Reflection through reflective writing to stimulate learning activities in normal-class learning sessions and cross-class learning sessions

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Abstract

This article examines the reflection of Thai EFL students through reflective writing as a tool by analyzing learning activities in both normal-class learning sessions and cross-class learning sessions. In all, 60 students of Academic English 2 (AE2) and 60 students of Writing 3 (W3) in the 2011 academic year at Mae Fah Luang University, Thailand were required to complete reflective writing assignments for their normal classes. Then, the 2 classes were mixed up twice to conduct cross-class learning sessions. The students were again required to complete reflective writing assignments. The students in AE2 are first-year students while those in W3 are third-year students. Six learning activities—*recollection, evaluation, analysis, critical, diagnosis, and reflection*—culled from the work of Vermunt & Verloop (1999) and Mansvelder-Longayroux, Beijaard, & Verloop (2007) were employed to analyze the content of the students' reflective writing. Statistical analysis was conducted. Both group of students from normal-class learning sessions and cross-class learning sessions exhibited "recollection" the most, while in the cross-class learning sessions, "analysis," "critical processing," and "reflection" were obviously increased compared with those in normal-class learning session. The results also showed that normal-class learning sessions cannot create a motivated learning atmosphere while cross-class learning sessions are more stimulating, successfully inducing Thai EFL students to think more analytically and critically.

1. Introduction

Reflection has been identified for decades to be an important means promoting insightful thinking and self-discovery among students (Boud & Walker, 1985; Dantus-Whitney, 2002; Farrell, 2006; Pennington, 1992).

Reflection is also an important way to shift the assessment system (Huba & Freed, 2000; Litke, 2002) from summative method, in which students are tested once after learning material (e.g., mid-term and final examinations), to a formative method, in which students are evaluated in progressive steps using portfolios, journals, or reflection-generating learning logs. Moreover, reflection helps teachers assess students' needs, value their interests, and understand how to successfully and productively accommodate students' preferences (Brinton, Goodwin, & Ranks, 1994; Porto, 2007).

Reflection has been divided A into 3 types: reflection for action, reflection in action, and reflection on action. These 3 types of reflection refer to students reflecting before, during, and after actions related to their learning process. However, most previous studies have dealt only with reflection in action and reflection on action (e.g., Yang, 2010). The 3 types of reflection help the students examine and revisit the ways that they solve all of their learning obstacles. When students rethink their thinking process during reflection, they engage in metacognition. Thus, reflection helps the students to improve their metacognition skills (Livingston, 1997).

In previous research, reflection has been considered to enhance metacognition through a variety of tools: reflective writing, questioning, diary writing, and peer-reviewing. Recently, reflective writing has been widely implemented (Lo, 2010; Negretti & Kuteeva, 2011; Yang, 2010) because it is a simple method that encourages self-awareness as students start to revisit the details of their learning experience. Later, students, with the help of problem solving strategies, can tackle different learning activities. Moreover, reflective writing allows students to identifying concrete reasons for why they have selected particular problem solving strategies. Finally, reflective writing is also thought to be an effective tool that promotes students' cognitive abilities (Boyd et al., 2006; Huba & Freed, 2000; Kember, 1999; Litke, 2002; Palard, 1999).

Many research indicate that EFL class fails to stimulate thinking process of students. In Western context, one of the most effective solutions is to maximize the benefit of reflective writing as a mean of promoting more critical thinking process. On the other hand, Asian EFL contexts are not aware enough of the benefit of reflective writing. Normal-class learning activities are key focus without considering any other active learning exercises to encourage self-evaluation for further improvement. Recently, Asian EFL students are found unable to intuitively develop their thinking skill in the normal-class (Jones, 2005; Lo, 2010). Therefore, simulated class sessions are created with the implementation of active learning instruction together with reflective writing as an effective tool for the students to acquire thinking process. However, we have found only a few examples of the studies (Negretti & Kuteeva, 2011; Palard, 1999; Yang, 2010) attested the results of simulated class sessions and reflective writing.

This study created another simulation called "cross-class learning." Cross-class learning refers to mixing of different levels of first-year and the third-year students. The teacher acts as a moderator to encourage questioning, idea sharing, and participation and motivates the students rather than solely teaching material. Cross-class learning sessions

were arranged 2 times, in the middle and at the end of the semester. The students wrote reflective pieces for both normal-class learning and cross-class learning sessions.

The study aims to analyze the reflective writing of students in both normal-class learning and cross-class learning sessions. In the analysis, 6 learning activities— recollection, evaluation, analysis, critical, diagnosis, reflection—drawn from Vermunt & Verloop's study (1999) were used to determine whether reflective writing promoted critical thinking in Thai EFL students.

Academic English 2 (AE2) and Writing 3 (W3) are the core courses for this study. Both are compulsory courses for English majors. AE2 teaches listening and speaking skills to first-year students, while W3 is for the third-year students and teaches reading and writing skills. As the 2 courses differ in the capability and maturity of their students and in material, reflective writing is demonstrated to be applicable in different educational contexts.

2. Objectives

The objective of the study is to analyze students' learning processes through studying their reflective writing during both normal-class learning and cross-class learning sessions.

3. Literature review

3.1 Concept of reflection

The concept of reflection has been described in various perspectives to be a concept, an activity, and a tool.

Reflection was first defined by Dewey (1933) as the purposeful thinking about reaching a goal that reveals one's internal problem solving activity. Reflection was later defined by many researchers as a tool to reassess one's thinking about the learning process, which allows one tountangle problems during the learning process (Boud & Walker, 1985; Boud et al., 1985; Mezirow, 1990; Pennington, 1992). Reflection can also be considered "an important activity in the processing phrase of learning during which people recapture their experience, think about it, mull it over, and evaluate it" (Boud et al., 1985).

From the definitions given above, reflection is widely accepted as a tool to promote thinking about the learning process before, during, and after doing he task. Biggs

(1985) and Zimmerman (2000) have characterized 3 types of reflections according to the 3 stages of the learning process: reflection for action, reflection in action, and reflection on action. *Reflection for action* means thinking about learning goals and evaluating one's own thinking and strategies before doing a task. For example, students think about the belief in their ability to solve a task before they perform actions. *Reflection in action* means monitoring and changing actions as new information is received. For example, students think about modifying methods of skill implementation, such as memorizing synonyms for better writing. *Reflection on action* refers to making sense of the past experience for future thinking or action. For example, students think about the positive outcomes of their action to motivate them to continue to learn in the future.

Reflections occur throughout the learning process, leading students to think about their objectives, plans, analysis, self-evaluation, and problemsolving (Brockbank & McGrill, 1998; Flavell, 1979; Granville & Dison, 2005). It is believed that if the students reassess their learning processes as they learn, they are likely to learn more effectively (Yang, 2010) because such reflection provides the students an opportunity to revisit a previous action and correct it before proceeding to the next step.

As stated by Zimmerman (2000), reflective thinking is a way to promote metacognition. One example of using reflection as a tool is reflective writing assignments, e.g., "What have you done?"; "What is the most important part?"; "Discuss your weakness and strength," and so forth. These prompts allow students to evaluate and analyze their learning progress, as well as incorporate their newly acquired experience with previous ones. The set of reflective questions effectively enables learners to revisit what they have studied by forcing them to recall the objects, events, or information that they have encountered. Additionally, learners are capable of metacognition, or thinking back about how to achieve their study goals.

3.2 The relevance concept of reflection, cognition, and metacognition

Reflection is a tool that is used by students to learn, assess, and regulate themselves. They must organize a range of information and knowledge into a coherent structure, analyze situations, generate hypotheses, and come up with whole or partial solutions. In this context, self-reflection provides not only a better understanding of what students know but also a way of improving their metacognition because students are able to examine how they perform a specific learning task (Gama, 2004). This metacognitive concept relates to Flavell's idea (1979) of metacognition as the active monitoring and consequent

regulation and orchestration of cognitive processes to achieve cognitive goals. Gama (2004) states that

> Research in the area investigates different forms of monitoring, regulation, and orchestration, such as checking, planning, selecting, and inferring (Brown, 1978; Scardamalia & Bereiter, 1985); self-interrogation and introspection (Chi et al, 1989, p.79); interpretation of on-going experience (Flavell & Wellman, 1977; Brown & Palinscar, 1982; Whimbey & Lochhead, 1999); or simply making judgments about what a person knows or does not know about how to accomplish a task (Metcalfe & Shimamura, 1994).

The whole process, metacognition, is briefly explained as thinking about thinking. Metacognition refers to the knowledge of how to regulate cognitive process to achieve a cognitive goal, e.g., planning knowledge or problem solving. When one realizes that his or her ability to figure out the main idea is weak, he or she tends to revisit the learning strategies used and replace them with new ones.

Therefore, it is obvious that reflection is an important tool that encourages students to learn and regulate themselves. As Brown (1987, p.65) stated "Metacognition refers to an understanding of knowledge, an understanding that can be reflected in either effective use of overt description of the knowledge in question." Consequently, a number of studies have been conducted on how reflection plays a role in fostering metacognitive skill. The findings on the effectiveness of reflection are greatly varied and categorized according to different aspects.

3.3 Related research

Previous research has classified reflection into 3 different perspectives.

3.3.1 Reflection as a tool for teaching development

Many researchers have explained reflection as a part of ESL/ EFL teacher education (Farrell, 1999; Griffiths, 2000; Henderson, 1996; Jay & Johnson, 2002). Henderson (1996) states that "If you, as a teacher, are not thoughtful about your professional work, how do you expect your students to be thoughtful about their learning?" Farrell (1999) has conducted group discussions as a way to foster reflective thinking in Korean EFL teachers. It was found that teachers engage in critical thinking reluctantly but that this kind of thinking can be sustained if they have practiced it more. Mansvelder-Longayroux, Beijaard, & Verloop (2007) discussed the concept of reflection as an

important consideration in training teachers based on 6 crucial learning activities: recollection, evaluation, analysis, critical processing, diagnosis, and reflection. The occurrences of critical processing activity are minimal. However, teachers will eventually gain insight into their own pedagogical thought processes

3.3.2 Reflection in different formats

A variety of reflection formats, such as reflective writing and writing in a diary, learning log, or journal, are usually deployed in normal classes to determine which format is the most effective in promoting critical thinking. Chirema (2007) conducted a study that used reflective journals to promote critical thinking in nursing students. From the analysis of the reflective journals, Chirema (2007) found that the students were divided into 3 categories: non-reflector (students unable to reflect on their thoughts), reflector (students able to reflect on their thoughts but unable to evaluate or solve problems), and critical reflector (students able to critically reflect on their thoughts). Most of the students were reflectors of one kind. In addition, the students' attitudes showed that the reflective journal was beneficial for their learning awareness and knowledge application. Similar findings were reported by Palard (1999), who tested different formats of reflective writing, including completing self-reports, writing in a diary, and completing learning questionnaires about the students' thought processes. Different critical thinking levels were determined on a scale from 1 to 7 in order to assess the students' thinking ability; level 1 represented the lowest level of students' thinking ability, while level 7 represented the highest level. Students expressed morality or even ethical behavior in their writing. The study found that the average level of thinking promoted by reflective writing was 3. The format of the reflective writing exercise was also found to affect the level of thinking. Recently, Yang (2010) tested 2 types of reflective journals online: self-correction and peer-review. The results showed that reflective journals were an effective tool promoting reflection and that provide knowledge of the reflection process (Bourner, 2003; Wood & Lynch, 1998). Monitoring, evaluating, and adjusting writing styles were all found to be carried out during the reflective journal process.

3.3.3   Reflection through simulation as an intervention

The preceding findings indicated that reflection, mostly incorporated into normal teaching and learning environments, fails to foster higher cognitive levels such as critical thinking. Researchers have tested a new method to make the reflection process more

efficient, simulation, which helps promote thinking ability. At the present time, not much research has been conducted to test the efficacy of simulation; it does seem, however, to receive interest from educational researchers. Boyd et al. (2006) proposed simulation as an intervention in the field to determine whether reflection can promote in-depth thinking. Students were asked to imagine themselves as a banana farmer and were requested to improve the life of the farmer's family. Students were then asked to write reflective essays afterward. The results of the subsequent content analysis show that the subjects express in-depth thinking in the simulation, and similar results are found in Granville & Dison (2005) and Sowa (2009). Moreover, according to the analysis of the reflective writing, the simulation highly motivated the students to study and to develop their thoughts. Therefore, researchers have considered simulation, namely, cross-class learning activities with a reflective writing component, to be an effective educational intervention that spurs in-depth learning.

4. Methodology

4.1 Context

This research was conducted under the framework of 2 courses: Academic English 2 (AE2) for first-year students and Writing 3 (W3) for third-year students. Both are compulsory courses for the English Major undergraduate program in the School of Liberal Arts, Mae Fah Luang University, Thailand. There were 60 students in each course. English was the language of instruction in both courses. Teaching methods were mutually agreed upon between the 2 teachers.

The AE2 and W3 courses each focus on different skills. The AE2 course was designed to develop the skills necessary for successful study within an academic setting. The focus is on listening, speaking and academic research. For content, the course has compulsory, instructor-selected academic listening exercises and a DVD that deals with speaking. Students are then required to demonstrate their communicative proficiency in their final projects, which are presented in a seminar or group discussion setting. In the W3 course, students practice writing research papers and learn means of locating, collecting and compiling data from various sources, referencing, editing and using the library for assignments. At the end of the course, students must present their final research project in a seminar session.

In our study, students from both groups arranged to discuss their learning processes or their final projects with their instructors. The instructors decided that the normal classes for each course would be conducted regularly and that students of both courses were to be mixed up 2 times for a cross-class learning sessions, which would be conducted like a seminar. Consequently, 9 reflective questions were provided as guidelines for students' reflective writing. The students were required to complete the reflective writing during weeks 8, 9, 12, and 13 for the normal-class learning sessions and during weeks 10 and 14 for the cross-class learning sessions.

The cross-class learning sessions acted as this study's simulation. Students in both courses were required to present their rationales for and outlines of their final projects during the first session. A teacher in the session acted as a moderator to create an active learning atmosphere by discussing the ideas of the project, asking critical questions to both presenters and classmates to encourage critical discussion, critically evaluating the project and suggesting further steps. After class, students submitted their reflective writing assignments. After a month, the same process was arranged again; during this second session, the final project was presented. Reflective writing assignments were collected at the end of the class as well.

However, as mentioned earlier, AE2 students and W3 students differed greatly in term of academic level, language proficiency, course content and maturity. It was very important in this study for reflection to be stimulated with different groups of learners all using the same reflective writing process.

4.2 Data collection

4.2.1 Tools

A reflective writing was a main tool used to obtain the qualitative and quantitative data.

Reflective writing

Reflective writing is a part of the qualitative study that the students have to complete. The reflective question, among other forms of reflective writing, has been proven to be an effective tool in promoting thinking ability in students (Palard, 1999). The 9 questions are chosen according to the concept of reflection and metacognition (Biggs, 1985; Livingston, 1997; Zimmerman, 2000). The set of questions used in the study is as follows:

1. What have you done in this assignment?

2. What is the most important part of this assignment?

3. What challenges do you face in completing the assignment?

4. What learned knowledge have you employed to finish the assignment?

5. How can you apply the learned knowledge to support other subjects and your daily life?

6. What is/ are the most preparation process to finish the assignment?

7. How can you assess your learning progress?

8. What is your weakness and strength? Why?

9. How can you improve yourself?

The competent students would write the reflective assignments in English, while first language was also allowed for less competent students to facilitate the expression of their ideas.

4.2.2 Data collection

The students were asked to complete reflective writing assignments during weeks 8-14. They were given a choice to write in their native language (Thai) or English to prevent the language barrier from preventing them from expressing their thoughts. The data were gathered for weeks 8-9 and 12-13 of the normal-class learning sessions and weeks 10 and 14 of the cross-class learning sessions for comparison.

4.3 Data analysis

A content analysis (Borg & Gall, 1989) was used, because it is the best qualitative and quantitative method to meet the research objective. The reflective writing assignments were analyzed, coded, and categorized according to the definitions of the following 6 learning activities, as adapted from Vermunt & Verloop (1999), and Mansvelder-Longayroux, Beijaard, & Verloop (2007).

1) Recollection refers to memory of self-experience/activities in the past and the ability to form future expectations and to predict developments. Memory refers to the ability to evaluate, analyze, critically process, diagnose and reflect on what happened in the past.

2) Evaluation refers to the ability to judge self capacity by experiencing one's own feelings and understanding and to offer opinions about what makes a problem difficult without reasoning to support.

3) Analysis refers to the ability to provide reasons to support one's own opinion, to identify factors influencing one's own learning, and to examine differences and similarities between the same situations from one's own context.

4) Critical processing refers to the comparison of one's own opinion with another's opinion or argument; the ability to formulate one's own idea and provide a solution for making a decision.

5) Diagnosis refers to the ability to identify the strength and weakness of one's own thinking and action with supportive reasons and to investigate factors of positive and negative outcome.

6) Reflection refers to the ability to revisit every step of the learning process, in particular task and time-frame.

The students' reflective writing was carefully read and classified according to the complete thought that a given piece of written paragraph presented. The learning activity occurrences were identified and counted according to the criteria set. Statistical analysis, t-tests, and correlation analyses were conducted, and the percentage of number of occurrences and standard deviations (S.D.) were calculated for reflective writing to compare the results from normal-class learning and cross-class learning sessions.

5. Results

The findings from both the qualitative and quantitative methods are as follows:

5.1 Normal-class learning session in AE2 and W3

In normal-class learning session, reflective writing promoted learning activities for both subjects: AE2 and W3. For the AE2 students, recollection, evaluation, analysis and diagnosis were present in the reflective writing All 6 learning activities are presented in W3 reflective writing.

Table 1 Frequency and percentage of each learning activity in AE2 and W3 in normal-class learning sessions

Learning Activities	AE2			W3		
	No. of frequency	%	S.D.	No. of frequency	%	S.D.
Recollection	415	68.14	3.24	528	63.77	5.11
Evaluation	169	27.75	2.00	237	28.62	2.38
Analysis	22	3.61	0.82	45	5.43	1.51
Critical	0	0.00	0.00	14	1.69	0.56
Diagnosis	3	0.49	0.28	2	0.24	0.18
Reflection	0	0.00	0.00	2	0.24	0.18

An analysis of the reflections in normal-class learning sessions for both subjects showed a similar percentage and number of occurrences for each learning activity (See Table 1). Recollection occurred most frequently at 68.14% for AE2 and 63.77% for W3. The next most present activities were evaluation and analysis. There were only a small number of critical, diagnosis, and reflection activities found in the reflective writing.

The results demonstrated that most students have been taught to learn by recalling their past experiences of academic content or topics, activities with their classmates, classroom tasks, teaching style, or learning atmosphere. When recollection occurred, students tend to recall the learning memory, as shown in the following sample:

"*I learned how to prepare myself for discussion from a website which included the following process: discuss the materials, discuss skills such as controlling and participating in the discussion and discuss the language*" (Nattaya, AE2) (recollection)

"*I have a meeting with my teacher to discuss my work with her. At the end, she asked me to evaluate my work. During the meeting, I gained more suggestions of how to improve my work and I know my grammatical mistakes especially with articles and tenses*" (Kamaporn, W3) (recollection)

Another group of learners demonstrated the ability to evaluate their learning experiences based on the basis of their own level of satisfaction with their work and

understanding of the material. These students made judgments about classroom tasks and lessons that affected their learning context. Concerns were illustrated through their reflective writing though the students have not yet identified an effective resolution to those concerns. For example, the following statements were provided:

"Now, I know that my writing style is too complex for the reader to understand my point. I failed to express the main idea through my writing. I used too many difficult words and disregarded the reader. Also, I made a lot of grammatical mistakes" (Pasit, W3) (evaluation)

"From my observation of my progress, I think I can write better from what I have learned and practiced. But I still do not know how to select the most appropriate sources of information. I always think that all of the information is very useful for my task. Then, I try to put all the information into my writing without realizing that it is not necessary" (Pattarin, W3) (evaluation)

"For me, grammar is the most important. If I am not sure of its usage, I can't be a successful learner. The higher level of study as a language student, the more difficult grammatical rules are. (Chanakarn, AE2) (evaluation)

However, some students demonstrated their analytical competence by employing valid reasons supporting their own opinions. At times, they have practiced self-criticism to identify the factors affecting their learning and language capabilities They attempted to alleviate their learning burdens by finding new ways to study and practice, as shown in the examples below:

"I started with very simple conversation to learn more words until I gain more self-confidence for higher level conversations. If I start with the very difficult level, I will have no motivation to learn. I will lose confidence since beginning. On the other hand, if I had not started practicing speaking and listening, I would have failed in the future for sure. I picked up cartoons as my beginning step; when my confidence is high enough I will select a DVD sound track for my next step" (Thanitta, AE2) (analysis)

"I need more time to talk with my teacher so that she can help me organize my ideas and correct my grammatical mistakes. This is because, when we met last time, I felt like I was unable to express my ideas. I am still doubtful and I still have problems. In my opinion, the time I spent with her was too short. Anyhow, I have to prepare more information and do more research of samples of writing to discuss with my teacher." (Kamaporn, W3) (analysis)

In this study, reflective writing offered valuable information about the critical processing of advanced students' learning activities, though such activities were quite rare. Only a few students have demonstrated a high learning proficiency by being able to compare their own ideas with those of others, by making an argument using supporting information, and by identifying causes and effects to facilitate further improvement. These proficient students were initially very critical about their own learning styles and strategies, formulating their own ideas and making decisions about what was the most beneficial to their own development. The following example demonstrated this quality clearly:

"I asked my friend to read my papers and correct my mistakes. After reviewing, they told me that my papers lack main ideas and that the minor ideas do not support the main ideas because there is not enough information. In my opinion, I do not think this is the case because I followed my outline, which got approved by my advisor. Somehow, the feedbacks from peers are still valued since I might need to reconsider my sentence structure, word selection or even overall organization. All of these aspects have not yet been discussed with my teacher. Anyway, I want to say that peer review plays a vital role for me to revisit and reconsider my own writing competency." (Poowadol, W3) (critical processing)

The similar percentages of learning activities emerging from the two normal-class learning sessions of students' reflective writing illustrated that students have simply memorized what had happened in the past and fail to identify the key factors affecting their learning development. This is shown in the low percentages of analysis activities occurring: 3.6% in AE2 and 5.43% in W3. Even worse, the number of critical process, diagnosis and reflection activities was about 0% meaning that they lack an understanding of how to learn. These results were attributed to the ineffective management of the classroom learning environment and needs urgent reconsideration.

5.2 Cross-class learning sessions in AE2 and W3

During the semester, cross-class learning sessions were arranged twice to stimulate student thinking and reflection. After both groups of students were mixed up in the seminar-like atmosphere, reflective writing was employed. The results (See Table 2) showed that reflective writing functions as an effective tool, exhibiting all 6 learning activities in the cross-class learning session. Recollection was found in the highest percentage of writing assignments, with evaluation and analysis the next highest. Recollection is found in 40.78% of AE2 samples and in 54.38% of the W3 samples.

Table 2 Frequency and percentage of each learning activity in AE2 and W3 cross-class learning session

Learning Activities	AE2			W3		
	No. of frequency	%	S.D.	No. of frequency	%	S.D.
Recollection	219	40.78	2.16	329	54.38	3.34
Evaluation	169	31.47	2.14	162	26.78	2.24
Analysis	106	19.74	1.80	91	15.04	1.43
Critical	29	5.40	0.91	17	2.81	0.56
Diagnosis	7	1.30	0.37	5	0.83	0.28
Reflection	7	1.30	0.49	1	0.17	0.13

The results clearly exhibited that both AE2 and W3 students have produced similar learning activities as recollection occurred most frequently while evaluation and analysis occurred the second and the third most frequently, respectively. However, the percentages of "analysis" were worth examining in closer detail. Both groups of students reflected on their personal thoughts and reactions to learning, meaning that cross-class learning sessions allowed them to question their learning methods and adapted accordingly. Their learning competencies have drastically increased, resulting in the search for new learning methods.

"*During the session, I was motivated both by teacher and seniors. I really like the way the session was conducted. Many critical questions from the teacher together with the active learning styles of senior students are a very effective tool to energize myself. I realize that before responding to any questions, I must think thoughtfully. I know that listening is very helpful and that speaking is necessary to convey my thoughts to the audiences. The seniors were very confident while presenting, but I*

was very shy. I will use seniors as my role model for my self-development." (Warisa, AE2) (analysis)

"This session has reminded me that responsibility is the only key driver of success. No matter how smart you are, if you are not responsible, you can't be successful. For myself, I learned how to plan more effectively to achieve my goals, and I realized that my communication skill is still a problem. I have learned a lot from this session especially my weakness in listening and speaking. I have to think of how to improve this communication skill very soon." (Poowadol, W3) (analysis)

Three learning activities were encountered in the students' reflective writing. Recollection, evaluation and analysis were present in 40.78%, 31.47%, and 19.74% of the assignments for the AE2 students and in 54.38%, 26.78% and 15.04% of the assignments of the W3 students. The findings suggested that cross-class learning sessions encouraged the ability to distinguish which factors affect leaning development. Unfortunately, the number of "reflection" activities was very low, 1.3% for AE2 and 0.17% for W3, which indicated that students can not sufficiently consider the entire learning process in their writings.

5.3 Normal-class learning session vs. cross-class learning sessions in AE2

AE2 focused on listening and speaking skills. The students were in two different learning environments: normal-class learning and cross-class learning sessions.

Table 3 Frequency, percentage, and t-test values of each learning activity in AE2 normal-class learning and cross-class learning sessions

Learning Activities	Normal-class learning sessions			Cross-class learning sessions			Sig.
	No. of frequency	%	S.D.	No. of frequency	%	S.D.	
Recollection	415	68.14	3.24	219	40.78	2.16	.00
Evaluation	169	27.75	2.00	169	31.47	2.14	1
Analysis	22	3.61	0.82	106	19.74	1.80	.00
Critical	0	0.00	0.00	29	5.40	0.91	.00
Diagnosis	3	0.49	0.28	7	1.30	0.37	.10
Reflection	0	0.00	0.00	7	1.30	0.49	.07

In normal-class learning sessions, reflective writing produced only 4 learning activities (See Table 3), but in the cross-class learning sessions, reflective writing promoted all 6 learning activities. Because the AE2 students were in their first year, it was plausible that they had low self-esteem, a problem which would produce fewer learning activities in the normal-class learning sessions setting than in the cross-class learning session. Comparing students' writings as they moved from the normal-class to the cross-class sessions, the percentage of students recalling past experience decreased from 68.14% to 40.78%, p=.00), but the percentage of students thinking about their capabilities and supporting their opinions with evidence increasing from 3.61% to 19.74%. Consequently, the percentage of evaluation, analysis and critical processing rose in the cross-class learning session; the results were statistically different for analysis (p=.00) and critical processing (p=.00).

The correlation values showed that the decrease in recollection and the increase in evaluation, analysis, and critical processing in the cross-class learning sessions were highly interrelated (r=-.650). This result can be explained by the student ability to shift their focus from describing a past activity to supplying reasons for their opinions, judging their ability or investigating factors affecting their motivation to learn.

5.4 Normal-class learning sessions vs. cross-class learning sessions in W3

Unlike AE2, W3 concentrated on the writing process; the course also focused on reading skills so that students can assimilate more information. In the course, the students were invited to freely think about and select their own topics and writing styles with the help of group discussions. The analysis of the reflective writing demonstrated that, all 6 learning activities were present in the normal-class learning and cross-class learning sessions of W3 (See Table 4).

Table 4 Frequency, percentage, and t-test values of each learning activity in W3 normal-class learning sessions and cross-class learning sessions

Learning Activities	Normal-class learning sessions			Cross-class learning sessions			Sig.
	No. of frequency	%	S.D.	No. of frequency	%	S.D.	
Recollection	528	63.77	5.11	329	54.38	3.34	0.00
Evaluation	237	28.62	2.38	162	26.78	2.24	0.00
Analysis	45	5.43	1.51	91	15.04	1.43	0.00
Critical	14	1.69	0.56	17	2.81	0.56	0.58
Diagnosis	2	0.24	0.18	5	0.83	0.28	0.26
Reflection	2	0.24	0.18	1	0.17	0.13	0.57

Recollection in the cross-class learning session, 54.38%, was lower than that of the normal class, 63.77%. The percentages of analysis, critical, and diagnosis activities were found to statistically increase (p=.00). There was a decreasing percentage of recollection (p=.00) and evaluation but a statistically different (p=.00) increase in the percentage of analysis (from 5.43% to 15.04%). Although the changes in critical, diagnosis, and reflection activities were not significantly different (p>.05), the reflective writing in the cross-class learning sessions showed that the students were more able to provide reasons to support their opinions and to identifying factors influencing their learning, as well as to formulate their own ideas in order to provide solutions for their weaknesses.

Reflective writing was thus an effective method to facilitate learning activities and improve the thinking abilities of students. Regardless of the differences in the skills taught by each course focusing on different objectives, or in the learning atmospheres (normal-

class learning and cross-class learning), the students have improved their learning competence.

Similar to the results found in AE2, the decrease in recollection and the increase in the cross-class learning sessions were correlated (r=-.675). This result showed that the students were able to increase their self-awareness about their own learning process.

6. Discussion

The results in this study verify that reflective writing stimulates learning activities of Thai EFL students in normal-class learning sessions and cross-class learning sessions. Six learning activities (recollection, evaluation, analysis, critical processing, diagnosis, and reflection) can be analyzed through the reflective writing produced by the students. The findings are consistent with previous studies, which found that reflective writing serves as an essential tool to support in-depth thinking in the learning process (Boyd et al., 2006; Brockbank & McGrill, 1998; Chirema, 2007; Emig, 1988; Flavell, 1979; Granville & Dison, 2005; Kamber, 1999; Palard, 1999).

As is the case with former studies, the learning activity of "recollection" occurred frequently while "analysis", "critical processing" and the other activities occured less frequently. This finding indicates that Thai students have difficulties in exploring what they find difficult and how to tackle their problems. This finding supports the findings of Farrell (1999) and Vermunt & Verloop (1999), which found the number of critical processing activities to be minimal. One of the explanations for this trend could stem from Asian students lacking experience producing reflective writing or other means of assessing their learning progress (Lo, 2010). Yet another explanation could be the lack of instruction about how to think analytically and critically. Analytical and critical thinking, some argue, are not natural byproducts of the educational process. Rather, they need encourages for the students by the instructors (Ho, 1997; Jones, 2005; Lo, 2010).

From the number of occurrences indicated in Tables 1-4, it is evident that the cross-class learning sessions are very successful in promoting the 6 learning activities. For both AE2 and W3, a comparison between normal-class learning sessions and cross-class learning sessions shows a greater change in learning activity, (e.g., the decrease in recollection and the increase in analysis and critical processing) during cross-class learning sessions. This findings confirms the importance of simulation to promote in-depth student thinking found in previous research (Boyd et al., 2006; Sowa, 2009).

The study reveals that in-class teaching or normal-class learning sessions are not effective in teaching students how to absorb knowledge while reflecting on their learning proficiency. Moreover, in the cross-class learning sessions, teachers play a major facilitating role into inspiring Thai EFL students in self-reflection and in thinking about their capabilities and learning processes. These observations are consistent with Granville & Dison (2005)'s finding that a teacher is a crucial factor in the learning process and a vital guide for how to think critically (Jones, 2005; Lo, 2010).

The findings show that AE2 students have low self-esteem or low self-efficacy. As AE2 students are in the first year, they have difficulties, some argue, upon first entering college because they are not familiar with academic demands (Isaacson & Fujita, 2006). This study is different from previous research in that it found that having low self-esteem led to a strong desire to learn. According to Bandura's theory (1988), those who have low self-efficacy believe that they are not able to perform well; they tend to view tasks as something to be avoided. In contrast to Bandura's theory, some AE2 students turned their low self-efficacy into a motivation to improve themselves through being better prepare before attempting the task.

Furthermore, the first-year AE2 students considered the seniors to be role models, creating a strong desire to improve their proficiency. This observation corresponds to the self-learning theory, which states that people can be improved by modeling the behavior of others; a successful learner, for example, eventually learns by imitating another successful person (Ormrod, 1999). Furthermore, studying alongside more senior students is another important motivation for the first year students to be active, diligent, and well-prepared. Over the course of the study, teachers were found to have changed their role to that of a facilitator. Questioning and discussion were encouraged during the session; new information about how to learn through sharing ideas was also formulated and shared after the session. The results from the reflective writing experiment imply that cross-class learning sessions should be applied to stimulate and induce thinking and metacognition throughout the learning process. Supported by previous research (Delett et al., 2001; Lo, 2010; Regala-Flores, 2007), this study shows that the learning atmosphere and the teacher's role are the core determinants in enhancing the students' learning competency.

7. Conclusion

The findings of the study are significant because reflective writing is an essential method of stimulating 6 learning activities. Reflective writing encouraged Thai EFL

students to think throughout the learning process, leading them to ponder their objectives, plans, and strategies for completing tasks and to formulate their own ideas about learning. In short, reflective writing helps the students learn more effectively because it provides an opportunity to revisit their previous actions and correct them prior to proceeding on to the next step.

Moreover, the present in-class teaching and learning approach is not a successful method in promoting thinking ability. Stimulation is required for the thinking process to develop. This study proposes the new idea of initiating a seminar-like atmosphere called cross-class learning sessions to heighten the students' thinking capability throughout the learning process.

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