

Teachers developing more creative learning views via online knowledge building activities

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Abstract: This study investigates how teachers who were engaged in online knowledge building via guided perspective-taking (PT) activities to discuss their critical teaching incidents (CTIs) helped them to develop creative learning views that see learning not merely as knowledge acquisition and exchange, but also as knowledge creation. Data were mainly from online discussion. The main findings indicate that PT-based KB activities in a technological platform can guide teachers to reflect deeply on the CTIs they experienced before and on how they might be able to help students learn better in a more constructivist and creative manner.

Keywords: perspective taking, knowledge building, online learning environment, discussion

1. Introduction

The importance of helping teachers develop more informed, creative learning views, so that they may be more likely to succeed in engaging their students' in more constructive and innovative learning has been well recognized in literatures (e.g., Antink-Meyer & Arias, 2022; Park et al., 2022). How to engage teachers in in-depth reflection on their views of learning, however, remains a pedagogical challenge for many educators. In the present study, we introduce perspective taking (PT) as a means to engage teachers in such deep reflection. PT is a way of understanding one's own mind or other's minds from inside (Kloo et al., 2021), and it can help teachers to develop self-awareness and emotional clarity (Campbell & Pennebaker, 2003). In education, most PT-related research is concerned with students (Kazuo et al., 2020), focusing on how teachers use PT to help students to develop multiple views or cultural understanding (Abacioglu et al., 2020; Athanases & Sanchez, 2020). Yet, PT is rarely used as a tool to improve teacher professional development (TPD). As a reflective means, PT can provide three different introspective levels to help teachers conduct progressively deeper reflection, from self-reflection (I-PT); to self-distancing reflection (meaning to reflect upon personal teaching experiences through the perspective of an outside observer; Other-PT); to more refined self-reflection (Back to I-PT) via interpreting and synthesizing insights from previous I-PT and Other-PT reflection. In particular, when the object of reflection is on critical teaching incidents (CTIs), PT may reveal many unknown aspects relating to teachers' self-understanding of own teaching practice (Mor-Hagani & Barzilai, 2022) and to their teaching emotions (Rademacher et al., 2010). Therefore, CTIs as recurring teaching problems or challenges (Joshi, 2018) are appropriate topics for teachers' reflection (Badia et al., 2021) to help teachers develop robust reflection-in-action capacity (Schon, 1983). To this end, we employed PT in an online KB community (Hong & Scardamalia, 2014) to foster both individual and group reflection among teachers to help them build more in-depth self-knowledge of teaching (as contrasted with the typical core teaching knowledge or skills specified in teacher education curriculum).

The purpose of the study was to explore how in-service teachers can collaboratively help one another to reflect on their CTIs via PT in an online platform for developing more informed and productive learning views that can help them become more mentally adaptive teachers. Building on the above discussion, the main research question is: Does engaging participants in PT while discussing critical teaching incidents (CTIs) in an online knowledge building environment help them develop more informed learning views to help their students learn more constructively?

2. Method

We recruited fifty-one incumbent teachers as participants who were taking a graduate course in a university from Taiwan. We engaged these participants in online learning in a knowledge building

environment called Knowledge Forum (KF). We then introduced PT as a reflective measure to deepen participants' discussion about some critical teaching incidents (CTIs) occurred during their recent teaching. The course duration was 18 weeks which were intentionally segmented into three phases/stages for PT activities--starting from I-PT, to Other-PT, and to Back-to-I-PT (see Figure 1 for our pedagogical design). Data sources and analyses focus on (1) the number of notes contributed, read, and modified in KF, and words written per note; (2) discussion that reveals participants' learning views and emotions (in this paper we did not report the emotional aspect). We adopt Hong's (2009) conceptualization of learning as acquisition, or as participation, or as creation into our coding scheme and Kappa coefficient of inter-coder reliability was calculated to be 0.74. Wilcoxon signed-rank test was employed for analysis.

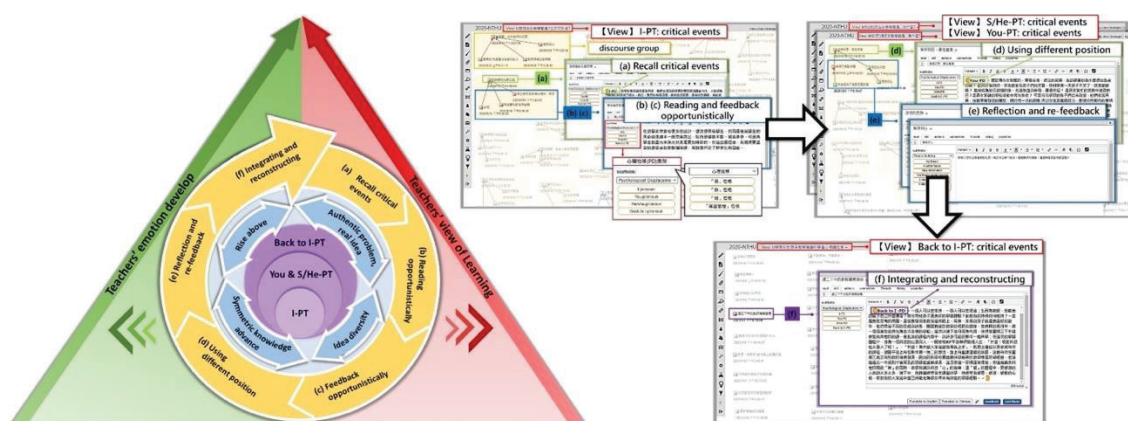


Figure 1. Students working in Knowledge Forum to perform three different perspective taking activities

3. Findings

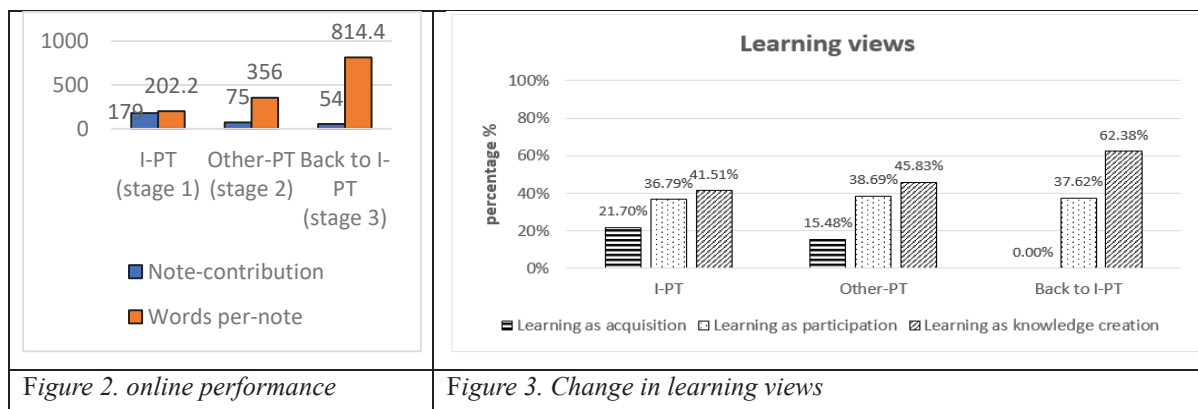
Table 1 summarizes the key findings from the analysis throughout the whole semester. First, regarding the overall online reflection trend, our analysis indicates that there was a decreasing trend of note contributing, note modification, and note reading from Stage 1 to 3. However, when looked into the number of words (i.e., Chinese characters) written per note, there was an increasing trend from Stage 1 to Stage 3 (Figure 2). The fact that participants gradually posted fewer notes but wrote more words in each note implies that participants progressively became more reflective on the CTIs discussed online in KF from Stage 1 to Stage 3.

Second, regarding more specific reflection trend on learning views, Z tests to compare Stages 1 and 3 indicated that there was a significant decrease in participants' reflection on acquisition-oriented views ($z = 5.064^{**}$, $p < 0.01$) and a significant increase in participants' reflection on creation-oriented views ($z = -2.428^{*}$, $p < 0.05$; see Figure 3), indicating that participants were able to develop more informed learning views after taking this course.

Table 1. *Changes in Participants' Overall Online Reflective Activities and Specific Reflective trend on Views of Learning in 3 PT stages*

Change in Reflection	Knowledge building via Guided Perspective-Taking (PT)									Z Test
	Stage 1			Stage 2			Stage 3			Pre-Post Change
	N	M	SD	N	M	SD	N	M	SD	Z
Online activities										
Contribution	179	3.5	1.08	75	1.5	1.034	54	1.1	0.31	15.678***
Modification	351	6.9	2.87	113	2.2	2.23	78	1.5	1.08	12.593***
Reading	1,734	34	37.67	920	18	15.07	836	16.4	16.57	3.086**
Words per note	10,311	202	56.046	18,156	356	154.97	41,535	814.4	368.05	-11.861***
Views of learning										
Acquisition	23 (21.70%)	0.45	0.642	13 (15.48%)	0.26	0.337	0 (0.00%)	0	0	5.064**
Participation	39 (36.79%)	0.76	0.885	32 (38.69%)	0.64	0.679	38 (37.62%)	0.75	0.845	0.116
Creation	44 (41.51%)	0.86	0.775	38 (45.83%)	0.76	0.643	63 (62.38%)	1.24	0.79	-2.428*

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Note: contribution excluding feedback notes.



4. Discussion

This study engaged the participating in-service teaching in three different perspective-taking (PT) activities (including I-PT, Other-PT, and Back-to-I-PT) while discussing some critical teaching incidents (CTIs) in an online knowledge building environment (i.e. Knowledge Forum, KF). Conventional teachers' professional development tends to focus on helping teachers develop core teaching knowledge and skills. In contrast, our study is trying to guide teachers to perform self and social reflection on their learning views. The main finding indicates that discussing critical teaching incidents via taking different perspectives indeed can effectively help teachers become more reflective to come up with more ideas for how to teach better, or to help students learn better. Accordingly, they were more willing to embrace a more informed and creative learning view. Thus, we conclude that PT as a self-distancing, reflective means, indeed, can transform teachers' past teaching experience into more practical self-knowledge that is essential for more effective teacher professional development. At the same time, our finding also suggests that KF was able to provide the participants an online knowledge space for perform the required self and social (collective) reflection (Kim, et al., 2018). It also helps the participating teachers to form some community-based, in addition to merely individual-based, professional development experience. Future analysis will focus on analyzing the emotional impact from PT activities and on how emotional transformation may be related to the change in participants' learning views.

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