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## Professional learning of vocational teachers in the context of work placement

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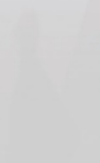
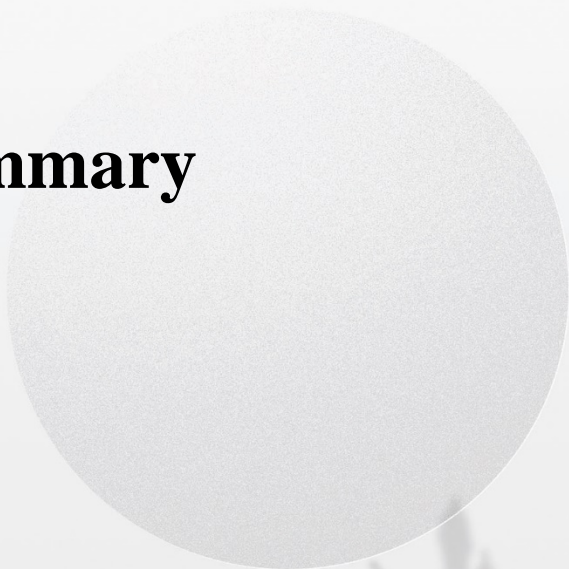
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# Summary



Rapid changes of industry and society require vocational teachers to keep their occupational expertise and teaching practice up to date. In addition to school-based learning, industry-based learning has become increasingly important for them. In this context, work placement has been implemented in many countries, such as Sweden, France, and China (Andersson & Köpsén, 2015; Zaid & Champy-Remoussenard, 2015). It is defined as a continuing professional development programme in which vocational teachers retain their occupational expertise through participating in ‘the vocational, work-life community of practice of their teaching subject’ (Andersson & Köpsén, 2015, p.2). Although the value of work placement has been indicated by prior scholars, how vocational teachers’ learning takes place and how they make use of this learning experience were not clear. To get a deep insight into vocational teachers’ learning in this programme, this dissertation specifically focuses on vocational teachers’ learning process in work placement.

## **Chapter 1: General introduction**

Work placement has been implemented nationwide in Chinese vocational education, and all vocational teachers have been required to conduct this programme for at least six months within each five-year period since 2016. However, there are several obstacles for vocational teachers, programme designers, and school leaders to engage in work placement. It seems that all these obstacles were derived from the lack of understanding of vocational teachers’ learning in this programme. Prior studies strived to probe into factors influencing vocational teachers’ participation in this programme, while these seldomly focused on vocational teachers’ learning in this programme.

The context of this dissertation is focused on Chinese vocational education, which includes secondary and higher vocational education. Compared to the latter, the former plays a more basic role in inducting fresh students from school into workplace occasions. In China, vocational education is typically school-based, and school curriculums are normally created or designed as syntheses of theoretical and practical modules. Therefore, vocational teachers have to have a ‘dual competence’ which pertains to ‘teaching’ and ‘work’. In this context, the concept of ‘dual qualified teachers’ was developed and work placement was implemented. The policy history of work placement started with ‘The Law on Vocational Education of People's Republic of China’ published in 1996, which for the first time indicated that companies need to provide vocational teachers with learning opportunities.

To picture vocational teachers' learning in work placement, we employed four types of frameworks, which focused on different research questions. First, the expectancy-value theory developed by Eccles et al. (1983) was used to structure vocational teachers' motivational beliefs for work placement. In this model, expectancy for success and task value were considered as two main motivational components that influence an individual's choice, persistence and achievement. Second, the categories of learning activities from the school and industrial workplace were reviewed to explore vocational teachers' learning activities in work placement. Third, to investigate vocational teachers' learning outcomes from work placement, we employed the model of learning outcomes derived from Harland & Kinder (2014). There are nine types of learning outcomes in this model concerning cognition and behaviour. Fourth, previous models about factors influencing the transfer of learning were applied to examine what factors could facilitate or hinder vocational teachers to make changes in school practice based on the experience of work placement.

Based on the descriptions of the context of work placement and prior conceptual frameworks, five studies were designed. The first study was a literature review and generalised vocational teachers' learning activities and outcomes in all contexts. Then, the following four studies focused on vocational teachers' learning in work placement from an empirical perspective. Specifically, Chapter 3 explored the relationship between vocational teachers' motivational beliefs and their engagement toward work placement. In Chapter 4, vocational teachers' learning process, including learning activities, goals, and outcomes during work placement was investigated. Furthermore, Chapter 5 and Chapter 6 provided insight into vocational teachers' transfer of learning from work placement to school workplace with qualitative and quantitative approaches separately. The main research questions for each study were:

1. What are vocational teachers' professional learning activities and outcomes in all various of contexts? (Chapter 2)
2. What is the relationship between vocational teachers' motivational beliefs and engagement in work placement (Chapter 3)
3. What are vocational teachers' learning activities, goals, and outcomes in work placement (Chapter 4)
4. What is the impact of work placement on vocational teachers' school practice and what factors influence its impact (Chapter 5)
5. How do factors predict vocational teachers' transfer of learning from work

placement to school (Chapter 6)

## **Chapter 2: Vocational teachers' professional learning: A systematic literature review of the past decade**

A systematic literature review of vocational teachers' professional learning in different contexts was conducted in this chapter. As contemporary society changes rapidly, vocational teachers are expected to keep their professional abilities up to date. And their professional learning has been concerned by scholars and practitioners. The purpose of this study is to generalise vocational teachers' professional learning experience for the past decade. The research questions were:

- 1) How can vocational teachers' professional learning activities be characterised?
- 2) What outcomes of vocational teachers' professional learning can be distinguished?

To respond to the research questions, literature published from Jan 2010 to August 2021 was searched by using the following terms: Title included professional development OR professional learning OR teacher training OR teacher learning AND Any field included vocational teachers OR VET teachers. After the literature screen and selection, 54 articles were included in further analysis. Learning activities and learning outcomes have been described in 54 articles and 37 articles, respectively. To categorise vocational teachers' learning outcomes, a model of learning outcomes from Harland and Kinder (2014) was used as a coding scheme.

Regarding vocational teachers' learning activities, the results displayed four main categories, respectively pre-defined professional development programme, self-directed/initiated activities in school, collaborative activities in school, and industry-based activities. These categories confirm that vocational teachers' professional learning can occur in academia, industrial, and work settings, and in both formal and informal ways. For each category, there were several specific activities included. Different from the category of industry-based activities, which is unique for only vocational teachers, the other three categories were also common for general teachers' learning. Concerning vocational teachers' learning outcomes, this study summarised eight types of outcomes, consisting of knowledge and skills, teaching practice, affective outcomes, value congruence, motivational and attitudinal beliefs, institutional outcomes, new awareness, and student outcomes. Among these categories, knowledge and skills as well as teaching practice, were found to be the

most frequently identified learning outcomes. In addition, most of the learning outcomes reported in the reviewed studies were classified as positive.

The results of this study provide an overview of vocational teachers' learning activities and outcomes, which can be used as a theoretical framework for future scholars to further explore vocational teachers' professional learning. And, the results also make suggestions for policy-makers and school leaders to promote vocational teachers' professional learning.

### **Chapter 3: The relationship between vocational teachers' motivational beliefs and their engagement in work placement**

In this chapter, a quantitative approach was used to investigate the relationship between vocational teachers' motivational beliefs and learning engagement in work placement. Although work placement has been implemented nationwide in China, a number of vocational teachers performed low engagement during this programme (Xun & Yang, 2019; Zhang & Fang, 2016). In addition to some external barriers, teachers' motivational beliefs might provide an important additional explanation for their engagement. Therefore, this study is driven by two research questions:

1) What is the relationship between vocational teachers' motivational beliefs and their engagement in work placement?

2) Does teaching experience have a moderating effect on this relationship?

Next, in the section on the theoretical framework, firstly the expectancy-value theory developed by Eccles et al (1983) was used to explain vocational teachers' motivational beliefs for work placement. Second, prior studies are described that focused on the structure of learning engagement and the relationship between motivational beliefs and engagement. It appears that most of those studies displayed a positive relationship to some extent (Jones, Johnson, & Campbell, 2015; Wang & Eccles, 2013). Third, the role of teaching experience on motivational beliefs and learning engagement was concluded from previous studies and the results showed that there is a difference between novice and experienced teachers. In addition to the review of prior studies, also the setting of work placement in the context of Chinese vocational education was described.

To collect data, 426 Chinese secondary vocational teachers were invited to fill out the questionnaire. Four main components were measured: task value, cost, self-efficacy, and learning engagement. Based on the exploratory factor analysis, four

motivational belief factors, i.e., task value, task effort, emotional cost, and self-efficacy and two engagement factors, i.e., a combination of behavioural, cognitive, and emotional engagement and agentic engagement were produced. Furthermore, multivariate linear regression analysis and moderating effect analysis were carried out to explore the relationship between motivational beliefs and engagement and the moderating effect of teaching experience.

The findings showed that vocational teachers' perceptions of task value, task effort, and self-efficacy were significantly positive predictors, whereas emotional cost was a negative predictor of their behavioural, cognitive, and emotional engagement. Besides, teachers' perceptions of task effort, self-efficacy, and emotional cost were positively related to their agentic engagement. The moderating effect analysis results showed that vocational teachers' teaching experience had a significant and negative moderating effect on the relationship between two cost variables (task effort and emotional cost) and behavioural, cognitive, and emotional engagement. This suggests that the lower the teaching experience, the stronger the relationship of task effort and emotional cost with behavioural, cognitive, and emotional engagement in the context of work placement.

The finding that task value and self-efficacy are the positive predictors of their engagement in work placement aligns with most previous studies (Bandura 1997; Eccles et al., 1983; Jones et al., 2015; Zhang & Liu, 2019). The positive relationship between teachers' task effort and their engagement, which is in contrast with most previous research, may be explained by insights about attribution theory and self-worth theory from Asian perspectives. Regarding attribution theory, previous studies have indicated that in Asian cultures, the greater one's desire to succeed or improve, the greater the effort one perceives to be required (Mizokawa & Ryckman, 1990). Concerning self-worth theory, research conducted by Jiang et al. (2018) used East Asian students' perceptions of self-worth to explain the finding that Korean students' perceived cost positively predicted their approach goals. Following this explanation, when students perceive the costs to be higher, they might endorse stronger performance approach goals, in order to retain their self-worth. The moderating role of teaching experience can be explained by the comparison of novice and experienced teachers' learning experiences.

#### **Chapter 4: Understanding vocational teachers' professional development in work placement: learning goals, activities, and outcomes**

In this chapter, vocational teachers' learning experience during work placement was explored. Although work placement was valued by prior scholars and practitioners (Andersson & Köpsén, 2015; Zaid & Champy-Remoussenard, 2015), how vocational teachers' learning takes place and what they can obtain from this programme were still not explicit. Thereby, this study aimed at providing an insight into their learning process in the context of work placement.

Aside from the introduction of work placement in the context of Chinese vocational education, the findings from prior studies on teachers' professional development were reviewed. Concerning learning activities, in addition to teachers' learning activities, professionals' learning activities in the industrial workplace were also considered because of the context of our study. For learning goals and outcomes, the model of learning outcomes from Harland and Kinder (2014) was employed, which includes nine types of learning outcomes. Besides, the connection between learning activities and outcomes was also reviewed. Based on the review results and the purpose of this study, three main research questions guided this study:

- 1) What are vocational teachers' perceived learning activities in work placement and which activities do they perceive to be important?
- 2) What are vocational teachers' perceived learning goals and outcomes?
- 3) How do vocational teachers perceive the connection between their learning activities and outcomes?

To get a comprehensive understanding of vocational teachers' learning process in work placement, semi-structured interviews with 27 vocational teacher participants were conducted. All of them were interviewed individually within one week of completing their work placement. The interview protocol was focused on three themes: 1) learning activities that teachers used in work placement; 2) learning goals that teachers set for work placement; 3) learning outcomes that teachers obtained from work placement, including their intentions for practice. To analyse data, two schemes of learning activities and outcomes were developed based on prior studies (Harland & Kinder, 2014; Meirink, Meijer, & Verloop, 2007). The generalised categories showed good reliability and validity.

The results illustrated seven categories of learning activities, i.e., doing tasks, experimenting, mentoring, reflecting, learning from others with interaction, learning



from others without interaction, and formal training. Among these activities, learning from others with and without interaction were the most frequently reported categories and mentoring, learning from others with interaction, and formal training were most frequently perceived as important. Besides, twelve categories of outcomes were identified in this study and eight categories of them were also reported as learning goals. Based on the reports of the participants, acquiring knowledge and skills was the most common learning goal for attending work placement. In addition, six categories of vocational teachers' intentional changes in practice in school were also generalised. Finally, the results showed that all learning activity categories were related to many learning outcomes, which means that vocational teachers could get more than one type of outcome for each activity.

The findings of this study provided an overview of vocational teachers' learning experience in work placement. The finding of vocational teachers' learning activities in work placement was almost the same as prior research focusing on workplace learning activities. It seems that teachers particularly value the structured or non-structured support of others in host organisations. Regarding learning outcomes, several categories were developed or adapted from the model of Harland and Kinder (2014) to the context of work placement.

## **Chapter 5: Factors influencing the impact of work placement on vocational teachers' school practice**

In this chapter, the impact of work placement on vocational teachers' practice in school and factors influencing this impact were explored. An effective professional development programme could usually lead to changes in teachers' teaching practice. Since no studies have illustrated how vocational teachers apply what they learned from work placement to school workplace, in this study a qualitative approach was used to provide insight into this, which enriched existing understandings of teachers' learning in work placement.

After describing the context of work placement in Chinese vocational education, previous studies on teachers' changes in school practice were reviewed, which yielded two important insights. The first one was that teachers' changes in practice are related to a variety of forms, and the other one was that there are often inconsistencies between teachers' intended changes and their actual changes in practice. Besides, prior insights on factors influencing teachers' use of learning in practice, which can be also

called transfer of learning, were reviewed. In general, factors related to the transfer of learning have commonly been classified into three domains, including learner characteristics, intervention design, and work environment (Blume et al., 2010; De Rijdt et al., 2013). Based on the above, we developed two research questions:

1) What are vocational teachers' intended and actual changes in their school practice based on work placement?

2) What factors do vocational teachers perceive as facilitating or hindering for implementing their changes in school practice?

To integrally understand vocational teachers' changes in school practice, semi-structured interviews were conducted twice with 18 secondary vocational teachers. The first-round interviews were carried out within one week after completing work placement and would like to concern vocational teachers' learning experience in work placement as well as their planned changes in school practice. The second-round interviews were conducted at the end of the semester following work placement with the aim to gain insight into vocational teachers' actual changes in school practice as well as into factors influencing them to make changes.

The results identified six categories of vocational teachers' changes in school practice, which were related in three levels, i.e., school, collegial, and individual classroom practice. Besides, the comparison between their intentional and actual changes showed that most vocational teachers realised their plans of changes in practice. With regard to factors influencing their changes, this study generated thirteen factors, which were categorised into three domains, i.e., teacher characteristics, work placement, and school environment.

The results of vocational teachers' changes in school practice after work placement confirmed that vocational teachers' changes in school practice have various forms and are not only focused on their teaching practice. Concerning influencing factors, although many factors have been identified in prior studies, several factors were newly framed in this study, such as perceived effects.

## **Chapter 6: Factors predicting vocational teachers' transfer of learning: A quantitative study in the context of work placement**

In this chapter, factors associated with vocational teachers' transfer of learning were further examined by a quantitative approach. Transfer of learning is the process by that teachers make use of their learning experience to make changes in school practice

(Murphy & Tyler, 2005). Although some factors influencing the transfer of learning have been identified in Chapter 5, these were derived from a small sample of vocational teachers. Therefore, the purpose of this study was to further examine these at a large scale.

Subsequently, factors from three domains were selected (teacher characteristics, work placement, and school environment) and hypotheses were developed based on the findings of prior studies and Chapter 5. Transfer of learning in this study was divided into transfer generalisation and transfer maintenance. Ten factors were included, i.e., teaching experience, occupational experience, work placement period, personal capacity, content relevance, supervisor support, peer support, opportunity to use, and perceived effects. Besides, two hypotheses were proposed in which transfer period and perceived effects were employed as moderators on the above-mentioned relationships.

A questionnaire survey was used to collect data and 372 Chinese secondary vocational teachers completed it. The items for transfer of learning were developed based on the results of Chapter 4 & 5. And, the items of personal capacity, content relevance, supervisor support, peer support, and opportunity to use were adapted from the Learning Transfer System Inventory (LTSI) (Bates et al., 2012). In addition, four items of perceived effects were developed based on the qualitative results of Chapter 5.

The measurement model showed a good model fit. The path analysis results revealed that vocational teachers' occupational experience, perceptions of personal capacity, content relevance, peer support, opportunity to use, and work placement period positively predicted transfer generalisation. Moreover, it was found that vocational teachers' transfer generalisation and perceived effects positively predicted their intention for transfer maintenance. In addition, no moderating effect of the transfer period and perceived effects was confirmed.

These findings provide empirical evidence of factors connecting with vocational teachers' transfer of learning in the context of work placement. Many factors have been identified by prior scholars, and some new factors were confirmed, such as occupational experience. Besides, the non-significant prediction of teaching experience and supervisor support on transfer generalisation was unexpected. An explanation for the former could be that teachers were not familiar with the context of work placement, which may lead them to some dilemmas for transfer, no matter

whether teachers are novice or experienced teachers. The explanation for the latter may be that teachers seldomly received support from their supervisors. Moreover, the non-significant moderating effect of the transfer period and perceived effects indicated that the influence of work placement on vocational teachers' practice was quite strong and could persist for a long term.

## **Chapter 7: Discussion and Conclusion**

In the final chapter, a general discussion of the five studies of this dissertation was provided. To begin with, we summarise the main findings of the five studies. Then, those main and interesting findings were located and further discussed. Next, the major limitations of this dissertation and the directions for future research were reflected upon. Lastly, the suggestions of this dissertation for vocational teachers, school leaders, and programme designers were provided.

Based on the main findings, we discussed the following three aspects:

1) The effectiveness of work placement. As the results of Chapter 4, 5, & 6 generalised a variety of vocational teachers' learning outcomes with regard to cognition and behaviour, we confirmed that work placement is an effective learning programme for vocational teachers.

2) Vocational teachers' learning and engagement in work placement. The findings of Chapter 3 & 4 have revealed that vocational teachers could make use of various formal and informal activities during work placement and motivational beliefs were also found to be important factors associated with their engagement. This could provide us with an understanding of how vocational teachers' learning takes place.

3) Factors influencing vocational teachers' transfer of learning from work placement to school. The results of Chapter 5 & 6 generalised and examined factors connecting with vocational teachers' transfer of learning, which can be categorised into three domains, i.e., teacher characteristics, work placement, and school environment.

Three limitations were addressed. The first one was that only vocational teachers' self-reports were used to collect data for all empirical studies in this dissertation, which may lead to biased and non-comprehensive responses. The second one was that only secondary vocational teachers were involved in this dissertation, excluding higher vocational education teachers. The third one was we only used cross-sectional data for the quantitative studies, instead of a longitudinal research design. Based on

these limitations, we also made suggestions and directions for future research.

Finally, practical implications were elaborated with consideration of work placement stakeholders:

1) Vocational teachers. Since this dissertation provided an overview of vocational teachers' possible learning activities, goals, outcomes, and changes in practice, vocational teachers may get to know this to promote their learning during this programme.

2) School leaders. As factors influencing vocational teachers' learning and transfer of learning have been discovered in this dissertation, school leaders could make use of this to take measures to help or monitor vocational teachers' learning in work placement.

3) Programmer designers. This dissertation provided vocational teachers' learning process in work placement, which could inspire programme designers to consider how to improve this programme in the future.