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Conceptualizing effective feedback practice through an online community of inquiry



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ABSTRACT

This study applied Garrison, Anderson, and Archer's (2000) community of inquiry (CoI) framework to teacher learning by designing and investigating online participatory practice in which 14 prospective teachers (PT) were engaged in collectively evaluating and reconstructing their written feedback in their teaching, cognitive, and social presences. Data included the PTs' action logs in the three presences, their observation notes on fellow teachers' feedback practice, their feedback on students' different versions of texts, and transcripts of discussion forums and chat rooms. Results showed that in an online teacher learning community, the teaching presence reinforced and sustained the cognitive and social presences in the virtual community as the PTs learned to serve as subject matter experts. Through these three presences, the PTs provided micro- and macro-level feedback and observed each other's practices in the teaching presence. An online participatory practice allowed the PTs to recognize problems in feedback practice and develop principles of effective written feedback through collaborative efforts. Practical implications and useful functionalities of an online system for teacher learning were also discussed.

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1. Introduction

Teachers' written feedback plays a significant role in improving students' writing and supporting their text development. Students often require feedback from a knowledge authority so they can learn how to develop their writing skills, in order to produce well-structured and grammatically correct essays as part of their studies (e.g., Ferris & Roberts, 2001; Lockhart & Ng, 1995). To fulfill the role of a knowledge authority, teachers need to work collaboratively as well as individually to continuously evaluate and improve their feedback practice. However, research has indicated that when teachers work face to face with each other, they tend to focus only on their own problems, rather than use the resources of the group to develop deeper and more comprehensive insights (Montgomery & Baker, 2007; Sandholtz, 2002) into effective feedback practice. An online learning platform featuring collaborative technologies may provide a more productive environment for interactive efforts that lead to a better understanding of effective feedback. To explore this possibility, an online system supporting participatory practice was designed in this study as an intervention for preparing prospective teachers (PT) with a means of collaboratively developing principles of effective written feedback.

Unlike face-to-face collaboration, online participatory practice allows teachers to co-construct pedagogical knowledge without time and space constraints while allowing for documentation of their practices in log files. Such synchronous and asynchronous discussions are powerful catalysts (O'Sullivan, Mulligan, & Dooley, 2007) for teachers to collaboratively

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construct what they perceive as effective practices. However, scholars have argued that online social interaction alone may involve only simple social interaction and low-level cognitive engagements, such as venting problems and frustrations (Bangert, 2009; Garrison, Anderson, & Archer, 2000, 2001; Kanuka, Rourke, & Laflamme, 2007; Larreamendy-Joerns & Leinhardt, 2006; Rourke & Kanuka, 2009; Shea & Bidjerano, 2009). To move from low-to high-level cognitive activity that generates integrative solutions to problems, Larreamendy-Joerns and Leinhardt (2006) advocate that online social interaction needs to be closely tied to relevant teaching contexts, teaching objectives, and learning progress.

2. Theoretical framework: Garrison, Anderson, and Archer's (2000) community of inquiry (CoI) model

Garrison et al.'s (2000) CoI model can generate a high cognitive level of inquiry for knowledge construction, with the integration of social, technological, and instructional processes. This model features three interdependent presences in an online environment: namely, the teaching, cognitive, and social presence (Fig. 1). The underpinnings of this model are Dewey (1933) collaborative constructivist principles. The teaching presence is defined as “the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). The cognitive presence refers to the extent to which the participating members are able to construct and confirm meaning through sustained reflection and discourse (Garrison, Anderson, & Archer, 2001). The cognitive presence in Fig. 1 reflects the acquisition and application of high-order knowledge, which depends on careful instructional design and support in the teaching presence and an interactive social learning environment in the social presence (Garrison et al., 2001). Garrison (2009) defines the social presence as “the ability of participants to identify with the community, communicate purposefully in a trusting environment, and develop interpersonal relationships by way of projecting their individual personalities” (p. 352).

The interdependent presences in the CoI model which focus on reflective inquiry into issues (Garrison & Anderson, 2003) can serve as an appropriate framework for teachers to deepen their pedagogical knowledge of feedback practice in the current study. Through onsite participatory practice in the teaching presence, teachers' knowledge construction through a community of inquiry involves identifying pedagogical problems, exchanging ideas and brainstorming solutions, integrating what teachers have sorted out as the most effective solutions or ideas in the exploration phase, and applying the new knowledge to their own teaching practice in the cognitive presence. These knowledge construction processes do not take place naturally (Garrison et al., 2000) but require shared goals and problems requiring teachers' collaborative efforts (Arnold & Ducate, 2006). When members are actively engaged in a learning community, their interaction in the social presence with others can be nurtured to promote critical inquiry and knowledge construction. The social presence thus facilitates the development of the cognitive presence (Picciano, 2002; Richardson & Swan, 2003; Shea & Bidjerano, 2009).

The past decade has seen the rapid development of CoI in studies of online learning, student adjustment (Cleveland-Innes, Garrison, & Kinsel, 2007; Garrison, Cleveland-Innes, & Fung, 2004), sense of community (Shea, 2006), causal relationships (Garrison, Cleveland-Innes, & Fung, 2010), and metacognition (Akyol & Garrison, 2011). Garrison and Arbaugh (2007) have called for more studies to focus on investigating the three presences simultaneously. This call has been answered by surveys to explore how the three presences interact with each other along with student reactions (e.g., Akyol & Garrison, 2008; Boston et al., 2009; Garrison et al., 2010). These surveys show how the three presences correlate with each other, resulting in different levels of learning outcomes and satisfaction. Akyol and Garrison (2008) reported that the three presences significantly influenced student satisfaction with the online learning community, but only the teaching and cognitive

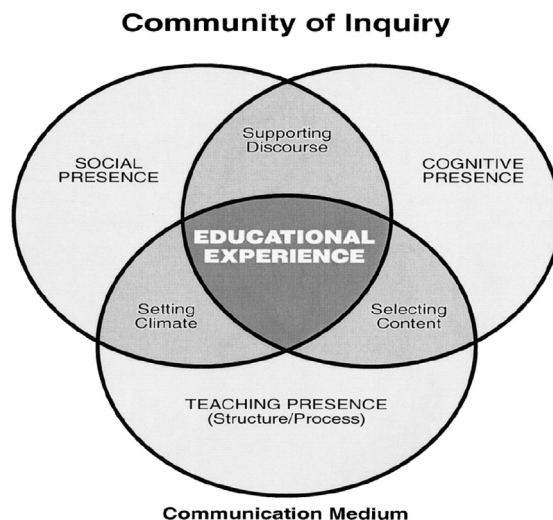


Fig. 1. Three presences in a community of inquiry (Garrison, Anderson, and Archer, 2000).

presences were correlated to successful learning. [Garrison et al. \(2010\)](#) investigated the causal relationships among the three presences. Finding that the social and teaching presences influenced the cognitive presence, and that the teaching presence may affect the social presence, they argued that the teaching presence plays the dominant role in the establishment of a Col community. Similarly, [Kupczynski, Ice, Wiesenmayer, and McCluskey \(2010\)](#) concluded that design and direct instruction in the teaching presence have a significant impact on learning outcomes.

3. Statement of the problem

While previous studies have adopted Col in exploring online learning related issues (e.g., [Kim, 2011](#)), it is worth noting that few studies have examined the actual processes involved in the three presences, due to its dynamic and intricate nature which are not easily discovered. Some of the problems in the literature can be summarized. First, research on a Col in online learning environments “has been limited largely to survey methods” ([Shea et al., 2010](#), p. 11) or discussion forum analysis within a single course, which runs the risk of discrepancies between what was reported and what was actually experienced ([Shea et al., 2010](#); [Yeh, 2015](#)). Similarly, [Arbaugh \(2007\)](#), using a survey to examine the Col framework, echoed the difficulties of capturing the interactive inquiry process. Second, previous studies examining a Col were often unable to either delineate the actual processes of thinking and development in knowledge construction, or explicitly report the interactive dynamics among the three presences. Finally, previous studies about a Col model have been used mainly for reporting student learning outcomes and satisfaction (e.g., [Akyol, Garrison, & Ozden, 2009](#); [Pifarre & Cobos, 2010](#); [Shea & Bidjerano, 2010](#); [Vaughan, 2010](#)), whereas how the Col model can be used to explore the process of how teachers have constructed their pedagogical knowledge to improve their feedback practice in an online learning environment is worth further exploration.

4. Literature review

4.1. Using the Col framework for language teaching

Given that the Col framework has been widely adopted across different disciplines, there seems to be a growing number of scholars applying this to the field of language learning and teaching (e.g., [Asoodar, Atai, Vaezi, & Marandi, 2014](#); [Goda & Yamada, 2012](#); [Lomicka & Lord, 2007](#)). However, among these, only a few studies have focused on understanding the impact that Col is having on Foreign Language (FL) teachers' learning ([Arnold & Ducate, 2006](#); [Arnold, Ducate, Lomicka, & Lord, 2005](#); [Lomicka & Lord, 2007](#)). In understanding FL teacher learning, [Arnold et al. \(2005\)](#) investigated pre-service foreign language teachers' social presence at two virtual learning communities in the U.S., and reported that all group members established significant levels of social presence through online discussions. In their continual study, [Arnold and Ducate \(2006\)](#) investigated the discourse of two groups of foreign language teaching assistants enrolled in methodology courses at two different American universities, five students from one university and 18 from another. Their results showed that these FL teachers found online discussions beneficial to teacher training in both social and cognitive respects. They achieved a higher level of cognitive presence as a result of asynchronous discussion in virtual communities. Similarly, [Lomicka and Lord \(2007\)](#) explored the development of the social presence in the communities of 14 college FL instructors from two universities in the southeastern United States. The participants were divided into three different group formats (namely the traditional group, the peer reflection group and the virtual reflection group) for reflective journal writing. In the traditional group, the members wrote journals without receiving feedback. The participants in the second group were paired and required to send journals and provide mutual feedback via e-mail. The third group was asked to publish their journals on an online discussion board, which allowed them to provide mutual feedback. The results demonstrated that affective domains in the social presence were more evident in the third group, with participants asking questions, offering self-constructive comments, and giving advice and opinions. While these studies have attempted to explore FL teacher learning in teacher preparation programs, they were predominantly conducted in the American settings with the aim of understanding its application to the social presence. More studies concerning FL teacher learning should be conducted in Asian contexts, with an extension into the interdependence of the cognitive, social, and teaching presences.

4.2. Teachers' written corrective feedback

Over the past decade, research on the effects of written corrective feedback (WCF) has blossomed, yet there continues to be a matter of dispute about whether providing WCF actually benefits L2 students' overall quality of writing. Some early studies have indicated that the use of WCF does not enhance students' accuracy in writing (e.g., [Robb, Ross, & Shortreed, 1986](#); [Kepner, 1991](#); [Sheppard, 1992](#)). In [Truscott \(1996\)](#) review of these earlier studies on teachers' WCF, he strongly contended that correcting grammatical errors in students' compositions was ineffective and valueless for students' writing development. He argued that the acquisition of grammar requires a gradual process and involves natural orders. Simply transferring L2 writing teachers' knowledge of grammar to students by providing error corrections, may overlook the complex process underpinning the gradual development of language acquisition, and may overburden students with overwhelming feedback, which is probably beyond students' current language learning stage. Another body of research, however, has shown that WCF was effective and could produce various degrees of improvements in students' writing accuracy (e.g., [Bitchener, 2008](#); [Bitchener & Knoch, 2008](#); [Chandler, 2003](#); [Ellis, Sheen, Murakami, & Takashima, 2008](#); [Ferris, 2006](#); [Sheen, 2007](#)). Among many studies of

the impact of WCF on students' writing, researchers have mostly categorized WCF or strategies into direct and indirect types, and investigated their effects on students' subsequent writing in their studies (e.g., Bitchener & Knoch, 2008; Chandler, 2003; Ferris & Roberts, 2001; Robb et al., 1986). The findings of the direct and indirect WCF studies are still inconclusive. For example, Chandler (2003) adopted an experimental research design to examine these two kinds of feedback over a semester, and found that the use of direct feedback could be beneficial in helping students enhance their accuracy in subsequent writing. Ferris and Roberts (2001) investigated the effectiveness of different WCF treatments on students' self-editing ability. They reported no significant difference was found between groups who either received, or did not receive feedback, but these two groups showed greater performance increases than the no-feedback group in the self-editing task. Although the results of using these two feedback types remain contentious, several L2 writing researchers have still advocated that the use of indirect WCF or less explicit feedback methods could help students reflect on their learning and become more responsible and engaged in solving their own writing problems during the process of revision (Ferris, 2006; Hyland & Hyland, 2006; Lalande, 1982).

Despite these results, WCF has led to differing extents of student learning outcomes. In previous studies, writing teachers have predominately evaluated the effects of their WCF from students' writing products, such as their final text versions, for which teachers observe their students' writing process in order to adjust their feedback. Westhoff (1999) thus pointed out that students' writing products alone were insufficient for teachers to obtain useful information for pedagogical guidance. He indicated that product-related learning outcomes seldom have pedagogical backwash effects on teaching. Process-related learning outcomes, such as meaning negotiation between teachers and students, and between students themselves, in the writing process, should also be provided for teachers, so they may understand their students' writing processes, and thus adjust their feedback practice. Therefore, to fill this gap of inquiry, this study incorporated an online writing system to assist PTs in observing students' writing processes and peer teachers' feedback practice, and to examine the interactive patterns between teachers and students, allowing them to reflect on their written feedback and gain more insight into how their written feedback impacts their students' writing over time.

5. Purpose of the study

This study applied the CoI framework to nurture teacher learning in an online participatory practice. The purpose of this study was to investigate how the PTs engaged in collective evaluation and construction of written feedback in the three presences. The teaching, cognitive, and social presences were incorporated into an online WRITeam system to design an online participatory practice that nurtured the PTs' online feedback practice and captured the complexities involved in the three presences. The teaching presence was recognized as necessary for scaffolding online discussions and conceptualizing effective feedback practice. In line with the essence of the teaching presence (Garrison et al., 2000), the online participatory practice allowed PTs to serve as subject matter experts so they learned to identify students' actual learning needs. In this study, when the PTs assumed the role of subject matter experts, they became responsible for observing, identifying the advantages and limitations of other PTs' feedback practice, and offering advice. In this way, the PTs were able to recognize common problems and develop their collaborative roles in the virtual community. By analyzing the advantages and limitations of others' feedback practice, the PTs were able to conceptualize effective feedback practice. *Action logs* were valuable tools for the PTs to observe the evaluation of each other's written feedback to students over time.

In response to Larreamendy-Joerns and Leinhardt (2006) call for achieving higher levels of social interaction for generating integrative solutions to problems and providing alternatives to teaching pedagogy, the social presence was established with several tasks to foster a deep level of cognition. The PTs were required to (a) discuss their feedback practice and their observation notes of other PTs' feedback, (b) post discussion topics and provide responses to other PTs, (c) evaluate the usefulness of peer PTs' feedback to students, and (d) ask other PTs for clarification. A *discussion forum* and a *chat room* were established to serve as "an inter-subjective modality" (Garrison & Arbaugh, 2007, p. 160), allowing PTs to co-construct their knowledge of feedback practice by sharing common problems, exploring related issues, and collectively generating solutions through intensive discussions and negotiations.

Two research questions were addressed: (1) what processes were involved in the teaching, cognitive, and social presences when the PTs collaboratively constructed, evaluated, and reconstructed written feedback? (2) What was the nature of their collaborative constructions, evaluations, and reconstructions of written feedback, in terms of the teaching, cognitive, and social presences?

6. The online writing system: WRITeam

The online WRITeam system (Yang, 2010; Yeh, 2015) was developed with the following functionalities:

6.1. Providing micro- and macro-level feedback

To explore the nature of the PTs' feedback practice in the three presences, micro- and macro-level feedback were designed as the two major feedback categories in the system functionalities. *Micro-level feedback* refers to the PTs' corrections of spelling, grammatical errors, prepositions, or paragraph breaks, which do not have much impact on the meaning of ideas. The PTs could correct students' errors by clicking the *Providing micro-level feedback* button. After PTs finished revising an essay,

students could click a “triangle” icon to read the error types of PTs' corrections (see Fig. 2), and to evaluate the PTs' corrections by giving a rating based upon a 5-point scale.

Macro-level feedback refers to the PTs' suggestions on text organization, development, and style. When PTs detected inconsistencies or irrelevant arguments in the text, they could click *Providing macro-level feedback* to select a category for macro-level feedback (see Fig. 3).

6.2. Action logs

The *action logs* contain two features. The first feature enabled the PTs to understand students' revision processes and evaluate their text improvements. The recording function was activated to record the operating actions which students took in the system, e.g. “read,” “post,” and “revise” (see Fig. 4). The PTs could monitor these operating actions, formulate a set of evaluating standards, and evaluate the learning progress of different students. The second feature of the *action logs* was to provide the PTs with an avenue for observing how peer PTs provided the micro- and macro-level feedback to the students.

6.3. Show differences

The *show differences* was developed for the PTs to recognize the differences between a student's first draft and subsequent revised version (see Fig. 5) so that the PTs could understand whether their micro- and macro-level feedback were useful for the students to revise their texts.

6.4. Discussion forum and chat room

An asynchronous discussion forum and synchronous chat rooms were designed to provide PTs with the opportunity to post questions and discuss issues of their feedback practice with fellow PTs to resolve their problems. For example, the PTs

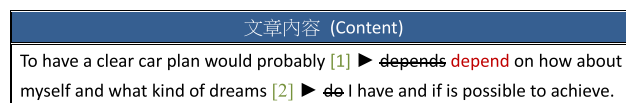


Fig. 2. An example of a PT's micro-level correction.



Fig. 3. An example of a PT's macro-level feedback.

SI	Post article [My ideal job] version [1]	2012-12-21 15:19
	Read micro-level feedback in [My ideal job] version [1]	2012-12-25 11:49
	Read macro-level feedback in [My ideal job] version [1]	2012-12-26 10:29
	Revise micro-level errors in [My ideal job] version [1]	2013-01-02 16:37
	Post article [My ideal job] version [2]	2013-01-04 22:33
	Read Student II article [Future jobs] version [1]	2013-01-05 21:43

Fig. 4. An example of Student I's action logs.

主題 (Title)						
The Future of Flying						
Version	Author	Date and Time		View	No. of Response	
<input checked="" type="checkbox"/>	1	SII	2013/01/02 13:03:50		view	3
<input checked="" type="checkbox"/>	2	SII	2013/01/08 18:12:35		view	2
差異比較 (Compare the chosen versions)						

↓

作者 (Author):	SII
主題 (Title):	The Future of Flying
Show Differences	
Huge airplanes are being [1] ► designed, also [2] ► more quieter and more efficient planes are [3] ► being developed. It's good to carry more people and use less fuel.	

Fig. 5. Show differences between a student's first and revised drafts.

could share their teaching problems and solutions by asking questions, such as “Have you ever had students who just copied all of your suggestions?”, and “What would you do about inconsistencies in students' writing?”.

7. Method

7.1. Participants

The participants were 14 PTs (12 female and 2 male), aged between 22 and 28, who were second year Master's degree students in English teaching in the Department of Applied Foreign Languages at a university in central Taiwan. At the same time, ten of them were admitted to the Center of Teacher Education, taking teacher preparation accredited credits, which is one of the channels for becoming a certified teacher, and the other four participants planned to apply for admission in the following semester. Before their participation in this study, they had taken “Seminar in reading and writing” and “Computer Assisted Language Learning” courses. In the English as a Foreign Language (EFL) context, English skill training, particularly writing skills, often placed more emphasis on sentence structure and English–Chinese translation tasks. Few EFL PTs were provided with an opportunity for participatory practice to provide written feedback to students. Thus, the 14 PTs were recruited to perform online written feedback on students' writing. Participation was voluntary and granted no extra credit. All names were converted to pseudonyms to ensure the participants' anonymity to encourage free and open online discussion.

Twenty-five student writers were non-English majors, who had volunteered to take an elective English course focusing on writing at another university in central Taiwan. All were native speakers of Mandarin Chinese and had never taken English writing classes previously. The students were assessed as beginner level English learners by the General English Proficiency Test (GEPT), the nationwide English proficiency test in Taiwan. In the writing course, students submitted three essays at one month intervals. The 14 PTs provided both micro- and macro-level feedback to two student writers randomly assigned by the system for each written essay. A total of six essays were assigned to each PT to provide feedback throughout the semester.

7.2. Data collection

The data were collected over the course of the 18-week semester. The collected data included the records of the PTs' feedback on different versions of the students' texts, the PTs' action logs in the three presences, the PTs' observation notes on the fellow teachers' feedback practice, and discussion transcripts from discussion forums and chat rooms. The PTs' action logs were sorted using a sorting function to document the PTs' actions in the teaching presence (e.g., providing micro-level feedback, providing macro-level feedback, and observing other PTs' feedback practice), cognitive presence (e.g., comparing different versions of student texts), and social presence (e.g., responding to questions). The action logs were collected to delineate the processes of how the PTs implemented, evaluated, and conceptualized feedback practice in the CoI through the teaching, cognitive, and social presences to answer research question one. The PTs were required to use the action logs to observe two of their peer PTs' feedback practices, write down their observation notes, and post these observation notes in the discussion forum for further discussion. To help the PTs focus their observations on others' feedback practice, the teacher educator designed a list of prompting questions for the PTs to answer and reflect upon in the discussion forum, such as “Have you observed some problems of PTs' micro- or macro-level feedback?” or “Have you observed that some PTs made changes in providing micro- or macro-level feedback?” After the observations, the PTs reflected upon their observation notes to recognize the strengths and drawbacks of their peer PTs' micro- and macro-level feedback practices and conceptualized what

constituted effective feedback practice. To assist the PTs' continuous reflections, the teacher educator also designed prompting questions, such as “*What key factors do you perceive as the most effective micro- and macro-level feedback?*” or “*What would you do differently in your next instruction?*”. Next, the PTs shared their observation notes and reflections in the discussion forum to discuss issues with peer PTs. The PTs' feedback on different versions of the students' texts, the PTs' observation notes of the fellows' feedback practice, and their discussion transcripts in the discussion forums and chat rooms were collected to investigate the nature of the PTs' collaborative constructions, evaluations, and reconstructions of written feedback in the three presences to address research question two.

7.3. Data analysis

In order to answer research question one, descriptive statistics was used to document the actions undertaken to report the processes where the PTs were engaged in the three presences interactively. In order to provide a comprehensive picture of the processes involved, a representative case was selected based on the typical case sampling. This type of purposeful sampling was performed to “understand, illustrate and highlight what is typical and normal” within the group, and the selecting criteria can be based on “statistical data that provide a normal distribution of characteristics from which is to identify ‘average-like’ cases” (Patton, 2014, p. 284). Therefore, one of the PTs, Amy, was chosen purposefully to delineate how most of the PTs might engage the online participatory feedback practice with a CoI model since her actions taken in the three presences were close to the action means among the 14 PTs. To explore the nature of the PTs' collaborative constructions, evaluations, and the reconstructions of feedback practice in terms of the teaching, cognitive, and social presences, content analysis was adopted. Previous studies argued that content analysis was a powerful approach for discovering trends as well as knowledge within a community, and even gain historical views of participants' behavioral patterns over time (Stigler, Gonzales, Kawanaka, Knoll, & Serrano, 1999; Wheelock, Haney, & Bebell, 2000). Patton (2002) defined content analysis as “any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings” (p. 453). Content analysis was applied to the collected data to investigate the process and nature of how the PTs conceptualized effective feedback practice through the three presences.

Such analysis often entails the stages of coding, categorization, description, and interpretation. Code classification refers to a process of reading through different data sets, to reduce redundant data, and generate main units (Patton, 2002). At first, the researcher and a research assistant analyzed the different data sets by adopting a negotiated coding approach (Garrison, Cleveland-Inness, Koole, & Kappelman, 2006). To negotiate meanings with the research assistant, the researcher carried out continuous training and refinement of the coding scheme. Refinements were made to Garrison and Anderson's code classification (2003) to delineate the nature and the actual processes involved in the three presences to analyze the action logs, as well as the transcripts in the discussion forums and chat rooms. A broad set of categories was developed based on the coding scheme of the CoI model. Thematic units which emerged from the codes were later presented in thematic topics, such as PTs' constructions, evaluations, and reconstructions of feedback practice to represent how the messages connected with each other and to particular unfolding themes.

To confirm the reliability of the content analysis, the researcher and research assistant coded the data separately, using Microsoft Word, and met weekly to discuss and agree upon emerging themes of the codes. Inter-rater reliability across different sets of data analysis ranged from 0.82 to 0.86, and the discrepancies were resolved through intensive discussions. Finally, the researcher interpreted the data by providing explanations, making inferences, building connections, and framing conclusions.

8. Results

8.1. Question 1: what processes in the teaching, cognitive, and social presences were involved when the PTs collaboratively constructed, evaluated, and reconstructed written feedback?

The frequency of the action means in the three presences that each PT undertook while reviewing six assigned essays is summarized in Table 1. On average the PTs took 619 actions in the teaching presence, 152 in the cognitive presence, and 71 in the social presence. Specifically, each PT read students' texts 24 times, provided micro-level feedback 468 times, provided macro-level feedback 86 times, and observed other PTs' feedback practice 41 times on average. In the cognitive presence, each PT compared different versions of the students' articles 22 times, read the students' responses 25 times, analyzed the student action logs 31 times, responded to students' responses and posted the problems in the discussion forum 27 times, and posted observation notes in the discussion forum 20 times respectively. In the social presence, the PTs viewed other PTs' feedback in the discussion forum 29 times, logged into the chat room to discuss issues 17 times, and responded to other PTs' problems in the discussion forum 25 times. Table 1 shows that overall the PTs spent a lot of efforts in providing micro-level feedback, which takes up 57 % of the total action means.

In order to provide a holistic picture of what most of the PTs experienced in the three presences, Amy was selected as a representative case since her action means in the three presences were close to the group means. A detailed analysis on how Amy interacted with other PTs can illustrate how most of the PTs performed their feedback practice in the three presences. Amy's action logs (Fig. 6) externalized the interactive and interrelated processes involved in the teaching, cognitive, and social presences.

Table 1
Overall action means of the 14 PTs in the teaching, cognitive, and social presences.

	Analysis of the actions	Action means	Rate
Teaching presence	Reading students' written texts	24	3%
	Providing micro-level feedback	468	57%
	Providing macro-level feedback	86	10%
	Observing other PTs' feedback practice	41	5%
Total		619	74%
Cognitive presence	Comparing different versions of texts	22	3%
	Reading the student responses	25	3%
	Analyzing the student action logs	31	4%
	Responding to students' responses	27	3%
	Posting the problems in the discussion forum	27	3%
	Posting observation notes in the discussion forum	20	2%
Total		152	18%
Social presence	Viewing peer PTs' feedback in the discussion forum	29	4%
	Logging into the chat rooms to discuss issues	17	2%
	Responding to other PTs' problems in the discussion forum	25	3%
Total		71	8%
Total actions		842	

Amy attempted to discover and overcome her drawbacks in providing feedback through the following processes. In the teaching presence, after reading a student's article (#1), she first provided micro- and macro-level feedback to correct the student's text (#2-#47). Next, she observed the feedback practice of another two PTs, Ruby and Tina (#48-#73).

Then, in the cognitive presence she compared the different versions of her student's texts (#76-#77), and read the student's responses to her feedback (#78-#84). To further understand why the student could or could not benefit from her feedback, Amy analyzed her student's action logs to explore the student's writing processes and behaviors (#85-#90) and responded to the student's responses (#91-#94). Next, she posted her problems regarding effective micro-level revision (#97) and observation notes (#98) in the discussion forum.

Then she viewed and discussed her feedback practice with other PTs in the social presence through the forums and chat rooms. For example, she viewed Cindy's feedback on one of her student's essays (#99-#105), logged into the chat rooms to discuss the related issue (#106) and also responded to Cindy's questions in terms of effective micro-level feedback posted in the discussion forum (#107-#123).

With regard to the average actions undertaken in the three presences when reviewing each student's texts, Amy read each students' written texts four times, provided micro-level feedback 80 times, provided macro-level feedback 13 times, and observed other PTs' feedback practice eight times (the teaching presence). Next, she compared the different versions of the student's texts four times, read the student's responses five times, analyzed the student's action logs six times, responded to the student's responses four times, and posted problems (four times) and observation notes (three times) in the discussion forum (the cognitive presence). She next viewed the other PT's feedback seven times, logged into the chat room twice, and responded to the other PTs' problems six times (the social presence). The interactive dialogues (the social presence) engaged Amy in ongoing critical inquiry into her own written feedback (the teaching presence) and deepened her knowledge of how to reconstruct effective written feedback (the cognitive presence) in her next feedback practice (the teaching presence).

Amy served as a case study to illustrate the actual practice undertaken by the PTs in the three presences, showing how most of the PTs engaged in a CoI into the collective goal of effective feedback practice. By engaging in the teaching, cognitive, and social presences, Amy needed to reevaluate her feedback practice and reconstructed her meanings at the interplay of these three presences.

8.2. Question 2: what was the nature of the PTs' collaborative constructions, evaluations, and reconstructions of written feedback in terms of the teaching, cognitive, and social presences?

Micro-level and macro-level feedback were classified as the two major feedback types and the system functions were contrived accordingly. The following section reports how most of the PTs collaboratively constructed, evaluated, and reconstructed their feedback practice in these two aspects in the three presences. In the teaching presence, the PTs read students' written texts, provided micro- and macro-level feedback on the students' texts, and observed the fellows' feedback practice to identify problems. In order to identify and explore their problems, the PTs engaged in comparing the different revisions of students' texts in the micro- and macro-level feedback, reading and responding to the students' responses, analyzing students' action logs, and posting the problems and observation notes in the discussion forum. In the cognitive presence, the PTs evaluated their principles of feedback practice with the support of the teaching and social presences. In the social presence, they shared their collaborative constructions, evaluations, and reconstructions of written feedback with the other PTs in the discussion forums and chat rooms.

Presences	Action Sequence	Amy's action logs
Teaching presence	1	Read the article [What can I do for others] view
	2-45	Provide micro-level feedback on the article [What can I do for others] version [1] view
	46-47	Provide macro-level feedback on the article [What can I do for others] version [1] view
	48-61	Observe Ruby's feedback practice
	62-73	Observe Tina's feedback practice
Cognitive presence	76-77	Compare differences in the article [What can I do for others] between version [1] and [2] view
	78-84	Read the student responses [What can I do for others] version [2] view
	85-90	Analyze the student action logs [What can I do for others] version [2] view
	91-94	Respond to the student responses [What can I do for others] version [2] view
	97	Post the problems [Effective micro-level revision] in the discussion forum view
	98	Post observation notes in the discussion forum view
Social presence	99-105	View Cindy's feedback on [My unforgettable experience] view
	106	Login to the chat rooms and discuss the issue view
	107-123	Respond to Cindy's problems [Effective micro-level feedback] in the discussion forum view
Teaching presence	124	Read the article [Love for others] version [1] view
	125-130	Provide micro-level feedback on the article [Love for others] version [1] view
	131-149	Provide macro-level feedback on the article [Love for others] version [1] view

Fig. 6. Amy's action logs.

Table 2

Comparison of PT Tina's revision and student I's revised text

Tina's revision	Student I's revised text	Student responses to PT Tina's feedback
Flying overseas, first we might notice personal security and clearly realize what have to take beside us are the first two things we might have to notice .	Flying overseas, personal security and what have to take beside us are the first two things we might have to notice .	Directly copied
For instance, passport is a the most important thing we have to put it carry with us.	For instance, passport is the most important thing we have to carry with us.	Directly copied
It is an indispensable thing that you traveled around anywhere. can define your ID .	It is an indispensable thing that can define your ID .	Directly copied

8.2.1. Micro-level feedback in terms of the three presences

Tina, for example, used to provide precise grammatical corrections on student drafts in her teaching presence. However, when comparing the students' final drafts with the ones she revised (during the cognitive presence based activity), Tina discovered that most students like Student I simply copied her micro-level feedback (see Table 2), and the same types of errors appeared again in the next writing assignment.

Tina also found that Student I was less active than other students in the text revision process. *Action logs* show that Student I merely read Tina's micro-level feedback once and then posted his modified texts with direct copies, whereas other students with improvements read PTs' micro-level feedback, viewed other students' texts, and compared different versions of their own drafts more frequently.

After providing feedback and evaluating its effectiveness upon student writing, Tina used the *action logs* to observe the feedback practice of another PT, Linda, to see if Linda encountered the same predicament as she did in providing micro-level feedback (the teaching presence). In her observation notes shared in the discussion forum, Tina wrote that Linda employed a different strategy to provide the micro-level feedback to her students. Linda did not precisely provide grammatical corrections on student writing; rather, she left a message in a dialogue box indicating the major grammatical errors of Student III in his writing. Linda suggested that Student III separate one passage into different paragraphs with indents in the first line of each paragraph. However, Student III did not exactly adopt Linda's feedback, as he separated the paragraphs with an extra space (Fig. 7). Tina found that Student III acted as an active learner by evaluating the PT's feedback from other resources such as *News English*. Through the observation on her fellow's feedback practice, Tina reviewed and reconstructed the essential components of the effective micro-level feedback in the cognitive presence.

In the social presence of the discussion forums and chat rooms, the PTs discussed micro-level feedback problems and generated solutions (Fig. 8 and Table 3). The PTs indicated that originally, they had believed that putting time and effort into detailed corrections of errors helped students improve their writing. However, comparisons of students' different versions of drafts revealed that most students copied the PTs' corrections without making any further revisions. Cindy said that "if students merely accepted all of our corrections, students may make the same errors again." Ruby indicated having her high school teachers correct her errors had tremendously helped her improve her writing, but her students still made the same mistakes in their final versions. Through their collaborative exploration, the PTs concluded that providing detailed corrections might prevent students from thinking on their own. When Ruby used the dialogue box to ask her students whether her micro-level feedback enhanced their understanding of English sentence structure, most students answered that they would make the same mistakes, no matter how many detailed corrections were made on their texts. Amy echoed the concern that the PTs' detailed micro-level corrections did not help students find their own errors. In this way, the PTs integrated each other's problems and suggestions and concluded that the correcting of students' grammatical errors might keep students from being actively involved in assimilating the grammatical rules, and not apply them to their next writing.

Through the interactive engagements in the three presences, the PTs concluded that effective micro-level feedback should not center on the meticulous grammatical correction of students' texts. The excessive grammatical corrections often developed students into dependent writers who might wait for the direct corrections without taking the initiative by evaluating and correcting their own grammatical errors. To encourage students to monitor their writing process and uncover their writing problems, the micro-level feedback should focus on the identification of the major common grammatical errors. For example, Mandy suggested focused lessons on structures in which there were common mistakes, such as subject-verb agreement or tenses, and then asking students to revise their own texts based on these lessons. The PTs further conceptualized that fundamental, but unfamiliar, micro-level concepts could be emphasized, and it was important for students to examine problematic sentences with errors in their own texts to raise their own awareness for self-corrections. In addition, the micro-level feedback could also be provided with provocative and guiding questions to examine whether students had

文章内容 (Content)	
Technology move faster and faster every day. Many future airplanes can be controlled by computers. In the future, maybe some planes won't need a pilot to fly the planes.	
Also, in the future, new airplanes will be designed to be faster and carry more people and save more fuel.	Student III left one blank line to separate the passage.
修改者 Linda G.R.内容	
[其它]	Linda asked student III where he learned this.
Why did you space a single line to separate each paragraph?	
此回應的評價(Evaluation of the response)	☀️☀️☀️
SIII's Response	
I've checked the style of English News and some of the classmates do so, too.	

Fig. 7. The correction made by Student III after checking other resources.

Issues	Discussion Content	Providers
Micro-level feedback	My students simply copied my corrections. How do you solve the problem?	Linda
	I think you should not correct all errors for them.	Ruby
	Yes, if students merely accepted all of our corrections, students may make the same errors again.	Cindy
	I agree with Cindy. We may collect common errors in students' writing. And we can elaborate on those common errors in class and ask students to correct their own errors in their written texts.	Mandy

Fig. 8. The discussion forum concerning micro-level feedback.

Table 3

Dialogue concerning micro-level feedback in the chat room.

Transcripts of the statements
Cindy: I am used to correcting students' grammatical mistakes.
Ruby: I always assumed that I would improve as long as the teacher corrected each of my errors because I benefited a lot from my high school teachers' detailed corrections. After I read the students' final drafts, I realized that the students only copied my corrections.
Linda: Right. I faced the same situation. I spent two and a half hours correcting the first draft and corrected 80 to 90 mistakes at the micro-level. However, most of the students still make the same mistakes while writing their next texts.
Tina: I really wonder if they learned those corrected forms from our corrections.
Ruby: Actually, I asked my students if they would acquire what was corrected, most of them said that they might still make the same errors next time.
Amy: I think we always offer them too many corrections making it too easy for them to copy them. Maybe because they are not aware of those errors, they appear again in the next draft.

difficulty in self-revision, such as “do you want me to give you the key words or the correct structure of the sentence?” or “what message do you try to convey in this sentence?”

8.2.2. Macro-level feedback in terms of the three presences

The PTs experienced challenges in providing macro-level feedback in their teaching presence. To conceptualize effective macro-level feedback, the PTs compared different versions of students' texts, read students' responses, and analyzed students' action logs in the cognitive presence. For example, Mandy, by comparing different versions of Student XVII's draft texts, discovered that her feedback on text organization failed to guide students to maintain coherence in their writing. She noticed that Student XVII had not reorganized his text according to her macro-level feedback, so the connections between the central ideas in the three paragraphs, *My ideal job*, remained unclear.

Mandy shared her observation on the other PTs' macro-level feedback practice from her teaching presence. In her observation notes shared in the discussion forum, Mandy indicated that while most of the PTs' student writers did not make macro-level revisions, Linda's students like Student XI made progress by making his text organization significantly more coherent through providing concrete examples, such as transition words, like “By doing so,” and adding personal connections (see Fig. 9).

By carefully analyzing PT Linda's action logs, Mandy found that Linda invested less effort in micro-level feedback so that she could better direct students' attention to text organization. She noticed that Student XI read Linda's macro-level feedback on text organization eight times, compared different versions of his own drafts eight times, and viewed other students' drafts four times. Her observations on the other PTs' macro-level feedback also made her discover that PT Cindy shared a similar pattern as she did in providing macro-level feedback to students (the teaching presence). Mandy observed that Cindy like herself provided too many micro-level corrections so that students' attentions were distracted away from providing macro-level feedback. Mandy thus offered Cindy advice about how to improve her macro-level feedback practice in the *chat room* (Table 4) in the cognitive presence. She suggested to Cindy that most students could not incorporate their macro-level feedback, because the meticulous corrections prevented students from paying attention to text organization and development by increasing their cognitive loads, particularly for the less proficient student writers, who often needed much more time just to assimilate those corrections. Mandy concluded that they should have provided less micro-level feedback as Linda did to the students.

After the online discussions in the social presence, Mandy and Cindy were determined to share the issues concerning the macro-level feedback practice in the *discussion forum*. In the *discussion forum*, the PTs indicated that what constituted effective macro-level feedback lay heavily on the providing of exemplary texts for students to actually visualize the

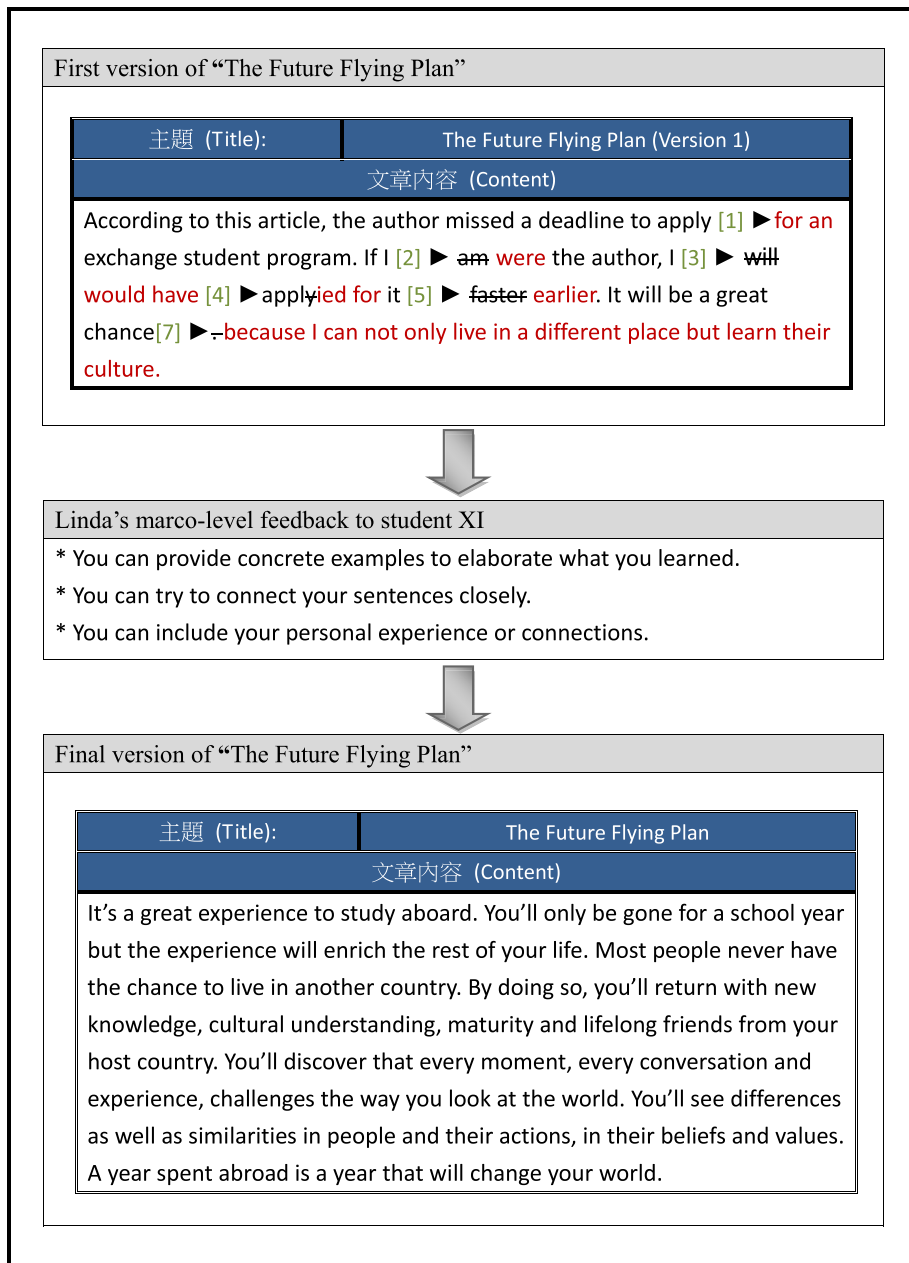


Fig. 9. Student XI's macro-level revision.

Table 4

Dialogues concerning macro-level feedback in the chat room.

Transcripts of the statements

Mandy: Cindy, I just read your action logs and I found that you probably had the same problem as I did in providing macro-level feedback.

Cindy: Really? What would you suggest me to do with the problem?

Mandy: I would suggest that we should reduce the amount of micro-level feedback. Just like what Linda did to her student. I found that Linda's students made lots of changes on text organization, because Linda tried to direct her students to paragraph coherence.

Cindy: I see. How about we bring the issue to the discussion forum to ask for some advice from other PTs.

Mandy: Okay! Also, I realize that too many micro-level corrections might overburden the students who are less proficient writers.

appropriate use of cohesive devices, rather than the direct corrections of either grammatical errors or misconnected ideas between sentences and paragraphs. In other words, the PTs concluded that the effective macro-level feedback should not sacrifice macro-level instruction through effective feedback by overemphasizing micro-level corrections. The effective macro-level feedback should encourage student writers to read some good model texts, which the system could make available, and compare the different versions of their own texts to visualize their development. These results showed how an online participatory practice engaged the PTs in constructing, evaluating, and reconstructing their feedback on the students' writing.

9. Discussion and conclusion

This study offers one potential response to [Garrison and Arbaugh's \(2007\)](#) research and concerns about the lack of empirical research using the CoI framework in different fields, particularly in language learning and teaching. More specifically, [Shea, Hayes, Vickers, et al. \(2010\)](#) identified that what is “[l]acking in this research is an attempt to test hypotheses generated by previous work documenting online knowledge construction through the interaction of all elements of the model” (p. 11). Thus, this study attempts to further previous research by reporting PTs' deep and meaningful knowledge construction of feedback practice in a virtual learning community. Theoretical implications of applying CoI to teacher learning can be drawn from this study by extending the existing CoI framework to teacher education in an Asian context, and practically, by delineating teacher learning processes at the interplay of the three presences. It can be concluded that when the PTs were provided with online participatory practice wherein they provided feedback for student writers and served as subject matter experts between each other, they were intensively engaged in identifying each other's feedback practice problems and generating pedagogical knowledge, which supported their re-conceptualizations of effective feedback. This finding is in line with some researchers' assertions (e.g., [Borthwick & Gallagher-Brett, 2014](#); [Guskey, 1986](#); [Knezevic & Scholl, 1996](#)) that teachers can learn to conceptualize effective teaching practices when they can visualize their own teaching behaviors and review student learning processes. By monitoring and analyzing their teaching behaviors and student learning processes, teachers can probe into the reasons why their feedback do not lead to improved student learning and help identify instructional support that students might need at different learning stages.

It is suggested that PTs should be encouraged to change their role to serve as subject matter experts, in order to observe peer feedback practice, identify problems in peers' feedback practice, and provide suggestions to improve their practice. This study suggests that rather than by solely relying on teacher educators as the only sources to help identify the problems and provide advice, the PTs should share the division of labor when monitoring, reflecting, and scaffolding both their own and their peers' teaching practice. In this way, PTs can identify problems in their teaching presence and focus the discussion on common and pertinent pedagogical issues. Such findings are in contrast with most studies (e.g., [Gallagher, Griffin, Ciuffetelli Parker, Kitchen, & Figg, 2011](#); [He, 2009](#); [Hung & Yeh, 2013](#)) and the literature which stresses the importance of teacher educators in facilitating discussions between teachers in a teacher community. Most studies stress that without facilitation from the teacher educator in a teacher learning community, discussions between teachers often remain at low cognitive levels.

It can be noted that, in contrast to previous studies teacher educators played the dominant roles in sharing teaching experiences, problems, and solutions in the community. The findings in this study, however, suggest that the successful online discussions between the teachers arose principally from the design of online participatory practice with the framework of CoI wherein the PTs served as subject matter experts to monitor, reflect, and scaffold both their own and their peers' feedback practices. Thus, this finding also confirms [Miy and Diaz's \(2015\)](#) review of study results in that the teaching presence, in turn, contributed to the development of professional knowledge in the cognitive presence and the facilitation of online discussion in the social presence.

In contrast to previous studies which used quantitative research approaches to reveal causal relationships in the teaching, cognitive, and social presences ([Garrison et al., 2010](#)), as well as student perceptions toward CoI ([Shea, 2006](#)), and the effects of CoI upon student learning outcomes, attempts made to understand FL teacher learning with the CoI model focused predominantly on the U.S. student teachers, in general. Among these attempts, most of the studies tended to focus on the investigation of the social presence, in particular. This study has demonstrated the potential for using this framework to analyze the group learning of online participatory practice that occurs in an online CoI using a qualitative approach (e.g., the PTs' written macro- and micro-level feedback, action logs, observation notes, and discussion transcripts) in order to provide comprehensive and interactive processes of the teaching, cognitive, and social presences in an Asian context. Through these three presences, the PTs provided micro- and macro-level feedback and observed each other's practices in the teaching presence and conceptualized that providing detailed micro-level corrections overloaded students cognitively and hindered their ability to make use of macro-level feedback in their cognitive presence after they intensively explored the related issues with other PTs in the social presence. To help the 14 PTs re-examine the effectiveness of feedback practice inherited from their previous learning experience, an online participatory practice allowed the PTs to recognize problems in traditional writing instruction and develop principles of effective written feedback through collaborative efforts.

Practical implications for teacher learning can be drawn from this study. Apart from elevating the level of communication, a well-structured online system provides concrete documentation of what was communicated, how communications were used, and what outcomes occurred, and supported teachers' inquiry into feedback practice. As shown in this study, experiencing the inquiry cycle of the three presences helped PTs develop effective feedback and reinforced insight into their own practice. This study suggests that teacher preparation programs can create opportunities for PTs to engage in actual practice,

and when coupled with learning theories can foster higher level activities afforded by the use of different technology functions. This study demonstrates how engaging in a CoI helped PTs observe and identify pedagogical problems, and reconstruct their teaching approaches through active observations and reflective discussion with peer teachers. As asserted by Loughran (2002), simply transforming knowledge from teacher educators to PTs is conceivably less effective than having them “analyze and make meaning from experience that matters most” (p.38) through reflection in practice among themselves. This kind of reflective thinking, according to Dewey (1933), is “[active], persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (p. 9). Similarly, Rodgers (2002) further pointed out the value of shared reflection in helping teachers not only confirm personal experience but also view things from others’ perspectives. Hence, reflecting on practical experience is crucial for PTs to challenge and reconsider their previous assumptions, gain valuable insight from considering other viewpoints, and thereby transforming and developing their professional knowledge of teaching (Loughran, 2002).

Since a sense of community lies in both personal and purposeful relationships (Garrison & Arbaugh, 2007; Garrison et al., 2010), this study showed that the affordances of a well-structured online communication system can move PTs to a high cognitive level of social discussion. The functions of the online WRITeam system designed for this intervention included (a) *Show Differences* for comparison of different versions; (b) *action logs* in the system; and (c) *asynchronous discussion forums* and *synchronous chat rooms*. *Action logs* and *Show Differences* were pivotal resources which helped the PTs move beyond low-level cognitive interactions that focused merely on the analysis of problems without producing solutions and alternatives. By making good use of their *action logs*, using the automatic sorting functions to analyze the action logs of the student writers, the PTs could develop a better understanding of how students did or did not benefit from the written feedback. Comparing different versions of students’ written texts allowed the PTs to understand to what extent the students’ texts had improved and judge the effectiveness of their feedback. Action logs and multiple drafts afforded the PTs an in-depth understanding of the students’ writing processes which led the PTs to move to achieve higher levels of inquiry (Larreamendy-Joerns & Leinhardt, 2006) and more effective feedback on subsequent text versions. With the records, the PTs can also easily access other PTs’ feedback practice processes, observe how others provide feedback differently, and thus further conceptualize effective feedback practice. The *asynchronous discussion forums* and *synchronous chat rooms* established in the social presence provided the opportunity for PTs to share common problems and observation notes and thus find possible alternatives with collaborative efforts. By promoting deeper cognitive interaction, the forums and chat rooms transcended the criticism of superficiality often made about less structured online interactions (Larreamendy-Joerns & Leinhardt, 2006).

As a process-oriented qualitative study, the findings in this paper were illustrations of what most of the PTs within this research context actually experienced and might not be able to generalize to other teacher education settings. Some limitations of the present study suggest directions for further inquiry. First, the CoI framework for teacher education was only applied in an online environment in the current study. While the superiority of an online participatory system with tangible documentation over onsite discussions of general problems is suggested, comparing the implementation of participatory practice in the two types of settings could clarify differences between them. Second, the extension of a CoI to teacher education was one of the few attempts to understand FL teachers’ online participatory practice in an Asian context. The relationships between the three presences could differ across educational and cultural contexts, suggesting the need for studying the dynamic processes within the CoI model in different teacher education programs. Third, due to the limited time span of the current study, there is still a need for more longitudinal studies that take implementation time into account and examine its effect on the processes of conceptualizing effective written feedback to students’ subsequent writing. Future studies can also be conducted to explore how PTs adapt co-constructed knowledge into their future feedback practice. Finally, this study only extends the CoI model to investigate FL teachers’ conceptualization of online participatory feedback practices in a writing course. Future studies can be conducted to investigate language teachers’ pedagogical practices in language aspects other than writing.

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