運用線上教案分析以觸發
大專英語兼任教師之反思

李多耕

摘　要

　　本研究主要探討在網路教師社群使用五步驟教案分析法，如何觸發以英語為外語之大學兼任教師的反思。一直以來，高等教育面對日益依賴兼任師資的挑戰。雖然研究者建議兼任教師應享有與專任教師相同的專業發展機會，對於如何將兼任教師融入教育社群中的努力，仍顯不足。本研究利用五步驟教案分析法於一網路教師社群，旨在使兼任教師反思教案中的議題，並與其他教師分享自己的反思。有鑑於教師反思為教學精進中的基礎，本研究以一私立大學中四名以英語為外語之兼任教師為研究目標。研究資料來源涵蓋教師們於網上社群的討論及個人反思、教案分析和訪談。這些資料用以探討兼任教師對於在網上社群以教案進行反思的看法。研究結果指出，在網路社群上進行教案分析和討論，提供教師們討論教學想法一個無風險的場域。除此之外，也有助於教師建立合作學習、結合理論和實踐、打破兼任教師在工作環境和專業成長上的孤立，以及促進教師的反思。針對未來的研究方向，本研究建議教師社群應包含及探究不同領域的教師如何相互合作及激盪想法。

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The Implementation of Online Case Analyses to Trigger Collegial EFL Part-time Faculty's Reflection

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Abstract

Higher education has been challenged by the rising reliance on part-time faculty; however, limited endeavors have been contributed to the integration of part timers into educational community. This study investigated how the utilization of five-step case analysis procedure in an online community triggers reflection of collegial English as Foreign Language (EFL) part-time teachers. Four part-time EFL teachers from a private college were recruited. Data resources including online discussionand reflections, case analyses and interviews, were employed to investigate part-time faculty's perspectives of reflecting on cases in an online community. Results reveal that the online community provides part-time faculty with opportunities to learn from each other and a risk-free venue to try new teaching ideas, helping them break professional isolation through connecting theories with practices. Also, the five-step case analysis guided the participants to exercise reflective practices.For future study, it is suggested that teachers of interdisciplinary studies should be included and investigated.

Keywords: Teacher Professional Development, Teacher Reflection,
　　　　　　Case–analysis, Online Learning Environment,
　　　　　　English as a Foreign Language (EFL)

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Introduction

The massive expansion of higher education has become a global phenomenon that causes multiple challenges (Kabouridis, 2011). Many universities alleviate the expansion through hiring more part-time faculty. The continued reliance of part-time faculty appears to be the common approach for schools over the world to reduce their costs (Rossol-Allison & Beyers, 2011), including the United States (Quinn, 2006), United Kingdom (Muzaka, 2009), and Australia (Kift, 2003). This prominent trend highlights the need to improvethe quality of the part-time teachers' professional development.

The reliance on part-time faculty in higher education has also been burgeoningin Taiwan. An investigation report, published by the Control Yuan, indicates that the number of part-time faculty in Taiwanese universities and colleges has increased by 63% in comparison with 19% for full-time teachers from 2001 to 2011 (Y. G., 2012). Nevertheless, part-time faculty members are paid less both in salary and fringe benefits. Also, they have limited access to professional development opportunities in comparison to full-time colleagues.

The dearth of opportunities for part-time faculty's professional development is also reflected in collegial English as Foreign Language (EFL) teachers. While the literature has documented the significance of providing part-time faculty with professional development opportunities, scant resource is distributed to engaging part-time EFL faculty in learning communities (Eney & Davidson, 2012; Kozeracki, 2005; Maxwell, 1997). With the widespread need of EFL teachers in higher education, part-time faculty's professional development opportunities should be highlighted.

To improve part-time teachers' professional development, it is critical to awaken and sustain their reflection upon teaching. Reflection refers to teachers and administrators' capabilities to rethink the purposes of education and reshape

their teaching and assistance to meet students' needs (Burnett & Lingam, 2007). The reflective process involves creating meaning around practice (Kahn et al., 2006), repeating cycles of examining practice, and tailoring practice. Reflection helps orient teachers to attune their instructional strategies for meeting students' needs better.

However, teacher reflection cannot be activated unless a productive and persistent sentiment of collaboration is forged. Although the reflection can be optimized through collaborative activities (Ferman, 2002), college teachers usually work independently for course planning, designing teaching activities, and choosing assessments even though they teach the same subject. Such isolation limits the efforts to improve college teaching on a broader scale, both within and across disciplines.

To trigger teacher reflection, the literature has promoted a community model of professional development in place of the traditional one (Cochran-Smith& Lytle, 2001; Conrad, 2005; Grossman, Wineburg, & Woolworth, 2001; Lock, 2006). Online community benefits the learning-to-teach-in-community model for teacher development because it encourages collaborative work, ongoing communication, reflection prompts, and feedback(Hammerness, Darling-Hammond, & Bransford, 2005). Online communitiesenable teachers to learn through discussing with their peers without constraints of space (Jung & Brush, 2009).

Although online community can be convenient for teachers' learning, reflective activities are paramount to effective professional development. One approach to encourage teachers to be retrospective in their practices is case analyses. Case analyses in teacher education are used to help teachers develop their decision-making skills, practice theoretical principles, and enhance their awareness of learners'needs. Teachers can learn how to propose different solutions and contemplate the consequences of their actions during case-based learning (McNergney, R., Herbert, J., & Ford, R., 1994; McNergney & McNergney, 2007). Cases are written based on real-life dilemmas in classrooms which involve

instructional, curricular, and managerial issues. Through analyzing cases and sharing their reflections with colleagues, teacherscan discuss and collaborate to construct pedagogical knowledge in a situated learning discourse (Liu, 2012). Several studies have also emphasized the demand to establish online communities for part-time teachersto discuss instructional issues (Hou, Chang, & Sung, 2009; Lin, Lin, & Huang, 2008; Liu, 2012; Yeh, 2010).

This study aims to understand whether and howreflection can be optimized through sharing individual case-analysis in an online community. Bydiscussing cases online, teachers as a team canutilize theframework of case analysis to share experiences, investigate the effectiveness of strategies, and build problem-solving schemas for the instructional dilemmas of cases (Hammerness et al., 2005). The participants were instructed the five-stepcase analysis procedure (McNergney et al., 1994). The five-step case analysis includes identifying issues, speculating multiple perspectives, using knowledge, proposing actions, and postulating consequences. To explore how college part-time teachers perceive the five-step case analysis approach as a medium to stimulate their reflective practice, the study is guided by the research question below:

How do part-time teacher participants perceive the five-step case analysis and related discussions in an online communityas an approachto trigger their reflection?

Review of the Literature

Although numerous studies have underlined the need to activateteacher reflection through enacting a reciprocal learning community, few of theminvestigate the approaches to facilitate collegial EFL part-time teachers' reflections online. Strong feelings of community foster the commitment to group goaland learning

motivation (Rovai, 2002). In addition to establishing a community, a learning-oriented group activity which triggers teachers' reflection is critical.　To better understand whether case analysis stimulates teachers' reflection in a community, this section documents studies from fivedomains: (1) the professional development of part-time faculty in higher education, (2) definitions of case analysis, (3) teacher reflection, (4) uses of case method in teacher education, and(5) related studies on five-step case analysis.

The professional development of part-time faculty in higher education

Flinders (1988) noted college teachers' professional isolation and found that such a situation is more prevalent among part-time faculty in higher education. Flindersattempted to explicate the phenomenon in terms of two dimensions. Firstly,　teacher isolation can result from the conditions in which teachers worksuch as the characteristics of their workplace and the limited opportunities for teachers to interact with their colleagues. Secondly, isolation can be defined as a psychological state which results from teachers' perceptions of the lack of collegial assistances.　Hence,　teacher isolation is contingent upon how teachers perceive and experience collegial interaction in their workplaces　(Hedberg, 1981). For part-time teachers on college campus, they are more likely to suffer from professional isolation than full-time faculty since their job nature asks them to work with fragmented teaching schedules in multiple academic venues.

Several researchers contend that school structure perpetuates teachers' feeling of loneliness since faculty'sopportunities to observe and interact with one another can be restrained (Calabrese, 1986; Flinders, 1988; Gaikwad & Brantley, 1992; Lortie,　1975). Several studies attribute professional isolation to course scheduling (Liberman & Miller, 1992; Lortie, 1975). Cookson (2005) utilizes the term, egg crate, to describe the school structure whose condensed schedule suffocates

professional collaboration among teachers. Hadar and Brody (2010) discern that interaction among faculty is confined to generic dialogues instead of issues such as student achievement or instructional adjustment. The isolation can be fortified among the part-time faculty in higher education because many universities considerthat sending part-time teachers to conference or organizing in-house professional development could deprive their financial flexibility (Eney& Davidson, 2012).

The tendency towards isolation is particularly evident in higher education since colleges and universities are organized by departments (Hadar & Brody, 2010). Such a department-oriented structure can be the catalyst for discouraging interdisciplinary discourse among teachers. Kozeracki (2005) observed that opportunities for the conservations of college-wide programs, departmental meetings and roundtables, and informal discussions among colleagues are substantially reduced for part-time faculty. Although Rifkin (1998) found there is no evident difference between full-and part-time college teachers in their commitment to their profession, part-time faculty often either were not engaged in professional development or fail to have any opportunities for continuing professional development (Clery, 1998; Eney& Davidson, 2012; Freeland, 1998; Longmate & Cosco, 2002). Since the need for improving part-time faculty's professional development has been defined, researchers have urged that both full-time and part-time faculty should have equal opportunities for their professional education.

Although the college culture prides itself on seeking excellence in teaching and cordially social interchange between students and teachers, a marked absence of discourse about the content and technique of teaching still exists. The scarcity of conversation among colleagues is more exacerbated among the part-time faculty. Such a phenomenon can result in limitedopportunities for college faculty to discuss instructional alignment and share thoughts for research. In general, college faculty takes individual responsibility for course content, instructional planning, and assessments. The widespread phenomenon of isolated

teaching in higher education stops collegial interchange at the classroom doors of full–and part–time teachers although collaboration is usually encouraged within the institutional culture (Hadar & Brody, 2010).

Several studies have noted teachers' professional isolation in higher education in comparison with the burgeoning collaboration among educators in K–12 schools (Applebee, Adler, & Flihan, 2007; Nevin, Thousand, & Villa, 2009; Pugach, Blanton, & Correa, 2011). McIntyre (2009) asserts that university–based scholars should develop multiple discourses which serve to bridge the gap between theories and practices and discuss pedagogical issues. Nevertheless, activities for college teachers and teacher candidates to obtain authentic understanding of effective collaboration have been infrequent (Scruggs, Mastropieri, & McDuffie, 2007) and anachronistic (Pugach et al., 2011). While numerous professional development programs for faculty include courses and activities that address collaboration, few of them can model or facilitate the time–intensive and long–term collaboration that teachers can employ in their schools. Nevin et al. (2009) finds that teachers' perceptions of each other and interactions with their colleagues have been neglected in university life. Pugach and Blanton (2009) conclude that college teachers would gradually lose their curricular and instructional sensitivities if they fail to construct a coherent view of faculty collaboration.

In summary, abundant research findings have concluded that the most productive conditions for sustaining teachers' learning is a teacher culture of encouraging and valuing collaborative learning (James & McCormick,2009; Jurasaite–Harbison & Rex, 2010; Sato & Kleinsasser, 2004). Nevertheless, many traditional programs of professional development in colleges and universities appear to deemphasize interaction among full–and part–time teachers. Most workshops and courses offered by colleges neither address the process of teachers' networking and interchanges norrecognize the power of teachers' collaborative learning. Such an abatement of collaboration amongboth full–and

part–time faculties can reduce the developmental process to a narrow and practical exercise (Hargreaves, 1995).

Definitions of case analysis

Cases are often described as stories, vignettes, or "slices of real life," since they represent reality in its intricate complexity and contain significant contextual evidence (Kilbane, 2000). Merseth (1996) contends that a case opens opportunities for readers to assume the cognitive roles associated with the daily task of being a teacher (Bronack, 1998). Reading and analyzing cases strengthen prospective teachers' decision–making and reasoning abilities, and even increase their moral development (Kessler, 2005). Likewise, case writing and reading orient prospective teachers toward more expert–like thinking (Clark & Lampert, 1986; Darling–Hammond& Hammerness, 2002; Shulman, 1992). In general, case studies allowed teachers to examine their own assumptions about teaching (Goodwin, 2002; Roeser, 2002).

Case stories can greatly improve learning by addressing context and relevance (Lowenthal, 2008), and this featurehelps teachers determine proper pedagogical approach according to students'needs.Hutchings (1992) contends that cases are a powerful tool for professional development, introducing them to a productive way of improving teaching and learning. Case methods are beneficial in the fields which require complex interactions and constant decision–making, instead of applying prescriptive approaches. Case stories present new ways of demonstrating teaching and learning innovations (Mitchem et al., 2009).Case methods are powerful incontextualizing knowledge that students have limited opportunities to try in the classroom (Shulman, 1986).

Cases can be used as pedagogical puzzles, which become more complicated after they are reread and analyzed (Kapustka, 2002). The problems that teachers encounter today usually requi re diverse perspectives and procedures. Case

methods help provide realistic environments through which learners can try various problem−solving tactics and learn to make judgments (McNergney et al., 1994). Such a quality, throughutilization of case methods,can stimulate and promote teachers' critical reflection (Greenwood & Parkay, 1989; Shulman, 1992). The five−step case analysis, a reflective problem−solving process, provides a conceptual framework for developing the habits of professional thinking through procedural analysis (McNergney, R., Ducharme, E., & Ducharme, M., 1999). The strategy is based on assumption that teachers who can execute a set of actions in case studies have potential to handle the similar situations in their future teaching (McNergney et al.,1994; Bronack & McNergney, 1999).

In summary, cases can help teachers practice analysis and hatch solutions. Also, cases can encourage personal reflection (Merseth, 1996). Case studies demand multiple levels of interactions between the material and the readers (Merseth, 1991). Thus, the focus of the case method is readers' reflective process itself (Christensen & Hansen, 1987; Merseth, 1991). To better understand the influence of case−based learning, it is helpful to realize reflective practices of professional practitioners.

Teacher reflection

Teacher reflection can be defined as the process of teachers' reviewing the unity and coherence of their activities from lesson planning to execution (Suratno & Iskandar, 2010). Through the process of reflective practice, teachers retrospect to their instructions and contemplate how to tailor their curriculum and instruction to students' learning demands. Dewey (1933) notes teachers need to be reflective instead of habitual during their instruction. Schön (1983) further indicates that professional practitioners should use lessons and experiences to advance their effectiveness and efficacy instead of fixed and rigorous formulas. Professional practitioners should reexamine their own initial understanding of the

phenomenon, frame the problem, and generate solutions while encountering an unexpected problem.

Dewey's claim for teachers' retrospectives of their teaching can be realized through a cyclical process of reflective practices. In this process, teachers look back their teaching, identify possible problems or issues of their teaching, analyze and evaluate it. When a group of teachers conduct reflective practices together, the collaboration helps encourage reflection. For instance, advisory teachers and principals can act as helping agents through visiting classrooms, conducting post-observations, and hosting reflective conferences (Cook, 1998). Such a reflective framework helps teachers examine their own instructional effectiveness through various viewpoints in a collaborative context (Suratno & Iskandar, 2010). Reflective practices afford teachers opportunities to set up instructional goals altogether with a group of teachers, plan the lessons for research, observe one of group member's instructional demonstration, and discuss and revise the lessons with other teacher members in the demonstrated lessons. Titilayo and Uwameiye (2012) maintain that reflective practices should be executed within a group of teachers, alongside with an expert teacher who guided reflection through a cyclicprocess of planning, teaching, and debriefing research lessons.Through understanding the components of best practices, teachers who conduct reflection will be more attentive to the factors that make them responsive to learners.

Although several studies have advocated the effectiveness of reflection for teachers' learning, the investigations of using reflection to trigger collaboration have been scant (Westheimer, 2008). Such a lack is evident in higher education since most classroom teaching in universities and colleges has been viewed as a profession to be exercised with privacy behind classroom doors (Santagata& Guarino, 2012). Another problem in teacher education is that most teachers continue to teach as they were taught in schools (Jimenez-Silva & Olsen, 2012). Therefore, it is essential to activate and sustain teachers' reflective practice

through a collaborative endeavor to help them see beyond their own experiences and better tailor their instruction and curriculum to students' needs.

Case uses in teacher education

In teacher education, case studies help teachers practice their decision–making ability. Since there is no single and prescribed formula for solving the problems that teachers encounter in the classroom, cases help prospective teachers develop strategies for handling different situations and realize the components of the instructional strategy used (Grossman, 1992). Case studies are constructed by real–life classroom dilemmas regarding instructional, curricular, and managerial issues. Such a feature canstreamlineteachers'problemsolving abilities and understanding of contemporary issues (Sudzina, 1999).

Cases can help teachers connect theory and practice in their classroom (Shulman, 1992). Teachers usually work in isolation and such a career characteristic prevents them from examining their own thinking and sharing insight with their colleagues (McAninch, 1993; Shulman, 1992). Cases can be powerful for teaching about theory and precedents of practices since they can be utilized as exemplars that model effective practices (Gartland, 2003). They provide teachers withgeneralized and theoretical solutions in resolving certain classroom situations.

Casescan also be used to exhibit certain circumstancesin which teachers can practice their analytical skills. Case studies reflect dilemmas that teachers will be likely to encounter in the classroom (Gartland, 2003; Kessler, 2005). Kessler (2005) indicates that the five–step case analysis promoted by McNergneyet al.(1994) provides students with vignettes of life in classrooms. This featureencouragesteachers to apply theories, contemplate solutions to questions, and assess the potential consequences of their proposed actions.

Case studies benefit faculty learning through addressing diverse perspectives

toward an issue (Lowenthal, 2008). Teachers should not develop solutions through their own perspectives only since classrooms are multifaceted and constantly–changing social environments (Erickson, 1986). Cases situate teachers in realistic but risk–free scenarios for evaluating their proposed actions from various aspects. To enhance student learning, teachers should contemplate the other perspectives and attempt to integrate them while incubating solutions. Gartland (2003) argues that cases can help educators learn to respect the legitimacy diverse opinions and recognize the impact which their personal perspectives can have on the selection of copying strategies. Through presenting different perspectives of learning, cases can help teachers approach the core issues.

Related studies on five–step case analysis

The five–step case analysis (McNergney et al., 1994) guides teachers to identify the core issues in cases, recognize multiple perspectives, locate related knowledge, propose actions, and forecast the consequences of implementing the proposed solutions (McNergney et al., 1994; Bronack & McNergney, 1999). These steps aim to assistin–service teachers to make decisions in teaching and learning. The processes nurture teachers' interpretative techniques, encouraging them to be sensitiveto the issues and knowledge. This framework guidesteachers' thinking and actions rather than making intuitive judgements. Several studies have indicated that teachers' familiarities with these stepsimproves their understanding of the complicated situations inherent in teaching.

Firstly, the case analysis could foster teachers'moral reasoning while making instructional or curricular decisions. The five–step case analysis allows teachers to reflect upon their problem–solving strategy and analyze its efficacy during reading a case For instance, Gartland (2003) studied how using five–step case analysis impact 33 student teachers at two different institutions of higher education. All participants were either preservice or in–service teachers who

were given the five−step case analysis approach. Results suggested that teachers were able to improve their moral reasoning skills after the intervention of the five−step case analysis. As Risko and Kinzer (1999) suggest, engaging teachers in shared problem−solving activities is a useful approach to promote their understanding of diverse pathways for achieving problem resolutions. Case as a medium for jointly learning asks teachers to contemplate and identify problem characteristics, motivating teachers to inquire, formulate solutions, and resolve incongruities (Hiebert et al., 1996).

Secondly, the five−step case analysis nurtures teachers' decision−making abilities since it provides teachers with the opportunities for application and practice. Kessler (2005) argues that teachers' decision−making abilities and in−class behaviors attribute to pupils' academic achievement. Accordingly, programsof teacher development should provide their participants with opportunities toconsider the myriad audiences they serve. The five−step case analysis enables teachers to propose solutions to ameliorate their classroom issues and problems and hypothesize possible consequences of the actions they propose. Teachers can read and discuss each other's case analysis. Through executing five−step case analysis and related discussion, teachers can become more inclined toexhibit instructional practices that are coherent and goal oriented (Kessler, 2005).

Although aggregate findings support that five−step case analysis enhances teachers' decision−making skills and interpretative capabilities of classroom problems, limited studies investigate whether the approach benefits teachers' professional development in higher education. Moreover, related studies on using the case analysis method to nurture the professional growth of part−time EFL faculty in Taiwanese colleges are scarce. Hence, the subsequent section introduces the research framework of implementing five−step case approach in a group of part−time college EFL teachers.

Methods

The grounded theory (Strauss & Corbin, 1990), a qualitative research approach whichconcentrates ondeveloping the theory emerging from the data during the research process, wasconducted in the study. To achieve this goal, four collegial EFL instructors comprised the participant pool and were instructed the analysis procedure.The studytook two academic semesters. Four EFL teachers met once a month for a two–hour online reflective session. An online teachers' community group on Facebook was established to facilitate the participants' both synchronous and asynchronous interactions.The participants were required to go online and write an analysis about the targeted case, while electively making comments or expressing thoughts about other instructors' messages.

Site and Participants

Criterion sampling was used to select participants in this study. Ithelps researchers concentrate on those cases that are informative of the weaknesses in their systems or programs (Patton, 2002). Therefore, university part–time EFL instructors in a language center constituted the participant pool in this study. The criteria of screening prospective participants included having experiences of certain uses of Internet that are indicative of educational use such as using social network to connect students or deliver course materials.

This study invitedfour teacher participants from the part–time instructorsin the language center of a private college. Regarding ideal sample size, there are no rules for sample size in qualitative inquiry (Patton, 2002). Instead, sample size should be contingent upon the purpose of the inquiry and what can be done with available time and resources. Thus, four teacher participants were considered sufficient due to time and resource availability. These teachers offered two classes for freshman and sophomore level English: reading and writing, and

listening and speaking.The demographic information of the four participants is displayed as the Table 1 below:

Table 1
Demographic Information of Participants

Pseudonym	Teaching experience (years)	Academic expertise	Highest degree obtained	Gender	Courses taught
A	10	Curriculum & Instruction	Ph.D	F	• Freshman English reading and writing • English oral training
B	12	TESOL	M.A.	F	• Freshman English reading and writing • English oral training
C	12	TESOL	M.A.	M	• Freshman English reading and writing
D	15	American Literature	M.A.	M	• Freshman English reading and writing • English remedial instruction

All teachers in this study were protected by three ethical principles, including informed consent, anonymity, and confidentiality (Eisner, 1991; Howe & Moses, 1999). Theywere informed of the research project and signed a consent form which confirmed the protection of their confidentiality and privacy in this study. Gender–specific pseudonymswere employed to maintain the anonymity of the subjects.

Data collection

The primary data for this study consists of: (1) teachers' case analyses; (2) group dialogues recorded during reflective sessions; and (3) focus group interview. For teachers' case analyses, eightcases were utilized to trigger teachers' reflections and collaborative learning among them. They were selected from Education Research Information Center (ERIC), an online library of educational research resource. Before using the eight cases, the researcher wrote a case based on an experimental

instruction in a language class. The researcher devised and implemented an after–class activity by using SMS distribution system for one case. This instructional experiment was conducted in an EFL college course for non–English majored freshman students. The sample case content described an instructional attempt whichpurported to overcome the limited course meeting time (two hours a week) and the challenge to satisfy the course's demand for language drills.

The cases were chosen according to the participants' interests. The participants expressed their interests in innovative ideas of three domains: integrating technologies into teaching, language instruction, and teachers' professional development. This proclivity was used to guide the case selection, helping the researcher identify the eight cases for the participants to analyse and discuss. The contents of the cases were demonstrated as theTable 2 below:

Table 2

The summary of selected cases

Cases	Case summary
Case 1: About technology	The case describes how a group of primary English teachers taught their students to use mobile device to learn English prepositions and idioms.
Case 2: About instruction	The case identifies the characteristics and problems of Taiwanese college students' English writing.
Case 3: About development	This case reflects how a group of teachers adopted a lesson study approach and worked collaboratively so as to improve their class instruction on wh–question formation.
Case 4: About technology	The case reportsthe attempt of utilizing mobile technologies to prompt or remind college students of the need to access for major online teaching and learning content.
Case 5: About instruction	The case depicts an instructional dilemma in which an English teacher struggles with choosing between differentiated instruction or traditional drill.
Case 6: About development	The case explores how professional learning community on problem–based learning (PBL) is operatedby teachers.
Case 7: About development	The case demonstrates the application of an online video discussion community in which teachers discussed and critiqued each other's teaching.
Case 8: About development	This case reports that six Singaporean elementary school teachers worked in a lesson study team for fine–tuning their problem–solving instruction.

The case contentis presented through a descriptive format to illustrate exemplary pedagogical issues as the figure 1 below shows:

Students were taught to use their mobile phones to engage with the surrounding environment by taking photos to record manifestations of the spatial relationship to illustrate their created sentence which used a certain preposition. The figure below shows some snapshots of the students taking photos of each other in action.When students took photos of arrangements that illustrated each preposition, they were expected to capture naturally occurring arrangements. However, when students found that objects in their zone of the environment did not readily represent the six prepositions, they enacted the arrangements by using their body postures. This coupling of physical actions and cognitive activities created opportunities for learners to engage in meaning–making processes from their own experience and engagement. Collaborative dialogues played an important role in the student improvisation. Through this engaging activity, students reflected upon the proper contexts in which each preposition could be used.

(a) under　　　(b) inside　　　(c) behind　　　(d) over

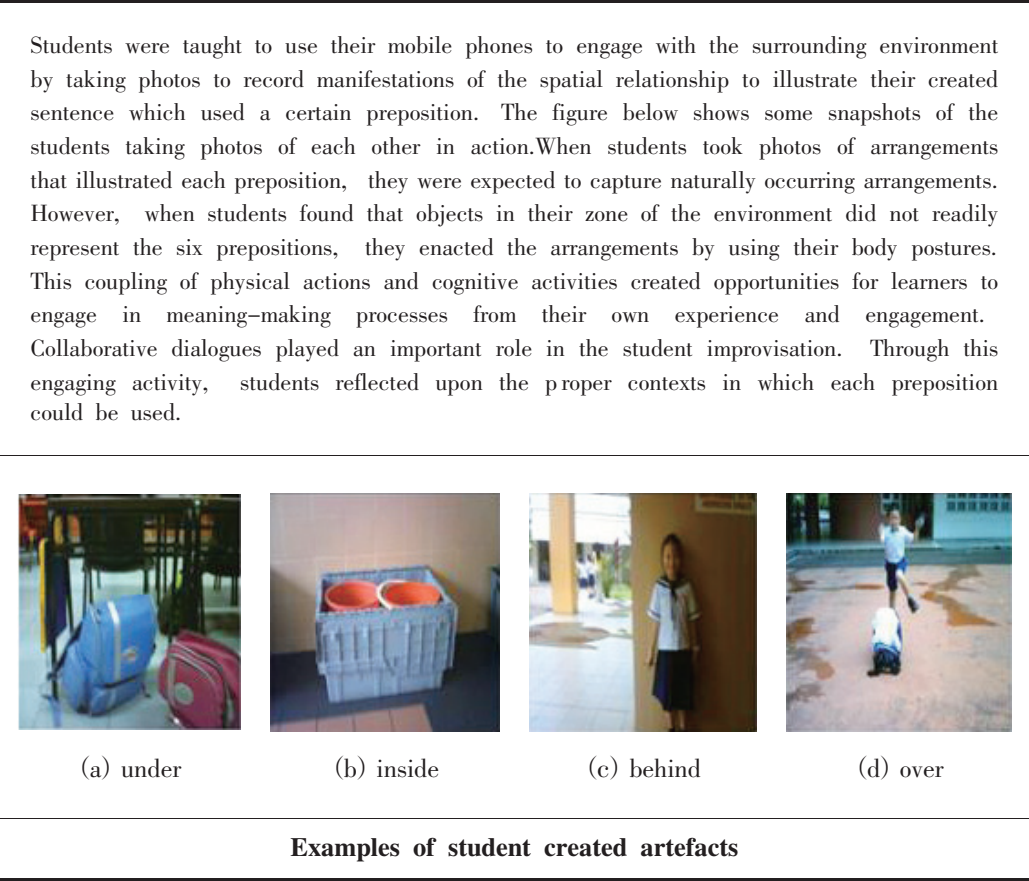**Examples of student created artefacts**

Fig.1
An excerpt ofcase 1

Freidus and Hlubinka (2002) note that combining the faculty's experience with innovative teaching and learning approaches through digital storytelling (i.e., case stories and supporting documents) enhances and accelerates the adoption of exemplary teaching practices. Teacher participants were guided to use five–step case analysis procedure (McNergney et al., 1994; McNergney & Medley, 1984;

McNergney & McNergney, 2007) to provide their perspectives and suggest potential resolutions.

After reading an assigned case, the participants were asked to use the five-step case analysis procedure. To facilitate the process, the questions were divided into five steps by the following sequence: (a) issues, (b) perspectives, (c) knowledge, (d) actions, and (e) consequence.The issues section requires participants to identify the core dilemma of the case, and the knowledge part expects them to identify useful theoretical principles. Participants need to contemplate problemsfrom various perspectives such as parents and students for the perspective section. The action part asks teachers to propose strategies to resolve the problem, and the consequence section needs participants to speculate the potential resultsthat their proposed action can cause. All questions were open-ended. Through answering the questions in the five categories, the participants were expected to complete case analysis as the Table 3 below demonstrates:

Table 3

An example of participant's case analysis

Issue	In this case, the instructional issue is exploring the possibilities of improving students' learning by mobile technologies.I can't find out any problem with curriculum. There is no any curriculum or lesson plan in this case.
Perspectives	In this case, authors' primary concern is exploring the possibilities of improving students' learning by mobile technologies. I think that teachers will feel satisfied if mobile technologies can "pull" students into the learning environment, "push" knowledge and information to students, and create (a sense of) academic communities. In this case, teachers' problems might include: A. Teachers do not know how to operate the devices. B. Students do not know how to operate the devices. C. Teachers might use mobile technologies for the sake of mobile technologies. D. Teachers and students do not have a sense of academic community. I would try to ask my colleague for help. Or, I will try to find out the solutions through the Internet.

Knowledge	As I know, "mobile learning involves the use of mobile technology, either alone or in combination with other information and communication technology (ICT), to enable learning anytime and anywhere. Learning can unfold in a variety of ways: people can use mobile devices to access educational resources, connect with others, or create content, both inside and outside classrooms. Mobile learning also encompasses efforts to support broad educational goals such as the effective administration of school systems and improved communication between schools and families." (http://www.unesco.org/new/en/unesco/themes/icts/m4ed/) "M-learning or mobile learning is defined as "learning across multiple contexts, through social and content interactions, using personal electronic devices." A form of distance education, m-learners use mobile device educational technology at their time convenience. M-learning technologies include handheld computers, MP3 players, notebooks, mobile phones and tablets", and VR and AR devices. "M-learning focuses on the mobility of the learner, interacting with portable technologies. Using mobile tools for creating learning aids and materials becomes an important part of informal learning." "M-learning is convenient in that it is accessible from virtually anywhere. Sharing is almost instantaneous among everyone using the same content, which leads to the reception of instant feedback and tips. This highly active process has proven to increase exam scores from the fiftieth to the seventieth percentile, and cut the dropout rate in technical fields by 22 percent. M-learning also brings strong portability by replacing books and notes with small devices, filled with tailored learning contents." (https://en.wikipedia.org/wiki/M-learning)
Actions	In this case, teachers can try to "pull" students into the learning environment, "push" knowledge and information to students, and create (a sense of) academic communities.I might try to "pull" students into the learning environment by using social networks, such as Facebook, Twitter, Instagram, etc. Frankly speaking, I have tried to "pull" students into the learning environment by mobile technologies for several times. For example, I asked students to use their mobile devices to log in our CMS website (moodle 2.6) and finish quizzes. Besides, I also asked students to upload their videos to our CMS website. What's more, I established groups on Facebook for my classes. Then, I posted a news title or a famous saying from a certain celebrity every week, and I asked students to do three things: the first is to translate my post into Chinese. The second is to look up vocabularies from the (online) dictionary. Then, send their translations and vocabularies to me through Facebook messages.

Consequence	Usually, I will evaluate students' learning through worksheets, oral presentation, and in-class activities such as correcting the sentences. In my opinion, it is a little bit difficult to employ video-based instruction in my class or in theUniversity for two reasons. Firstly, the period of movies is too long. Secondly, students are not interested in your movies in usual. Convincing worksheets or works might be able to prove that students are making progress, and reasonable presumptions might also help. Nevertheless, students' performance on exams as the "graduating threshold" such as TOEIC, TOEFL, or IELTS might still the determine evidence of success. Scores talk.

A web-based asynchronous reflective discussion board was implemented on Facebook, a closed online community which asks members to log in with usernames and passwords. The participants downloaded the assigned case from the platform and uploaded their case analyses after completion. The online community allowed the participants to read other members' case analyses and leave comments. A monthly reflective sessionwas held in teleconference form to discuss the targeted case, and there were eight sessions in total. The whole procedure of each session was recorded and then transcribed.

Lastly, two focus group interview sessions were held separately by the end of the first and second semesters. Focus group interviews werechosen because they could provide information about a range of ideas and feelings that individuals have about certain issues, as well as illuminating the differences in perspective among individuals (Rabiee, 2004). Focus group interviews not only help minimize repetitive themes from interviews but also encourage participants to provide perspectives which others fail to raise. Three types of questions were used to explore teacher participants' perspectives: (1) how they perceive case-based approaches as tools to develop critical reflection; (2) whether and how forming online teacher community facilitates professional learning; and (3) what are the factors required for an effective teachers' professional development program.

Data Analysis

Grounded theory (Strauss & Corbin, 1990) was utilized to analyze participants' case analyses, focus group interview and reflective discussion transcripts. Three phases of coding procedures, open coding, axial coding, and selective coding, were implemented for data analysis. Recurrent categories and subcategories from interviews and virtual discussions were identified. This process aimed to form initial categories of information about the phenomenon being studied.

Open coding comprises of labeling and categorizing data. In this process, four core categories were emerged and labeled: sharing experience, challenging perspectives, collaboratively proposing solution, and speculating the consequences.

Axial coding helps the researcheridentify a single category as the central phenomenon, and investigate its relationship to the other categories. Sharing and collaboration forge the central phenomenon of online community. After all potential categories were identified, axial coding was conducted through choosing one open coding category and positing it at the center of the exploring process. The category served as the core phenomenon, and then other categories would be related to it.At the end of this phase, a model was developed to illustrate the interrelationship between the core phenomenon and all the other categories

Lastly, selective coding was executed through developing a theory which was based on the interrelationship of the categories in the axial coding model. In this process, the researcher integrated and refined the theory through interconnecting all the categories (Strauss & Corbin, 1990). During this process, four categories were utilized to instantiate how online community benefits the participants'reflection and two categories were employed to articulate the limitations of online community. The four merits include synergic learning, brainstorming, breaking isolation, and triggering self–reflection. The two limitations are time constraint and the lack of facial cue. The frequent emersion of these categories in data

made them salient themes across various data sources as Figure 2 below illustrates:
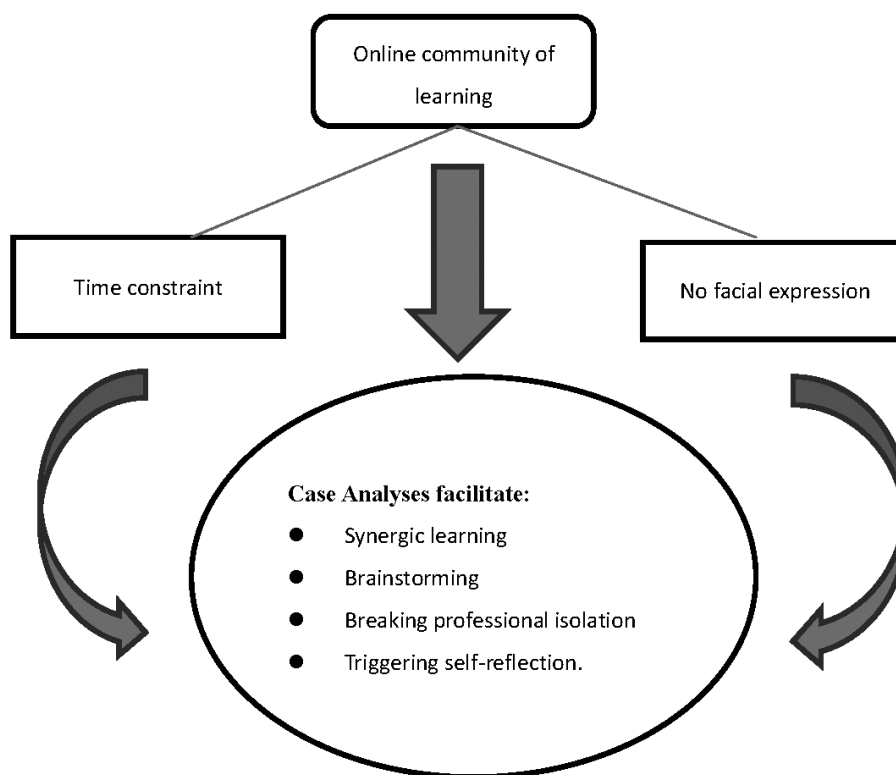

Fig. 2
The relationship among the activities of online learning community and their consequent benefits for teacher professional development.

Trustworthiness

Trustworthiness of the study was established to confirm that the coding of data was consistent across time and people. Two strategies were adopted: triangulation and member checking. Triangulation is the process in which the researcher corroborated and reexamined evidence from different sources such as

observational notes and interviews.　The inquirer crosschecked each information source and located evidence to support a theme.　This process ensured that information was not drawn from a single source (Creswell, 2002).

　　For member checking,the researcher asked the participants in the study to confirm the accuracy of the account.　This confirmation process included taking the results of the study back to the participants and asking them about the accuracy of the researcher's interpretation.　Several questions were addressed in this process, such as whether the description was comprehensive and correct.

Results and Discussions

　　The teacher participants' perspectives of partaking in online case analysis and discussioninclude: (1) constructing synergic learning, (2) brainstorming, (3) breaking part-time teachers' geographic and professional isolations, and (4) triggeringself-reflection.The results also include the limitations of this study.

Constructing synergic learning

　　Sharing case analyses of teaching practice with like-mindedteachers inspired a collective desire to reflect on their instructional effectiveness.　Knight (2011) proposedsix partnership principles that promote a vigorous group learning contextfor teachers.　The principles help build an equitable learning environment which facilitate dialogue among group members. The framework was borrowed to understand whether the participants' reflections and related discussion satisfied the principles of online community.

Table 4

Description of Knight's (2011) Partnership Principles for Group Learning Environment and Comparison with the implementation of the online community of reflection

Principle	Description	Online community of reflection
Equality	Teachers have input in the planning of the professional learning activities, not simply required to attend professional development	The teacher participants can choose the issue they are interested or discuss the problem they would like to resolve.
Choice	Teachers choose what and how they learn	The teachers can generate the topic they would like to tackle as a team.
Voice	Professional learning empowers and respects teacher voices	Case analysis serves as a platform for teachers to express their ideas and learn from different perspectives.
Reflection	Reflection is recognized as an integral part of learning. Authentic dialogue is enabled.	Reflection is implemented in two ways in online community: Synchronous online meeting and asynchronous posting of teachers' case analyses.
Praxis	Learning is applied to real–life practice	The cases used in the study exhibit the real–life vignettes in the classroom.
Reciprocity	Participation is in expectation: all offer and receive feedback.	Online platform provides a risk–free environment for mutual learning.

When all teacher members are committed to common goals, their resistance to constructive criticisms will diminish and synergic learning can take place. Results of the study showcase that the online reflective communitysatisfiesthe six principles and inspires teachers to innovate together. Online exchange of case analyses allows the teacher participants to gain challenges and feedback from the practitioners in the same fields.

Such a learning environment prompted them to examine whether their own beliefs and practices can unwittingly contribute to students' learning failure. For example, the participants shared a case scenario in whicha mathematics teacher introduced the concept of fraction in class. The core issue of the case lay in

that teachers'rhetorical uses of terms can be detrimental tostudent understanding. Participant C responded that:

One benefit of joining this project was our discussions. For example,we found that something was wrong with that teacher's describing key concepts when discussing the case about teaching fraction in an elementary school in Singapore. The students were unable to understand the term that teacher used. All of our partners also reflected upon whether we take some professional terms for granted and hence possibly confuse our students. We may use too many terms such as adjective clause in our classes. Students may not know what clause means. (20160613, Reflection C).

The reflection concurs with the community of practice theory, which explains that people construct and develop their identities and understanding through active participation and engagement with others in cultural practices of a particular social community (Lave & Wenger, 1998; Wenger & Lave, 2001). People advance their understanding of the practice about who they are and what they know in relation to the community and its objectives. Similar notion can be found in the interview below:

Together we develop a collaborative learning in our community. Such a collaborative learning can help us discuss cases deeper. Discussions promote our understanding of cases because peoplehave blind spots. We shared information in the community and improved our knowledge of teaching (20160614, InterviewB).

Part-timers with diverse and fragmented teaching periods can be linked together for learning in online community of practice. It can serve as a group of critical friends that provides teachers with the social, emotional, and academic

assistance necessary for being instructional effective　(Beck & Kosnick,　2001; Curry, 2008).The figure below illustrates another example of synergic learning:

Fig. 3
Participants' discussions in online community

The figure above exhibits a scenario in which a participant raised a question regarding the assigned case. The online community allows each member to answer questions or add information synchronously and asynchronously. Through providing and reading partners'feedback,　the participants collaborate in efficient ways to examine their own assumptions,　theories,　and ideologies of education.Hence, the online learning community was developed by sustained and constructive discourses.

In conclusion,　the teachersconsented that the learning community engaged them in co–reflecting better methods tomediate the challengesthey identified and brainstormingapproaches to fine–tune their practice. Teachers' group reflecting

onpractice–based problemshelp develop their knowledge (Butler & Schnellert, 2008; Horn & Little, 2010; Mitchell, 2000; Snow–Gerono, 2005). Collaborative reflectingin an online community can encourage teachers to examine and tailor their own practice.

Brainstorming

Case–based discussions helpedthe participants generate solutions for curricular or instructional challenge as it situates the teachers in a reciprocal venue in which they can reflect on and explore new ideas, techniques, and pedagogical strategies. As teacher participants shared their thoughts about a case issue which concerned using instructional technology to facilitate language learning:

Table 5

Online discussion of a case issue

Teacher (pseudonym)	Issue: Using instructional technology in EFL classroom
C	This semester I tried something bold. I know that most of my students utilize online Google English–Mandarin Translateand I wanted them to use it in the classroom. For instance,I asked them to choose an English article by themselves and use Google Translate to translate the whole article. Then, I would invite them to share their feedback of the translation.
D	I did not use Google Translate. Instead, I utilized online dictionary and guided my students to go over the definitions. Each English word usually includes various definitions, and I would teach my students to note the contextual clues of sentences while checking the definition of the targeted word. This training helps them determine the correct one from several definitions. Another way to help students choose the correct definition is to list all the definitions of the targeted word and ask them to vote for the correct meaning.

A	I had learned about a website for translation. That website is helpful when you have a specific term in certain field.　You cankey–inthe sentence with that term in that website and itwould generateseveral sentences that contain the term.　Then,　the website would also underline the parts of the website–generated sentences that are close to your sentenceaccording to the targeted term. For instance,　when students translate　"radiation cooling effect" and are confused the word "cooling"with"colding",　they can key in the term "radiation colding effect". The website will show them all the sentences which include those three words. Students can conclude the right term by going throughthe sample sentences.
B	I used to teach my students the right way to use Google Translate.　Students tend to accept everything that Google gives them. Before they used Google Translate, I would ask them to think about the Chinese meaning of the targeted sentence.　They should also check the end–product which Google Translate provided. They should not take everything from Google Translatewithout double–check.

The discussion above reflects that a virtual and case–basedcommunication encourages teachers to work towards resolving case issues together through sharing their experience of using technology for teaching. As one teacher shared his instructional attempt to experiment with mobile devices:

After reading the case about Mobile Assisted Language Learning (MALL), I feel I should be more attentive to my students' feedback.　I used to focus on content.　Thus,　I used an Apptoshow classic English songs to students this semester. I divided them into several groups and asked them to record the songs they favored with their phones.　They were asked to look up the unfamiliar words.　This strategy was useful because each student was engaged in learning.　They were surprised that their phones could be used to learn English this way (20160126, Interviewee C).

The reflection above demonstratesthat case stimulates the conversations among teachers about the challenges they have in their classrooms. Diverse vantage points of the community members help reshape the participants' perceptions and contribute to knowledge construction. The participants noted the strength of various perspectives in the present study. When a group of teachers has the opportunity to dialogue about teaching and learning with diversely positioned colleagues in an inquiry community, they can be better at locating and describing their instructional contexts (Emig, 1983).

Cases can help the participantshave a sense of the big picture of teaching and learning. Case–based discussion with colleagues allows the teachers to take an inquiry stance while receiving perspectives of their partners, and co–construct their knowledge–of–practice (Cochran–Smith & Lytle, 1999). Moreover, the five–step case analysis procedurecould provide the participants with a framework which guided their discussion and fostered their learning processes.

Breaking geographic and professional isolations

The teacher participants confirmedthat online platform makes their meetings more convenient. Unlike traditional teacher professional development, online meeting mode provides the participants with a more flexible and freer environment to share their thoughts with group members. Online discussion is considered a convenient mode for part–time teachers' professional learning since most of them need to teach in multiple colleges. As one participant indicated:

> Online learning fits our instructional schedules because we need to teach in several schools. I used to give up several traditional seminars of professional learning since either my schedule or the meeting venue prevented me from attending these events. A part–time teacher needs to teach in four schools at least to cover living expenses. It is challenging for us to locate available

time for attending the seminars of professional development (20160622, Interviewee C).

The job nature of part–time teachers prevents them from communicating with university staff and peers sufficiently. It is necessary to make college–sponsored faculty development accessible and attainable for part–time faculty. Nonetheless, Kozeracki (2005) found thatmost part–time faculty isneither in close proximity to their colleaguesnorhas time for meaningful conversations. School administrators and teachers should create online communities of learning as a new professional development (Barab, S. A., Kling, R., & Gray, J. H., 2004; Jung & Brush, 2009). Online community provides a virtual venue in which community participants can engage with their colleagues and obtain insights into others' experiences (Schieffer, 2016).

However, some teacher participants revealed that their proclivities for face–to–face meetings while comparing online and traditional teacher gatherings. One participant questionedwhether the atmosphere created in face–to–face meetings could be projected online. She indicated that online discussionsare less spontaneous than face–to–face ones. For that, she expressed:

Supposeweare talking about an ideain a face–to–face conferenceand someone askedanotherto explain that idea further.Then, the topic bouncedamong participants and finally somebody else answered. Everyonecouldacknowledgewho in the meeting has done and what grows out of discussion. When one idea clicks off another,wecan see people and feel their reactions.There is emotion involved that is not easy to acquire online (20160620, Interviewee C).

Since not all the participants had the same stable internet transmission, the visual display was relinquished for more smooth discussions. Such a trade–off made further exchange of knowledge among teachers limited because the

participants' access to other members'emotional cues was sacrificed during online meetings. Emotion discloses social presence, and the dearth of emotional expression can obstruct communication when online group members could only depend on nonverbal cues to interpret interaction (DeRosa, D., Hantula, D., Kock, N., & D'Arcy, J., 2004). However, when face–to–face collaborationwith peers is not accessible topart–time faculty, online conference becomes a possible alternative (McLean, 2006).

In conclusion, the flexibility and widespread internet access can make communication and collaboration among part–time teachers possible. All teachers can be learners with their colleagues (Louis, K., Kruse, S., & Bryk, A., 1995). Online community of learning helps achieve Rosenholtz's idea (1989) that teachers'professional self–renewal should be communal rather than solitary effort. As Louis (1994) argues, collective knowledge creation is possible while learning communities can invite their members toengage in serious dialogue and deliberate about information and data.

Triggering self–reflection

The study also found that online group of case–based discussion activated the teacher participants'reflection throughsharing experience. The essential component of teachers' learning community is reflective dialogue (Louis et al., 1995). These dialogues includediscussing new knowledge, scrutinizing peers'practice (Newmann & Wehlage, 1995),and refining tacit knowledge (Fullan, 2001). Teachers'purposefully reflective attention to the interaction between contexts and their behaviors is required for streamlining their knowledge and practices (Dewey, 1938; Lave & Wenger, 1991; Sch?n, 1983). For instance, one participantshared his perspective ofProblem–Based Learning (PBL)during online discussion:

In this PBL case,　the teacher just gives students a big question but does not provide any intervention. If I try PBL in my class, I would divide my class period into two sections:　first section is explaining the background, the objectives, and required knowledge of solving the major problem. Then, students can attempt to solve the problem in the second section. If students are not provided with sufficient information and guideline, they will give up and do nothing. (20160603, discussion).

All participantsexpressed their tendency to review their case analysis after reading community members' analyses. One of them described this experience "I enjoy reading other members' analyses and go back to see my work again because I should review my knowledge from differentaspects (20160602, discussion)." While sharing his reflection experience, a participant supported that "I would ask myself why I thought this way when reading others' comments on my analyses. Sometimes I would refer to my own teaching performances before I wrote my analysis or comment.　I thought that could be counted as self–reflection somehow"　(20160603,　discussion).Similar theme emerged in an interview:

Most professional growth activities arespeakers'one–way sharing.　In those occasions,　I hardly had the opportunity to know whether other teachers encounter similar challenges I had.　I enjoy our group members could help hatch strategies for the difficulties I confront.　Here I could challenge some members' views on certain issues. The member whom was challenged would attempt to give more instances or evidence for persuasion.　(20160619, Interviewee C).

The response highlightsthe online cooperative mode motivates the teachers to reflect upon the challenges they met through engaging in the process of

proposing and evaluating solutions. As one participant demonstrated the benefit of reading other member's case analysis:

> By reading our partners' analyses, we see that lesson study involves several processes. In these processes, participated teachers jointly plan, observe, analyze, and refine actual classroom lessons. Students are benefited when teachers learn what seems to work or not for them. Teachers who participate in lesson study can help each other in planning an effective lesson. (20160302, Reflective paper 2).

Lesson study, a collaborativeprocess of instructional improvement, is the case topic for the reflection above. The participant ensured another member's attempt to clarify the operative process of lesson study for the community. The reflective paper demonstrates that the collaborative effort assists theteachers to check their understanding of cases. Another teacher addressed that the collaboration reminded him to note the contextual issues while choosing teaching strategies.

> Reading partners' case-related analyses, reflections, and discussions remind me to adapt teaching methods in various contexts and incubate solutions. Before teachers decide to implement a method, they should take versatile issues into account such as learners' readiness levels, learning interests, and past learning experience. All the issues including students' learning profiles and genderscan affect your selection of teaching method. (20160622, Interview B)

Moreover, the participants maintained that cases stimulated their reflections because several case scenariosshowcased the vignettes which they had encountered before. While discussing formative assessments, one of the teacher participants described what she learned about using learning sheets to motivate students.

Speaking of the case about formative assessment, one of our partners devised learning sheets and used them as the core activities in her classroom. From her, I learned that assessments should be used to involve students in learning. Formative assessments can be used to dividea complicated conceptinto several sections. Students can realize their progress and take the accountability of their learning. Formative assessmentscan not only facilitate students' digestions but also help teachers determine whether they should re-teach or move on to next section (20160613, Interview B).

It can be inferred from the comment that cases providedthe teachers with opportunities to examine different instructional approaches in various circumstances. The retrospect process can be further elaborated by one participant's comment on the connection between reading his own case analyses and others':

Whenever I read other partners' case analyses, I could always discover some ideas that never occur to me. Our group members would use their own experience while analyzing cases, and that experience is something I do not have. These experiences can be useful for my own teaching. If the partners provide positive experience, I want to try it in my own classes; if negative, that can remind me of avoiding the same mistake in the future (20160119, Interview).

The commentechoes the argument of Farrell and Jacobs (2016) that reflection in teachers' cooperative learning group enhances their capabilities to compare understandings, request assistance, provide suggestions, respond productively to feedback, and note group functioning. Such a practice helpsencourage the teacher participants to review the instructional decisions they made before and tailor their teaching to students' needs better.

Time constraint

The partici pants perceived limited time as a major constraint fora collaborative community, and indicated that one year was not sufficient for significant teaching improvement. Their heavyworkloads at different schools confined their participation in collaborative professional learning.Another issue is the difficult time allocation for all participants to attend the online conferences since they had courses in multiple schools. It was challenging for the participant teachers to spot a common time to engage in the collaborative process. Collaborative learning community demands teachers' time, energy, and commitment. The learning group in this study met once a month for three hours, and they looked forward to a longer project which allows them to find a better balance between theirteaching and learning.

Teachers need sufficient timeto think aloud, reframe educational issues, and share their individual knowledge (Hardy, 2010; Pugach & Johnson, 1990). Collaboration over an extended period of time is also prerequisite for faculty to nurturea sense of mutual trust which helps connect them together to investigate their ideas and proposed strategies for teaching (Emery, 1996). The professional development of part–time faculty needs institutional attention and intervention since they are not really affiliated with any school. Schools and government should continue to be concerned with the professional growth of part–time teachers and develop interventions that can promote and sustain their career learning.

Conclusion

This study revealsseveral advantages of online case–based analysis and discussion forteachers' reflection.Firstly, the open nature of online group contributes to supportive relationships and solid cohesiveness within the learning group.

Secondly, purposeful collaboration provides opportunities to socialize and foster the language teachers' identities as both teachers and learners.Thirdly, the five–step case analysis assists the teacher participants to reflect upon their own instructional effectiveness since it provides a progressive framework for meeting instructional and curricular problems. The framework helped the participants understand how other members identified a core issue in a case and develop resolutions. Through utilizing different experience to tackle the same case issue, teachers can learn from their partners and retrospect their teaching.

Online case analysis and discussion invited the teachers to review their teaching through other teachers' stances.These diverseperspectives canexpand, modify, and enhance teachers' professional knowledge. Opinions among members canbe an effective scaffold for providing modeling. Such a peer evaluation helps leverageteachers' capacities to assess their problems (Fallows & Chandramohan, 2001). The reciprocal atmosphere in the community facilitated building their perspective on other members' ideas.

Nonetheless, there are several limitations in this study. Firstly, the limited number of participants and length of the study could constrain the generalizability of research results. Secondly, the Hawthorne effect could influence research findings since the participants tend to perform more actively while they acknowledge they were being observed. Thirdly, the self–reported nature of data source may contain potential threats to the validity of the present study. Hence, this study employed multiple sources of data to crosscheckthe researcher's interpretation of participants' learning experience. Furthermore, a larger sample should be included for the further studies. Researchers interested in this topic could study several small groups of teachers and compare the growth among them. Finally, a longitudinal study is suggested to embark on documenting the process of teacher learning and explore any change of teachers' instructional performance.

Future studies should involve teachers of interdisciplinary studiesand

investigatehow teachers from versatile academic backgrounds can work together towards common objectives.Also, it will be meaningful if studies on small groups for teacher professional development can be elevated and expanded to a greater scope and scale. It will be more comprehensive for educators and researchers to determine the effectiveness of implementing teacher community of case–based learning if myriads of teacher groupscan be operated and studied simultaneously.

謝　辭

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