Peer feedback in teacher professional development
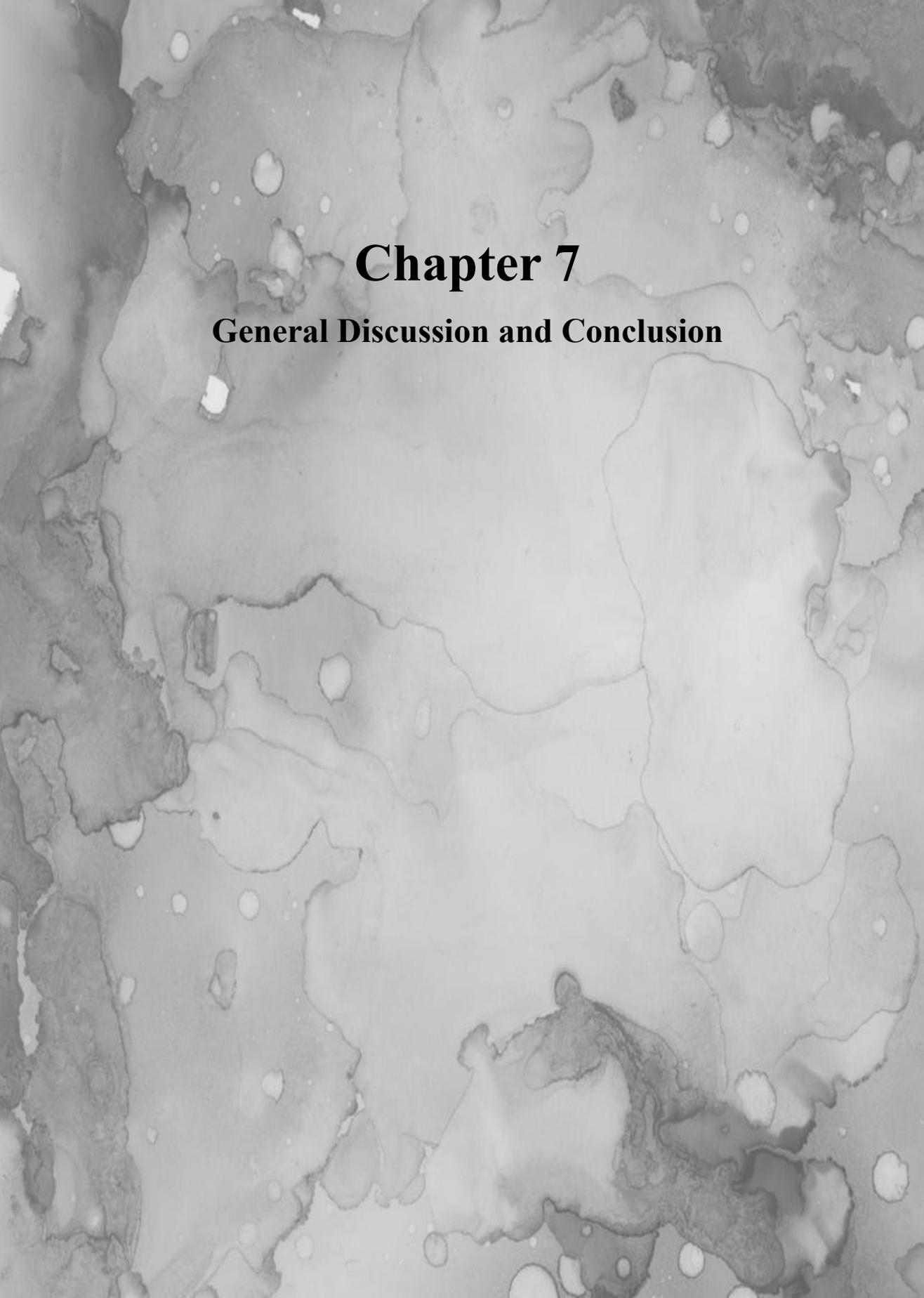Jin, X.

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Chapter 7

General Discussion and Conclusion

The main purpose of this dissertation is to provide both an integrated framework for the practices of peer feedback-based teacher professional development (TPD) programme and an in-depth understanding of teacher peer feedback in the Chinese vocational education and training (VET) context. Thus, the studies in this dissertation are focused on both the general frameworks and a specific insight of teacher peer feedback. The studies separately focus on the implementation models (Chapter 2), effects (Chapter 3), teachers' cognitive and behavioral process when learning from peer feedback (Chapter 4), teachers' appraisal of feedback (Chapter 5), and the characteristics of feedback (Chapter 6).

In this final chapter, we first provide a summary of the design and findings of the five studies in section 7.1. Then, in section 7.2, we draw different aspects of findings together to provide a general discussion to contribute to the knowledge of teacher peer feedback. In section 7.3, we reflect on the limitations of this dissertation and propose suggestions for future research. In section 7.4, implication are discussed to improve current practices of teacher peer feedback in TPD programmes, and suggestions for teacher educator and school leaders are provided. Finally, in section 7.5 the main conclusions are summarized.

7.1 Summary of findings in each study

Five different foci on teacher peer feedback formed the domains of study in this dissertation. First, a literature review was carried out to model teacher peer feedback implemented in previous research and provide fundamental information for the following empirical studies. Then four aspects of a local peer feedback-based programmes were studied, i.e. the effects of the programme, teachers' learning mechanisms through peer feedback, teachers' evaluation of feedback content, and the characteristics of feedback from expert teachers. These studies were arranged from generic to specific regarding the focus of peer feedback. Table 7.1 lists the different foci and findings of all the five studies included in this dissertation.

Table 7.1 Overview of main findings in each of the five studies in this dissertation

Chapter	Foci	Main findings
2	Implementation models of teacher peer feedback	1) Four implementation models were constructed: lessen study based peer feedback, research initiated peer feedback, supervisor guided peer feedback and self-regulated peer feedback.
		2) Five implementation factors were categorized: characteristics of participants, training and supervision, schedule and duration, support and tools, characteristics of feedback.
3	The effect of the TPD programme	1) The programme led a significant effect on the post-test score of a teacher's self-efficacy on the dimension of student engagement and classroom management.
		2) The programme led a significant effect on the post-test score of a teacher's professional engagement on the dimension of planned persistence.
4	Learning mechanisms of peer feedback in the TPD context	1) A model explaining novice VET teachers' learning through novice-expert peer feedback was constructed, which consists of seven steps: comments and advice from expert teachers, acceptance or cognitive differences, reflection, re-assumption, trial, receiving feedback, and learning outcomes.
		2) Feedback from expert teachers covered all four types of teacher knowledge, namely, general pedagogic knowledge, knowledge of context, subject matter knowledge and pedagogical content knowledge.
		3) Four types of learning outcomes were reported by interviewed teachers: teaching concepts, teaching competences, general strategies and emotional experience.
5	Novice teachers' appraisal of the feedback they received	1)A framework with four appraisal domains (feedback, teacher, VET context and professional development) and 12 specific appraisal categories was constructed to categorize novice teachers' evaluation of feedback from expert teachers.
		2)The most frequently referred appraisal categories were 'teachers' expertise', 'students' characteristics' and 'feedback benefit'.
		3)Novice teachers teaching Chinese language tended to value 'feedback adaptiveness' and 'teachers' belief', while vocational subject teachers concerned more about 'feedback specificity' and 'external pressure'.

Table 7.1 (Continued)

Chapter	Foci	Main findings
6	Characteristics of feedback provided by expert teachers	1) The descriptive statistics of feedback features in all dialogues showed high percentages of 'problem', 'solution' and 'explanations' were provided in expert feedback.
		2) Feedback from general subjects teachers included more 'problem' and 'mitigation-compliments' than that from vocational subject teachers.
		3) Expert teachers in general subjects provided feedback in diverse and differentiated ways, and vocational subject teachers tend to have similar patterns in providing feedback.
		4) Teachers in matched groups (expert and novice teachers are in the same school subject) provided feedback containing more 'problem' and 'praise', while mixed groups (expert and novice teachers are in the different school subject) provided feedback with more features of localization

Chapter 2 was focused on generating implementation models based on previous practices of teacher peer feedback and identifying the factors that may affect teacher learning effects. In this chapter, the results from a systematic review on practices of teacher peer feedback were described. The following two research questions guided 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?* We searched empirical articles published during 2000-2020 with the term 'peer feedback' and 'teacher' in combination (also the synonyms of the two terms). After screening, 29 articles remained. It yielded results of four typical implementation models of peer feedback (i.e. lessen study-based peer feedback, research-initiated peer feedback, supervisor-guided peer feedback and self-regulated peer feedback) and of five key factors (i.e. characteristics of participants, training and supervision, schedule and duration, support and tools, characteristics of feedback) that influence teacher learning through peer feedback.

The first finding provided a general framework for future practitioners and researchers to locate the peer feedback activities they conducted, and it also provided information about the characteristics involved in implementing different types of peer feedback. The second finding indicated a variety of influential factors on the effects of peer feedback, and it highlighted the importance of designing a peer feedback activity and controlling the influential factors. Further, we suggested that participants, programme organizers and process supervisors should work together to explore the most effective ways to implement peer feedback by frequently scrutinizing, interviewing or surveying participants with regards to their learning needs, changing expertise, relationship with peers and expectations on the programme.

In **Chapter 3**, the effects of a TPD programme on novice teachers' efficacy and professional engagement were examined. The research questions are: *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?* To eliminate the influence of novice teachers' improvement caused by increasing teaching experience, a pre- and post-test control group design was used. The scores of participating and non-participating teachers were compared by multivariate analysis of co-variance and paired samples *t*-tests. The analysis yielded positive effects caused by the current programme for participating teachers on two of the three efficacy scales (i.e. student engagement and classroom management) and one

of the two professional engagement scales (planned persistence). No statistically significant effects were found concerning self-efficacy in instructional strategies and professional engagement in planned efforts. Thus, we concluded that TPD programme involving peer feedback between novice and expert teachers generally had a positive effect on novice teachers' efficacy and professional engagement. However, the findings indicated effects of the entire TPD programme, instead of peer feedback, because there were other workshop-style activities involved in the programme.

The possible reason for the unchanged 'instructional strategies' and 'work effort' were discussed. Fuller (1969) has claimed that novice teachers' concerns are more about 'class control, subject matter adequacy and finding a place in the power structure of the school and understanding expectations of supervisors, principal and parents' (p. 211) in their first year of teaching. This may explain the absence of an effect on efficacy in instructional strategies because of its emphasis on student learning. With regard to teachers' work effort, the poor working environment in Chinese VET context may be the main reason of not finding a significant effect. As reported in many Chinese studies, Chinese VET teachers have a lower salary and higher workload than those in a general secondary school (Bian & Zhang, 2019; Chen & Xu, 2011). This means that VET teachers may already work harder than their counterparts in general secondary schools, and that they have almost reached the limits of paying efforts. Finally, it was implied that TPD involving peer feedback should be tailored to novice teachers' learning needs in their current career stage. In addition, policy makers and school leaders should improve the work environment and raise teachers' salaries in Chinese VET schools.

Chapter 4 focused on learning mechanisms (the cognitive and behavioral process of learning) within a teacher peer feedback activity in the context of Chinese VET. We formulated the research question as: *How can novice-teachers' learning in novice–expert interaction be characterised in the context of Chinese vocational education?* To answer the research question, a grounded theory approach was used to analyze the data from four participants from a TPD programme. The data included an individual interview and three peer feedback sessions from each of the participants. With three rounds of coding and categorizing, three main findings were found with respect to a specific model on the learning mechanism in peer feedback, the content of expert feedback, and self-reported learning outcomes from novice teachers (see Table 7.1 for details).

The found mechanism was interpreted in relation to the Interconnected Model of Professional Growth (IMPG, Clarke & Hollingsworth, 2002). The IMPG model shows how external domain (expert feedback) affects the personal domain (novice teachers) and the domain of practice (novice teachers' teaching practice in school). The findings showed learning from peers' feedback is a long and complex process that may cost time to yield outcomes. Furthermore, the other two results, with respect to feedback provided by experts and novice teachers' self-reported learning outcomes, showed that the support from expert teachers is an important external learning resource, which not only provides alternative teaching methods but also encourages and maintains novice teachers' learning. The results suggest that future TPD programmes should provide more opportunities for novices and experts to communicate with each other in both formal and informal ways, so to enhance novices' understanding of expert feedback and promote the long-term effects of peer feedback.

Chapter 5 focused on novice teachers' appraisals of the feedback they received in the peer feedback-based teacher envelopment programme. The research question was: *How do novice teachers in Chinese vocational education appraise expert feedback in a TPD programme?* Twelve novice teachers who participated in the programme were invited for an interview about their opinions of the feedback they received from expert teachers. The interview protocol contained 10 types of feedback commonly provided in the programme, and novice teachers were asked to appraise these feedback types. After transcribing the audio-records of each interview, the text was coded and categorized into four domains and 12 categories that relate to novice teachers' appraisal of expert feedback.

The appraisal framework with four domains and 12 specific categories provided a well-structured tool which can be used in future research or practice to evaluate the quality of peer feedback. The most referred appraisal domains and categories indicated teachers' pragmatic demands on peer feedback. For examples, novice teachers were concerned about how to adapt expert feedback to their own teaching expertise, apply expert feedback in their daily teaching, and make the best use of the feedback to produce positive changes. These concerns were shown by the three most frequently mentioned appraisal categories, i.e. 'teachers' expertise', 'students' characteristics' and 'feedback benefit'. In addition, comparing novice teachers in different subjects showed how teachers' needs and subject characteristics may influence their evaluation of certain feedback. Based on these findings, school

leaders are suggested to create a supportive environment and flexible regulations for teachers' to adapt peer feedback in their teaching practice, and TPD organizers are suggested to consider matching of peer teachers based on their school subject when arranging teacher peer feedback.

In **Chapter 6**, the characteristics of feedback provided by expert were investigated. Three specific research questions guided this study: *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?* The data included 30 audio recordings of novice-expert feedback sessions. The feedback dialogues were coded by the feedback feature framework (Nelson & Schunn, 2009). The coded data were quantified by calculating the proportions of eight different features in the feedback dialogues. With the proportions of the eight feedback features, we conducted descriptive statistics and an independent sample *t*-test to compare the differences between feedback dialogues provided by different types of expert teachers (see Table 7.1 for detailed findings).

Based on the main findings, we concluded that, in general, the feedback dialogues from expert teachers were constructive, because the expert teachers tended to provide fact-based feedback with clear instruction on how to improve. It can be shown by the high proportion of some feedback features (i.e., 'problem', 'solution' and 'explanations') in expert teachers' feedback dialogues. Moreover, the different features in the dialogues provided by different types of expert teachers were discussed. For example, teachers in matched groups (feedback providers and receivers teaching the same school subjects) tended to provide feedback dialogues with more 'praise' and 'problems', but less 'location' than teachers in the mixed groups (feedback providers and receivers teach different school subjects). The possible reason could be that expert teachers have more confidence when providing feedback to novice teachers teaching the same subject, so they can be more corrective and critical; while expert teachers in mixed groups may cautiously formulate their feedback in a neutral way to avoid giving wrong information. These findings suggest that developers of TPD programmes involving peer feedback need to be more aware of, and targeted at, how to arrange participants from different school subjects. When the programme aims at providing novice teacher pedagogic

content knowledge and enhancing their understanding of subject content, a matched novice-expert relationship may help. However, for programmes aimed at improving novices' standardized pedagogical skills, subject matching may not be necessary.

7.2 General discussion

Four aspects of the dissertation are discussed in this section. First, the stance this dissertation has taken in the first place is very unique. We particularly **focused on a common component implemented in many TPD programmes, i.e., peer feedback**. Researchers studying TPD usually focus more on the different context and procedures of the entire TPD programme, rather than solely on peer feedback. Moreover, teacher peer feedback activities can be conducted in different forms, such as 'peer review of teaching' 'peer evaluation' 'teaching demonstration' and 'peer coaching' (Chien, 2017; Iacono, Pierri, & Taranto, 2019; Sanetti et al., 2019). The differences in approaches and terminologies can block us from building an generic framework of both the practice and theory of teacher peer feedback. The current dissertation specifically focused on teacher peer feedback and provided a comprehensive view of the implementation models, their effectiveness, learning mechanisms, participants' appraisals, and feedback characteristics with respect to teacher peer feedback. Then these foci contribute to fundamental knowledge about teacher peer feedback, and also further underline the necessity of considering peer feedback as an independent research topic, rather than a subsidiary part of research on TPD.

Second, the **importance of constructive feedback** was stressed in the results from the empirical studies in this dissertation. In Chapter 4, the learning mechanism found in our qualitative study showed that advises and suggestions on novice teachers' teaching presentation are the main input in peer feedback activities. Chapter 6 with a focus on the features of feedback showed that 'solutions', 'explanations' and 'problems' are the most prominent features in peer feedback. This indicates that expert teachers tend to provided detailed, targeted, timely and fact-based feedback to improve novice teachers' teaching behavior. This is in line with the definition in previous research on constructive feedback. For example, Ovando (1994) pinpointed that constructive feedback for teaching and learning should be relevant, immediate, factful, helpful, confidential, respectful, tailored and encouraging. Therefore, we argue that providing constructive feedback should be the core function of teacher peer feedback activities, and this further highlights the

importance of guiding teachers to provide feedback in the most effective way during a peer feedback activity.

A third important fact that should be noted is that **peer feedback takes time to yield positive results**. Based on the results in Chapter 4, the learning mechanism we described showed a complicated long-term process, in which novice teachers not only need to accept and implement feedback, but also need to adapt the alternative teaching method and new ideas into their daily teaching practice. Also, results in Chapter 4 showed that only if expert feedback is successfully applied several times, novice teachers can establish a new teaching approach pattern. This finding is supported by previous research. Nami, Marandi and Sotoudehnama (2016) reflected on the results of their study on an in-service teacher education course and argued that the limited time participants attended the programme may have prevented to show the effects of the programme, and they believed better results would have been obtained if teachers would have had the opportunity to engage in the programme for a longer period. Furthermore, Pearce et al. (2019) conducted their study based on a two-year peer-coaching programme, and they argued it is the adequate time that maximized the benefits of the peer coaching programme in their study because it allows participants to build a relationship and solve problems with peers at a comfortable pace.

Fourthly, **the context of Chinese VET** should also be taken into consideration when explaining the findings of this dissertation. The context may affect peers' relationship building and teachers' appraisals of feedback, according to previous research and also our findings. The students in Chinese VET schools were found to exhibit more behaviour problems in class than students in general schools (Ren, 2018; Ma, Zhao, Han & Zhao, 2018), which means that VET teachers may need more help with motivating students, managing their classes, adapting their teaching to their students' level and understanding their students. Teachers' special needs in the Chinese VET context have been shown in Chapter 5, in which novice teachers appraised expert feedback from the perspective of using the feedback in their own practice (such as how to adapt expert feedback to VET students' interest and level). Furthermore, the Chinese context may also influence the relationship between peer teachers. For example, in Chapter 4, novice teachers rarely directly refuse feedback from expert teachers. This may be caused by the Chinese culture of respecting senior peers. Similar results were found in a South Korean study, where Butler and Yeum (2016) found that the balance between criticalness and politeness is an important feature of effective feedback, and they argue this is because of the Asian culture of

being polite and courteous.

7.3 Limitations and suggestions for future research

First of all, **the sample size** was a main limitation for some of the studies that involved quantitative analyses. All empirical studies in this dissertation were based on data from one local TPD programme, which did not include many participants. For example, in both Chapter 5 and Chapter 6, we compared the differences between participating teachers who teach different school subjects. However, the groups were not perfectly matched in both of the two studies due to the small number of participants. Thus, in future research, teacher peer feedback should be examined with a larger sample and preferably from different TPD programmes, which may allow researchers to conduct various types of statistics as well as increase the generalisability of the findings.

Secondly, the **effects of peer feedback** were not systemically examined in this dissertation, and the effects found cannot be attributed to the peer feedback alone. Two studies in this dissertation have touched upon the effects of the peer feedback. In Chapter 3, the effects of the programme on participants' teaching efficacy and professional engagement were studied with a pre- and post- control group design. However, the positive effects found in this study could be attributed to the entire programme, because in addition to peer feedback, other learning activities (e.g. lectures) were also included in the programme. In Chapter 4, four types of learning outcomes have been reported by participating teachers, but the learning outcomes were only a subsidiary part of this study. Future studies focusing on the effects of peer feedback could pay attention to comparing the effects of peer feedback-based activities conducted in different settings and contexts.

7.4 Practical implications

Drawing all the findings in the current dissertation together, three main implications could be suggested for school leaders, policymakers and teacher educators who are involved in the field of TPD.

First, **the selection and training of participants** are necessary. As we concluded above, constructive feedback is the main learning resource in a teacher peer feedback activity. This indicates that participating teachers should learn to provide high quality feedback and collectorate with their peers. Thus, we suggest that TPD

programmes involving peer feedback should select and train their participants. The participants recruited in the programme are supposed to have a certain level of teaching expertise and pedagogical knowledge to provide constructive feedback. Moreover, a workshop on how to provide effective feedback and how to work with peers is also highly recommended. This implication has been also acknowledged by previous researchers. For example, Walker, Douglas, and Brewer (2020) argued that with training beforehand on peer interaction, teachers may encounter less uncomfortable situations in providing feedback to their peers and fewer troubles in building relationships with each other.

Secondly, **teachers' needs and concerns** should be taken into consideration when organizing a teacher peer feedback activity. As indicated in Chapter 3 and 5, novice teachers in the Chinese VET context needed pragmatic feedback from expert teachers, such as detailed feedback that can be immediately applied (e.g. specific behaviour principles and general teaching strategies) and feedback on particular issues that novice teachers are concerned about (e.g. student-teacher relationship and classroom management). These findings suggest that future practices of peer feedback should be targeted at what teachers need in a particular stage of their career and at what teachers concern in a particular education context is. Thus, the purposes and content of TPD programme should be designed based on an analysis of participants. For example, survey and interview data from participants should be collected before the programme to decide the learning content and materials.

Thirdly, **teachers' working environment and social status** in the Chinese context should be given more attention, because in the current dissertation, the Chinese VET context seemed to influence the effects of teacher learning through peer feedback (e.g. a low job satisfaction may hinder teachers' improvement of work effort as found in Chapter 3, and novice teachers mentioned their concern of applying feedback in the Chinese VET context frequently as found in Chapter 5). As previously reported in this dissertation, teaching in VET schools in China usually means poorer working conditions and higher workload than working in general secondary schools. Thus, we suggest that policymakers and educational administrators should pay more attention to the work satisfaction of VET teachers, because work satisfaction is found to be one of the most important factors that influence teachers' professional engagement (Fresko, Kfir, & Nasser 1997). Examples of policy strategies could be to increase government expenditures on VET, raise salary for VET teachers, and improve the conditions in VET schools in remote and rural areas.

7.5 Final conclusion

Peer feedback is one of the main components included in many TPD programmes, which should concern the researchers in the teacher learning field. This dissertation particularly contributes to the knowledge of teacher peer feedback. Based on the findings of this dissertation, we can conclude that learning from peer feedback is a complex and long-term process involving sense making and practice adapting, and its' effects are related to many aspects, such as the arrangement of peer feedback activities, perceptions of feedback receivers, and the way feedback is formulated by providers. With regard to the arrangement of peer feedback, the various implementation models and influential factors found in this dissertation indicate the importance of arranging settings of peer feedback activities according to both the goals of the programme and the needs of the participants, which means that the programme should be constantly adjusted. From the perspective of feedback receivers, many practical issues are concerned when they appraise expert feedback. Therefore, to improve teachers' acceptance of feedback, teacher educators and supervisors are supposed to provide more details on how to applied certain feedback in novice teachers' teaching practices. From the perspective of feedback providers, the feedback should be provided in a constructive and positive way, taking into account that the school subjects the feedback provider teaches affect the way feedback is given. This finding has enriched our knowledge of feedback characteristics and emphasizes the importance of matching feedback receivers and providers in future practices of peer feedback. In closing, this dissertation provides an overall understanding of peer feedback in TPD. However, given that many researchers on TPD focus more on the general programmes, instead of feedback itself, there are still many themes in this area that future research can go further into.