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Peer feedback in teacher professional development

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The background of the page is a classic marbled paper pattern, often referred to as a 'stone' or 'shell' pattern. It consists of irregular, organic shapes in various shades of gray, from light to dark, creating a complex, textured appearance. The colors are muted and earthy, typical of traditional marbling techniques.

Chapter 1

Introduction

1.1 The problem

Teacher professional development (TPD) is very important for decreasing teachers' turnover rate and improving teachers' teaching expertise. In various types of TPD programmes, peer feedback is commonly used as a learning activity for teachers, because it can provide valuable learning resources and triggers participants' reflection and behavior change (Briere, 2015; Butler & Yeum, 2016; Chien, 2017; Ma, Xin, & Du, 2018; Pearce et al., 2019). In previous research, positive effects of these peer feedback-based programmes have been shown. For example, Chien (2017) explored a TPD programme involving 16 in-service primary English teachers and found that teachers' pedagogical knowledge and pedagogical content knowledge improved. Ma, Xin, and Du (2018) studied learning outcomes of an online personalized learning programme involving peer feedback on both teaching plans and teaching videos and found that teachers' learning participation, lesson design skills, and teaching practice improved. Visone (2019) examined a peer feedback-based programme called 'collegial visits'. Based on interviews and rubric scores of 13 participants, positive effects were found on improving participants' instructional practices, increasing teachers' collective ownership of the school, and helping teachers to view colleagues as resources for learning. However, in previous research, the general characteristics of TPD programmes have mostly been focused on, instead of studying in detail the core element of these programmes, i.e. peer feedback. Therefore, a more in-depth understanding of how teachers may learn from peer feedback and how they interact with each other when providing feedback is still needed.

In addition, teacher peer feedback is usually implemented differently in the programme where it is embedded. For example, Iacono, Pierri, and Taranto (2019) examined written peer feedback on teaching plans in a blended course for 166 mathematics teachers and found that the written peer feedback enabled the participating teachers to improve their role as an instructional designer. Another example is a one-year TPD programme studied by Zan and Donegan-Ritter (2014) where peer feedback was implemented monthly in a one-to-one manner to promote reciprocal information sharing and support between peer teachers. Moreover, peer feedback can also be included in some online TPD programme. In an online education programme for physical education teachers, Sato and Haegele (2018) used tools such as bulletin board discussion and E-book reports to help physical education teachers provide written feedback on peers' lesson plans. These various types of

practices of teacher peer feedback may prevent us from building an generic knowledge of how peer feedback is implemented in TPD programmes. Furthermore, these differences highlight the need to integrate previous practices of peer feedback and provide a theory framework that future researchers and practitioners can use to improve their design of teacher peer feedback activities.

Thus this dissertation seeks to generalize the various practices of teacher peer feedback and to contribute to a better understanding of some specific aspects about peer feedback in a Chinese TPD programme. First, a literature review is conducted to model teacher peer feedback implemented in previous research (Chapter 2), and then four aspects of a peer feedback-based TPD programme are studied in the context of Chinese vocational education and training (VET), i.e. the effects of the programme (Chapter 3), teachers' learning mechanisms (cognitive and behavioural processes in learning) through peer feedback (Chapter 4), the appraisals of feedback receivers (Chapter 5), and the characteristics of feedback from expert teachers (Chapter 6).

1.2 Context of this dissertation

1.2.1 Novice teachers and their development in Chinese vocational education

Chinese vocational education and training (VET) is introduced as the main context of this dissertation. Our research topic is very relevant to the unique context, where novice teachers encounter severe problems and many peer feedback-based TPD programmes are implemented.

In China, the reputation of VET is lower than general secondary education, and this cultural prejudice reduces students' intention to enroll in a VET school (Li & Xu, 2018; Gu, 2012). Students who go to VET schools usually have a lower academic performance and learning motivation than those who go to general secondary schools. Research has shown that VET teachers in China encounter more difficulties in motivating students, managing the classroom, adapting their teaching to students' levels, and adjusting their expectations of students' performance (Ma et al., 2018; Ren, 2018). Moreover, many Chinese articles have indicated a low teaching efficacy and high turnover intention of Chinese vocational school teachers (Bian & Zhang, 2019; Tong et al., 2008). For instance, 51.1% of the 276 Chinese VET teachers included in the study of Bian and Zhang (2019) reported an intention

to leave the teaching profession, and it was found that age, working pressure, working intensity, opportunities for promotion, the social status of VET, student numbers and student ability are significantly associated with VET teachers' intentions to leave the profession. Therefore, various peer feedback-based TPD programmes are often carried out in China to help novice VET teachers to survive for their first years. However, these activities have been more frequently studied in general schools (Cui, 2012; Yang, Ran, & Zhang, 2020; Zheng et al., 2019) instead of in VET schools. Thus a deeper look into the practices of teacher peer feedback in the VET context can not only provide us a better understanding of peer teacher feedback in general, but also could show how the specific local context may influence teachers' learning through peer feedback.

1.2.2 The TPD programme in the current study

The empirical studies (Chapters 3-6) in this dissertation are carried out within the Standard Training Programme for Novice Vocational School Teachers in Shanghai (China), which is an annual programme developed by the Shanghai Municipal Education Committee and the Institute of Vocational Education and Training of Tongji University (Shanghai, China). The main purpose of the programme is to improve novice teachers' professional development in order to increase their retention in vocational schools. The programme includes three training modules: 1) Training on teaching practice, which is implemented mainly in the form of peer feedback; 2) theories of VET, which is a series of lectures on the current situation and development of VET, VET pedagogy, and educational psychology in VET; 3) professional ethics, which consists of lectures on the topic of classroom management, theories of moral education, and student-teacher interaction. The programme duration is around nine months, from October to July. Novice teachers attend the programme activities on a Wednesday almost every week except for the holidays.

In regards to the teaching practice module, every novice teacher has three sessions to present their teaching (in the form of teaching video, lesson plan, and live classroom teaching), and then after the presentation, each of the presenters has an individual meeting with a group of two to four expert teachers. During the meeting, expert teachers will provide feedback to the novice teacher based on their observation of the presentation. The title 'expert teacher' is granted by local educational committees because of teachers' long teaching experience and outstanding contribution. Although expert teachers have the title, they can still be regarded as peers because they are mostly full-time in-service teachers, and there is

no formal power relation between expert and novice teachers in the programme.

1.3 Aims and research questions

The main purpose of this dissertation is to provide both an integrated framework for the practices of teacher peer feedback and an in-depth understanding of teacher peer feedback in the Chinese VET context. The first study in this dissertation is carried out in the form of a literature review. It aims at modelling the implementation of peer feedback and providing fundamental information for future studies. The next four empirical studies are conducted in the Chinese VET context, and they separately focus on the effect of a peer feedback-based programme, teachers' learning mechanisms through peer feedback, participants' evaluations on feedback, and the characteristics of expert feedback. The main research questions of the five studies are:

- How is peer feedback implemented in TPD?
- What is the effect of a peer feedback-based TPD programme on novice teachers' sense of efficacy and professional engagement?
- How can novice teachers' learning in novice-expert interaction be characterised in the context of Chinese vocational education?
- How do novice teachers in Chinese vocational education appraise expert feedback in a TPD programme?
- How do expert teachers provide feedback to novice teachers in a TPD programme in the context of Chinese vocational education?

1.4 Conceptual framework

1.4.1 Teacher peer feedback

In this dissertation, we define teacher peer feedback as information shared among teachers regarding aspects of one's teaching performance, teaching plan, and practical issues. This definition is based on Hattie and Timperley's (2007) definition of feedback in general, i.e. "information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding" (p.81).

'Teacher peer feedback' is used as the main concept throughout the dissertation because we want to particularly focus on peer feedback activities and provide

in-depth understanding of some specific issues involved in peer feedback, rather than examining the general TPD programme. Moreover, ‘teacher peer feedback’ can cover various types of teacher learning activities conducted in previous studies. For example, teacher learning activities such as ‘peer review of teaching’, ‘peer evaluation’, ‘teaching demonstration’ and ‘peer coaching’ (Chien, 2017; Iacono, Pierri, & Taranto, 2019; Jin et al., 2019; Ma, Xin, & Du, 2018; Sanetti et al., 2019) all involve peer feedback as an essential component. By studying the conceptualizations and results from these studies in detail, we can come to a more comprehensive understanding of teacher peer feedback and how it is embedded in the context of a TPD programme.

1.4.2 Novice-expert interaction

In addition to teacher peer feedback, novice-expert interaction is also an important topic in this dissertation, especially for the empirical studies (Chapters 3-6). In our research context, novice-expert interaction can be regarded as a main teacher learning activity involving peer feedback. As reported in section 1.2.2, the empirical studies in this dissertation are all conducted in a TPD programme in the context of Chinese VET, where expert teachers are invited to observe novices’ teaching and provide feedback. Expert teachers are regarded as peers in the current context because they are mostly full-time in-service teachers, and there is no formal power relation between expert and novice teachers. The main characteristic of teacher peer feedback in novice-expert interaction is that feedback is always provided to novice teachers by expert teachers who have a lot of teaching experience. The fundamental hypothesis behind this activity is that feedback from a more experienced peer can lead to a positive learning outcome for novice teachers. For example, some studies have proven that experts were able to provide scaffolding at the right moment to improve learners’ second language learning (Gánem-Gutiérrez & Gilmore, 2018; Lee, 2008). The unique setting of novice-expert interaction may affect teachers’ relationship-building to some extent, however, it is the feedback that matters most, while the matching of peers is only one of many variables.

1.5 Outline of the dissertation

This dissertation is aimed at providing an in-depth understanding of both general and specific aspects of peer feedback in a Chinese TPD programme for VET teachers. Five studies are conducted with a different focus, i.e. implementation

models of peer feedback, effects of the programme, teachers' learning mechanisms through peer feedback, teachers' evaluations of feedback, and the characteristics of expert feedback (see Table 1.1).

Table 1.1 The overview of each chapter in the dissertation

Chapter	Foci	Method	Sample size	Main research questions
2	Implementation models of teacher peer feedback	Systematical review	29	How is peer feedback implemented in TPD?
3	The effect of the TPD programme	Questionnaires	83	What is the effect of a peer feedback-based TPD on novice teachers' sense of efficacy and professional engagement?
4	Learning mechanisms of peer feedback in the TPD context	Open-ended interview and audio recordings of peer interaction	4	How can novice teachers' learning in novice-expert interaction be characterised in the context of Chinese vocational education?
5	Novice teachers' appraisal of the feedback they received	Semi-structured interviews	12	How do novice teachers in Chinese vocational education appraise expert feedback in a TPD programme?
6	Characteristics of feedback provided by expert teachers	Audio recordings of peer feedback sessions	30	How do expert teachers provide feedback to novice teachers in a TPD programme in the context of Chinese vocational education?

Chapter 2 is focused on implementation models for teacher peer feedback. In this chapter, the results from a systematic review involving 29 articles on practices of teacher peer feedback are described. The review study is aimed at generalizing findings from previous studies into implementation models and to identify factors that may affect teacher learning effects. The following two research questions guide the literature review: 1) *How is peer feedback implemented in TPD programmes?* 2) *Which factors affect the effect of teacher peer feedback in the context of TPD?* To

answer these questions, empirical studies were sought published during 2000-2020 with the term ‘peer feedback’ and ‘teacher’ in combination (all synonyms of these two terms are also searched, i.e. ‘peer evaluation’, ‘peer review of teaching’, ‘peer coaching’, ‘mentor’ and ‘educator’). The searching process yielded 3873 results, and after two rounds of screening, 29 articles remained, which are analyzed in light of the research questions.

In Chapters 3 to 6, the results of four empirical studies are reported. All the empirical studies are conducted in a TPD programme in the context of Chinese VET, where peer feedback is provided to novice teachers by expert teachers. Specifically, in **Chapter 3**, the effects of a comprehensive TPD programme that includes teacher peer feedback as one of their learning activities are examined. Teachers’ sense of efficacy and professional engagement are regarded as the main indicators of teachers’ learning outcomes. Two specific research questions are formulated: 1) *What is the effect of the TPD programme on novice teachers’ sense of efficacy?* 2) *What is the effect of the TPD programme on novice teachers’ professional engagement?* A pre- and post-test control group design is used to study these research questions. Participating teachers ($n = 41$) in the TPD programme and non-participating teachers ($n = 42$) with a similar background and teaching experience are both surveyed twice, at the beginning and the end of the programme (the duration is nine months). The differences between teachers who participate and do not participate in the programme are compared by multivariate analysis of co-variance and paired samples *t*-tests.

In **Chapter 4**, the learning mechanisms (i.e. cognitive and behavioral process through learning from peer feedback) of participants in the current TPD programme are explored. Specifically, this study sought to answer the question: *How can novice-teachers’ learning in novice–expert interaction be characterised in the context of Chinese vocational education?* Qualitative data from four participating teachers are collected, i.e. audio recordings of one open-ended interview and three novice-expert feedback meetings from each novice teacher (in total, four interviews and 12 feedback meetings were recorded on audio). These four novice teachers are all participants in the TPD programme, and they participate in this study voluntarily. A three step bottom-up coding process adapted from grounded theory is conducted to generalize the qualitative data.

Chapter 5 focuses on novice teachers’ appraisal of feedback they received from experts. The research question is: *How do novice teachers in Chinese vocational education appraise expert feedback in a TPD programme?* To answer this question,

12 novice teachers are interviewed about their appraisals of 10 type of feedback (extracted from a pilot study) which are frequently mentioned by expert teachers in the programme. The qualitative data is coded and categorized based on novice teachers' different concerns when appraising expert feedback. This chapter provides an insight into how novice teachers think of the feedback they received from expert teachers during peer feedback.

In **Chapter 6**, the focus shifts the perspective from novice teachers towards the feedback features, and the different features in the feedback dialogues provided by different groups of expert teachers are compared. The following questions guide this article: 1) *What are the characteristics of feedback that experts provide in novice-expert interactions in the teacher learning context?* 2) *How does expert feedback differ between expert teachers of general subjects and expert teachers of vocational subjects?* 3) *How does expert feedback differ between expert teachers who teach the same subjects as novice teachers and expert teachers who teach different subjects as novice teachers?* Data is collected by recording the peer feedback sessions where a group of expert teachers observes the novices' teaching video and provides feedback. In total, 30 audio records are collected, and each one lasted 30-40 minutes. The feedback feature framework (Nelson & Schunn, 2009) is used to code the feedback dialogues. According to this framework, each feedback dialogue can be characterized based on eight different features. Based on the percentages of eight features in each dialogue, descriptive statistics and an independent *t*-test are used to compare the differences between the feedback provided by different types of expert teachers.

Finally, **Chapter 7** provides a summary and general discussion of the whole dissertation.

