.4.1.1 for details). I would argue, however, that this result was not unreasonable. Earlier researchers (e.g., Deed, 2009; Mevarech & Fridkin, 2006) observed that questioning facilitates the development and use of a language to represent and communicate metalearning capacity, including reasoning for decisions and action as well as explanation for engagement and effort. Questioning is a means of increasing self-awareness of personal choice in response to learning experiences and of people's intention to control their learning process. One decision may be based on a combination of multiple types of knowledge. For example, when asked to explain how a lesson was planned, a student responded:

> It is easier for children to learn English through something they already know. For example, we taught the story of the hare and the tortoise. It made English more approachable…. I decided to tell the story in a childlike way because I wanted to fit into the children's group. Otherwise, the children might not like me and, even worse, reject learning with me. (S21_interview)

In order to justify her choice, the student drew on not only her knowledge about strategy but also knowledge about person. This illustration might explain why the ratio of the response segments coded as *knowledge about learning* to those categorized as *control over learning* was nearly 2:1. The students showed a relatively proportionate use of their declarative knowledge about learning, including that about person (29%), task (16%), strategy (31%), and beliefs and values (24%).

7.4.2.3 Opportunity for choice elicited the student's decisional knowledge to support the control mechanisms

In addition to the students' declarative knowledge about learning, their decisional knowledge could be considered as having been elicited by the opportunities to make a learning choice, and thus support learning control, during the service-learning experience. More specifically, compared with the occurrence rate of the response segments representing the students' declarative knowledge about learning (92%), that of the response segments illustrating their decisional knowledge is fairly low (7%). However, this was the third most frequent occurrence of such segments since the inception of the innovative program—preceded only by the peak values observed during term time, namely 13% in the final journal entry of the first semester and 12% in the second entry of the second semester, which both occurred after field teaching practice. For example, one student said:

> After practicing teaching at church, I thought maybe we could divide the children into smaller groups and have our group members each lead a group. Learning and competing in groups can make learning more effective…. If the children had worked in groups, they could have discussed and shared their learning together, just like what we did in the evening. (S18_interview)

The plan this student made drew on the decisional knowledge she gained in field teaching practice. In addition to the planning phase, decisional knowledge was apparent during the monitoring of task progression. An example of the students' decisional knowledge guiding their monitoring practices is as follows.

> [When I carried out a plan,] I sometimes found the children messing around, unwilling to learn, or slow in learning. So it took much longer than planned…. <u>The children couldn't learn as fast as I had expected, so I had to teach them slowly. I decided to cut some activities, and to teach vocabulary instead.</u> (S13_interview)

This excerpt illustrates a decision-making situation in which the student had to make a contingent choice regarding whether and how to revise her original plan. This implies that the student applied decisional knowledge about learning to aid herself in weighing the alternatives and determine a more effective strategy. Similarly to the previous two occasions, on which the percentage of the reflections coded as *decisional knowledge* rose to a peak, it can be inferred that the increased autonomy resulted from the students'

taking up a teaching role elicited a sense of responsibility for effective learning.

Overall, during the service-learning experience, the students had choices regarding how to think. They had the opportunity to, for example, generate their own problem-solving approaches, which are absent in typical English classes. Such opportunities conformed with what Stefanou, Perencevich, DiCintio, and Turner (2004) referred to as a form of autonomy support—the provision of cognitive choices to students.

7.4.3 One year after the program

The follow-up questionnaire evaluated the extent to which the students retained the capacity for metalearning, one year after participating in the innovative program. The analysis results revealed that the students had time to "marinate" in a concept, as Barrel (2000) and Keyser (2014), among others, have suggested they should. This allows students to become more mature in their employment of metalearning capacity, establishing a sense of comfort with the new concept. They also reiterate the difference between the innovative program of this study and a typical English class.

First, the questionnaire data showed that the percentage of the response segments coded as *procedural knowledge about learning* remained in single figures (see Table 7.4). Examples are given as the following:

> If I need to self-study an article, I will figure out the meanings of the target vocabulary words <u>first</u>. <u>Then</u>, I will read through the article and keep notes of the words I am still unfamiliar with. <u>After that</u>, I will find out important grammatical points in the text and jot them down on a piece of paper. (S01_questionnaire)

> Teaching English to children reminded me of how I learned English at first point. <u>I began with phonics. If I don't know how to pronounce a word, I won't be able to spell it. It is just like we must learn to listen and speak before we learn to read and write.</u> In the 11th grade, when I had to prepare for English proficiency tests, I used this strategy to learn a large number of vocabulary words. (S14_questionnaire)

These excerpts indicate that the students may have become conscious of the learning procedures they followed. They were aware of what they did first, second, and so on. In the former excerpt, the student further identifies the strategy she employed for carrying

out the procedures effectively. The latter excerpt, on the other hand, illustrates that the student developed her consciousness of latent procedural knowledge through teaching. The test preparation experience after the innovation provided opportunity for her to appropriate this understanding.

Table 7.4

Comparison of the Occurrence Rate of Each Form of Knowledge about Learning

Data Source	Occurrence Rate		
	declarative	procedural	decisional
journal entry 1	100%	0%	0%
journal entry 2	99%	1%	0%
journal entry 3	86%	7%	7%
journal entry 4	87%	0%	13%
journal entry 5	95.12%	2.44%	2.44%
journal entry 6	84%	4%	12%
journal entry 7	94%	6%	0%
interview	92%	1%	7%
follow-up questionnaire	93%	5%	2%

Second, compared with the other times of analysis, the occurrence rate of the response segments categorized as *knowledge about learning* and *control over learning* were relatively equal, at 59% and 41%, respectively (see Table 7.5). In addition, under *control over learning*, the distribution of the response segments coded as *planning* (36.6%), *monitoring* (31.7%), and *evaluating* (31.7%) were even more balanced (see Table 7.6).

Table 7.5

Comparison of the Occurrence Rates of Knowledge about Learning and Control over Learning

Data Source	Occurrence Rate	
	knowledge about learning	control over learning
journal entry 1	39%	61%
journal entry 2	68%	32%
journal entry 3	50%	50%
journal entry 4	37.5%	62.5%
journal entry 5	77%	23%
journal entry 6	34%	66%
journal entry 7	35%	65%
interview	64%	36%
follow-up questionnaire	59%	41%

Table 7.6
Comparison of the Occurrence Rate of Each Form of Control over Learning

Data Source	Occurrence Rate		
	planning	monitoring	evaluating
journal entry 1	95%	5%	0%
journal entry 2	68.6%	5.7%	25.7%
journal entry 3	49%	14%	37%
journal entry 4	46%	10%	44%
journal entry 5	100%	0%	0%
journal entry 6	35%	14%	51%
journal entry 7	19%	6%	75%
interview	44%	24%	32%
follow-up questionnaire	36.6%	31.7%	31.7%

When asked whether there was any change in her approaches to learning during the year after her participation in the innovative program, a student responded:

> There doesn't seem to be much change in my English learning in school. This may be because of the limited content of the textbooks. In addition, I don't have enough time or resources for extended learning in school. Therefore, my English learning has been limited to the memorization of vocabulary and grammar rules. However, there has actually been a change in my mental state. Before participating in the program, I had hoped to go into an English education career. I was able to confirm my enthusiasm for a career in education through the year of preparation and the experience of teaching at the camp. I have started to discuss with my family my plan after graduating from senior high school, to collect information about the university departments of my interest, and to prepare the documents necessary for the university application process. (S20_questionnaire)

During the year after participation in the innovative program, this student maintained the habit of reflection.

> I had always thought that I didn't have enough English vocabulary. I asked myself, "What is an effective way for me to learn vocabulary?" I didn't have a quick answer to this question. However, after some trials, I found that the most effective method for me is extensive reading. It is not effective for me to learn vocabulary by using vocabulary books. I can't remember vocabulary for a long time this way. However, if I encounter a word repeatedly in an article, I can remember it very well. I believe the learning process is a process of continual self-questioning, and a resolution can be found through experience. This way, I will be able to constantly adjust and improve. Through answering this question, I

realized that the most effective way to learn a language is through authentic materials. Memorization and repetition is time consuming, but I won't be able to apply something learned by rote memorization in everyday life. (S20_questionnaire)

This excerpt suggests that the student not only possessed several types of knowledge about learning, but was able to use this knowledge to plan, monitor, and evaluate her learning. She was aware that a major learning task in school is to increase the size of her vocabulary. She planned and monitored the trials to identify the most effective vocabulary-learning strategy for herself. Self-evaluation of the outcomes of her learning fed back into her decisional knowledge. It could be inferred that the student would select strategies other than memorization and repetition in other language learning situations.

It can be seen, however, in Table 7.4, that the occurrence rate of the response segments coded as *decisional knowledge* under *knowledge about learning* decreased between the end of the service-learning experience and the one-year follow-up time point. One possible explanation for the less frequent demonstration of decisional knowledge could be that, in comparison with the innovative program of this study, the learning in a typical classroom is relatively predictable and simple, and the students are faced with fewer contingencies. The journal entries and interview responses revealed that, during the field teaching practices and service-learning experience, the students were faced with unforeseeable decision-making situations and had to weigh various choices and options. However, the questionnaire answers showed that more than half of the participant students (9 out of 14) mainly focused their learning on acquiring vocabulary and grammar or preparing themselves for standardized tests. I will return to a more detailed discussion of this point discussion of this point in section 8.2 below.

This section's analysis shows that different term-time activities (static or dynamic) might be capable of eliciting different aspects of metalearning. As the service-learning experience provided the students with more authentic opportunities for making choices and decisions, the students employed their declarative knowledge about learning and learning control mechanisms more comprehensively. One year after participating in the innovative program, the students appeared to have become more accustomed to metalearning and making metalearning functioning more explicit in their reflections.

7.5 Relationship between the changes in reflection levels and those in metalearning capacity

This analysis suggests that the increased capacity for metalearning could be linked to deepened reflection. As the students demonstrated a deeper level of reflection, they could possibly exhibit a wider variety of metalearning facets. It could be observed, at the beginning of the program, that most of the students were solely capable of reflecting on a largely personal level. Their answers to the journal question prompts mainly revealed their personal experiences and their feelings towards these experiences. When asked what she expected to gain from the program, a student wrote: "Because my mom is a teacher, I also meet many lovely children. If I can help more children in remote areas, I will be very happy. (1st semester_S01_W1)" Another student responded: "I am always shy when I speak in front of people, so I want to train myself not to be nervous when talking in front of people. (1st semester_S13_W1)" A different student wrote: "I hope that after a few practices, I would be able to talk in front of people with confidence. I always get very nervous when I have to make a speech. (1st semester_S20_W1)" The students' reflections were confined to the personal and emotional realm. They did not go as far as explaining why they took particular ideals as the objectives of learning and where the ideas originated, or illustrating how they could achieve their goals and what some alternatives might be. Clarifying objectives may require knowledge about task, tracing the origins of a goal may necessitate an understanding of social or contextual assumptions, and identifying what one has to do to reach a goal may involve procedural or decisional knowledge. It could be inferred that the students were aware of a particular limited range of knowledge about learning at the beginning stage of the program.

In contrast to the reflections during term time, when higher levels of reflection (reasoning and reconstructing) were relatively underdeveloped and the demonstration of a specific dimension of metalearning was disproportionate, the distribution of the response segments coded as *knowledge about learning* or *control over learning*, as either one of the learning control mechanisms, or as either one form of *declarative knowledge about learning*, became more balanced following the service-learning experience. The types of knowledge about learning that are later-developed by nature, like procedural and decisional knowledge, were also observed as subtly developing. Take the excerpt of a student's questionnaire response for example. The teaching experience allowed the

student to empathize with her teacher, and thus reconstruct her approach to learning English. She clearly expressed, "my approach to learning has changed for sure. (S01_questionnaire)" The student became aware of her motivation for learning English, including obtaining a sense of achievement and meeting the expectations of her parents and teachers. She was also conscious of what aspect of English learning she would like to pursue—vocabulary and grammar—and progressed towards it. During this progression, she actively accessed multiple learning resources and made use of several different strategies for learning vocabulary or grammar. The student said she usually thought to herself, "What strategy would I use if I were going to teach this point to others? (S01_questionnaire)" Although the student continued using exam results to evaluate her learning, she "ceased to learn by rote. (S01_questionnaire)" It could be argued that a deeper level of reflection might have contributed to the student's more comprehensive awareness of the variety of metalearning facets. This analysis may support the analogy, drawn in Chapter 2, between the science of sonar and the reflection–metalearning relationship (see 2.4).

7.6 Students' attitudes and perceptions about reflection

In this research, as demonstrated by the two cycles of analysis, reflection served as a mental vehicle by which the students gained awareness of and control over their learning processes. The students' attitudes and perceptions pertaining to reflection are believed to have influence on their engagement with this process (Yassaei, 2012). Throughout the innovative program, the students' reflection took the forms of written journaling and oral discussion. The following issues were drawn from the interview data collected immediately after completion of the service-learning experience and examined the students' (1) previous experience of reflection on learning, (2) attitudes towards the reflective tools, (3) perceptions of the difficulty of reflection, (4) perceptions of the factors that influence reflection, and (5) perceptions of the future application of reflection.

7.6.1 Students' previous experience of reflection on learning

The students who enrolled in the elective course were an even mix with regard to their previous experience of being asked to reflect on their learning experiences. However,

few of these experiences were gained through their teachers or curricula. The students who were experienced in reflection had usually done so through extracurricular activities. For example, a student stated in the interview that she "rarely engaged in reflection before participating in this course. (S16_interview)" Some other students (e.g., S09, S12, S17, and S18) indicated the occasions on which they had an opportunity for reflection, including after a student club activity, performance art class fashion show, and examination. Their responses suggest that reflection is not usually a part of the classroom practice of the students and their teachers. This observation is consistent with the earlier discovery that the encouragement of reflection is often an isolated component in one or a few courses. Some constraints on reflection in schools and classrooms may include curricular pressures such as the need to cover content and issues of time and authority (Gipe & Richards, 1992; Hatton & Smith, 1995; Naghdipour & Emeagwali, 2013; Oxman & Barell, 1983).

7.6.2 Students' attitudes towards the reflective tools

The reflection tools in this study were journals and discussions. Notwithstanding the students' experience, almost all of them expressed a negative attitude towards journal writing. The expressions reveal negative attitudes including troublesome (e.g., S03, S14, S16, S18, and S19), painful (e.g., S05 and S09), horrifying (e.g., S17 and S20), and dishonest (e.g., S12). A student responded: "I think the journal is just another piece of homework I have to do to serve the requirements of the teacher. (S03_interview)" Another student said: "Students hate homework anyway. Journals are another piece of homework. Sometimes I really don't know what to write about. (S17_interview)" Such responses suggest that over the years of schooling, the students had developed intensely negative attitudes towards homework in general (see also Hong, Wan, & Peng, 2011; Warton, 2001; Xu, 2010). In addition, the characteristics of writing can lead to a dislike for journaling. Writing is widely considered a high-stakes. It is of a more demanding nature because it requires the clear articulation of an idea. Writing also implies storage, and thus it requires careful wording and entails responsibility. The focus of writing is specific, and the process isolated, often with delayed scaffolding (Elbow, 1997; Naysmith & Palma, 1998).

Other than a general dislike for written assignments, most of the students reported time pressure as a reason for their unfavorable attitude to journaling. A student stated: "I hardly had time to write the journal because I had other homework to do. I usually wrote on a computer in the school library during break time. (S09_interview)" Another student also stated: "Sometimes there was a lot of homework to do. I stayed up until almost 3 am to write the journal after I finished other homework. (S20_interview)" Only one student (S13) indicated that she was able to adjust her time management appropriately, which led to her positive experience of journal writing. Such a finding suggests that journaling is often not a priority of the students. To cope with a multitude of assignments given by the other subject teachers, some students would make only perfunctory efforts to write their journals. My interpretation on this phenomenon concerns whether the journals should be assessed (Dyment, & O'Connell, 2010, 2011; O'Connell & Dyment, 2011). As mentioned in the previous paragraph, students share a view that written assignments are high-stakes and virtually always assessed (Elbow, 1997). In order for the students to feel safe to engage in journaling, I continually assured them that they would not be "punished with lower grades (Hobbs, 2007, p.414)." The students received a grade only according to whether they had completed the journal, given comments to their partners, and then submitted the journal in time. However, when competing with other subjects for the attention and time of the students, as shown in the excerpts, reflective practice was sacrificed for academic performance.

Related to the foregoing points regarding the effects of the characteristics of writing on reflection, some students confessed that they would deliberately polish or even fake the content when journaling. For example, a student said: "The words in the journal were polished. I would not report the absolute truth about the situation. I would conceal part of it. (S12_interview)" This result contrasts with the expectation for the students to be honest and transparent in their reflection. In addition to an instinct to please the teacher, the possibly leading and suggestive prompts might have contaminated how the students approached written reflection, even though the students were not assessed on the basis of their level of reflection (Hobbs, 2007; Liu, 2003). However, other researchers (e.g., Ryan, 2012, 2013; Whipp, 2003; Wu & Looi, 2012) have emphasized the value of prompts as scaffolding to foster the development of reflective learners. This finding suggests that there is a fine line between excessive and insufficient support in developing

reflective skills, which will be a point for discussion (see 8.3.2).

On the other hand, the students expressed a preference for oral discussion as a means of reflection. Their reasons could be paralinguistic or social. A student found that "the tone of speech (S01_interview)" facilitated the expression of meaning. Meanwhile, "the facial expressions of emotions (S04_interview)" were noted as being another factor contributing to the favorable attitude towards oral reflection. Aside from the aforementioned nonverbal components, "the immediate feedback and input (S18_interview)" from peers encouraged the students to contribute even more to reflective discussions. Finally, still other students (e.g., S12, S15, S16, S17, and S20) referred to the collective nature of discussion and like-mindedness among the students as the reason for their preference for oral reflection.

From a Vygotskian perspective, Naysmith and Palma (1998) argued that adequate reflection could be achieved "in an interactive, social context through talking (p.75)." Their argument that oral reflection is of more ease because "ideas can be hinted at rather than stated (p.72)" was supported by the result of the present analysis. Furthermore, the observation of the present study and that of Naysmith and Palma (1998) concur in that peer support in an immediate sense can have a positive effect on students' perception of reflection. Brooking (2010) as well as Naysmith and Palma (1998) also supported the collective nature of discussion as being able to expand consciousness from a focus on the individual level to a mutually shared understanding.

The preceding analysis, however, is not intended to suggest an advantage of oral discussion over written journaling. As a student indicated in her interview:

> I feel more relaxed to reflect when talking. However, I tend to forget what I say in oral reflection. If I write it down, I will be able to see changes in myself. It may be better to write a reflection in my journal first and then talk about it afterwards. (S13_interview)

It would be valuable to discuss the characteristics of oral and written modes of reflection, and how they can be appropriately used (see 8.3.4).

7.6.3 Students' perceptions of the difficulty of reflection

When asked if reflection is a challenging task, the students expressed experiencing a moderate level of difficulty. The students who perceived a higher level of difficulty during reflection processes referred to the use of open-ended style of questions as a cause of frustration. For example, S16 and S18 indicated that, at the beginning of the innovative program, the questions without standard answers made the reflective tasks difficult. Yet the students expressed that as they gradually became accustomed to the patterns of question prompts, their perceived level of difficulty decreased. The use of open-ended questions is in line with educational reform expectations, which are aimed at developing students' capacity for critical reasoning and verbalization. The students might find this type of question challenging because they had had become accustomed to standardized multiple-choice tests with prescribed answers (as discussed in Chapter 1). The students' growing ability to respond to open-ended questions or prompts may suggest that they had been progressing along the developmental continuum towards a deeper level of reflection. Alternatively, it could be argued that the students might have learned to provide inauthentic formulaic answers as a result of the contaminating influence of scaffolding prompts. This will be discussed further in a following subsection (8.3.2).

7.6.4 Students' perceptions of the factors that influence reflection

As mentioned earlier in this section (7.6.2 and 7.6.3), workload and time management issues as well as the students' unfamiliarity with open-ended questions constituted interfering with the students' attitudes and perceptions about reflection. The other personal factor, drawn from the students' responses to the interview questions, concerned the use of English or Mandarin. For example:

> When I have a lot of homework, I feel too lazy to write the journal in English. I don't have to worry about grammar if I write in Mandarin, so I can finish the journal faster. I have to think harder if I want to express my ideas in English. (S20_interview)

> At the beginning, I wrote the journal in English. But then I had less time, so I started to write in Mandarin. I was too lazy to look up the words in English. (S21_interview)

Because the innovative program was an EFL elective course, the students would voluntarily practice the target language even though I did not restrict the use of their first language. However, the excerpts suggest that the students considered English more difficult to use, which might increase cognitive load. They were inclined to use Mandarin to compensate for the heavy workload and the little time they had for writing a reflective journal, and to more clearly express themselves. Furthermore, using English or Mandarin could raise the issue of code switching as a representation of conceptual change. Adopting a second language can be a process of qualitative change in the conceptual system dominated by the mother tongue (Kecskes, 2008; Wang & Byram, 2011). Because the students were inclined to use Mandarin much more than English, whether they underwent linguistic and conceptual transformation is debatable.

In addition to the personal factors that influenced the students' perceptions about reflection—that is, workload, time management, unfamiliarity with open-ended questions, and their use of languages—the relational factor observed to have interfered with the students' attitudes and perceptions about reflection is their interaction with journal partners or members of the discussion group.

> I like oral discussion better because in the group we know each other very well. At first, the atmosphere was awkward because we weren't familiar with each other. (S05_interview)
>
> During the discussions, my group members would look at me. They would feel and respond to what I was saying. However, I could only read my partner's response when journaling. No one else's ideas could resonate with mine. When I discussed with a group, I often felt, "Ah, I feel the same way." (S15_interview)
>
> By reflecting on the experience of the day, I got to know what I did well or poorly. I would maintain what was good and try to change what was bad. Although the comments my journal partner gave me were unpleasant sometimes, they made me think about how to improve on myself.... I enjoyed discussing with my group members more because there was a sense of a group. Everyone was united. We talked about what we felt and saw and gave each other feedback. I could listen to more people's reflection. (S16_interview)

As shown in the first of these excerpts, there appeared to be tension among members when the group first came together. The awkwardness, however, eased as the members

worked closely together during the summer service-learning experience, which could possibly facilitate the students' exchange of ideas and increase their awareness of alternatives. However, the second excerpt, though it implies a sense of cohesion within the group, could be seen as suggesting that there was "nonreflective learning (Scribner & Donaldson, 2001, p.611)" from discussion. The students might unwillingly agree with one another so as to minimize potential conflicts. The third excerpt might cause the same misgiving with regard to the oral mode of reflection. By contrast, the written mode of reflection, as indicated in the third excerpt, could be more likely to engage the students in considering alternative perspectives or even in challenging their own assumptions obtained in prior learning. The distant, delayed nature of the written mode of reflection might constitute a space for contemplation, which could encourage reflective or critically reflective learning (Scribner & Donaldson, 2001).

7.6.5 Students' perceptions of the future application of reflection

Most of the students regarded the application of reflection as key to improving their performance in examinations. The following excerpts from the interview transcripts illustrate this point:

> I often reflect after a test. <u>This is because now we have tests more frequently and are under great pressure to study.</u> I hope to get better grades by reflecting after a test. (S18_interview)

> I will reflect on why I get a bad grade. <u>I will find out where I make mistakes or why I am negligent.</u> I will work on practice exercises when I study. If I don't understand why I make a mistake, I will speak to my teachers and keep in mind why I can't think of the answer. (S03_interview)

The first excerpt explains the reason for a high application frequency of reflection after tests. This may imply that academic success remains critical for the students. As the second excerpt shows, the students tend to see the applicability of reflection when they make a mistake. The students appear to have not yet been fully convinced that reflection can be applied to their everyday learning processes in the school setting. Similarly, a small number of the students (e.g., S15 and S20) indicated that they would be more likely to apply reflection in practice when they have to manage a difficult or major task, usually involving teamwork. These findings suggest that more practical approaches may be

taken to engage the students in reflection and then channel these approaches into improvements in metalearning. In acknowledgement of the dominance of testing and examination in students' school education, in addition to reviewing and providing answers to students, some time may be allocated to posttest follow-up, using evidence from tests to examine test-taking strategies or to reason out the questions (Carless & Lam, 2014). On the other hand, reflecting on significant incidents "that provoked surprise, concern, confusion or satisfaction (Baird & Winter, 2005, p. 155)" may be a practical starting point for proactive reflection.

7.7 Chapter summary

This chapter first describes how the second-round implementation of the program was modified according to the findings of Cycle 1. The modifications included making the structure more systematic, improving the guidance for thinking about learning, including an additional field teaching practice in the first semester, and substituting sessions on various learning and positive interdependence strategies for the abundant checks for readiness. Aside from journaling, additional methods of data collection, including an interview and questionnaire, were employed in this cycle of study.

Analyzed with the revised coding schemes, the students' journal reflections illustrated that the students became able to demonstrate relating and reasoning levels of reflection as the term-time activities progressed. However, they demonstrated little reflection at the critical, reconstructing level, though they did exhibit more control over learning towards the end of the term-time activities. The most monitoring and evaluating occurred in the students' reflections on their final teaching practice. Taking on the role of teacher also raised the students' awareness of the relational dimensions of learning. The students' values and beliefs about learning (the newly added dimension of declarative knowledge about learning) were brought to the surface by means of comparison and contrast.

An interview was conducted with the students immediately after the end of the service-learning experience. Analyzing the transcripts revealed that the students had further developed beyond the surface levels of reflection. The interview questions were argued to have scaffolded reflection. Meanwhile, they might have helped the students to increase

their awareness of the multiple knowledge bases they used to support their decision-making during the service-learning experience. The summer service-learning experience provided the students with opportunities to make authentic choices, which required them to apply a variety of knowledge about learning and comprehensively execute control processes. The results of the questionnaire conducted one year later showed further decline in the percentage of surface reflections, and a substantial increase in the proportion of critical, reconstructing reflection. The students eventually demonstrated a relative balance between the knowledge and control processes of learning. The lapse in time was argued to have provided time for the students to mature in the use of metalearning capacity and to become more comfortable with the concept. In short, this analysis argues that deepened reflection could contribute an increased capacity of metalearning.

Before their participation in the innovative program of this study, few of the students had encountered the use of reflection through their teachers or curricula. Comparing the written and oral modes of reflection revealed that the students held a more positive attitude towards the latter. The students expressed a negative emotional reaction to journaling. The fact that journaling had to compete with other written assignments for the students' time and attention led me to consider whether grading was a necessary evil. This mechanism of grading is controversial. After all, some students confessed that they wrote inauthentic journal entries, even when they were not assessed on the basis of their level of reflection. For paralinguistic and social reasons, the students preferred discussion to journaling as a tool of reflection. Specifically, nonverbal cues, immediate feedback and input, and collectiveness and like-mindedness were characteristics of discussion that contributed to this preference. Written or spoken, at first, reflection was unfamiliar to the students, and it remained unusual for them after the program's completion. The other teachers in the school rarely engaged the students in reflective practice, and the students reflected only on significant incidents. These observations suggest a need for changes in the beliefs and behavior of teachers as well as students, and for more practical approaches to begin with when considering diffusing the concept of reflection.

The next chapter provides a summary of the major findings of the analysis, and a discussion of challenges and possibilities. The limitations of this study will be first addressed before directions for future research are suggested.

Chapter 8 – Discussion, Implications, and Conclusions

8.1 Introduction

This chapter consists of four principal sections. The first section presents the major findings of this study, reflecting the research questions. Second, the impacts of the study on me, with a focus on my role as a teacher, and the study's implications in terms of teacher identities and development are discussed. Third, some suggestions about taking action research forward, particularly in the Taiwanese educational context, are made. Finally, the chapter concludes with a discussion of the limitations of this study and recommendations for future research.

8.2 Principles of the innovative program and their effects

This section addresses the first two research questions:

1. How might an innovative program be developed based on theoretical and pedagogical foundations to promote the development of students' metalearning capacity?

2. What are the changes in students' metalearning capacity as a result of the implementation of the innovative program?

The principles of the innovation in this research as well as corresponding practices and their effects will be discussed in the following subsections.

8.2.1 Principle 1: The program breaks away from hierarchical student–teacher relationships

The first principle behind the development and implementation of the innovative program in this study was fostering a break with hierarchical student–teacher relationships. It was intended that the participating students would develop a sense of autonomy and ownership of their own thoughts and practices about learning. In both rounds of implementation of this program, the students ascribed their learning outcomes to the fact that the program differed from typical English courses. More specifically, the program was atypical in that it engaged the students in taking on the role of teacher, sharing decision-making and responsibility when approaching the task of teaching English to younger children. Instead of being an authoritative teacher who dominated

classroom practices, I attempted to coach and guide the students with question prompts in journaling and discussion. The effects of the practices based on this principle include transformed perspectives and practices for learning, which will be discussed individually in the remainder of this subsection.

First, in this program, the students and I shared the responsibility for decision making. In the Taiwanese context, students are traditionally given a passive, follower's role in the classroom, whereas teachers are characterized as leaders, exerting a high level of control over their students. In order to address this power dichotomy, it has been argued that learners should be emancipated through praxis, the creation of a condition that engages learners to act and participate in a valued way (Carrington & Holm, 2005; Freire, 2000). The service-learning component of the innovative program in this study involved the students taking on the role of teacher and teaching English to younger children. The students were expected to make their own lesson plans and pedagogical choices. After the second round of implementation, a student (S14) stated in the interview that she felt like a grown-up during the course of the project, particularly in the summer service-learning experience. This response highlights the conventional role of adults, such as teachers and parents, as authority figures, who are in control and make decisions (West, 2007). Having a sense of being treated as a grown-up could imply that the students actually felt ownership over and autonomy in their experience in the innovative program. The students could be seen as maintaining a "co-role" in this innovative program, having a shared voice and power in the classroom. Taking on such a role could lead to a shift in power and authority and a challenge to traditional, hierarchical norms and power relations (Harrison & Clayton, 2012; Jameson, Clayton, & Jaeger, 2010).

The students taking on the role of teacher also contributed to their growing awareness of the value of alternative learning strategies and sense of greater control over their own learning process. This finding is reflected in the established literature (e.g., Allen & Feldman, 1973; Harrison & Clayton, 2012; Park & Kim, 2012; Robinson, Schofield, & Steers-Wentzell, 2005; Sarbin & Allen, 1968; Turner, 2001). Discrepancy was observed between the students' original identity and the identity suggested by their new role, particularly in the summer service-learning experience, but similarity was noted between the identity of the students' new teaching role and that of a real teacher.

According to the argument that a role is associated with a set of behaviors and attitudes recognized by society, Robinson and her colleagues (2005) suggested that serving in a teaching role might enable students to empathize more with their teachers. When returning to the role of student, they tend to approach learning with the attitudes and behaviors they expect from "their students", which fosters approaches conducive to learning. The students-as-teacher-role may come to employ more learning strategies, pay more attention, and participate more actively in learning activities (Robinson et al., 2005). For example, in round two, a student (S18) became aware that the children she taught learned more effectively within a group. It could be inferred that she might be more likely to employ interdependent learning strategies in her own learning. Some other students explicitly stated as much in the questionnaire, for example, "When I was teaching the children, I could finally empathize with my teachers and realize what their expectations were for us (S01_questionnaire)" and, "Returning to the role of student, I can identify with what my teachers emphasize (S19_questionnaire)." The study results suggest that the students who took on a teaching role transformed their perspectives and practices from what they are conventionally socialized to identify with, becoming inclined to perceive more responsibility for and commitment to learning and to exercise more control over learning activities.

The other specific practice that I employed in this program was to cease to dominate the classroom, and to coach and guide the students about learning through questioning. Following the principle that the hierarchical student–teacher relationship should be changed to encourage students to take responsibility for their own learning, it was intended that the students enrolling in this program develop their capacity for self-questioning. In the present program, I sought to act as a model in questioning for my students by providing prompts in journaling and discussion. These prompts were aimed at engaging the students in considering issues that they might not have considered if they had not been prompted and to give them a clearer understanding of what types of questions they, as autonomous learners, should address (Davis, 2000; Papadopoulos, Demetriadis, Stamelos, & Tsoukalas, 2011). The students' responses to the follow-up questionnaire suggest that, one year after the program, most of the students remained self-questioning. One response explicitly said: "The learning process is a process of continual self-questioning, and a resolution can be found through experience. This way, I

will be able to constantly adjust and improve. (S20_questionnaire)" This could be an illustration that most of the students had internalized the questioning process, and that they had come to be aware of and take the responsibility for their own learning processes (Mason, 2011). It could be argued, however, that the students might develop an over-reliance on prompting from their teachers and become automatic at following certain procedures without deep reflection (Coulson & Harvey, 2013; Davis, 2000; Papadopoulos et al., 2011). Analyzing the questionnaire data revealed that some of the students (e.g., S03, S05, S13, S16, and S21) appeared unable to progress beyond a surface level of reflection without probing questions being posed (see Appendix 4 for tables that present the distributions of levels of reflection for individual students). This challenge will be discussed at length in a following subsection (8.3.2).

8.2.2 Principle 2: The program develops a community that appreciates interdependence and connection

More learner autonomy does not mean detachment from other people. Another principle behind the present innovative program was appreciation of the importance of interdependence and connection among the students and between the students and me. The students were provided with conditions to negotiate alternative approaches and attitudes as well as to work cooperatively with each other. They were supported to compare, justify, or generalize, to confront habits of thought if necessary, and eventually to make their own judgments.

One of the concrete practices of this principle in action is that the students were engaged to work in a group with a shared goal of serving underprivileged children by designing and implementing English learning activities for them. In the process of accomplishing this shared goal, the idea of reflection could be introduced into the students' minds. In pursuit of a contribution of individual learning to the greater good of society, which is embedded in Taiwanese cultural-educational belief, there could possibly be a transformation of practices of interaction. The data indeed concurred with the assumption that students in Taiwan value "a sense of in-group cohesion (Phuong-Mai et al., 2005, p.408)" and tend to avoid challenges and conflicts (Flowerdew, 1998; Phuong-Mai et al., 2005; Ren, 2014). However, there was no lack of disagreement, which was stimulated by different approaches of the students to the goal. It was observed that

"many people used to do what others tell them to do, instead of thinking by themselves, (Cycle 1_2nd semester_S18_W2)" but, after several group activities, sheepishly following and conforming to the group was found to be disadvantageous. The students, particularly those who engaged more passively in the group activities, were confronted by their peers and suggested to more actively contribute to the process of formulating service plans for the underprivileged children.

The group activities could also have contributed to the scaffolding relationship among the students. In addition to the multiple alternatives that could be brought to awareness through interaction with their peers, the students indicated that the nonverbal cues and like-mindedness among the students could scaffold the process of reflection. This is supported by a social constructivist perspective that the social presence in a community—the full projection of personality as well as the building of a sense of empathy and group commitment—facilitates the mental process (Garrison, Anderson, & Archer's, 1999). In addition, concurring with Arkin, Freund, and Saltman (1999) and Murray-Johnson (2014), the group reduced the sense of isolation and reinforced the sense of security and belonging. Although some researchers emphasize disagreement and challenges over the collective nature of a group (e.g., Partti & Westerlund, 2013), the finding of the present study suggests that both are critical factors in encouraging reflection by the students.

The scaffolding relationship was also developed between the students and me. In addition to facilitating the internalization of the questioning process, as discussed previously in this section (8.2.1), another method for the teacher to scaffold the students' awareness of their learning was to draw analogical or contrastive links between various learning experiences. First, a comparison and contrast between my students' approaches to learning and those of movie characters or their role models, according to the analysis of journal records, elicited the students' awareness of their own strengths or weaknesses in learning and of effective learning strategies. Second, some journal questions were used as prompts to unpack the students' perceptions of their prior experiences of learning English, and then compare and contrast these understandings with current tasks in class or field. The students found that tasks at different levels of English learning, such as elementary, junior high, and senior high, differ noticeably in complexity and in

how they can be effectively completed. Third, the strategies that my students had experienced when they were the children's age might not have been applicable for use by the students in the lesson plans for the children, because of their different learning objectives, contexts, or resources. As a result, the impact the students experienced in teaching children in rural schools appeared to be greater than that which they experienced in urban churches. I would argue that the greater gap between experiences could possibly inspire more transformative learning for the students. This argument is supported by the second-round analysis result that there was a higher occurrence rate of deeper reflections, and a relatively equally distributed rate of each category of declarative knowledge about learning and of learning control mechanisms, after than during the term-time activities. This could be explained by an earlier research finding that "differences may demand more effort to perceive and thus yield greater learning (Ming, 2009, p.346)." As discussed in the works of Harkrider et al. (2013) and Ming (2009), finding analogies and contrasts between two or more situations is a useful means of structuring understandings.

In a few words, a comparing act essentially focuses attention on the generalization of underlying principles, and a contrasting act promotes discrimination. In the present study, the activities and question prompts in the journal imposed some structure that facilitated the identification of connecting relevance between the past or personal learning experiences and the learning events at present, in the future, or of others. It could be argued that the mechanisms of comparison and contrast prevented the students from seeing their experiences as discrete, isolated occurrences. In this way, sense-making strategies (e.g., looking within and considering others' perspectives) and decision making in transfer contexts would be improved (Harkrider et al., 2013).

Some final attention should be paid to the scaffolding feature of the relationships between the interviewer and respondents. During the interview, I began with semi-structured open-ended questions to provide the students insight into their service-learning experience, and then proceeded to probing questions that clarify vague or incomplete explanations of their sense making. This process coincided with those used by earlier researchers such as Jenkins (2010), Martino and Maher (1999), and Trumbull and Slack (1991). These researchers embraced a constructivist perspective and carried

out interviews to understand how learners made sense of their learning and as a means of stimulating further reflection. Along these lines, Martino and Maher (1999) suggested that an interviewer provide scaffolding when necessary to enable the interviewee to "offer a more adequate explanation, justification and/or generalization (p.75)." The earlier works provide a possible foundation for justifying the inference that the interviews with the participating students facilitated their reflection on learning experiences. However, despite these awareness-promoting effects of scaffolding, there might be contaminating effects under which the students might not demonstrate their actual levels of reflection. This point will be discussed in a following subsection (see 8.3.2).

8.2.3 Principle 3: The program facilitates reflective practical experiences through individual inner dialogues and sociolinguistic communication

The third principle of the innovative program of this research was engaging the students in experiencing and reflecting on practical learning experiences. Different from a typical EFL classroom situation, usually described as restricting learning to meeting the demands of standardized testing and detached from the dynamically changing reality, the program comprised a real-world experience component. This component enabled the students to observe the concrete embodiment of each other's beliefs and values in learning. A real-world experience usually entails uncertainty, which can challenge established approaches to learning. It could be inferred from the analysis that such uncertainty was brought about by the students' taking up a counter-normative role in this program. As discussed regarding the first two principles, the opportunity to take on the role of teacher encouraged the students to make authentic decisions, which was outside their typical range of experience. The students would possibly experience conflicting beliefs and behaviors as a result of this experience gap. Specifically, according to the second-round analysis, there was a relatively comprehensive occurrence of different aspects of metalearning after the students took part in the summer service-learning experience. This finding could be supported by the argument, in line with the observation of Reiman (1999), that an experience involving more complex problem solving and greater responsibility can result in disequilibrium, and that overcoming this state of uncertainty requires awareness of, and change in if needed, the current preferred method of thought and practice. However, the philosophy of experience

suggests that experience alone does not guarantee change. A reflective component must be included so as to connect concrete experiences and abstract concepts. Therefore, the program attempted to engage the students in reflection through both inner and outer dialogues. While the students demonstrated a preference for outer dialogues with their peers in oral discussion, they mainly held a negative attitude towards journaling, which was the principal tool in this study for developing the students' internal dialogue. This finding, which might indicate a challenge in the use of reflective tools, will be discussed in the next section of this chapter (see 8.3.4).

8.3 Challenges affecting the changes in the students' metalearning capacity

This section discusses the challenges faced during the development of the students' metalearning capacity, including (1) the cultural norms in education, (2) scaffolding difficulties, (3) assessment of reflection, and (4) linguistic challenges. This discussion may provide an answer to the research question: What influences students' changes in metalearning capacity?

8.3.1 Cultural norms in education

Taiwanese cultural norms in education that could possibly impede changes in students' metalearning capacity include role expectations and an emphasis on performance. As discussed in the preceding section, the first principle of this program was the fostering of a more equal relationship between the students and teacher. Such an aim is not unique to the present program. However, its applicability in a culture with a high power distance between student and teacher has been suspected by researchers, such as Neuman and Bekerman (2000) and Phuong-Mai et al. (2005). A specific example of this observation is the students' uneasiness with the open-endedness of questions in this program. In spite of its advantages, such as being free from threatening evaluations based on achieving an a priori outcome and being open to different ideas and alternative points of view, open-endedness, as observed by Chin and Kayalvizhi (2005) and Choi (1997), can elicit negative reactions, including insecurity, worry, and a lack of confidence. This could be attributed to students' obsession with the pursuit of standard answers, usually provided by their superiors (Flowerdew, 1998; Ren, 2014; West, 2007). It has been argued that, because students are culturally accustomed to the teacher-centered relationship, they

tend to demand or depend on teacher direction. Close-endedness may be appreciated as being clear, whereas open-endedness may be regarded as unstructured (Chin & Kayalvizhi, 2005; Choi, 1997; Straubhaar, 2014).

In addition, an expectation that students will be self-effacing could possibly result in unawareness of or false knowledge about their learning processes. In her teaching experience, Flowerdew (1998) found that students who accept this role expectation are likely to downplay their performance. The finding of the first-round analysis indicates that several students were able to identify strategies involved in particular learning tasks. However, at the same time, they would say, for example, "I don't really have methods or tips on studying. (1st semester_S12_W4)" This could be explained by a rejection of external attention, which might lead one to suppress potential contributions to meaning making (Yeo & Marquardt, 2012). However, an incident might suggest a solution to this challenge. After the final field teaching practice in the second round of research, the students were asked to write a note to one of their peers to express their gratitude. A student indicated in her journal that, for a person with a feeling of inferiority like herself, receiving feedback from peers enabled her to learn more about her own strengths (2nd semester_S01_final). This observation agrees with the suggestion made by earlier researchers (e.g., Flowerdew, 1998; Fung & Howe, 2014; Raelin, 1997) that carefully structured, teacher-supported feedback provided in realistic terms may be a vehicle by which this cultural constraint can be overcome.

The emphasis on performance also appeared to be a norm that could impede the students' metalearning development. The first-round analysis indicated that even though the dynamic and challenging character of field teaching practice could possibly encourage the students to become aware of and exert control over learning, the overemphasis of performance, as embodied by the numerous checks before the actual practice at church, was inclined to result in a technical or instrumental response to the students' experiences. Therefore, in the second-round implementation, I consciously reduced the number of checks so as to counter such an effect. Nonetheless, a particularly high occurrence rate of the reflections demonstrating the surface, instrumental response was observed in the journal entry kept after their first experience of field teaching practice. One factor that could possibly contribute to such a phenomenon might be the

deep-rooted norm of performing well. The students appeared to be desperate for successful performance. A "below-standard" performance may have been regarded as a threat to the face of the group (or even the school), and the students may have felt shame over failing to follow the norm (Ho, 1976; Lee, 1999; Shih, 2007). An oft-repeated reminder from the senior administrator that the participants were bearing the name of the school specifically represented the norm. Because the students were conscious of external standards or conventions, they tended to deal with immediate situations for the sake of performance enhancement. Such desperation might lead the students to overlook, or even avoid, alternative views and possibilities for change. As argued by Scribner and Donaldson (2001), conformity to a norm could limit critically reflective learning.

8.3.2 Scaffolding difficulties

As discussed in the previous subsection (8.3.1), the students were unfamiliar with the open-ended style of questions, the intention of which was to give the students scaffolding. Such an approach to scaffolding could be criticized for failing to adapt to the needs of the students (Azevedo, Cromley, Fielding, Moos, & Greene, 2005; Saye & Brush, 2002; Stone, 1998). Furthermore, this approach could possibly lead the students to provide superficial responses to the prompts (Greene & Land, 2000). For example, one reason for the students to make a claim, without giving sufficient reason or justification, might be a lack of discourse to name or label their knowledge and control of learning. This argument may be supported by earlier studies of community of practice (e.g., Ding, 2008; Holmes, Schnurr, & Marra, 2007; Hung, Chee, Hedberg, & Seng, 2005). To encourage the students to transform their identity to that of reflective metalearners, they must also be encouraged to develop a repertoire of discourse resources to communicate their reflective thoughts. Ryan (2012), therefore, introduced a set of discourse conventions that correspond to the scales of reflection.

However, the preceding argument is not without controversy. In the interviews with the students immediately after completion of the service-learning experience, some students (e.g., S16, S18) stated that they gradually became accustomed to the patterns of the question prompts. Although this could imply their development into becoming analytical and critical, it could also be argued that the students might have developed a state of dependency on teacher-led direction and become automatic at following certain

procedures without deep reflection (Coulson & Harvey, 2013; Davis, 2000; Papadopoulos et al., 2011). Despite some students requiring clearer guidance when responding to the reflective prompts, the "key discursive and expressive elements (Ryan, 2012, p.208)", such as the use the use of "first person voice (I) with thinking and sensing processes (verbs/verbal groups)" and "evidentiary adjectival (descriptive attributes) and causal adverbial (circumstantial) groups (Ryan, 2012, p.212)", can appear too prescriptive. It is argued that scaffolding should preserve enough flexibility and authenticity (Hung et al., 2005) and that it should not be oversimplified into recipe following (Boud & Walker, 1998; Ge & Land, 2004; Stewart & Richardson, 2000). Coulson and Harvey (2013) contended that as students' level of agency and reflective capacity progressively increase, the amount of scaffolding should decrease. Future studies may investigate what factors affect the balance between detailed, structured guidance and flexible support.

8.3.3 Assessment of reflection

Analyzing the interview data revealed that the students preferred investing their time and effort in the assignments most directly associated with school achievements. Writing the reflective journal appeared to be last in the priority order among all of the work they had to accomplish. For example, a student said: "I stayed up until almost 3 am to write the journal after I finished other homework. (S20_interview)" Another said: "I hardly had time to write the journal because I had other homework to do. I usually wrote on a computer in the school library during break time. (S09_interview)" Therefore, I would argue that assessment, more specifically giving a grade to the students' journal entries, might be a strategy for encouraging the students to put time and effort into reflective journaling. The rationale behind the strategy is based on the view that grades may be used as a motivator for reflection (Creme, 2005; Dyment & O'Connell, 2010; Paget, 2001). The act of assessment signals recognition of the importance of reflection, which may draw more student attention (Creme, 2005; Stewart & Richardson, 2000). Practically speaking, good grades serve as a measure of success in the present context (Leung, Maehr, & Harnisch, 1993).

I am aware, nonetheless, that this argument is not without downsides. First and foremost, teachers grading students' reflection conflicts with the principle of the students taking responsibility for their learning. This is likely to reinforce the power distance between

students and their teachers (Stewart & Richardson, 2000). Furthermore, instead of facilitating the transformation to an open and questioning classroom culture, grading student reflections can possibly lead other-generated criteria to be forced on students. The dynamic nature of reflection can be jeopardized by superficial attention to meeting the criteria (Creme, 2005; Koole et al., 2011; Stewart & Richardson, 2000). The other factors that may cause the assessment of reflective journaling to be problematic include the personal nature of journaling and a misconception of the importance of writing skills. The content of reflective journals is mainly subjective because it relates to personal engagement in an experience. Whether people feel comfortable making their personal accounts public in complete detail is questionable, particularly if they feel as though they will be judged. Furthermore, people may adopt artificiality to coat or mask parts of their experience. Similarly as discussed in the previous subsection concerning scaffolding (8.3.2), students may misconceive the assessment process and believe that their grades will be determined by their ability to write in a certain genre. This may lead to a mechanistic or formulaic manner of reflection (Creme, 2005; Koole et al., 2011; Schutz, 2013; Stewart & Richardson, 2000; Sumsion & Fleet, 1996). It is suggested that teacher-assessment may be replaced with self- or peer-assessment to reduce the stakes of assessment and support "the very principles of personal learning that reflective practice seeks to address (Stewart & Richardson, 2000, p.378)." A study of the practicality of such a suggestion in the Taiwanese context is a possible direction for future research.

8.3.4 Linguistic challenges

Linguistic challenges—namely regarding the use of written or oral activities and of English or Mandarin in the process of reflection—are the final point of discussion in this section. First, the question regarding the methods of reflection, written and oral, is intertwined with the foregoing three challenges. Analyzing the interview data suggested that the reason written journaling received mainly negative reactions from the students participating in this program could be explained by emotional and practical factors. Emotionally, there was a general dislike for written assignments. Practically, time pressure and workload could lead the students to make only perfunctory efforts to write the journals. If assessed, students might be stimulated to invest more time and effort into writing journals. However, this would raise the stakes for students and discourage genuine reflection. In addition, the use of reflective journals as an assessment tool can

lead to a production-oriented approach to journaling, which may enforce the pursuit of correctness and maintain the power distance between students and their teachers (Stewart & Richardson, 2000; Stewart, 2011). Students may also develop a misconception of the importance of a prescribed writing genre as a result of over-scaffolding (Creme, 2005; Koole et al., 2011; Schutz, 2013; Stewart & Richardson, 2000; Sumsion & Fleet, 1996).

The analysis also reveals that the students' preferred method of reflection was oral discussion. They attributed this preference to the nonverbal components, immediate peer support, and collective character of oral discussion. These results agree with what other researchers have considered as the advantages of oral reflection (e.g., Brooking, 2010; Collier & Driscoll, 1999; Naysmith & Palma, 1998). Despite these advantages, oral reflection can be critiqued for being too difficult to evaluate (Collier & Driscoll, 1999). Written and oral reflection, which both have individual advantages and drawbacks, may be able to complement one another. A student stated, "It may be better to write a reflection in my journal first and then talk about it afterwards, (S13_interview)" which concurred with the view of Collier and Driscoll (1999) that what one writes may be subsequently developed and expanded in oral form. Further study may shed light on how different forms of reflection integrate with one another and interact with scaffolding and assessment methods.

The other controversy in relation to the issue of language concerns the use of English or Mandarin in the process of reflection. In the first round of this study, the participating students were encouraged to write their journals in English, because the innovative program was an EFL elective course. However, the use of a foreign language might jeopardize the capability of the students to reflect on their learning processes. A number of empirical research studies (e.g., Abednia, Hovassapian, Teimournezhad, & Ghanbari, 2013; Adler-Collins & Ohmi, 2006; Varona, 1999) have recommended the use of learners' first language in reflective journals, for the purpose of avoiding an obsession with the linguistic side of writing and to allow more explanations and clarification (Abednia et al., 2013). Because the goal of the present program was to develop the students' capacity to reflect on their English learning processes instead of practicing the language itself, it was reasonable to allow the use of the students' first language. In the second-round study,

therefore, the participating students were free to write their journals either in English or in Mandarin. At first, most of them voluntarily chose to write their journals in English for the purpose of practicing the target language. However, as the school year progressed, the students' workloads increased and their time for journaling decreased, thus the students turned to using their first language for the ease of expression. A related topic can be raised here: whether transformation in the students' conception of learning could occur if they remained the first language in their reflections.

Wang and Byram (2011) argued that adopting a new term in an additional language could indicate a new concept developing. The most common equivalent Mandarin translation of the term "reflection" is "fan si (反思)", and the students sometimes used related terms interchangeably such as "fan xing (反省)", "jian tao (檢討)", and "gan xiang (感想)". Fan xing and jian tao are equivalent to the English expressions "to search oneself for mistakes" and "self-examination" and have a negative connotation, implying that something has been done wrong (http://mario.arts.cuhk.edu.hk/Lexis/Lindict/search.html). This choice of expression may have its root in the value of correct performance, self-effacement, and continual self-perfection through self-effort (Li & Fischer, 2004; Li & Wegerif, 2014; Mascolo, Fischer, & Li, 2003; Wang & Byram, 2011). The other term, gan xiang, denotes "feeling" and "impression" (http://mario.arts.cuhk.edu.hk/Lexis/Lindict/search.html), and is associated with a rhetoric that emphasizes emotional and ethical appeals (Wei & Liu, 2012). This may provide an explanation for why the students were more inclined to reveal their feelings towards a current experience. Because of the students' use of varying terms with subtly different meanings, they might have had only a quasi-understanding of what reflection meant in this program.

There is a strong view that people's native tongue determines their way of thinking and behavior (House, 2000). Learning a second language is described as a revolutionary activity of conceptualization (Dunn & Lantolf, 1998; Lantolf & Aljaafreh, 1995). However, some researchers (e.g., Centeno-Cortés & Jiménez Jiménez, 2004; Ushakova, 1994) have expressed doubt regarding whether individuals can ever perform higher mental processes, such as planning, monitoring, and rational thought, in a second language as they do in their first language. These researchers contended that such thinking processes

are fundamentally supported by one's first language. Although it might be undeniable that distinctions in languages can affect perception, thinking processes, and behavior, House (2000) argued that the distinctions do not form an impenetrable barrier. A weaker view is that taking cultural features into account enables an individual to understand to a certain degree how other language speakers think and what they value (Kramsh, 2004; House, 2000). This view suggests that speakers of distinct languages who posses different notions of the individual, express self differently, and view the functions of language differently, may engage in distinct methods of meaning making. The term "reflection" was foreign to the students in this study, as was the concept underlying it. One means of addressing this challenge may be to socialize students into the particular worldview as they are taught reflective practice. Teachers should model for and coach their students in the practice of reflection (Atkinson, 1997). Another approach, this one based on the discussion of the analysis, may be to involve students in comparing and contrasting their first and target languages, thereby capturing the conceptual similarities and differences among the terms in these languages.

Table 8.1 summarizes the extensive discussion in sections 8.2 and 8.3 concerning the principles for designing and implementing the innovative program, their corresponding practices and effects, and the challenges that could possibly interfere with the students' development of reflection and metalearning capacity.

Table 8.1

The Principles of the Program, Their Corresponding Practices and Effects, and the Challenges to the Practices

Principles	Practices	Effects	Challenges
In an attempt to support perceived autonomy and ownership of thoughts and practices about learning, the program should break out hierarchical student–teacher relationships.	• Inviting the participating students to take the role of a teacher. • Coaching and guiding the students with guided discussions and question prompts.	• The students felt the responsibility of decision making, and the autonomy and ownership of their learning experiences. • The students exercised more control over learning activities. • The students came to empathize more with their teachers and foster approaches conducive to learning. • The students became able to self-generate questions and challenge themselves to possible problems in a certain contextual situation.	• The students felt uneasiness about open-ended questions. • There was pressure to conform to commonly accepted norms in the education context.
In an attempt to support learners to reflect on their perceptions and practices of learning, the program should develop a community that appreciates interdependence and connection.	• Involving the students in a community with a shared goal. • Engaging the students to work in a group to design and implement English learning activities for younger children. • Engaging the students in	• The students fulfilled the communal goal of helping others through not only cooperation but also confrontation. • The students' reflection became more frequent and more critical. • The students built a sense of	• Scaffolding could be contaminating.

	negotiating agreement and disagreement. • Scaffolding the students through questions and feedback.	empathy and group commitment. • The students clarified their vague and hazy ideas about their own learning. • The students were scaffolded to appreciate analogical or contrastive relevance of learning among different individuals or in various contexts.	
In an attempt to facilitate reflective practical experiences, the program should provide opportunities for individual inner dialogues and sociolinguistic communication.	• Engaging the students in both in-class and real-world experiences. • Involving the students in reflection activities at both individual and group levels. • Using journaling as an aid to individual inner dialogues. • Engaging the students in oral discussions before and after a task.	• The students were able to demonstrate and observe the embodiment of beliefs and values in learning. • The students' approaches to learning might be transformed in reaction to the challenges of uncertainty in the experiences. • The students gained insight into how they make sense of their learning experiences. • The students demonstrated more comprehensive control over their learning processes.	• There was uncertainty as to whether reflection should be assessed. • The students showed negative reaction towards journaling. • There was uncertainty whether the students' conception of learning might be transformed if they remained the first language.

8.4 Implications for teacher change and development

When I began this study, I aimed to move towards a teacher role that embraces reflective practice, and equal and dialogic relationships between and among the students and staff members. However, as I reflected on the whole course of the program, I found that, like the students and other staff, I had been constrained by the power and control relations as well as the norm of performing well. This section is intended to address the research question: "What changes would my colleagues and I need to make in our practices in order to promote the development of students' metalearning capacity?" The discussion involves two levels—the personal and the organizational. Critical incidents of my personal experiences with my students and colleagues, which are related to the aforementioned effects of the program and the challenges it faced, serve as starting points for the discussion.

8.4.1 Teacher role and responsibility

I began with the intention of improving my students' learning, but I too was affected in this study, particularly by the process of designing, implementing, and evaluating the innovative program. On a personal level, this study made me reconsider my role and responsibilities as a secondary school EFL teacher. As noted in Chapter 1, after approximately three years of teaching, I had routinized my teaching flow: starting by setting a deadline for finishing the content of a unit, then teaching every section of the content, and finally administering a unit test to my students. In assuming such a technocratic role, I could be seen as portraying a specialized technician who follows prescribed directions (Giroux, 1988; Kumaravadivelu, 2003). When I proposed this action research study, I felt that I had begun to step out of the role of passive technician, beginning a journey with my students towards greater self-awareness and transformation.

However, the journey was not without bumps. Having been exposed to the academic studies and professional literature that informed my theoretical stance, I thought I had become completely attuned to reflective practice and emancipatory action. Nevertheless, contingencies occurred which elicited a "traditional" response. For example, in the first-round implementation of the program, the students were allocated to different locations

for the summer service learning according to their performance in class. Several students were disappointed with their allocation, and one of them asked her mother to write a letter of complaint. When my colleague passed the letter on to me, I was initially upset. I originally thought that I was unhappy because the student had not come directly to me. However, on reflection, I suspected that my emotional response was because of the student's unwillingness to follow my instructions. I knew in theory that it was a merit that the student could voice her opinion; however, for the ease of management, the administrative staff members and I tried to persuade her to accept our decision. Although after a few weeks of discussion we altered our plan and took every student to the same area for service learning, a subtle rift seemed to have formed between the student and me. One consequence was that, after this incident, this particular student began to write noticeably shorter reflections than she had previously.

This incident was critical to my own development because I realized that my action had not necessarily embodied what I professed to believe. My practice could be seen as contradicting the principle of breaking with the authoritarian tradition in the classroom; I retained control of decision-making and failed to openly listen to the students' opinions. According to Straubhaar (2014), when student responses to an implementation of innovation do not fit what teachers expect, the teachers return to their accustomed ways of teaching. As this incident occurred, I may have returned to a managerial frame of mind that prioritizes authority, control, and management, and ignores individual feelings, needs, and diversity (Achinstein & Barrett, 2004). The overemphasis on controlling the students could have compromised their opportunities to explore alternatives and reinforced existing power relationships that support the status quo (Mezirow, 1990), probably resulting in yet another hierarchy involving the students who would assume a teaching role and the children they would teach in the service-learning experience. I was not aware of such a limitation of my frame of mind until afterwards. The fundamental requirement of action research for reflection led me to recall this incident and identify possible relational needs (reasons for the students' negative reactions) and power differentials (reasons for the students' requests for parental help) between the students and me, and aided me in reframing my role and responsibilities.

In addition, one question I often asked myself as I reflected on the aforementioned incident was, "What would be the effects on my students if I tried to communicate my unhappiness to them?" Contrary to my students' frequent mentioning of emotions in their narratives, I avoided or was unaware of my emotional reactions in teaching. However, Zembylas (2003) and Guzmán (2009) have suggested that issues of emotions and teacher identity are inextricably linked. Emotions can be a determinant in teachers' decision making about their practice and development (Day & Leitch, 2001; Guzmán, 2009; Hargreaves, 2000). In the Taiwanese context, there are certain rules regarding the perceived appropriateness of teachers' expressions of emotions, including "controlling emotions by concealment or maintenance, and purposefully instrumentalizing emotions (Yin & Lee, 2012, p.62)." Teachers are expected to hide or suppress their negative emotions and maintain positivity. Their emotions are rationally operated and the impacts of their emotions are calculated for the purpose of leaving a "professional" impression (Lee & Yin, 2011; Wang, 2003; Yin & Lee, 2012). Such "emotional labor (Hargreaves, 2000, p.814)," which concerns the appropriateness of the experience and expression of a particular emotion, is argued as serving cultural and social purposes such as the construction of power and identity and the emergence of a status quo (Guzmán, 2009; Hargreaves, 2000). As teachers are expected to serve as role models of self-perfection and be respected as authority figures, failing to conform to the culturally expected emotional display can make them appear vulnerable (Gao, 2008). By contrast, Warner and Esposito (2009) indicated that teachers adopting a more humane role might contribute to their students' transformative learning process. "Connecting to the humanness in others resulted in emotional responses that were spontaneous and more freely expressed than they might otherwise be in the classroom (Warner & Esposito, 2009, p.513)." In their study, the teachers expressed their feelings to the students with whom they worked in the service-learning courses. The students then responded to the teachers' feelings, leading to open discussions between the students and teachers as learning partners.

Regarding the aforementioned incident, I was unaware that my feelings towards the students' behavior might be embedded in "school culture, ideology and power relations (Zembylas, 2003, p.226)." My seemingly rational attempt, first to convince the students and eventually to compromise with them, might be a demonstration of my mindlessness,

automatically embracing the expected and ignoring alternatives (Langer, 1997). It could also be criticized as a reaction to protect myself against vulnerability rather than a decision for the benefit of the students (Hargreaves, 2000). Teachers' revealing and discussing their emotions may appear counter-normative in my context. Nonetheless, it can be an authentic experience that provides the necessary disequilibrium (role conflict) and group dynamics in transforming learning and teaching (Warner & Esposito, 2009). In reflecting on such an experience, teachers may be tempted to probe the nature of their emotions and how they are shaped, and to challenge the assumptions about teacher roles (Day & Leitch, 2001; Guzmán, 2009; Hargreaves, 2000).

Since I became aware of the alternatives made possible by the unconventional student–teacher interaction in this program, I have realized how the interpersonal domain of power might affect the dynamics between the students and me, and the students' consequential metalearning. Although I had not yet been able to comfortably embrace the emotional tension created by the more mutual and humane relationship, I did not consider it as being vulnerable to depict a less "perfect" and less "powerful" image of the teacher. Although I was more experienced, I could still learn and improve, and an essential source of learning was from my students. After the second round of implementation, when I had to collect their responses to the interview questions and questionnaire items, the students were willing to "help," because they were empowered as partners and peers of the teacher. This transformation of the teacher's identity from that of an authority to that of a reciprocal learner participating in learning experiences enabled me to become more content with my job role, and motivated me to return to school after two years of full-time study.

8.4.2 School culture and climate

This subsection advances the discussion beyond the individual to the school community level, drawing on the argument that teachers are responsible for the learning of not only their students and themselves but also their colleagues (Lambert, 2002). Although a school community can be as large as all stakeholders in the school, such as parents, teachers, administrators, and students, I will focus on teaching and administrative staff. The following incident serves as a starting point for the discussion:

Prior to my proposing this program, the school had developed a reputation as having students provide services to children in remote areas in Taiwan. To incorporate the service-learning component into the program of this study, I had to first convince the administrative staff who had long been in charge of community service for the school. At that time, because the service was always provided during summer vacation, the administrative staff encountered difficulty in securing teachers to assist in the training of the students. The senior administrator accepted my proposal because I convinced her that the students, after completing the term-time activities of the program, would be more able to serve the community. The administrative staff initially insisted on enforcing existing screening measures when admitting students into the program. Although eventually we reached an agreement to suspend the screening, the administrative staff still demanded excessive checks and rehearsals. In contrast to the emphasis on reflective and dialogic processes of learning by the current study, this example illustrates a lack of such practice and interaction among the school personnel. Although I negotiated between the conflicting perspectives of the administrative staff and myself, I arguably remained compliant to the school culture. I convinced the administrative staff to accept the course proposal by associating successful performance in community service with the effects of the program. However, the preserved requests of the administrative staff for screening, checks, and rehearsals demonstrated an absence of a confrontation with routines and customary practices, and of shared understanding. Furthermore, to my disappointment, although a few other teachers expressed interest in undertaking a similar intervention, they hardly went beyond the "initiation" phase (Leat, Lofthouse & Taverner, 2006) of incorporating the essence of this present program into their own subject areas. Some of them expressed disagreement with the performance-enhancing focus of reflection practiced in the program; the others tacitly adhered to the conventional community service practiced prior to the innovation. Clearly, there was inconsistency between what I suggest in this thesis and how it was perceived by these teachers. I had a sense of powerlessness regarding such discordance, because I had left my position at the school to write up this research.

It was contended that "the process of change should be approached as a common knowledge building process (Wesley & Buysse, 2001, p.117)." This process should emerge from the individual and contribute towards community learning (Bullough &

Gitlin, 1989; Larrivee, 2000; Wesley & Buysse, 2001). In addition, McCotter (2001) suggested that school staff should share and reflect on similar experiences. The method through which the students benefited from interdependence and connection might also be applicable to the school personnel community. As indicated in 8.2.2, student engagement with a like-minded community to negotiate alternative approaches and attitudes could serve social-constructivist functions. Disagreement should be acknowledged as being almost unavoidable, and a balance between nonjudgmental listening to different opinions and clearly articulating a person's judgment is necessary, thereby contributing to an enriched community (Bullough & Gitlin, 1989; Lomax, 1999; Musanti & Pence, 2010; Wesley & Buysse, 2001). Along the same lines, the participation of school personnel in a critical colleague relationship should be promoted. Participants in such a relationship not only support but also challenge each other by questioning and providing alternative points of view. They may ultimately develop a full understanding of the differences among themselves (Manesi & Betsi, 2013; Grossman, Wineburg, & Woolworth, 2001). Grossman et al. (2001) and Mitchell, Reilly, and Logue (2009) have stated that this sense of community or collegiality among school personnel could raise awareness of their responsibility to influence the culture and climate of a school.

In the current case, although I had temporarily left my position as a schoolteacher and was thus rendered powerless, this part of the study could serve as an illustration of the foundations of, for instance, how I put theoretical and pedagogical knowledge into practice, the uncertainty I experienced, a reflection on my own pedagogical action, and a modification of my behavior in the classroom. Although the different perspectives and resistant culture in my context were manifested through, for instance, routines of action and power structures, the teachers' and personnel's shared interest in teaching how to learn and serving their community could be used as a topic to initiate dialogue and discussion. Additionally, the observation of this study—that an emphasis on checks and rehearsals might not be constructive in encouraging deeper levels of reflection or a greater capacity for metalearning—may induce uncertainty and invite further consideration and investigation of the common sense perspective and routine action. Such discussion and consideration may begin as small. However, as the participating staff critically discuss different perspectives on, for example, preparation and performance, and become engaged in a reflective discourse, they are likely to share their

newly acquired insight with other school community groups of which they are a member, leading from individual agency to collective engagement.

In summary, the implications of this study for teachers include participating in individual and collective reflective practice and adopting a more humane role in their interaction with students, in keeping with the theoretical axes of this study—experience, reflection, and interaction (see Chapter 3). First, I would argue that self-reflection reveals teachers' pseudo-acceptance of a concept. This realization may spur teachers to expand their frames, and in turn encourage students to enlarge theirs. Second, teachers showing their humanness, such as expressing authentic feelings when appropriate, may spark deep reflection and dialogue. Third, an individual or small group of teachers who have developed critical awareness through reflection and interaction may serve as an agent of change or transformation, and involve other staff members in school in dialogue and discussion so as to influence the school culture and climate.

8.5 Implications for action research in the Taiwanese educational context

By definition, action research is a practitioner's search for potential solutions to the problems, puzzles, or ambiguities in his or her context through a reflection process, with an aim of change. In line with such a definition, teachers can be seen as being in a unique position to research the issues in relation to their specific teaching situations. However, in the Taiwanese context, instead of change, action research tends to conform to the mainstream; instead of recognizing teachers' unique position, it is inclined to be dependent on external authority; and instead of critically reflecting on processes and results, it usually focuses on technical improvements or performance enhancement (see 4.3.1.3 for a more detailed explanation). Researchers in Taiwan (e.g., H. Lin, 2008; P. Lin, 2007; S. Lin, 2011) have attributed the cause of these problems to the fact that teachers lack an understanding of the nature of action research despite government auspice. The teachers perform action research usually for external incentives or pressure rather than for intrinsic motives.

Action research is described as reflective practice for teachers. "[R]equiring [teachers] to conduct action research may pressure them to go through the motions but may not

motivate them nor help them become more reflective (El-Dib, 2007, p.33)." I would suggest that the framework of reflection levels be used to guide teachers through the process of action research. The more surface levels of reflection may enable teachers to focus their attention on critical incidents with personal meaning to them, which may be more likely to generate intrinsic reasons for action research. The deeper levels of reflection, on the other hand, may facilitate multiple perspectives and "assumption hunting" (Brookfield, 1995). Like my students, I suffered from making claims without adequate reason or justification when I examined the effects of the innovative program of this study. I had to constantly remind myself to provide sufficient explanation, and further, to consider alternatives. As I noted in the cycle two evaluation (see 7.3.1.3), it is not only their pedagogical efforts but also their self-belief and identity that teachers should reflect on, so as to bring authentic change to their classrooms or schools. Reflecting beyond the surface level would help teachers move beyond the role of technician and one-sided dependence on external authorities. Alternatively, a reciprocal relationship may be developed, in which practice and theory may complement one another.

8.6 Research limitations

This section discusses the contextual and methodological limitations of the present study. Implementing this research in my school context involved limitations that were beyond my control, including the gender and age of the participant students, duration of the program, and program schedule determined by the school calendar. First, the school where I conducted this research was single-sex, thus all of the participants were girls. The program may have different effects on boys or mixed-gender participants. In addition, the EFL elective courses were only available to grade 10 students. Whether the program would have similar effects on students with different ages or maturity levels was beyond the scope of this research. On a related note, this program was a one-off, one-year course because the school curriculum does not provide students at the other grade levels with the same opportunity to take an elective course. A longer duration or multiple implementations may result in different findings, and lead to different implications and conclusions. Finally, the school calendars change annually. Examinations, holidays, or special assemblies influenced the schedule of the term-time

activities. As a result, for example, the total number of journal entries in each round of the study varied.

There are also methodological limitations related to the action research design and data collection and analysis methods. The action-based nature of this research enabled me to design and implement the innovative program to make a difference in the current context. However, it was this contextually bound character that placed a limit on the generalizability of the findings of this study. Despite this limitation, this research has suggested possibilities regarding how to teach students to learn, which teachers or researchers from other contexts may find intriguing. Furthermore, I simultaneously assumed the role of teacher and researcher in this study. I worked closely with the students and staff members, and developed a sense of belonging with the participants, to the program. This might raise a concern regarding subjectivity. Conversely, conscious of my role as researcher, I might have placed myself at some distance from the participants, which could have introduced subtle variations to the results. Regarding the data collected in this research, a criticism could be that the students' responses to the journal prompts, interview, and follow-up questionnaire were their verbal translation of their mental processes. The data might be rich in quality, but whether they accurately reflected the students' genuine thoughts and beliefs could be questionable. Similarly, the approach to data analysis in this study was interpretive in nature. The original coding scheme was derived from the literature but then modified according to specific observations in the study context. In consideration of the fact that there might be room for different interpretations, examples were given to illustrate my perspective. Even though two colleagues were invited to confirm the coding results, there was a lack of coding reliability checks, such as examining intercoder reliability coefficients. Reliability measures as such should be incorporated in a future study of this kind.

8.7 Conclusion

This thesis presents the design, implementation, and evaluation of an innovative pedagogical program intended to encourage the development of metalearning capacity in Taiwanese secondary school students. This study was motivated by my personal learning and EFL teaching experiences in Taiwan, and by the emphasis of the latest

education reform in Taiwan on developing students' capacity for logic and critical thinking, creativity, reflection, and self-management. This study examined how reflection could serve as a vehicle for developing metalearning capacity, and bridge self-awareness and control of learning. The research was aimed at contributing to the principles and practices of teaching students how to learn and to the transformation of teachers' identities.

The principles behind the pedagogical practices in this program were based on a theoretical framework that draws on the philosophy of experience, and social constructivist and emancipatory theories. These principles advocated that the students should (1) have real-time learning experiences and be encouraged to reflect on the experiences, (2) receive peer and teacher support through interdependent interactions, and (3) have decision-making autonomy and ownership of learning. The innovative program designed according to these principles comprised four main elements: classroom activities, teaching practice, service learning, and reflection activities. Grade 10 students who demonstrate a minimum proficiency in English at the CEFR-A2 Level were free to join this program as an elective class. I implemented two rounds of the program in the 2011–2012 and 2012–2013 school years, and collected qualitative data for content analysis.

After the first-round implementation, content analysis of the students' journal entries suggested that the in-class comparison and contrast activities could elicit the students' knowledge about themselves as learners, the personal characteristics that influence learning, and the effectiveness of different learning strategies. The teaching practice component of the program had a particular effect on the students' capacity to exert control over their mental processes. Moreover, the reflection activities were effective in revealing the students decision-making processes. Furthermore, additional codes were added to the original coding schemes derived from the literature, because new categories emerged from the data specific to the study context. One code was added to the scheme of levels of reflection to refer to the students' making claims in terms of cause and effect without giving sufficient reason or justification. The use of this code indicates that the vehicle of reflection is stuck halfway between surface, non-reflective and reflective levels. Two codes were added to the scheme of metalearning capacity: one refers to the students' knowledge about the relational factors that influence their

learning, and the other to the students' beliefs and values about learning. The addition of the code referring to the students' beliefs and values about learning, in particular, was based on both the empirical findings and literature review (see 1.2), reflecting Taiwanese learners' pursuit of self-perfection or "learning virtues (Li, 2009, xiv)." Finally, the analysis also provided two suggestions for modification of the program, which concerned the students' linguistic competence to write their journals in English and the overemphasis on checking the students' readiness for teaching.

In round two, the program was modified, and the students' responses to an interview immediately after completion of the entire program and follow-up questionnaire one year later were incorporated as data. The revised coding schemes were employed to analyze these data. The findings of the second-round analysis confirmed those of the first round. In addition, the interview responses revealed that the service-learning component of this program could encourage the students to apply a variety of knowledge about learning and comprehensively execute control processes. Analyzing the follow-up questionnaire suggested that, one year after the completion of the program, most of the students were able to maintain the habit of reflection. The time lapse provided the students with an opportunity to marinate in the concept. The students appeared to have become more mature in and comfortable with metalearning.

Despite the effects of the innovative pedagogical practices, challenges posed by the issues of culture, assessment, scaffolding, and language remained to be addressed. Addressing these challenges require teachers and other school personnel to transform their roles and responsibilities. Instead of identifying themselves as specialized technicians or managers, the current findings suggest that teachers and school staff should engage in continuous self-reflection as well as discussion and dialogue to see beyond their own perspectives. My own reflection reveals a lack of such practice and interaction among the school personnel. One of the interview findings also indicated that few of the participating students gained their experiences of reflection outside this program through their teachers or curricula. Teachers and school staff members would not be in an optimal position to encourage their students to think about their learning if they themselves did not cultivate a parallel reflective discourse. Action research, with an emphasis on critical reflection for teachers, may be seen as being able to move teacher-

researchers beyond their conventional roles.

Figure 8.1 provides a visual representation of the driving force of and resistance to the present pedagogical program, which was directed along the theoretical axes of this study.
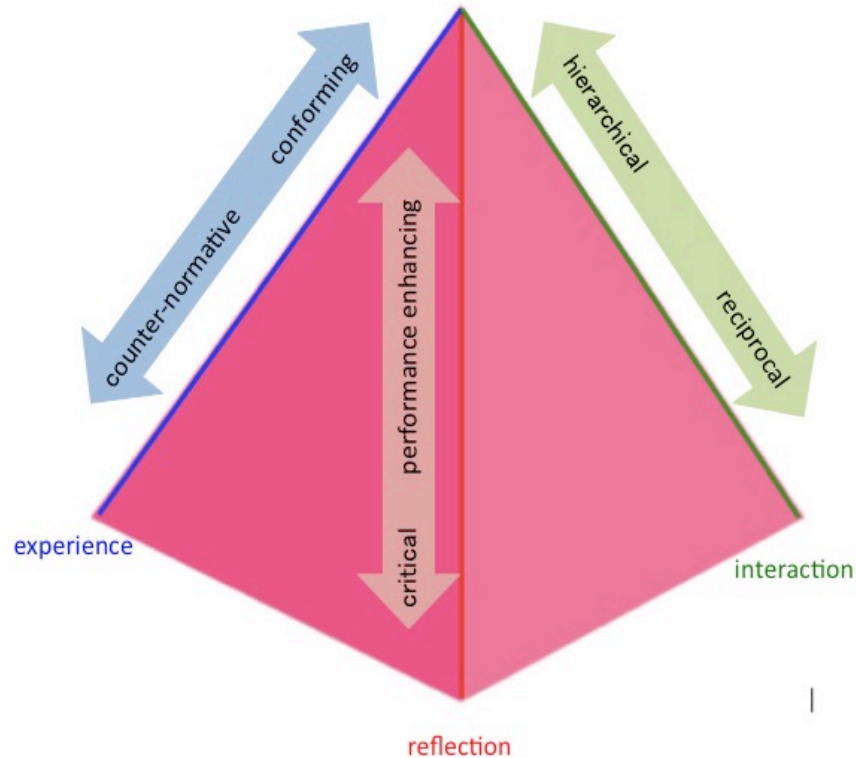
Figure 8.1
Concluding Implication of the Study

In conclusion, despite an acknowledgment of reflection and metalearning as being valuable and essential components of secondary school learning, they remain rather foreign concepts in Taiwan. This study suggests that counter-normative role taking, supported by comparison and contrast mechanisms in various activities, can stimulate, encourage, and enhance reflection and metalearning capacity. Specific context-specific cultural traits constitute a resistant challenge to such development. Alternative practical approaches may be taken to reduce the resistance. In addition to investigating such approaches, other directions for future research may include how different forms of reflection integrate with each another and interact with scaffolding and assessment methods, and how, during service learning, teacher–student power relations reinforce or counteract the relations between the serving and the served?

Appendix 1 – Conference Paper Presentations

2014, September. *Development and implementation of a metalearning project as an EFL elective course in a Taiwanese secondary school*. Paper presented at the BERA 2014 Annual Conference, London, UK.

2014, November. *The effect of an experiential-learning project as an EFL elective course in a Taiwanese secondary school: Changes in the students' levels of reflection*. Paper presented at the BPS Psychology of Education Section 2014 Annual Conference, Milton Keynes, UK.

2015, May. *Reflection on the effect of a service-learning program on Taiwanese secondary school students in their metalearning capacity*. Paper presented at the 5th Asia-Pacific Regional Conference on Service-Learning, Taipei, Taiwan.

Appendix 2 – Complementary Presentation to the Comparison and Contrast Activity
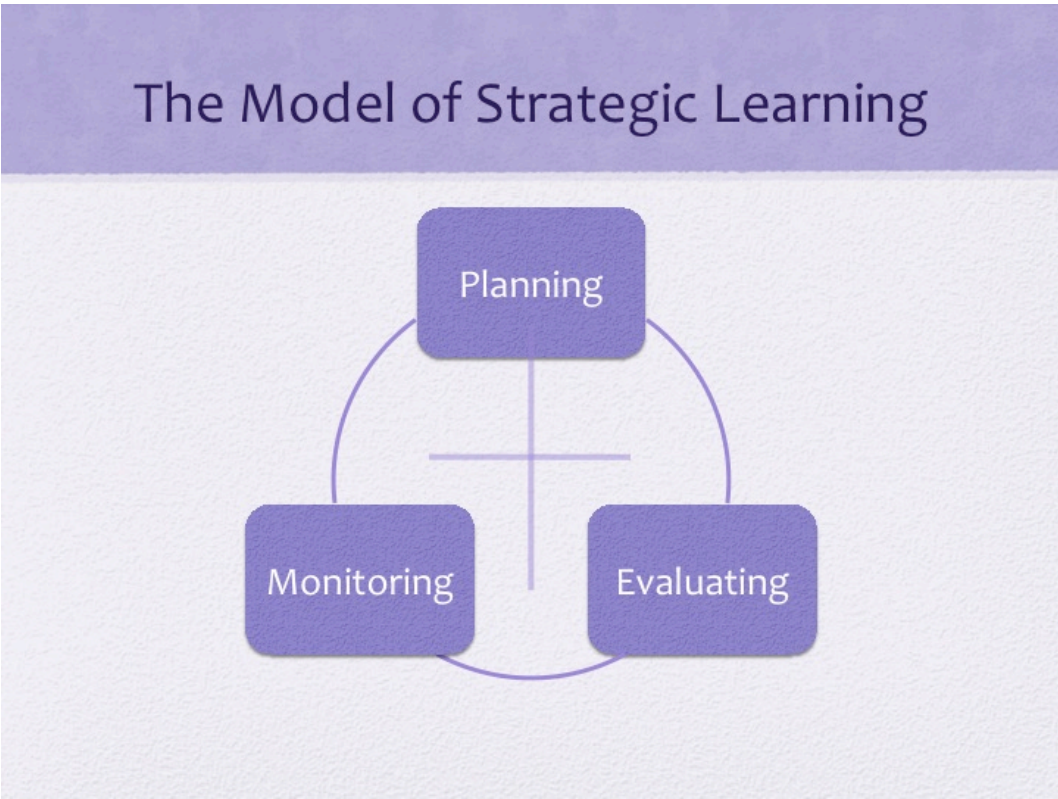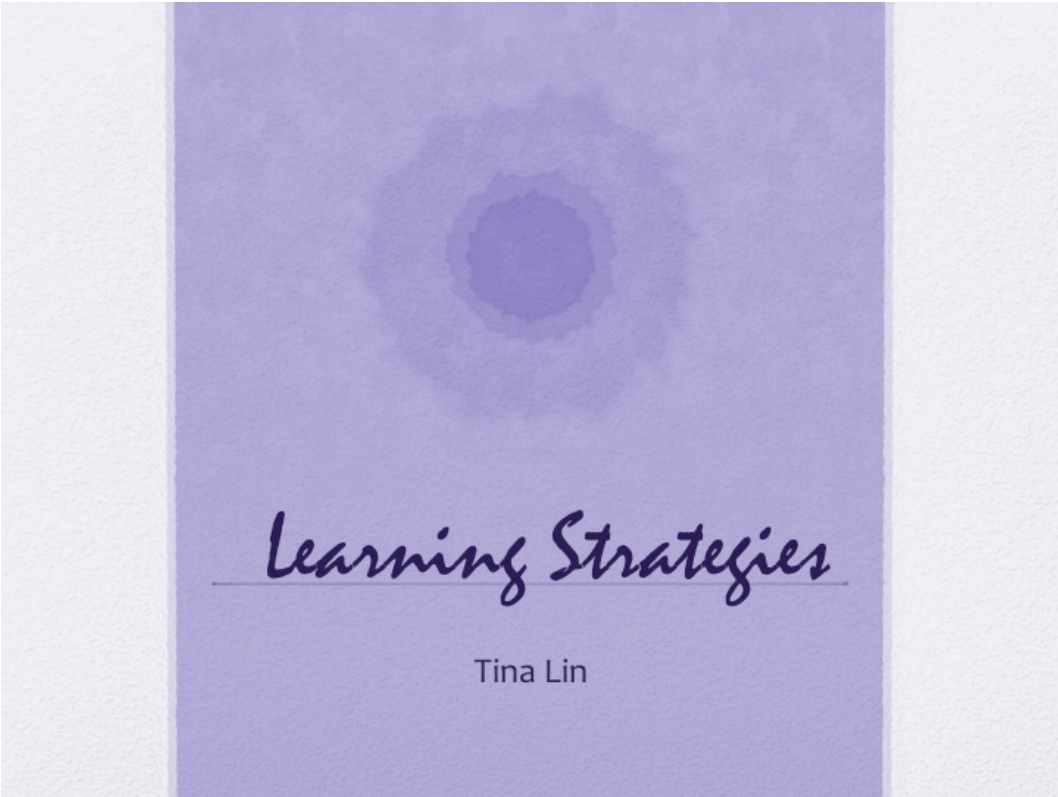
Planning Strategies

Strategy	Definition
Set Goals (What do I want to be able to do?)	Develop personal objectives Identify the purpose of the task
Directed Attention (How can I focus my attention?)	Decide in advance to focus on particular tasks and ignore distractions
Activate Background Knowledge (What do I already know about this?)	Think about and use what you already know to help you do the task
Predict (What do I think will happen?)	Anticipate information to prepare and give direction for the task
Organizational Planning (What might I need to do?)	Plan the task and content sequence
Self-Management (How can I best accomplish this task?)	Arrange for conditions that help you learn

Monitoring Strategies

Strategy	Definition
Ask If It Makes Sense (Do I understand this? Am I making sense?)	Check understanding and production to keep track of progress and identify problems
Selectively Attend (What parts should I pay attention to?)	Focus on key words, phrases and ideas
Deduction/Induction (Which rules can I apply to help me in this situation?)	Consciously apply learned or self-developed rules
Personalize/Contextualize (How does this fit with my experiences?)	Relate information to personal experiences
Take Notes (What important information can I write down?	Write down important words and concepts

Monitoring Strategies (cont.)

Strategy	Definition
Use Imagery (Can I imagine a situation or draw a picture that will help me understand?	Create an image to represent information
Manipulate/Act Out (Can I use real objects or act out the situation to help me do this?)	Handle tangible objects, role-play and pantomime
Talk Yourself Through It/Self-Talk (I can do this! What strategies can I use to help me?)	Reduce anxiety by reminding self of progress, resources available, goals
Cooperate (How can I work with others to do this?)	Work with others to complete tasks, build confidence, and give and receive feedback

Evaluating Strategies

Strategy	Definition
Verify Prediction and Guesses (Were my predictions and guesses right? Why or why not?)	Check whether your predictions/ guesses are correct
Summarize (What is the main idea?)	Create a mental, oral, or written summary of information
Check Goals (Did I meet my goal?)	Decide whether goal was met
Evaluate Yourself (How well did I do?)	Judge how well you learned the material/did on the task
Evaluate Your Strategies (Did I choose good strategies? What could I do differently next time?)	Judge how you applied strategies and the effectiveness of strategies

Strategy Combinations

- Learning strategies in action are complex behaviors that rarely occur as single instances. Normally we use strategies in combinations to complete a task.

Appendix 3 – Demonstration Lesson Plans

English Project – The True Story of the Three Little Pigs

Material	The True Story of the Three Little Pigs by Jon Scieszka		Topic	point of view sequence
Student	10th Grade students			
Teaching Aids	Youtube video sequence words sequence strips			
Learning/Teaching Activities				
Activity	Procedure	Time	Teaching Aid	Evaluation
Preparation	1) Have the students tell the original version of Three Little Pigs 2) Ask the students questions: Who's side of story or point of view is this story told from? Describe the Wolf in this story. Describe the Pigs in this story.	5 mins		The students give sensible answers.
Practice	1) Show the class the cover of the book *The True Story of the 3 Little Pigs*. Ask the students to pay attention to the book title, name of the newspaper, and the author of the news story. 2) Have the students predict what this version of the story is like. 3) Show the students the sequence words. 4) Have the students listen to the story *The True Story of the Three Little Pigs.* The students should pay attention to the order in which things happen in the story. 5) Display the sequence strips. Have the students work together to put these events in the proper sequence and use the sequence words to indicate the order of the events. 6) Explain to the students that there are many sides or points of view to the same story.	15 mins	video, sequence strips	The students put the events in the correct order.
Production	1) Ask the students to think about other fairy tales that might change if they were told from a different point of view (e.g., Little Red Riding Hood, Cinderella, Snow White). 2) Have the students write a new version of the fairy tales. The students have to use at least three sequence words in their stories.	20 mins		The students tell their stories in the next class meeting.

English Project – Room on the Broom

Material	Room on the Broom by Julia Donaldson and Axel Scheffler	Topic		rhyme	
Student	10th Grade students				
Teaching Aids	fill-in-the-blank handout CD and CD player				
Learning/Teaching Activities					
Activity	Procedure	Time	Teaching Aid		Evaluation
Preparation	1) Explain to the students that they are going to learn a song about a witch and some animals. 2) The students work in pairs to predict what to fill into the blanks. 3) Ask the students how they come up with the answers. 4) Play the song and ask the students to check the answers. 5) Explain the ideas of "rhyming" and "adjectives" to the students.	5 mins	handout, CD, CD player		The students fill the missing words into the blanks.
Practice	1) The students listen to the song *Room on the Broom* and sing along. 2) Play the game *musical chair*. • Place a number of chairs in circle. The number of chairs should be less than the number of students playing in the game. • Ask the students to stand in a circle around the chairs. Once the music starts, they should also start moving around the chairs. • Stop the music. All students must try to take the seat closest to them. The student left without a chair is eliminated. More chairs are removed from the circle after the remaining students stand up. • Tell the students what the consequence of being eliminated is after the game. 3) The students are divided into two groups as a result of the game.	10 mins	CD, CD player		
Production	1) The students sing the whole song again. 2) The students work in groups and come up with some adjectives that rhyme with the word "be" to modify the animals.	15 mins	handout		The students perform the lyrics they create.

	3) Different groups of the students take turns to perform the lyrics they create. 4) The group that comes up with the more animals and adjectives can be the second to present in the next class meeting.			

Appendix 4 – Distributions of Levels of Reflection for Individual Students in Cycle 2

S01

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	50%	17%	33%	0%	0%	0%
journal entry 3	50%	50%	0%	0%	0%	0%
journal entry 4	0%	67%	33%	0%	0%	0%
journal entry 5	-	-	-	-	-	-
journal entry 6	25%	50%	25%	0%	0%	0%
journal entry 7	25%	50%	0%	25%	0%	0%
interview	22%	22%	0%	22%	0%	33%
follow-up questionnaire	0%	0%	0%	0%	0%	100%

S03

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	0%	0%	100%	0%	0%	0%
journal entry 2	57%	14%	29%	0%	0%	0%
journal entry 3	50%	50%	0%	0%	0%	0%
journal entry 4	0%	67%	33%	0%	0%	0%
journal entry 5	0%	0%	67%	33%	0%	0%
journal entry 6	43%	43%	14%	0%	0%	0%
journal entry 7	-	-	-	-	-	-
interview	0%	20%	0%	40%	40%	0%
follow-up questionnaire	0%	100%	0%	0%	0%	0%

S04

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	0%	0%	100%	0%	0%	0%
journal entry 2	33%	33%	17%	0%	17%	0%
journal entry 3	29%	43%	0%	14%	14%	0%
journal entry 4	0%	86%	0%	14%	0%	0%
journal entry 5	67%	0%	0%	33%	0%	0%
journal entry 6	25%	50%	25%	0%	0%	0%
journal entry 7	0%	67%	33%	0%	0%	0%
interview	13%	38%	0%	50%	0%	0%
follow-up questionnaire	-	-	-	-	-	-

S05

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	43%	14%	43%	0%	0%	0%
journal entry 3	17%	50%	33%	0%	0%	0%
journal entry 4	50%	33%	17%	0%	0%	0%
journal entry 5	0%	0%	50%	50%	0%	0%
journal entry 6	40%	30%	10%	10%	10%	0%
journal entry 7	20%	20%	20%	40%	0%	0%
interview	14%	57%	0%	29%	0%	0%
follow-up questionnaire	0%	0%	100%	0%	0%	0%

S09

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	50%	0%	50%	0%	0%	0%
journal entry 3	0%	71%	29%	0%	0%	0%
journal entry 4	0%	50%	0%	25%	25%	0%
journal entry 5	67%	0%	33%	0%	0%	0%
journal entry 6	0%	77%	15%	8%	0%	0%
journal entry 7	25%	25%	25%	25%	0%	0%
interview	0%	17%	0%	67%	17%	0%
follow-up questionnaire	0%	0%	0%	0%	0%	100%

S12

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	33%	17%	33%	17%	0%	0%
journal entry 3	13%	50%	13%	25%	0%	0%
journal entry 4	0%	100%	0%	0%	0%	0%
journal entry 5	0%	33%	33%	33%	0%	0%
journal entry 6	22%	33%	11%	33%	0%	0%
journal entry 7	0%	40%	0%	20%	40%	0%
interview	0%	38%	0%	38%	13%	13%
follow-up questionnaire	0%	0%	0%	0%	50%	50%

S13

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	33%	33%	0%	33%	0%	0%
journal entry 2	38%	13%	25%	25%	0%	0%
journal entry 3	29%	29%	29%	0%	14%	0%
journal entry 4	18%	64%	9%	9%	0%	0%
journal entry 5	33%	0%	33%	33%	0%	0%
journal entry 6	7%	43%	21%	21%	0%	7%
journal entry 7	0%	25%	0%	25%	50%	0%
interview	0%	50%	0%	50%	0%	0%
follow-up questionnaire	0%	0%	100%	0%	0%	0%

S14

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	0%	0%	100%	0%	0%	0%
journal entry 2	14%	0%	57%	29%	0%	0%
journal entry 3	0%	33%	50%	17%	0%	0%
journal entry 4	11%	56%	33%	0%	0%	0%
journal entry 5	33%	0%	33%	33%	0%	0%
journal entry 6	0%	63%	0%	38%	0%	0%
journal entry 7	0%	60%	0%	40%	0%	0%
interview	9%	9%	36%	18%	18%	9%
follow-up questionnaire	0%	0%	0%	0%	50%	50%

S15

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	33%	17%	17%	33%	0%	0%
journal entry 3	14%	29%	43%	14%	0%	0%
journal entry 4	11%	44%	22%	22%	0%	0%
journal entry 5	33%	33%	33%	0%	0%	0%
journal entry 6	36%	45%	0%	0%	18%	0%
journal entry 7	20%	20%	0%	60%	0%	0%
interview	0%	75%	0%	25%	0%	0%
follow-up questionnaire	0%	0%	0%	0%	0%	100%

S16

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	50%	17%	33%	0%	0%	0%
journal entry 3	17%	17%	50%	0%	17%	0%
journal entry 4	33%	50%	0%	17%	0%	0%
journal entry 5	0%	67%	33%	0%	0%	0%
journal entry 6	56%	33%	11%	0%	0%	0%
journal entry 7	0%	0%	67%	33%	0%	0%
interview	14%	29%	14%	43%	0%	0%
follow-up questionnaire	0%	0%	100%	0%	0%	0%

S17

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	0%	0%	100%	0%	0%	0%
journal entry 2	33%	0%	33%	33%	0%	0%
journal entry 3	13%	50%	13%	13%	13%	0%
journal entry 4	14%	57%	29%	0%	0%	0%
journal entry 5	0%	0%	0%	67%	33%	0%
journal entry 6	25%	33%	25%	8%	8%	0%
journal entry 7	0%	0%	100%	0%	0%	0%
interview	0%	0%	25%	50%	0%	25%
follow-up questionnaire	0%	0%	0%	50%	0%	50%

S18

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	0%	0%	50%	50%	0%	0%
journal entry 2	43%	14%	14%	29%	0%	0%
journal entry 3	17%	33%	33%	17%	0%	0%
journal entry 4	0%	100%	0%	0%	0%	0%
journal entry 5	0%	33%	0%	67%	0%	0%
journal entry 6	17%	50%	8%	25%	0%	0%
journal entry 7	0%	40%	40%	20%	0%	0%
interview	17%	17%	0%	50%	0%	17%
follow-up questionnaire	0%	0%	0%	100%	0%	0%

S19

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	60%	0%	0%	20%	20%	0%
journal entry 3	43%	14%	0%	29%	14%	0%
journal entry 4	50%	25%	0%	0%	25%	0%
journal entry 5	33%	0%	33%	33%	0%	0%
journal entry 6	25%	25%	25%	17%	8%	0%
journal entry 7	20%	20%	20%	20%	20%	0%
interview	0%	17%	0%	67%	0%	17%
follow-up questionnaire	0%	0%	0%	50%	0%	50%

S20

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	43%	0%	29%	29%	0%	0%
journal entry 3	29%	29%	14%	14%	14%	0%
journal entry 4	25%	38%	0%	38%	0%	0%
journal entry 5	33%	0%	33%	33%	0%	0%
journal entry 6	15%	23%	23%	38%	0%	0%
journal entry 7	25%	25%	0%	25%	25%	0%
interview	0%	0%	0%	67%	33%	0%
follow-up questionnaire	0%	0%	0%	0%	100%	0%

S21

Data Source	Occurrence Rate					
	report	respond	claim	relate	reason	reconstruct
journal entry 1	100%	0%	0%	0%	0%	0%
journal entry 2	33%	0%	67%	0%	0%	0%
journal entry 3	43%	14%	29%	0%	14%	0%
journal entry 4	0%	100%	0%	0%	0%	0%
journal entry 5	33%	0%	33%	0%	33%	0%
journal entry 6	30%	50%	20%	0%	0%	0%
journal entry 7	25%	25%	0%	25%	0%	25%
interview	0%	25%	25%	0%	50%	0%
follow-up questionnaire	50%	0%	50%	0%	0%	0%

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