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Professional learning of vocational teachers in the context of work placement

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Chapter 3

The relationship between vocational teachers' motivational beliefs and their engagement in work placement

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Abstract

Work placement has been regarded as one of the most effective ways of developing vocational teachers' occupational expertise. Guided by expectancy-value theory, we aim to explore how vocational teachers' motivation towards professional learning shapes their engagement when on work placement. Two research questions were addressed: 1) What is the relationship between vocational teachers' motivational beliefs and engagement in work placement? 2) Does teaching experience have a moderating effect on this relationship? The data was collected from an online survey and analysed in a quantitative way. The participants were 426 Chinese secondary vocational teachers. Exploratory factor analysis identified four motivational beliefs: task value, self-efficacy, task effort, and emotional cost. Regression analysis revealed that vocational teachers' task value, self-efficacy, and task effort were positively related to their engagement. Teachers' emotional cost was negatively linked to their behavioural, cognitive, and emotional engagement, but positively linked to agentic engagement. Moreover, a negative moderation of teaching experience was seen. These findings facilitate the understanding of vocational teachers' professional learning at the work site and provide suggestions on how to reinforce their engagement. Future research could examine the relationship between vocational teachers' motivational beliefs and engagement from a longitudinal perspective or within other learning contexts.

3.1 Introduction

Keeping vocational knowledge updated plays a crucial role in the advancement of vocational teachers' teaching practice (Broad, 2016; Tyler & Dymock, 2019; Zaid & Champy-Remoussenard, 2015). Specialist knowledge, skills and behaviours for work are best acquired through hands-on, work-based learning, rather than a theoretical, desk-based school curriculum (Andersson & Köpsén, 2018; Hordern et al., 2022). To retain vocational teachers' occupation-specific expertise, work placement has been implemented in many countries, including Finland, Australia, China, and England, albeit with different labels, such as work placement periods, industry release, and hands-on programmes. In our study, the term 'work placement' is defined as a continuing professional development programme in which vocational teachers acquire occupational knowledge and skills through participating in 'the vocational, work-life community of practice of their teaching subject' (Andersson & Köpsén, 2015, p2). It facilitates and stimulates vocational teachers in the expansion of their traditional role and in crossing boundaries between schools and working life (Andersson & Köpsén, 2015; Lloyd & Payne, 2012).

For the past decade, work placement has obtained much support from policy-makers in many countries, especially those countries with a typically school-based vocational education system. For example, a Swedish national initiative included work placement as the primary programme, and teachers who attended this programme were entitled to receive financial support from the state (Swedish National Agency of Education, 2019). Similarly, the Chinese government issued a series of documents that required all vocational teachers to undertake work placement for at least one month annually and for six months within each five-year period (Ministry of Education of the People's Republic of China, 2016; The State Council of the People's Republic of China, 2019). In this context, a growing number of vocational teachers are being encouraged to take part in work placement arranged by educational departments, vocational schools, or themselves.

Although work placement has potential benefits, several Chinese studies have indicated that many vocational teachers show a low commitment towards this programme, despite being forced to attend under the pressures of school leaders or policies (Gou & Yang, 2019; Zhang & Fang, 2016). Zhang and Fang (2016) investigated 604 Chinese vocational teachers from 13 cities and found that in work placement more than 40% of them stood aside as bystanders. Earlier research has

discerned that there are certain obstacles that cause vocational teachers to avoid participating in or engaging in work placement, such as increased workload and financial problems (Lloyd & Payne, 2012). In contrast to these external barriers, teachers' motivational beliefs might provide an important additional explanation for their engagement. However, no researchers have explored in depth how teachers' motivational beliefs relate to their efforts in work placement. In our study, the expectancy-value theory is employed to clarify the association between vocational teachers' motivational beliefs and their engagement in work placement. Two research questions are formulated as follows:

RQ1. What is the relationship between vocational teachers' motivational beliefs and their engagement in work placement?

RQ2. Does teaching experience have a moderating effect on this relationship?

3.2 Work placement: a theoretical framework

3.2.1 Expectancy-value theory

Teachers' motivation to engage in professional learning has enjoyed a great deal of attention in the past decade (Appova & Arbaugh, 2018; Gorozidis & Papaioannou, 2014). Expectancy-value theory has been captured as an influential framework in explaining teachers' learning motivation and performance (Richardson & Watt, 2010). Although this theory was originally developed to understand children's and adolescents' motivation for achievement, it has proved to be fruitful in exploring adults' learning motivation (Gorges & Kandler, 2012).

Expectancy-value theory was introduced and developed by Eccles et al. (1983) in the field of education. It acknowledges that individuals' choice, persistence, and performance can be explained by their expectancy for success and their task value. These two motivational components are associated with two questions that individuals can ask themselves: 'Can I do this task?' and 'Do I want to do this task and why?' (Eccles et al., 1983; Eccles & Wigfield, 1995; Wigfield & Eccles, 2000; Wigfield, 1994). The following three sub-sections set out the research on these motivational factors.

3.2.1.1 Task value

Task value refers to an individual's perception of the value of working on a future task

(Eccles et al., 1983; Eccles & Wigfield, 2002; Pintrich et al., 1991). Eccles et al. (1983) split task value into multiple components: attainment value, intrinsic value, utility value, and cost. Attainment value refers to the importance of doing a task well, intrinsic value to the enjoyment gained from doing the task, and utility value to the usefulness of doing the task. In many studies, task value has been measured with these three value subscales, which appear to be highly correlated (Eccles & Wigfield, 1995). Muis et al. (2018) conducted a confirmatory factor analysis to examine the structure of task value, and their results showed that a one-factor model was the best fit, rather than a three-factor model. Recently, scholars have preferred to separate cost from the task value component, and have identified it as a new factor that is used to represent motivation (Jiang, Rosenzweig, & Gaspard, 2018; Osman & Warner, 2020).

Building on expectancy-value theory, teachers' task value for professional learning is conceived as a powerful driver of teachers' choice to participate and perform. Teachers like to attend those learning programmes or activities that intrigue them or assist them in improving their teaching practice (Guskey, 2002; Rutherford, Long, & Farkas, 2017). Besides, teachers' perception of value has been found to be positively associated with performance in professional learning. Zhang et al. (2016) found that the task value perception of pre-service teachers was positively linked to their performance in a learning programme, via extrinsic learning motivation.

3.2.1.2 Cost

The term 'cost' refers to what an individual has to invest and give up to accomplish a task (Osman & Warner, 2020; Wigfield, 1994). Eccles et al. (1983) defined cost as a multifaceted factor comprising the effort required to achieve a task, the lost opportunities to become involved in other valued programmes, and the emotional cost concerned with the anxiety and stress of undertaking a task. Recently, Flake et al. (2015) suggested a new construct named 'outside effort', which describes the time, effort, or amount of work needed for all other tasks. Jiang, Rosenzweig, and Gaspard (2018) developed another construct to describe an individual's fear of failing in a task.

The role of cost in motivation has been debated in the last decade. Many scholars who stand by Eccles et al. (1983) consider cost as a part of task value (Berge, Parrila, & Deacon, 2018; Trautwein et al., 2012). However, a growing number of researchers have become sceptical, and have attempted to split cost from the task value component (Flake et al., 2015; Jiang, Rosenzweig, & Gaspard, 2018; Perez, Cromley, & Kaplan, 2014). Jiang, Rosenzweig, and Gaspard (2018) discovered that if the perceived cost

is treated as an independent variable, this could result in additional variance in predicting students' academic outcomes. Moreover, recent studies have proposed that cost should not be considered as a totally negative component. The high or low level of cost doesn't mean that the tasks are worth doing or not. As Gorges mentioned, 'even an educational program associated with high levels of costs may be the best choice from a range of alternatives' (2016, p34).

To date, there has been some research that traces the link between students' perceived cost and their academic achievement. The cost was found to predict students' academic goals, grades, and persistence. Higher perceived cost induces avoidance of achievement and higher drop-out intentions (Perez, Cromley, & Kaplan, 2014). However, increasingly contradictory findings about this relationship have been found. Jiang, Rosenzweig, and Gaspard (2018) clarified that there is a positive relationship between students' perceptions of cost and approach goals. In the field of teachers' professional learning, there are no studies focusing on the association between teachers' perceived cost and performance or persistence.

3.2.1.3 Self-efficacy

Self-efficacy is generally conceptualised to mean how well individuals believe they can do in an upcoming task (Wigfield & Eccles, 2000). Expectancy for success is treated as a vital factor to predict achievement. A high correlation between ability and expectancy has been proved (Eccles et al., 1993; Eccles & Wigfield, 1995), and in some pieces of research ability belief and expectancy for success are not separated (Wigfield, 1994). Pintrich et al. (1991) adopted both ability belief and expectancy for success to measure individuals' expectancy component. Authors of more recent studies have used self-efficacy to represent the expectancy component (Bergey, Parrila, & Deacon, 2018; Perez, Cromley, & Kaplan, 2014; Trautwein et al., 2012).

The linkage between self-efficacy and performance has been contentious for a long time. Self-efficacy theory stated that individuals with high belief in their ability would set themselves a difficult goal, which may lead them to great effort and high performance (Bandura 1977, 1997). Conversely, ample research has insisted on the opposite view, that is, that self-efficacy negatively influences performance, especially at the within-person level (Vancouver & Kendall, 2006; Vancouver, Thompson, & Williams, 2001). This standpoint is supported by control theory, which emphasises that higher self-efficacy implies that a closer goal is set and less effort is needed (Powers, 1973). Several moderating indicators in the relationship between self-

efficacy and performance have been identified, such as goal difficulty and experiences of failure (Beck & Schmidt, 2012; Hardy, 2014).

3.2.2 Learning engagement

Learning engagement is commonly used as an indicator for assessing teachers' professional learning. Fredricks Blumenfeld, and Paris (2004) recognised engagement as a multidimensional factor that encompasses the behavioural, cognitive, and emotional aspects of engagement with a programme. Behavioural engagement refers to an individual's effort, attention, and persistence throughout a learning programme. Cognitive engagement is defined as the strategies used to achieve a greater understanding of ideas. Emotional engagement is realised as the emotional involvement during a programme, shown in such aspects as enjoyment and curiosity (Li et al., 2016; Skinner et al., 2008). Conceptualisations of learning engagement mostly address individuals' reactions to learning programmes, but neglect their agentic action to develop and modify the programmes. Thus, Reeve and Tseng (2011) distinguished agentic engagement to depict an individual's efforts to promote learning programmes and issues.

Although several constructs of engagement have been identified, a majority of scholars commonly draw on behavioural indicators to measure teachers' or students' learning engagement. For instance, Flowerday and Shell (2015) used reading and writing time to assess students' engagement in a learning programme. Jansen in de Wal et al. (2014) measured the frequency of participation in diverse learning programmes or activities to appraise teachers' engagement in professional learning. Zhang and Liu (2019) conducted open coding based on teachers' behaviours to investigate their online learning engagement. So far, no studies have been performed to investigate teachers' engagement in learning programmes based on multiple constructs.

3.2.3 Relationship between motivation and learning engagement

In expectancy-value theory, engagement has been viewed as a pivotal mediating factor that links motivation and achievement (Wigfield et al., 2015). The existing research has revealed the linkages between teachers' motivation and engagement in various contexts and in a general way. For example, Jansen in de Wal et al. (2014) showed

that teachers with an autonomous profile were most engaged in all learning activities, whereas ‘externally regulated’ teachers were the least engaged. Jones, Johnson, and Campbell (2015) showed that undergraduates’ task value for reading was positively connected with their cognitive engagement, and Wang and Eccles (2013) reported that students’ academic self-concept and task value were positively related to their engagement in school. Yet these studies have limited value for the current study. First, the role of cost in explaining engagement has not been identified. Second, most research on the relationship between motivation and engagement has been focused on students instead of teachers. Third, the underlying structure of motivational beliefs and engagement in these studies is ambiguous.

3.2.4 Motivation, engagement, and teaching experience

In several studies on teachers’ professional learning, differences between novice and experienced teachers have been found. First, compared to experienced teachers, novice teachers experience lower teaching efficacy (Tschannen-Moran & Hoy, 2007; Zhu et al., 2018). Other research has shown that, as teaching experience increases, teachers’ participation in professional learning may reduce (Grangeat & Gray, 2007). Secondly, teachers in different career stages usually have different knowledge structures, which are related to differences in learning needs, motivations, and preferential approaches (Louws et al., 2017b). Thus, when they are participating in the same programme, novice teachers’ motivation and engagement may differ from those of experienced teachers. Thirdly, the literature shows that teachers with less experience in a learning programme report higher growth in their professional knowledge after participation (Xie et al., 2017). It can be inferred from these studies that, in contrast to experienced teachers, novice teachers find it particularly effective to engage in learning programmes. Based on the above, teaching experience seems to be an important factor both related to teachers’ motivation for and engagement in professional learning. However, no research ever involved teaching experience while exploring the association between motivation and engagement.

From the literature, it appears that teachers’ motivational beliefs about professional learning are related to their engagement and performance. However, until now, most literature only revealed a partial relationship between them, while no comprehensive exploratory research in this area has been conducted. This suggests a space for further research on the relationship between vocational teachers’

motivational beliefs and their engagement in professional learning and the contribution of their teaching experience as a moderator in the context of work placement.

3.3 Work placement in the context of the Chinese vocational education

The Chinese vocational education system includes secondary vocational education (3 years, age 16–18 years) and higher vocational education (3–4 years, age from 18 years). More than 40% of students after lower secondary education step into secondary vocational schools. Although the general courses are still available, more occupation-related courses are arranged at this level of education. After graduation, two main routes can be identified that lead them to either college or a job.

Until now, vocational education in China has been traditionally school-based, despite increasing opportunities for student internship or placement in the last year of graduation. In recent years, the concept of ‘double-qualified teachers’ was introduced and developed in the Chinese vocational education system, which implies that vocational teachers are supposed to have both theory-based and practice-based teaching competence (The State Council of the People's Republic of China, 2005). In this context, a variety of programmes have been provided for in-service vocational teachers, in a particular work placement, a programme which promotes teachers’ occupational competence.

To date, work placement has been designed and organised nationwide with the guidance of the Chinese government. Although teachers have the freedom to seek companies and occupations by themselves, a number of teachers prefer considering the options offered by schools. During work placement periods, teachers could work on tasks just like the other employees or attend other activities occurring in working life to develop an understanding of the world of work.

3.4 Methodology

To answer our research questions, a quantitative research approach was applied. The theoretical model underlying our study is shown in Figure 3.1. The survey was designed and conducted to investigate vocational teachers’ motivational beliefs and engagement for work placement.

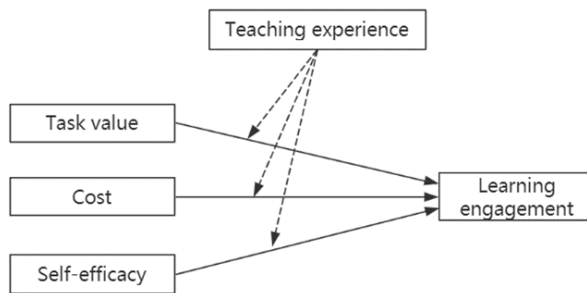


Figure 3.1 Conceptual model of our study

3.4.1 Participants

The participants were 426 Chinese secondary vocational teachers who taught students aged fifteen to seventeen (56% were female, and 90% had attained a bachelor's degree or higher level of education). Their age ranged from 23 to 57, with the mode age group being 34-40. Their teaching experience in years ranged from 1 to 37. All participants had experience with work placement, and more than half (57.51%) of them had attended a work placement in the last year. Among all the participants, 182 teachers (42.72%) had worked in companies for at least a year before becoming a teacher. The sample reflected a wide range of teaching subjects (e.g., mechanical engineering, computer, cooking, accounting, and nursing).

3.4.2 Procedures

An online survey using Qualtrics was applied to collect data. To improve the measures of the survey, five vocational teachers were invited to participate in a pilot test. This test was performed by a cognitive interview which involves 'interviewers asking survey respondents to think out loud as they go through a survey questionnaire and tell them everything they are thinking' (Drennan, 2003, p57). The questionnaire items were further adapted using the opinions provided by these participants. For the final investigation, we obtained support from Tongji University, which had partnerships with a number of vocational schools. We sent the participants a link or QR code to the questionnaire via email and WeChat. Most teachers spent 10 to 15 minutes completing the questionnaire with 62 items. Data collection started on 15 February 2020 and

ended on 15 March 2020. It was explained to participants that participation was voluntary, and that the data would be kept confidential and would only be available for research purposes. Our study acquired ethical approval from ICLON Research Ethics Committee with the number IREC_ICLON 2020-06.

3.4.3 Measures

The questionnaire used in this study was presented in Appendix B, and it contained four scales that separately aimed at measuring task value, cost, self-efficacy, and engagement.

3.4.3.1 Task value

Teachers' task value was assessed using a scale adapted from the paper by Bergey, Parrila, and Deacon (2018) that focused on undergraduates' task value of attending university. This questionnaire covered four dimensions: intrinsic value, attainment value, utility value, and cost, as originally defined by Eccles et al. (1983). Fifteen items from the first three positive value dimensions were adopted in the present study (the cost dimension will be presented below), and two items adapted from the work of Bråten and Ferguson (2015) were added to make the scale more comprehensive. Intrinsic value was assessed through five items (e.g., 'I enjoy work placement'). Attainment value was measured with six items (e.g., 'It is important to me to be a person who has experience with work placement'). Utility value was investigated with six items (e.g., 'What I learn in work placement helps me in my teaching'). Teachers rated their agreement with each item, ranging from 1 ('It's not applicable to me at all') to 7 ('It's totally applicable to me') with 'neutral' serving as the midpoint. Considering the current disputation of the structures of task value and the different contexts between the adapted scales and original scales, the exploratory factor analysis was conducted in our study to explore the possible constructs, which is also applicable for other beliefs and engagement. The results with varimax rotation show that there was only one factor specified from the task value scale, with a total of 65.61% of the variance explained. This means task value is a unidimensional factor, which is consistent with the finding of Muis et al. (2018). The Cronbach's alpha for this scale was 0.97.

3.4.3.2 Cost

Cost was measured using a scale based on the paper by Flake et al. (2015). The

original scale used ‘too much’ language to stress the negative nature of cost, with statements such as ‘I worry too much about this class’. As a number of studies find that cost is different from the barriers and it could even promote participation in educational programmes (Gorges, 2016), the word ‘too’ was deleted from the original items to change the attribute of cost. Based on a principal component analysis with varimax rotation on the 13 items, two components were extracted, including task effort and emotional cost, with 64.38% explained variance. Three items were taken to assess teachers’ task effort (e.g., ‘Work placement demands much of my time’) and four items were used to measure teachers’ emotional cost (e.g., ‘I worry much about work placement’). The items were measured on a 7-point Likert scale ranging from 1 = ‘It’s not applicable to me at all’ to 7 = ‘It’s totally applicable to me’, with ‘neutral’ serving as the midpoint. The Cronbach’s alphas for these two subscales were, respectively, 0.79 and 0.73.

3.4.3.3 Self-efficacy

Teacher self-efficacy for work placement was measured with a five-item scale adapted from the MSLQ-SE (Pintrich et al., 1991). This scale investigates the extent to which teachers believe that they can do well in a work placement. The original scale with eight items was developed to assess two domains of the expectancy component: expectancy for success and self-efficacy. Five items were extracted from it (e.g., ‘I’m certain I can master the skills being presented in work placement’). The items were measured on a 7-point Likert scale ranging from 1 = ‘It’s not applicable to me at all’ to 7 = ‘It’s totally applicable to me’, with ‘neutral’ serving as the midpoint. Based on the result of an exploratory factor analysis with varimax rotation for the self-efficacy scale, all five items were grouped into one factor with 68.76% explained variance. The Cronbach’s alpha for all items was 0.89.

3.4.3.4 Learning engagement

Learning engagement was assessed with four subscales adapted from the works of Skinner et al. (2008) and Reeve and Tseng (2011). All scales used a 7-point Likert response scale, ranging from 1 (‘It’s not applicable to me at all’) to 7 (‘It’s totally applicable to me’), with ‘neutral’ serving as the midpoint. The behavioural engagement scale had five items (e.g., ‘I pay attention in work placement’). The cognitive engagement scale covered four items (e.g., ‘In work placement, I try to connect what I’m learning with my teaching experience’). The emotional cost scale

included four items (e.g., 'In work placement, I feel curious about what we are learning'). The agentic engagement scale consisted of five items (e.g., 'During work placement, I express my opinions'). An exploratory factor analysis with varimax rotation was conducted, and two factors were extracted: one, a combination of behavioural engagement, cognitive engagement, and emotional engagement, and the other agentic engagement. The explained variance was 63.56%, and the Cronbach's alphas were, respectively, 0.94 and 0.80.

3.4.4 Data analysis

A Pearson correlation analysis was employed with SPSS 26.0 to examine the correlations between all the measured variables as well as teaching experience. Furthermore, to ascertain the relationship between motivational beliefs and engagement (RQ1), multivariate linear regression analysis was conducted with SPSS 26.0. Learning engagement was used as a dependent variable, while motivational factors were utilised as independent variables. To verify the influence of teaching experience on the linkage between motivational beliefs and engagement (RQ2), moderating effect analysis was conducted with Mplus 8.3. Apart from motivational variables, the interaction terms between the teaching experience variable and the motivational variables were also added as independent variables. R-squared (R^2) was used to represent the proportion of the variance for a dependent variable that is explained by the independent variables in the model. The unique contribution of each independent variable to the model was appraised with squared semi-partial correlation (Sr^2).

3.5 Results

3.5.1 Descriptive statistics and bivariate correlations

In Table 3.1, descriptive statistics and correlations for all the measured variables and teaching experience are displayed. The highest score among the motivational variables was for the teachers' task value ($M=5.99$), and the lowest score was for the emotional cost ($M=3.97$). The Pearson correlation coefficients showed that teachers' task value was positively correlated with task effort, self-efficacy and learning engagement, but negatively correlated with emotional cost. Teachers' perceived task effort had a positive correlation with all the other motivational and engagement

variables. Moreover, teachers' emotional cost was negatively correlated with self-efficacy and behavioural, cognitive, and emotional engagement. Finally, the results showed that teaching experience had a positive correlation with task value, task effort, emotional cost, and engagement.

Table 3.1 Descriptive statistics and correlations between teachers' motivational variables, engagement variables, and teaching experience.

Variable	M	SD	1	2	3	4	5	6	7
1. Task value	5.99	0.86							
2. Task effort	5.41	1.06	0.36**	1					
3. Emotional cost	3.97	1.11	-0.21**	0.44**	1				
4. Self-efficacy	5.83	0.90	0.85**	0.35**	-0.21**	1			
5. Behavioural, cognitive, and emotional engagement	6.03	0.81	0.91**	0.41**	-0.19**	0.85**	1		
6. Agentic engagement	5.21	1.00	0.61**	0.39**	0.00	0.68**	0.62**	1	
7. Teaching experience	14.00	8.25	0.12*	0.11*	0.10*	0.08	0.13**	0.11*	1

Note: *p<0.05, **p<0.01

3.5.2 The relationship between motivation and learning engagement

Regression analysis was adopted to identify the association between teachers' motivational beliefs and learning engagement with work placement (see Table 3.2). The results of collinearity diagnostics showed that there was no multicollinearity problem existed ($VIF < 10$ and $Tolerance > 0.1$). The results show that task value and self-efficacy were significantly positive predictors ($\beta = 0.652, 0.236$), whereas emotional cost was a negative predictor of behavioural, cognitive, and emotional engagement ($\beta = -0.061$). It is worth noting that teachers with stronger perceived task effort showed higher behavioural, cognitive, and emotional engagement ($\beta = 0.122$). Similarly, task effort and self-efficacy positively predicted agentic engagement ($\beta = 0.111, 0.576$). In addition, teachers' emotional cost was positively related to agentic engagement ($\beta = 0.098$). This suggests that if teachers' perceived cost and self-efficacy are stronger, their agentic engagement with work placement tends to be higher. In terms of explained variance, the task value accounted for the largest proportion of variance in predicting behavioural, cognitive, and emotional engagement ($Sr^2 = 0.110$), and self-efficacy had the largest percentage of variance in predicting agentic engagement ($Sr^2 = 0.089$).

Table 3.2 Results of regression analysis for motivational variables predicting learning engagement.

Predictor	Behavioural, cognitive, and emotional engagement				Agentic engagement			
	B	S.E.	β	R ²	B	S.E.	β	R ²
Task value	0.614	0.034	0.652**	0.110	0.117	0.079	0.101	0.003
Task effort	0.094	0.019	0.122**	0.009	0.105	0.043	0.111*	0.007
Emotional cost	-0.045	0.017	-0.061**	0.002	0.088	0.039	0.098*	0.006
Self-efficacy	0.212	0.032	0.236**	0.015	0.641	0.075	0.576**	0.089

Note: *p<0.05, **p<0.01.

3.5.3 The moderating effect of teaching experience

After importing teaching experience into the model, the interaction variables between teachers' motivational measures and teaching experience were created. As shown in Table 3.3, there were two interaction variables that significantly predicted teachers' behavioural, cognitive, and emotional engagement: task effort by teaching experience ($\beta=-0.305$) and emotional cost by teaching experience ($\beta=0.204$). At the same time, task effort was a positive predictor ($\beta=0.211$), but the emotional cost was a negative predictor ($\beta=-0.144$) of teachers' behavioural, cognitive, and emotional engagement. These results suggest 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. No interaction variable displayed a significant relationship with teachers' agentic engagement, which means there was no moderating effect of teaching experience on the relationship between motivational beliefs and agentic engagement.

Table 3.3 Results of moderating effect analysis of teaching experience.

Predictor	Behavioural, cognitive and emotional engagement			Agentic engagement		
	B	S.E.	β	B	S.E.	β
Task value	0.576	0.064	0.611**	0.182	0.148	0.157
Task effort	0.162	0.037	0.211**	0.171	0.085	0.181*
Emotional cost	-0.105	0.034	-0.144**	0.119	0.078	0.133
Self-efficacy	0.209	0.063	0.231**	0.557	0.146	0.501**
Teaching experience	-0.005	0.015	-0.049	0.032	0.035	0.266
Task value \times teaching experience	0.003	0.004	0.186	-0.005	0.009	-0.250
Task effort \times teaching experience	-0.005	0.002	-0.305*	-0.005	0.005	-0.228
Emotional cost \times teaching experience	0.004	0.002	0.204*	-0.002	0.005	-0.095
Self-efficacy \times teaching experience	0.000	0.004	0.002	0.006	0.009	0.308

Note: * $p<0.05$, ** $p<0.01$.

3.6 Discussion and conclusion

In our study, the expectancy-value theory was applied in order to investigate vocational teachers' motivation and how this motivation was linked to teachers' engagement in the context of work placement. The results revealed that vocational teachers' motivational beliefs were highly relevant to their engagement, and that their years of teaching experience moderated this relationship. The current empirical evidence clarified the roles of distinct motivational beliefs in explaining vocational teachers' engagement in work placement.

3.6.1 Relation between motivational beliefs and engagement in work placement

The findings of our study provide evidence that vocational teachers' task value and self-efficacy are the prominent predictors of their engagement in work placement, which is in line with most previous studies. Specifically, task value was identified as a positive predictor of behavioural, cognitive, and emotional engagement. This means that the more highly vocational teachers value their work placement, the greater the attention they will pay to work-based learning, the higher the cognitive strategies and resources they will implement, and the more emotionally involved they will be in work placement. This finding is in line with the stipulations of expectancy-value theory and with most previous research (Eccles et al., 1983; Jones, Johnson, & Campbell, 2015; Zhang & Liu, 2019). Task value explained the largest proportion of variance in behavioural, cognitive, and emotional engagement, which indicates that task value was most prominent among motivational beliefs.

Turning to self-efficacy, a positive relationship between vocational teachers' self-efficacy and their engagement with work placement was revealed. This finding resonates with Bandura's self-efficacy theory, which proposed that individuals' ability belief is related to their goal setting, activity choice, intention to increase investment, and persistence (Bandura, 1997). A body of research has shown that a person with greater self-efficacy invests more effort or resources in a task (Judge et al., 2007). Furthermore, the results showed that self-efficacy explained the largest proportion of variance in predicting teachers' agentic engagement. A possible explanation is a close connection between individuals' ability and their agency (Kurunsaari, Tynjälä, & Piirainen, 2018; Toom, Pyhältö, & Rust, 2015). When vocational teachers believe that they are capable of a work placement, they have more confidence and initiative in

voicing their opinions to develop this programme.

We also explored the relationship between teachers' perceived cost and their engagement in work placement. The finding was that teachers' task effort was positively related to their engagement, which is in contrast with most previous research. This finding may be explained by insights with regard to attribution theory and self-worth theory from Asian perspectives. Regarding attribution theory, some authors have found that in Asian cultures an individual's success or failure is attributed more to their effort than to their ability (Mok, Kennedy, & Moore, 2011). From these studies, it can be inferred that, in Asian cultures, the greater one's desire to succeed or improve, the greater the effort one perceives to be required. Another possible explanation for this finding that teachers' task effort was positively related to their engagement is based on research conducted by Jiang, Rosenzweig, and Gaspard (2018). This research found that Korean students' perceived cost positively predicted their approach goals. According to these authors, this finding could be attributed to East Asian students' perceptions of self-worth. Following this explanation, when students perceive the costs to be higher, they might endorse stronger performance-approach goals, to retain their self-worth. Maintaining self-worth can also be a plausible explanation for the finding that teachers' task effort is positively related to their engagement in work placement, because, in China, work placement is a mandatory programme for vocational teachers. Teachers who perceive the task effort to be higher may tend to be more highly engaged in work placement in order to maintain their self-worth among colleagues who are all participating in this compulsory programme.

Moreover, our study confirmed that teachers' emotional cost was negatively associated with behavioural, cognitive, and emotional engagement, and yet positively associated with agentic engagement in work placement. This finding highlighted that vocational teachers' stress, exhaustion, and weariness in their work placement were detrimental to their fundamental engagement, but could provoke their agentic engagement. Other research has indicated that teachers' unpleasant emotions in professional learning might lead to disengagement, rudeness, and even a refusal to implement the practices presented during training (Gaines et al., 2019). However, these negative emotions perhaps stimulate teachers to develop professional development programmes through expressing their opinions and suggestions.

3.6.2 Effect of teaching experience on motivation and engagement in

work placement

Our study showed that teachers' teaching experience was positively correlated with their motivation for and engagement in work placement. In addition, the relationship between motivational beliefs and engagement varied with teaching experience. The association between task effort and emotional cost, on the one hand, and behavioural, cognitive, and emotional engagement, on the other, was stronger for novice teachers than for experienced teachers. Building on previous research, a possible explanation for the linkage between teaching experience and motivation and engagement is that teachers vary in their learning aims and goals during their careers (Anderson & Olsen, 2006; Louws et al., 2017c). Novice teachers might be more eager to learn and improve their repertoire of teaching skills such as classroom management and classroom instruction than to acquire more occupational knowledge and skills. Therefore, novice teachers' motivation for and engagement in work placement may be lower than those of experienced teachers. Furthermore, novice teachers are always faced with more learning opportunities than experienced teachers. However, their energy is limited, which means that they are not able to put much effort into each learning programme. They might be more concerned about the costs of learning programmes, especially those programmes that are not generally expected. Therefore, in the context of work placement, novice teachers' perceived cost might be more strongly associated with their engagement than is the case for experienced teachers.

3.6.3 Conclusions

Our study sought to answer two research questions. First, what is the relationship between vocational teachers' motivational beliefs and their engagement in work placement? Second, does teaching experience have a moderating effect on this relationship? The regression analysis results of our study revealed that task value and self-efficacy explained the largest percentage of variance and had positive relationships with engagement. The results of moderating effect analysis indicate that there is a difference in the association between motivational beliefs and engagement depending on teaching experience. These findings facilitate the understanding of vocational teachers' professional learning from the work site and provide evidence of

how to promote vocational teachers' engagement.

There are four limitations addressed, which provide directions for future research. Firstly, the participants were all secondary vocational teachers from China. In future research, more attention could be given to higher vocational teachers' motivation and how this links to their engagement in work placement. Secondly, our study observed different constructs of motivational beliefs and engagement from the previous studies, which were related to student learning. Future studies are suggested to continually verify these structures in other contexts or conditions of teacher professional learning. Thirdly, the relationship between cost and engagement was demonstrated in our study. However, the results are opposite to most other studies, which have been explained with the attribution theory and self-worth theory from Asian perspectives. Further research is necessary to validate these explanations. Fourthly, the data collected in our study is cross-sectional, which means causal conclusions can't be generated. Therefore, longitudinal studies could be considered in the future to explore the influence of teachers' motivational beliefs on their engagement.

Our study has strong implications for future research. Vocational teachers' low engagement in work placement has been usually explained from the perspective of external barriers (Andersson & Köpsén, 2015; Lloyd & Payne, 2012), while internal beliefs are less concerned. Our study enriches the current explanation for vocational teachers' learning engagement in the work context. In particular, the significant moderating effect of teaching experience moves beyond previous research and could inspire future researchers to pay more attention to differences connected to teaching experience when exploring the linkage between vocational teachers' motivation, engagement, and performance for professional learning.

Aside from the contribution to research, there are three potentially important implications for practice. Although the current research uses a cross-sectional design, we would like to formulate implications on how to increase vocational teachers' engagement in work placement. Since the results of our study showed a significant relationship between teachers' motivation and their engagement in work placement, policy-makers and school leaders ought to bring in measures to stimulate vocational teachers' motivation for work placement. First, the positive association between task value and engagement implies that improving vocational teachers' task value perception would provide an impetus to their engagement in work placement.

Teachers' value perception of work placement could be improved in a positive way by, for example, encouraging vocational teachers to share their experiences in work placement with their colleagues to help their colleagues to become aware of its potential and benefits. Second, because of the positive relationship between self-efficacy and engagement, it may be feasible to increase teachers' self-efficacy for work placement to boost their engagement. Enhancing teachers' self-efficacy in work placement might be done by linking the placements to the teachers' teaching subjects to align with their sense of control and providing more information related to the companies and occupations before placement. Third, as the linkage between emotional cost and behavioural, cognitive, and emotional engagement is negative, reducing the pressure on teachers and their exhaustion in relation to work placement would be an option to make them more engaged in this programme. Maximising teachers' freedom of choice during the placement process may relieve teachers of the emotional burden of this programme. A good way would be to encourage teachers, especially novice teachers, to give voice to their opinions about the types of work placement they would like. Teachers with different preferences should be entitled to more personalised options for placement programmes.

