



TEACHER EDUCATORS' INSTRUCTIONAL BEHAVIOURS  
AND PRE-SERVICE TEACHERS' LEARNING MOTIVATION,  
ACADEMIC ENGAGEMENT, CONTENT KNOWLEDGE,  
AND TEACHING SELF-EFFICACY

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Teacher Educators' Instructional Behaviours  
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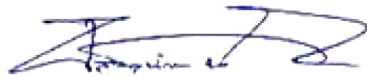
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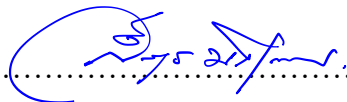
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### Abstract

Previous studies have reported that prospective teachers fail to acquire sufficient content knowledge and build strong teaching self-efficacy. According to a large and growing body of literature, teaching behaviours resulting in “autonomy support, structure, and involvement” significantly improve students’ learning outcomes at all educational levels. Yet there remains a paucity of scientific evidence on how these instructional behaviours influence pre-service teachers’ learning motivation, academic engagement, content knowledge, and teaching self-efficacy, especially in developing countries like Cambodia. The present study had two main aims: (1) investigating the relationship between pre-service teachers’ perceptions of teacher educators’ teaching behaviours (i.e., instructional clarity, support and feedback, autonomy support, as well as support for cooperative learning) and their learning motivation, academic engagement, and teaching self-efficacy and (2) examining the effect of cooperative learning (CL), which involved the above instructional behaviours, on English as a foreign language (EFL) pre-service teachers’ learning motivation, academic engagement, content knowledge, and teaching self-efficacy. To accomplish the first aim, a correlational design was applied. For this design, data was collected from randomly-selected first-year pre-service secondary teachers (N = 601) at regional teacher training centres in Cambodia using adapted scales on instructional behaviours, learning motivation, academic engagement, and teaching self-efficacy. Structural equation analyses revealed that perceptions of teacher educators’ instructional behaviours were significantly associated with pre-service teachers’ intrinsic learning motivation, academic engagement, and teaching self-efficacy. In order to achieve the second aim, a pre-test/post-test quasi-experimental design was applied. For this design,

EFL first-year pre-service secondary teachers ( $N = 65$ ) were recruited as participants. The experimental group ( $N = 35$ ) and the control group ( $N = 30$ ) were randomly selected from two regional teacher training centres in Cambodia. For 16 weeks, the experimental group was taught through CL while the control group was taught through lecture-based learning. Data was collected before and after the experiment through a learning achievement test and adapted scales on learning motivation, academic engagement, and teaching self-efficacy. The ANCOVA results revealed that the EFL pre-service teachers in the experimental group outperformed their conventionally trained counterparts in terms of their English grammar and vocabulary achievement, learning motivation, academic engagement, and teaching self-efficacy. However, no significant difference was found on their extrinsic learning motivation. In conclusion, this study not only broadens the understanding of predictors of pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy but also highlights the need for employing CL that involves “autonomy support, structure, and involvement” in pre-service instruction so as to encourage the establishment of effective teachers for the education system.

Keywords: Academic Engagement/ Content Knowledge/ Cooperative Learning/  
Instructional Behaviours/ Learning Motivation/ Pre-Service Teachers/  
Teacher Education/ Teaching Self-Efficacy

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# CONTENTS

	PAGE
<b>ENGLISH ABSTRACT</b>	ii
<b>ACKNOWLEDGEMENT</b>	iv
<b>CONTENTS</b>	v
<b>LIST OF TABLES</b>	viii
<b>LIST OF FIGURES</b>	x
 <b>CHAPTER</b>	 <b>1</b>
<b>1. INTRODUCTION</b>	
1.1 Background and problem statement	1
1.2 Purpose of the study and research questions	7
1.3 Significance of the study	9
1.4 Overview of research methods	10
1.5 Limitations	10
1.6 Definition of key terms	11
1.7 Organisation of the dissertation	13
 <b>2. LITERATURE REVIEW</b>	 <b>14</b>
2.1 Learning motivation	14
2.1.1 Learning motivation within self-determination theory	14
2.1.2 Learning motivation within expectancy-value theory	15
2.2 Academic engagement	17
2.3 Teaching self-efficacy	18
2.4 Effective instructional behaviours	21
2.4.1 Autonomy support	22
2.4.2 Structure	23
2.4.3 Involvement	25
2.5 Cooperative learning	27
2.5.1 Key elements of cooperative learning	28
2.5.2 Types of cooperative learning	30

## **CONTENTS (CONT.)**

	<b>PAGE</b>
2.5.3 Cooperative learning and learning outcomes	32
2.5.4 Adapted cooperative learning procedures for pre-service instruction	34
2.6 Conclusion	37
 <b>3. RESEARCH METHODS</b>	 <b>39</b>
3.1 Research design	39
3.2 Sample	40
3.3 Research variables	41
3.4 Research instrument	41
3.4.1 Survey questionnaire	42
3.4.2 Learning achievement test	50
3.4.3 Instructional procedures	60
3.5 Data collection procedures	62
3.6 Data analysis	63
 <b>4. RESULTS</b>	 <b>66</b>
4.1 The correlational design	66
4.2 The experimental design	73
 <b>5. DISCUSSION AND CONCLUSION</b>	 <b>81</b>
5.1 Discussion	81
5.1.1 The correlational design	81
5.1.2 The experimental design	84
5.2 Limitations and suggestions for future research	88
5.3 Conclusion and suggestions for implications	89
 <b>REFERENCES</b>	 <b>91</b>

## CONTENTS (CONT.)

		<b>PAGE</b>
	<b>APPENDICES</b>	<b>126</b>
A.	Survey questionnaire: Khmer version	127
B.	Survey questionnaire: English version	135
C.	Learning achievement test: A pilot test	144
D.	Pre-test and post-test learning achievement test	155
E.	Pre-test and post-test questionnaire: Khmer version	164
F.	Pre-test and post-test questionnaire: English version	169
G.	Course syllabus	175
H.	Approval from the committee of research ethics in human	179
I.	Approval from the ministry of education, youth, and sport	181
J.	Consent form: Khmer version	183
K.	Consent form: English version	188
	<b>CURRICULUM VITAE</b>	<b>194</b>



## LIST OF TABLES

TABLES	PAGE
2.1 Adapted instructional procedures of cooperative learning	34
3.1 Factor loadings, Cronbach's alpha values, and item sources for measures of instructional behaviours	44
3.2 Factor loadings, Cronbach's alpha values, and item sources for measures of learning motivation	46
3.3 Factor loadings, Cronbach's alpha values, and item sources for measures of academic engagement	48
3.4 Factor loadings, Cronbach's alpha values, and item sources for measures of teaching self-efficacy	49
3.5 Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test	51
4.1 Descriptive statistics and Pearson's correlations between latent variables (N = 601)	67
4.2 Direct, indirect, and total associations for Figure 4.1	69
4.3 Direct, indirect, and total associations for Figure 4.2	72
4.4 Descriptive statistics for pre-test and post-test scores of grammar and vocabulary	73
4.5 ANCOVA results for the CL's effect on English grammar	74
4.6 ANCOVA results for the CL's effect on English vocabulary	74
4.7 Descriptive statistics for pre-test and post-test scores of intrinsic learning motivation, extrinsic learning motivation, and task value	75
4.8 ANCOVA results for the CL's effect on intrinsic learning motivation	76
4.9 ANCOVA results for the CL's effect on extrinsic learning motivation	76
4.10 ANCOVA results for the CL's effect on task value	76
4.11 Descriptive statistics for pre-test and post-test scores of affective engagement, behavioural engagement, and cognitive engagement	77
4.12 ANCOVA results for the CL's effect on affective engagement	78
4.13 ANCOVA results for the CL's effect on behavioural engagement	78
4.14 ANCOVA results for the CL's effect on cognitive engagement	78

## LIST OF TABLES (CONT.)

<b>TABLES</b>	<b>PAGE</b>
4.15 Descriptive statistics for pre-test and post-test scores of efficacy for instructional strategies, for classroom management, and for student engagement	79
4.16 ANCOVA results for the CL's effect on efficacy for instructional strategies	80
4.17 ANCOVA results for the CL's effect on efficacy for classroom management	80
4.18 ANCOVA results for the CL's effect on efficacy for student engagement	80

## LIST OF FIGURES

<b>FIGURES</b>	<b>PAGE</b>
1.1 Conceptual model for the relationship between instructional behaviours, learning motivation, and academic engagement	8
1.2 Conceptual model for the relationship between instructional behaviours, learning motivation, and teaching self-efficacy	9
1.3 Flow and organisation chart of both study groups	9
4.1 Standardised coefficients for model of pre-service teachers' learning motivation mediating the relations between their perceptions of instructional behaviours and academic engagement (N = 601)	68
4.2 Standardised coefficients for model of pre-service teachers' learning motivation mediating the relations between their perceptions of instructional behaviours and teaching self-efficacy (N = 601)	71

# CHAPTER 1 INTRODUCTION

## 1.1 Background and problem statement

According to the report by UNESCO Institute for Statistics (2016), the world is in need of almost 69 million additional teachers at the primary and secondary levels in order to attain the Sustainable Development Goal 4, which is intended to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” by 2030 (UNESCO, 2017, p. iv). However, to our knowledge, it is fairly difficult to achieve such an educational goal in that countries, especially developing countries (e.g., Bangladesh, Cambodia, India, Laos, Myanmar, and Pakistan), have been recruiting both qualified and poorly-trained or even untrained teachers to close this teacher gap (UNESCO Institute for Statistics, 2016). If the recruitment of unqualified workforce into the education system continues, education quality will be jeopardised as teachers’ abilities are more significant to student learning than other educational resources (Benveniste, Marshall, & Araujo, 2008; Darling-Hammond, 2006; Hanushek & Rivkin, 2010; Tandon & Fukao, 2015).

Like other developing countries across the globe, Cambodia has been striving to develop human resources mainly through the Ministry of Education, Youth, and Sport (MoEYS) in order to achieve the nation’s goals of becoming an upper-middle-income country by 2030 and a high-income country by 2050 (Royal Government of Cambodia, 2013) and the long-term educational vision of establishing a knowledge-based society in Cambodia (MoEYS, 2014). In response to these, the education system has been radically reformed and greater attention has been placed on promoting the quality of teaching and learning at all levels of education since 2014 (MoEYS, 2014). However, although much effort has been made on teaching and learning, ensuring quality education remains a daunting challenge in teacher education and K-12 schooling. Most teacher educators apply teacher-centred approaches and offer little feedback, which is doomed to the failure in providing future teachers with sufficient content mastery and student-centred pedagogy (Tandon & Fukao, 2015). This may have contributed to the unsatisfactory learning outcomes of K-12 students, particularly in terms of their reading and writing, mathematics, and science literacies (MoEYS, 2015, 2016, 2017, 2018). In this respect, pre-service teachers should be well trained in order to ensure quality education for the next generation.

Teacher education programmes (TEPs) are designed to provide prospective teachers with profound content knowledge; pedagogical knowledge and instructional experiences; and other skills, values, and beliefs they need to effectively function in the teaching profession. Indeed, among the well-published teacher variables contributing to teaching effectiveness are teachers' content knowledge (Shulman, 1986) and teaching self-efficacy (Knoblauch & Woolfolk Hoy, 2008). Unfortunately, TEPs have been found ineffective in preparing future teachers for the education system. Previous studies in Ethiopia, China, Turkey, and the US have reported that future teachers fail to acquire sufficient content knowledge (see Alemu et al., 2019; Loyalka et al., 2019; Schmidt, Burroughs, & Cogan, 2013) and build strong senses of teaching self-efficacy (see Isiksal Bostan, 2016; Schmidt, Burroughs, & Cogan, 2013). Thus, the classroom climate in teacher education should be carefully examined to promote the learning quality of future teachers. To serve the purpose, effective instructional behaviours or learning models should be integrated into pre-service instruction in order to (1) motivate pre-service teachers to effectively engage in acquiring content knowledge, (2) help them to develop healthy teaching self-efficacy beliefs, and (3) equip them with an effective student-centred pedagogy. In this respect, we wanted to investigate the effects of teacher educators' instructional behaviours on pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy.

### ***Why learning motivation, academic engagement, content knowledge, and teaching self-efficacy?***

Learning motivation is a reliable and robust predictor of effective learning. The construct of learning motivation is measured through intrinsic learning motivation, extrinsic learning motivation, and task value (Eccles et al., 1983; Pintrich et al., 1991; Ryan & Deci, 2000). Prior studies have reported that students' intrinsic learning motivation is a positive predictor of their learning achievement (Hsieh, 2014; Taylor et al., 2014) and behavioural engagement and self-regulation strategies (Lerdpornkulrat, Koul, & Poondej, 2018) whereas their task value is significantly associated with their intrinsic learning motivation and behavioural engagement (Lerdpornkulrat, Koul, & Poondej, 2018). Consistently, pre-service teachers' task value has a significant association with their learning motivation and self-regulated learning (Lee & Turner, 2016; Lee, Turner, & Thomson, 2015) and their intrinsic learning motivation has a positive influence on their use of self-regulation strategies and learning achievement (Jurišević et al., 2008; Lee & Turner, 2016; Oz, 2016). Thus, it is imperative

that pre-service teachers' learning motivation should be fostered in order to enhance their learning performance.

Academic engagement has been increasingly studied in the higher education context due to its significant association with student learning and achievement (Kahu, 2013). Referring to Herrmann (2013), it is imperative to provide a learning environment that can promote academic engagement as many students passively learn during college sessions. Academic engagement is usually studied through affective, behavioural, and cognitive engagement (Conduit, Karpen, & Farrelly, 2016; Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Lawson & Lawson, 2013). Until recently, research has addressed significant relationship between students' academic engagement and their learning outcomes. For example, work by Heng (2014) has revealed that behavioural engagement is positively associated with learning achievement whereas work by Ko et al. (2015) has demonstrated that behavioural engagement has a positive effect on basic knowledge and critical thinking, acquisition of concrete knowledge and skills, as well as self-management and co-work ability. Therefore, enhancing pre-service teachers' academic engagement is needed to ensure their learning success.

Content knowledge, also called subject matter knowledge, is really important for teachers in that it is also one of the core competences of effective teaching (Harris & Hofer, 2011; Mishra & Koehler, 2006; Shulman, 1987). Studies have established that teachers' content knowledge is significantly associated with their pedagogical content knowledge (Iserbyt, Ward, & Li, 2017; Krauss et al., 2008; Tepner & Dollny, 2014) and student achievement (Kelcey, 2011; Tchoshanov et al., 2017). To pre-service teachers, their content knowledge also has a positive influence on their pedagogical content knowledge (Ding, He, & Leung, 2014; König et al., 2016) and teaching self-efficacy (Leader-Janssen & Rankin-Erickson, 2013; Menon & Sadler, 2016). Hence, acquiring in-depth knowledge of a specific subject matter is extremely important for prospective teachers to facilitate learning outcomes of the next generation.

Teaching self-efficacy is one of the core competences of effective teachers that has been extensively researched in North America for almost four decades (Berg & Smith, 2016). This construct encompasses three subconstructs: efficacy for instructional strategies, for classroom management, and for student engagement (Tschannen-Moran & Woolfolk Hoy,

2001). Previous studies have documented that efficacious teachers are more likely to use new teaching methods (Allinder, 1994; Ghaith & Yaghi, 1997), have high job satisfaction and low intention to quit the teaching profession (Collie, Shapka, & Perry, 2012; Skaalvik & Skaalvik, 2017a, 2017b; Wang, Hall, & Rahimi, 2015), and improve students' learning motivation and achievement (Cantrell et al., 2013; Guo et al., 2012; Lumpe et al., 2012; Mohamadi & Asadzadeh, 2012; Mojavezi & Tamiz, 2012; Thoonen et al., 2011). To pre-service teachers, their teaching self-efficacy significantly contributes to their pedagogical content knowledge (Thomson et al., 2016), job commitment (Klassen & Chiu, 2011), and intention to remain longer in the teaching profession (Bruinsma & Jansen, 2010). To date, besides the four information sources of self-efficacy of Bandura (1997), researchers have identified other antecedents of pre-service teachers teaching self-efficacy including their growth in content knowledge (Leader-Janssen & Rankin-Erickson, 2013; Menon & Sadler, 2016), their self-perceived competence (González et al., 2018), and constructivist teaching approaches (e.g., inquiry-based learning and microteaching) (see Aarsal, 2014; Richardson & Liang, 2008). However, how pre-service teachers cultivate their teaching self-efficacy needs to be further researched, especially in the Asia-Pacific region (Berg & Smith, 2016). Therefore, specific features of TEPs should be thoroughly examined in order to encourage the development of teaching self-efficacy among pre-service teachers (Clark & Newberry, 2019).

### ***Effective instructional behaviours and learning motivation, academic engagement, and teaching self-efficacy***

Until recent years, how students are motivated to engage in learning has been extensively researched depending on several theories of motivation, one of which is self-determination theory (SDT) of Ryan and Deci (2000). This theory has been used to identify instructional behaviours that can fulfil students' basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2000). According to a large and growing body of literature, teachers' instructional behaviours linked to these needs are "autonomy support, structure, and involvement" (Assor, 2012; Ciani et al., 2011; Jang, Reeve, & Deci, 2010; Skinner & Belmont, 1993). Empirically, research has established that autonomy support is positively associated with students' intrinsic learning motivation (Bao & Lam, 2008; Black & Deci, 2000; Cheon, Reeve, & Moon, 2012; Patall, Cooper, & Robinson, 2008; Reeve & Jang, 2006), their academic engagement (Cheon, Reeve, & Moon, 2012; Gutiérrez & Tomás,

2019), and their learning achievement (Hofferber, Eckes, & Wilde, 2014; Oriol-Granado et al., 2017). Furthermore, autonomy support, combined with structure, exerts a significant and positive influence upon students' behavioural engagement and self-regulated learning (Jang, Reeve, & Deci, 2010; Sierens et al., 2009). Structured teaching behaviours are also associated positively with students' intrinsic learning motivation, task value, and academic engagement (see Federici & Skaalvik, 2014; Heng, 2014; Jurik, Gröschner, & Seidel, 2014; Lazarides, Dietrich, & Taskinen, 2019; Maulana, Opdenakker, & Bosker, 2016; Roksa et al., 2017; Seidel, Rimmele, & Prenzel, 2005). A recent study by Lerdpornkulrat, Koul, and Poondej (2018) has shown that student involvement is a significant contributor to students' intrinsic learning motivation, affective engagement, and use of self-regulation strategies for learning.

In the teacher education context, these instructional behaviours also influence pre-service teachers' learning outcomes. Prior research has reported that teacher educators' autonomy support significantly contributes to the increase in pre-service teachers' intrinsic learning motivation (Ciani et al., 2011). Furthermore, pre-service teachers tend to have improved teaching self-efficacy in a learning environment in which their teacher educators engage in autonomy support, structure, and involvement (see Clark & Newberry, 2019; González et al., 2018; Yurekli, Bostan, & Cakiroglu, 2020). However, little is known about how such SDT-based instructional behaviours motivate pre-service teachers to engage in learning course content and encourage the development of their teaching self-efficacy. Therefore, further research that analyses the relationship between instructional behaviours of teacher educators and pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy is needed to promote the quality of pre-service instruction.

### ***Cooperative learning and learning motivation, academic engagement, content knowledge, and teaching self-efficacy***

It is generally accepted that teachers appear to teach the way they are taught and use their prior knowledge and experiences to bring about learning success among students (Oleson & Hora, 2013). In this respect, effective teaching models should be incorporated into pre-service instruction in order that pre-service teachers can practice them during their teacher education courses. Until recently, researchers have applied several constructivist teaching approaches to improve student learning at all educational levels and across the disciplines.



However, one teaching method that is more likely to involve autonomy support, structure, and involvement in the learning process is “cooperative learning” (CL) (see Johnson & Johnson, 2014; Johnson & Johnson, 2017a, 2019; Shi & Han, 2019; Yasmin & Naseem, 2019). Ideally, CL is more effective than competitive or individualistic learning in terms of students’ academic and social benefits (Johnson & Johnson, 2002b; Johnson et al., 2014). Additionally, CL can enhance students’ learning achievement, interpersonal relationship, social competences, and psychological health (Johnson & Johnson, 2017a, 2019; Jolliffe, 2007). Recently, CL has been argued to be the most appropriate pedagogy for TEPs in that it can help pre-service teachers to broaden their understanding of the content taught and instructional experiences, create positive identity as teachers, build strong commitment to be effective teachers, and socialise themselves into a community of practice (Johnson & Johnson, 2017b).

The effectiveness of CL in promoting student learning can be found in numerous studies. The existing literature indicates that CL has a significant contribution to various learning outcomes among students such as intrinsic learning motivation, self-efficacy, and learning beliefs (Tombak & Altun, 2016); critical thinking skills (Silva, Lopes, & Dominguez, 2019); academic engagement (Herrmann, 2013); and learning achievement (Kyndt et al., 2013). In the English as a foreign language (EFL) context, when taught through CL, EFL learners are more likely to have improved listening, speaking, and reading competences (Jalilifar, 2010; Namaziandost, Homayouni, & Rahmani, 2020; Ning & Hornby, 2010); grammar and vocabulary achievement (Ghorbani, 2012; Yavuz & Arslan, 2018), intrinsic learning motivation (Ning & Hornby, 2013); and academic engagement (Sadeghi & Ganji, 2020).

In teacher education, pre-service teachers also enhance their learning outcomes through the CL process. Prior research has shown that CL can enhance pre-service teachers’ factual knowledge (Hornby, 2009) and learning achievement and learning confidence (Kopparla & Goldsby, 2019). When compared to traditional teaching methods, CL is more effective in improving pre-service teachers’ conceptual knowledge, task value, and self-perceived competence (Supanc, Völlinger, & Brunstein, 2017). However, there is a lack of scientific evidence in the literature about the influence of CL on EFL pre-service teachers’ learning motivation, academic engagement, content knowledge, and teaching self-efficacy. In fact, the search of the literature did not locate any study analysing the impact of CL on EFL pre-service teachers’ learning motivation, academic engagement, and teaching self-efficacy. In

essence, previous studies examining the effect of CL on pre-service teachers' efficacy for teaching have published contradictory findings across the disciplines (see Cohen & Zach, 2013; Legrain et al., 2018; Scharmann & Hampton, 1995). Thus, it is still unsure whether CL can cultivate teaching self-efficacy of pre-service teachers, especially in EFL settings.

Despite the significant effect of CL on student outcomes within both school and college contexts, the implementation of this learning model in classroom practices across the world remains limited (Fernández-Lozano, González-Ballesteros, & De-Juanas, 2012), especially in EFL classroom climates (Ning & Hornby, 2013). Even rarer is the employment of CL in TEPs, especially in developing countries like Cambodia. Therefore, the pedagogical use of CL in pre-service instruction would not only improve EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy but also provide them with an effective teaching approach that they could use as a model in their future classrooms.

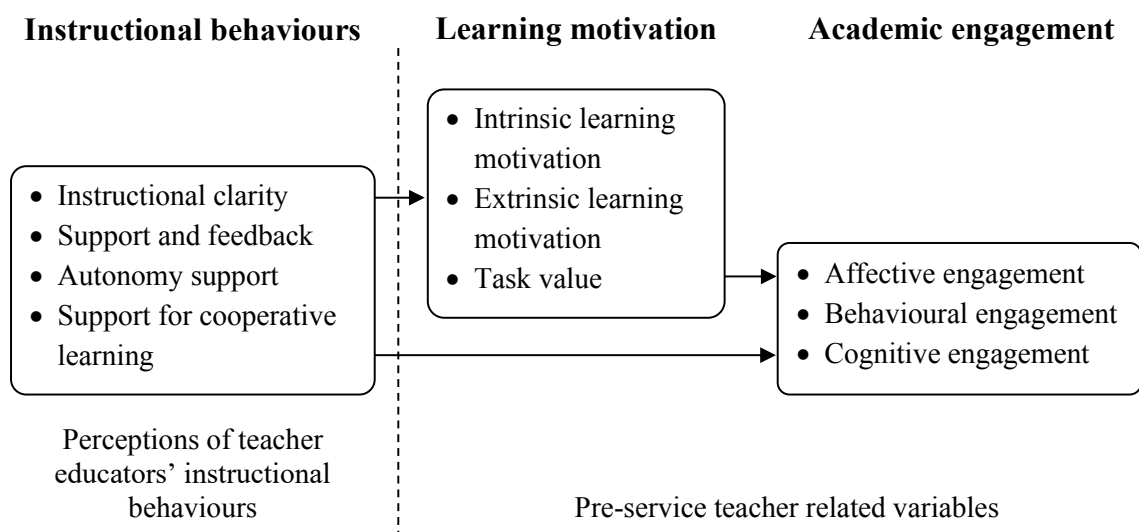
## **1.2 Purpose of the study and research questions**

This study encompassed two main aims. The first aim was to investigate the relationship between instructional behaviours of teacher educators and pre-service teachers' learning motivation, academic engagement, as well as teaching self-efficacy. The second aim was to examine the impact of CL on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy, compared with lecture-based learning. Therefore, this research fell into two major phases. The first phase was involved with the correlational design while the second phase was concerned with the experimental design. The experimental design was used with pre-service teachers majoring in teaching English and Khmer languages as prior research has also demonstrated the ineffectiveness of TEPs in preparing future teachers for English language teaching (Kourieos & Diakou, 2019; Zein, 2016) and, to our knowledge, the influence of CL upon these EFL pre-service teachers' teaching self-efficacy has never been examined.

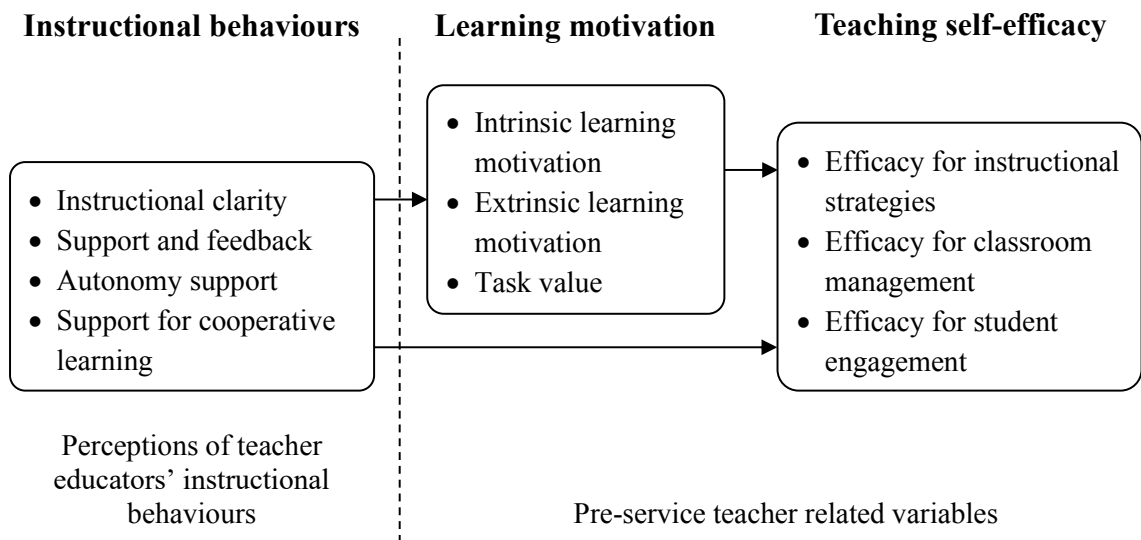
More specifically, the correlational design was intended to determine which dimensions of instructional behaviours, which were measured in terms of instructional clarity, support and feedback, autonomy support, and support for cooperative learning, were significantly associated with which aspects of learning motivation, academic engagement, and teaching

self-efficacy (see Figures 1.1 and 1.2). The experimental design was taken into account to examine how CL involving autonomy support, structure, and involvement influenced each aspect of learning motivation, academic engagement, and teaching self-efficacy, when compared to lecture-based learning (see Figure 1.3). Therefore, the present study was guided by seven research questions. Questions 1, 2, and 3 were of the correlational design and Questions 4, 5, 6, and 7 were of the experimental design.

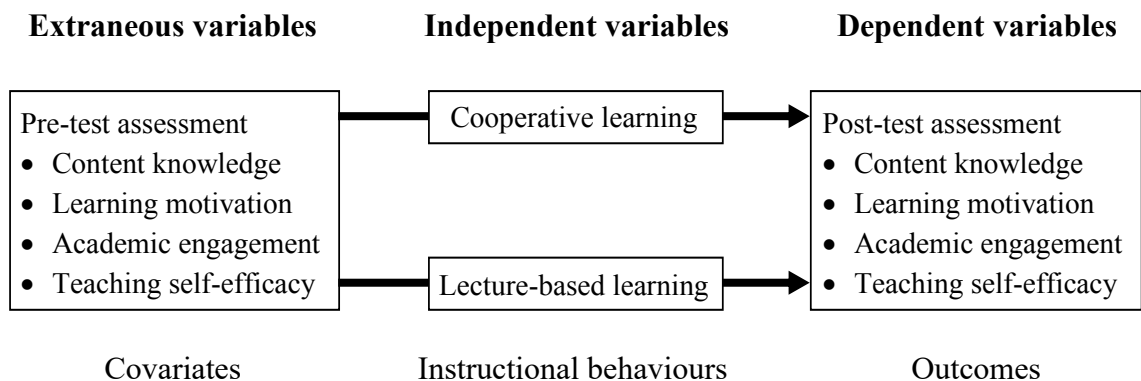
- 1) What is the relationship between measures of instructional behaviours, learning motivation, academic engagement, and teaching self-efficacy?
- 2) Which aspects of instructional behaviours and learning motivation are associated with academic engagement?
- 3) Which aspects of instructional behaviours and learning motivation are associated with teaching self-efficacy?
- 4) Is there a significant difference between the experimental and the control groups in terms of their achievement levels?
- 5) Is there a significant difference between the experimental and the control groups in terms of their reported levels of learning motivation?
- 6) Is there a significant difference between the experimental and the control groups in terms of their reported levels of academic engagement?
- 7) Is there a significant difference between the experimental and the control groups in terms of their reported levels of teaching self-efficacy?



**Figure 1.1** Conceptual model for the relationship between instructional behaviours, learning motivation, and academic engagement



**Figure 1.2** Conceptual model for the relationship between instructional behaviours, learning motivation, and teaching self-efficacy



**Figure 1.3** Flow and organisation chart of both study groups

### 1.3 Significance of the study

This study is expected to link SDT with self-efficacy theory by investigating the influence of a learning context that stresses autonomy support, structure, and involvement on pre-service teachers' teaching self-efficacy, especially in the context of developing countries. This provides more empirical evidence on important determinants of teaching self-efficacy of pre-service teachers within the learning environment. The current study also promises to add more scientific evidence to the existing literature by analysing the effects of autonomy support, structure, and involvement as parts of teaching behaviours and the CL process on

pre-service teachers' learning motivation, academic engagement, and content knowledge. Furthermore, the present study pledges to establish an effective learning environment for pre-service instruction by integrating the noted instructional behaviours and CL into TEPs. In so doing, not only can pre-service teachers increase their learning motivation, academic engagement, content knowledge, and teaching self-efficacy, but they can also experience an effective student-centred teaching method that they could adapt for use in their future classes. This will lead to the establishment of effective teachers for the education system, which in turn ensures quality education for the next generation at all levels of education.

#### **1.4 Overview of research methods**

This study used a quantitative approach with two designs, correlational and experimental, to create a learning environment in which pre-service teachers could significantly improve their learning outcomes and teaching experiences. For the correlational design, respondents were randomly selected from the six regional teacher training centres in order to fill in the questionnaire of adapted scales on the noted constructs, and structural equation modelling was applied to analyse the data. For the experimental design, two existing classes of EFL pre-service teachers were randomly selected with one class assigned as the experimental group and the other as the control group. The experimental group were taught through CL while the control group were taught through lecture-based learning. The two groups were given the same pre-test and post-test measurements both before and after the experiment. A learning achievement test and the adapted scales on the noted constructs were used for data collection. In this case, the collected data were analysed using analysis of covariance.

#### **1.5 Limitations**

This present study was limited to data collected from pre-service teachers through their self-assessment reports about their teacher educators' instructional behaviours. This study was also limited to pre-service secondary teachers in the regional teacher training centres. Moreover, the study did not include pre-service teachers' content knowledge into the model of the correlational design though it is likely to mediate between their learning motivation and teaching self-efficacy. Another limitation for the experimental design was that only quantitative data about the impact of CL on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, teaching self-efficacy were collected. Finally, the experimental design was limited to content knowledge of grammar and vocabulary.

## 1.6 Definition of key terms

This study was involved with five main variables or constructs: instructional behaviours, learning motivation, academic engagement, teaching self-efficacy, and content knowledge. The definitions of these constructs have already been given for general use. However, in the present study, we operationally defined these constructs and underlying constructs as follows:

**Instructional behaviours** refer to teacher educators' teaching styles or strategies used to motivate or inspire pre-service teachers to learn and develop during the education course. Four subconstructs of instructional behaviours were taken into account in this research: instructional clarity, support and feedback, autonomy support, and support for cooperative learning. *Instructional clarity* is the degree to which pre-service teachers perceive that their teacher educators provide coherent explanations about course objectives, course content, assignments, and other related concepts or theories (Cabrera, Colbeck, & Terenzini, 2001; Feldman, 1976; Marsh, 1982; Toland & Ayala, 2005). *Support and feedback* is the degree to which pre-service teachers feel that their teacher educators provide instrumental support and constructive feedback on their work and performance (Cabrera, Colbeck, & Terenzini, 2001; Heng, 2014; Toland & Ayala, 2005). *Autonomy support* refers to the degree to which pre-service teachers perceive that their teacher educators provide choice opportunities for learning and take into consideration their thoughts and interests to design assignments for them (Lam, Pak, & Ma, 2007; McRobbie & Tobin, 1997). Finally, *support for cooperative learning* is the degree to which pre-service teachers feel that they are organised to engage in small group learning activities such as group discussion, peer teaching, peer feedback, peer support with necessary materials and information, and group assignments (Cabrera, Colbeck, & Terenzini, 2001; Johnson & Johnson, 2017a, 2019; Kuh, 2009; McRobbie & Tobin, 1997).

**Learning motivation** is defined as the reason why pre-service teachers engage in learning course content and doing homework or assignments in their education course. There were three subconstructs of learning motivation in this research: intrinsic learning motivation, extrinsic learning motivation, and task value. *Intrinsic learning motivation* is the degree to which pre-service teachers perceive themselves to be participating in their learning tasks thanks to reasons such as content mastery, curiosity, challenging tasks, and the satisfaction

of learning (Pintrich et al., 1991; Ryan & Deci, 2000). *Extrinsic learning motivation* refers to the degree to which pre-service teachers perceive themselves to be participating in their learning tasks for reasons such as grades, competition, and praise from other people such as their teacher educators, peers, and families (Pintrich et al., 1991; Ryan & Deci, 2000). Finally, *task value* refers to the degree to which pre-service teachers perceive themselves to be participating in their learning tasks because of the reason that the content taught and other learning tasks are important to them and their future teaching careers (Eccles et al., 1983; Hilpert et al., 2012; Pintrich et al., 1991).

**Academic Engagement** is affection pre-service teachers feel towards what and where they learn, learning behaviours they have towards what they learn, and cognitive strategies they employ in learning what is taught during their education course. In this sense, there were three subconstructs of academic engagement in the current study: affective, behavioural, and cognitive engagement. *Affective engagement* refers to the degree to which pre-service teachers perceive their interests in the content taught, assignments, and other learning tasks as well as their senses of belonging to their teacher training centres (Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Lam et al., 2014). *Behavioural engagement* refers to the degree to which pre-service teachers perceive their devotion of time and effort to learning course content and completing their assignments and other learning tasks (Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Lam et al., 2014). Finally, *cognitive engagement* is the degree to which pre-service teachers perceive their abilities in relating new information to their existing knowledge and experiences, paraphrasing and summarising what they learn from school, relating ideas to each other, as well as creating new concepts from what is taught (Filius et al., 2019; Fredricks, Blumenfeld, & Paris, 2004; Lam et al., 2014; Pintrich et al., 1991).

**Teaching self-efficacy** refers to the belief pre-service teachers hold about their abilities to perform effective teaching tasks in their future classes. In this research, there were three subconstructs of teaching self-efficacy: efficacy for instructional strategies, for classroom management, and for student engagement. *Efficacy for instructional strategies* refers to the degree to which pre-service teachers believe in their capabilities to apply various teaching and measurement methods in their future classrooms (Tschannen-Moran & Woolfolk Hoy, 2001). *Efficacy for classroom management* is the degree to which pre-service teachers are confident of their abilities to manage their future classrooms through getting the students

to follow the classroom rules as well as controlling disruptive behaviours during class hours (Tschannen-Moran & Woolfolk Hoy, 2001). Finally, *efficacy for student engagement* is the degree to which pre-service teachers believe in their abilities to engage their future students in learning tasks as much as they can (Tschannen-Moran & Woolfolk Hoy, 2001).

**Content knowledge** refers to the achievement levels of English grammar and vocabulary EFL pre-service teachers have acquired during their language improvement course.

## 1.7 Organisation of the dissertation

This dissertation falls into five chapters. This first chapter has introduced the background to and the problem of the study. The purpose, the significance, and the limitations of the study are also identified. Additionally, the research questions, the overview of research methods, and the definition of key terms are clarified. Chapter 2 deals with theories and prior research related to instructional behaviours, CL, learning motivation, academic engagement, as well as teaching self-efficacy. Research methods for this study is presented in Chapter 3 and it includes the research design, sample, research variables, research instrument, data collection procedures, and data analysis. Results obtained from these methods are available in Chapter 4. The final chapter, Chapter 5, focuses on discussion, limitations and suggestions for future research, and conclusion and suggestions for implications.



## **CHAPTER 2 LITERATURE REVIEW**

This chapter begins with outcome variables (i.e., learning motivation, academic engagement, and teaching self-efficacy) and predictor variables (i.e., instructional behaviours resulting in autonomy support, structure, and involvement). Next, the review of the literature about CL, which involves these teaching behaviours, is presented. Related theories and research studies come along with the discussion of each variable. Finally, the conclusion is drawn to clarify the studied variables. The purpose of this review is to provide an understanding of related theories and research and the rationale for the choice of the predictor and outcome variables.

### **2.1 Learning motivation**

Motivation is an essential psychological concept that has long been researched in various fields and disciplines. Motivation is defined as the process that initiates, directs, and sustains goal-directed behaviours or activities (Franken, 2007; Schunk & DiBenedetto, 2020). To Woolfolk Hoy (2016), motivation is “an internal state that arouses, directs, and maintains behaviour” (p. 470). In everyday usage, however, motivation can be viewed as “the reason why people perform an action or act in a particular way”. Modern motivation theories give more emphasis on the relation of beliefs, values, and goals with action (Eccles & Wigfield, 2002). Even though there are many theories of motivation used in the education context, those that shaped the design of the present study are SDT and expectancy-value theories (EVT).

#### **2.1.1 Learning motivation within self-determination theory**

According to Deci and Ryan (2012), SDT evolved out of work by Deci (1971) on the effects of extrinsic rewards on intrinsic motivation. SDT divides motivation into two components: intrinsic and extrinsic motivation. Intrinsic motivation leads people’s behaviours towards their inherent satisfactions, interesting and enjoyable things, and ability improvement (Coon & Mitterer, 2010; Ryan & Deci, 2000; Woolfolk Hoy, 2016; Wright & Wiediger, 2007). Conversely, extrinsic motivation engages people to do things because of reasons including instrumental values, obligations, rewards, performance, competition, praise, approval, and social recognition (Coon & Mitterer, 2010; Pintrich et al., 1991; Ryan & Deci, 2000, 2017,

2020; Woolfolk Hoy, 2016; Wright & Wiediger, 2007). When used in the education context, intrinsic learning motivation drive students' behaviours towards curiosity, mastery learning, challenging tasks, and learning satisfaction whereas extrinsic learning motivation drives students' behaviours towards grades; performance; competition; and evaluation by others including their teachers, classmates, and families (Pintrich et al., 1991). Indeed, students are motivated to learn during their course for both the satisfaction of learning and the highest grades (Lee & Turner, 2016). However, even though extrinsic learning motivation might also exert a long-term effect on students' learning outcomes, intrinsic learning motivation is assumed to make a more positive and stable impact upon them (Reeve, 2006).

Until recent years, studies have addressed significant association between students' learning motivation and their learning outcomes such as academic engagement and achievement. For instance, work by Kunter et al. (2013) has revealed that students' relative autonomous motivation, which is the balance of intrinsic and extrinsic learning motivation, significantly affects their self-regulation strategies, which in turn improves their learning achievement. More specifically, previous research has shown that students with high levels of intrinsic learning motivation tend to improve their affective and behavioural engagement and self-regulation strategies (Lerdpornkulrat, Koul, & Poondej, 2018) and have higher learning achievement (Hsieh, 2014; Taylor et al., 2014). Hsieh (2014) also found that students are more likely to understand themselves well and work effectively in groups when they are intrinsically motivated to learn. In teacher education, research has reported similar results, indicating that pre-service teachers with greater levels of intrinsic learning motivation tend to self-regulate their own learning and earn higher academic achievement (Lee & Turner, 2016; Oz, 2016).

### **2.1.2 Learning motivation within expectancy-value theory**

EVT grew out of the work by Eccles et al. (1983). This theory postulates that achievement-related choices are impacted by people's expectations of success and subjective task value. For example, people are more likely to perform a task when they expect to do it well and when they appreciate it. Within EVT, expectancies for success and subjective task values are key factors that contribute to human motivation. Expectancies for success are people's beliefs about how well they will do on a forthcoming task whereas subjective task values refer to incentives or reasons for performing an imminent task (Eccles & Wigfield, 2002). EVT differentiates subjective task values into four aspects: attainment value (i.e., personal

importance of doing well on a task), intrinsic value (i.e., personal enjoyment from doing a task and personal interest in the task), utility value (i.e., perceived usefulness of a task for future goals, such as career goals), and cost (i.e., effort, lost opportunities, and negative affect including performance anxiety and fear of both failure and success) (Eccles & Wigfield, 2002). However, only utility value was taken into account in the present study as it reflects instrumental values of extrinsic motivation of SDT. Utility value was called task value in this study. When applied in the education context, task value refers to the value or worth of course content, homework or assignments, and other learning tasks (Eccles et al., 1983; Pintrich et al., 1991). According to Pintrich et al. (1991), task value is measured through students' evaluation of the interest, usefulness, and importance of what they learn and do in their course. Indeed, students are motivated to learn when they attach high value to what they learn (Eccles et al., 1983; Pintrich et al., 1991).

Research has also demonstrated a positive effect of students' perceived task value on their learning performance. According to Hsieh (2014), students appear to acquire more work-related knowledge and skills and solve complex real-world problems when they feel that their courses are worth learning. Students who perceive that what they learn is necessary for reaching their future goals are more likely to apply knowledge building strategies for learning (Hilpert et al., 2012). Further studies have shown that students' perceptions of task value is significantly associated with their intrinsic learning motivation and behavioural engagement (Lerdpornkulrat, Koul, & Poondej, 2018) and their deep learning approaches (Floyd, Harrington, & Santiago, 2009; Ghasemi & Dowlatabadi, 2018; Khezri azar et al., 2010; Pintrich & De Groot, 1990). In teacher education, pre-service teachers' perceptions that their courses are useful for their future teaching career are positively associated with their learning motivation and self-regulated learning (Lee & Turner, 2016; Lee, Turner, & Thomson, 2015) as well as their extensive knowledge integration strategies (Lee & Turner, 2017).

It can be concluded that many researchers have studied students' learning motivation and its predictive influence on their learning outcomes at all educational levels. However, little is known about the association between learning motivation and academic engagement, especially with pre-service teachers as participants. Even scarcer is the examination on the relationship between pre-service teachers' learning motivation and their teaching self-efficacy.

## 2.2 Academic engagement

Academic engagement, also known as school, learner, or student engagement, is a complex and multidimensional construct (Conduit, Karpen, & Farrelly, 2016; Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Lam et al., 2014) that varies from one learning context to another (Martin et al., 2015; Pöysä et al., 2018; Shernoff et al., 2016). According to Kahu (2013), academic engagement has been increasingly studied, debated, and theorised in the higher education context depending on four research perspectives: (1) the behavioural perspective, which highlights student behaviours and institutional practices as aspects of engagement; (2) the psychological perspective, which stresses four aspects of engagement (i.e., emotion, behaviour, cognition, and conation); (3) the socio-cultural perspective, which underlines socio-cultural contexts where students are schooled and socialised; and (4) the holistic perspective, which combines the previously-mentioned perspectives together to reflect stronger views of engagement. However, three dimensions of academic engagement that have appeared in most studies are affective, behavioural, as well as cognitive engagement. Affective engagement is concerned with students' interests in learning and senses of school or university belonging (Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Lam et al., 2014). Behavioural engagement is defined as students' time and effort in learning, their interaction with teachers and peers, and their participation in university-related activities (Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Lam et al., 2014). Finally, cognitive engagement concerns deep learning approaches and self-regulation strategies that students apply to achieve desired learning outcomes (Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013). Deep approaches to learning is viewed as students' abilities to relate new information or ideas to their existing knowledge or experiences, paraphrase and summarise what they learn from school, connect ideas to each other, and create new concepts from what is taught (Filius et al., 2019; Fredricks, Blumenfeld, & Paris, 2004; Pintrich et al., 1991). In the present study, self-regulation strategies were not taken into account because they are not believed to be purely cognitive (Lam et al., 2014).

To date, research on the effect of academic engagement on student learning has revealed favourable results. Students appear to have greater academic achievement when they are affectively, behaviourally, and cognitively engaged in learning (Chase et al., 2014; Fung, Tan, & Chen, 2018; Heng, 2014; Sedaghat et al., 2011). Moreover, students' deep learning approaches are significantly associated with their academic performance (Piumatti et al.,

2021), self-perceived academic improvement (Wang & Zhang, 2019), as well as need for cognition (Wang et al., 2015). In the teacher education setting, although limited in number, recent research by Lee and Turner (2017) has established that pre-service teachers' deep learning approaches have significant and positive influences on their extensive knowledge integration strategies.

### 2.3 Teaching self-efficacy

Teaching self-efficacy, commonly called *teacher efficacy*, is connected to the theoretical foundation of self-efficacy, which is a component of social cognitive theory of Bandura (1986). Self-efficacy is defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). Similarly, teaching self-efficacy refers to teachers’ beliefs in their capabilities to bring about desired learning outcomes of diverse students in a particular context (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). According to the most cited work by Tschannen-Moran and Woolfolk Hoy (2001), teaching self-efficacy has three underlying constructs: efficacy for instructional strategies, which highlights confidence in applying effective teaching and measurement methods; efficacy for classroom engagement, which focuses on confidence in managing the classroom; and efficacy for student engagement, which is concerned with confidence in engaging students in learning tasks.

Bandura (1997) explains that those who feel that they are capable enough to succeed tend to face difficulty and make considerable effort to reach their goals, while those who doubt their competencies and skills tend to see such effort as futile and will not persist in doing so. In fact, people’s beliefs in their own abilities affect their thinking processes, emotions, motivation, and courses of action (Bandura, 1995). According to self-efficacy theory, these beliefs can be built through four main sources of information: mastery experiences, vicarious experiences, social persuasion, and physiological and affective states (Bandura, 1997). Pre-service teachers develop their teaching self-efficacy the same way.

Mastery experiences are those people gain through performing a task themselves. These direct experiences of mastering a task have the most powerful influence on their beliefs in their capabilities. Successful experiences strengthen self-efficacy while failed experiences weaken it (Bandura, 1997). However, experiencing only easy success could make people

discouraged by failure. As Bandura (1997) posits, people can become more efficacious when they make sustain effort to persist in the face of difficulty. To pre-service teachers, mastery experiences are known as their teaching practices during their education courses and teaching practicums. Such teaching experiences are considered the most influential source of teaching self-efficacy (Bandura, 1997; Gallagher, 2012; Mulholland & Wallace, 2001; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998), which is supported by multiple studies (Bautista, 2011; Bernadowski, Perry, & Greco, 2013; Gunning & Mensah, 2011; Knoblauch & Chase, 2015; Knoblauch & Woolfolk Hoy, 2008; Poulou, 2007; Woolfolk Hoy & Burke-Spero, 2005; Yeung & Watkins, 2000).

Vicarious experiences are those people get from observing other credible people, or even themselves, perform a task. In this case, people rely on the attainments of other people to judge their own competences (Bandura, 1997). In other words, people feel efficacious in doing what other people with comparable competences can do, but they are more likely to question their capabilities when they see other people similar to themselves fail to do things they want to. According to Bandura (1997), pre-service teachers can gain vicarious experiences from four main sources: (1) effective actual modelling (e.g., when pre-service teachers observe or watch their teacher educators and classmates perform a teaching task), (2) symbolic modelling (e.g., when pre-service teachers watch or observe other credible teachers perform a teaching task on television or other visual media), (3) self-modelling (e.g., when pre-service teachers record themselves perform a teaching task and reflect on their recorded teaching performance), and (4) cognitive self-modelling (e.g., when pre-service teachers imagine themselves perform an effective teaching task). Consistent with self-efficacy theory, previous studies have established that pre-service teachers' efficacy for teaching can be fostered through effective actual modelling (Johnson, 2010), symbolic modelling (Bautista, 2011), self-modelling (Arsal, 2014), as well as cognitive self-modelling (Bautista, 2011; Palmer, 2006).

Social persuasion is known as verbal messages (i.e., feedback and encouragement) people get from other people, especially from significant ones. People tend to invest greater effort and sustain it when they are persuaded that they have the abilities to complete the assigned task. Conversely, those who are informed that they are not capable enough to perform the given task tend to give up when they encounter difficulty. In this sense, positive feedback develops self-efficacy while negative feedback hampers its development (Bandura, 1997).

In the teacher education context, pre-service teachers receive feedback and encouragement from their teacher educators, classmates, cooperating teachers, and even their students in a teaching practicum classroom (Bautista, 2011). Although limited in number, previous research has established that pre-service teachers are more likely to enhance their teaching self-efficacy through helpful support and feedback from their teacher educators (Clark & Newberry, 2019; Yurekli, Bostan, & Cakiroglu, 2020), classmates (Poulou, 2007; Yurekli, Bostan, & Cakiroglu, 2020), and cooperating teachers (Moulding, Stewart, & Dunmeyer, 2014).

Physiological and affective states refer to people's physical and emotional conditions (e.g., stress, fatigue, aches, fear, depression, and excitement) that are caused by bodily or mood reactions to an event or situation. They may interpret these interactions differently, which impacts their beliefs in their abilities (Bandura, 1997). They tend to be stronger or more confident when they interpret these reactions as their physiology, but they are more likely to doubt their capabilities and avoid challenging situations when they view such reactions as stress or physical inefficacy. However, physiological and affective states are the least influential source of self-efficacy (Bandura, 1997). Similarly, pre-service teachers might have bodily and mood reactions to their learning and teaching performance. They might also interpret such reactions differently, which contributes to the variation in their efficacy for teaching. Consistent with this, González et al. (2018) found pre-service teachers having positive feelings about their basic competences are prone to build teaching self-efficacy and engage in challenging teaching situations.

SDT-based instructional behaviours are likely to foster pre-service teachers' teaching self-efficacy. According to SDT, people are motivated to perform actions when their needs for autonomy, competence, and relatedness are supported (Ryan & Deci, 2000, 2017, 2020). In self-efficacy theory, people take actions when they perceive that they have the abilities to accomplish them (Bandura, 1997). With these two theories of motivation, it is obvious that social contexts that support people's basic psychological needs seem to develop their self-efficacy. For example, positive or constructive feedback given to fulfill the need for competence (Ryan & Deci, 2000, 2017, 2020) can also be treated as the social persuasion source of self-efficacy (Bandura, 1997). Therefore, pre-service teachers can cultivate their efficacy for teaching through their teacher educators' feedback (Clark & Newberry, 2019; Yurekli, Bostan, & Cakiroglu, 2020). Another connection between SDT and self-efficacy

theory can be seen when teacher educators fulfil pre-service teachers' need for relatedness by providing support for cooperative learning. In this respect, pre-service teachers can be involved with group work, peers' presentations, and peer feedback, which can affect their teaching self-efficacy (Yurekli, Bostan, & Cakiroglu, 2020). Yet there is a lack of evidence on the association between SDT-based instructional behaviors of teacher educators and pre-service teachers' efficacy for teaching.

## **2.4 Effective instructional behaviours**

Effective instructional behaviours refer to teaching styles or strategies that can motivate students to engage in learning effectively. One motivation theory that has been linked to students' motivation and engagement is SDT. This theory posits that people are motivated to take actions towards learning and growing when they think that their basic psychological needs for autonomy (i.e., a sense of initiative and ownership in their actions or behaviours), for competence (i.e., the feeling of effectance and mastery), and for relatedness (i.e., a sense of belonging and connectedness) are met (Ryan & Deci, 2000, 2017, 2020). According to SDT, people need social and environmental support to satisfy these needs. The autonomy need can be supported by experiences of interests and value and reduced by experiences of rewards and punishments. The competence need can be fulfilled in a social environment in which constructive feedback, opportunities for growth, and optimal challenges are well structured, but it will never be satisfied when people cannot develop skills, understanding, and mastery. The relatedness need can be supported when people show respect, concern, and benevolence to each other. Moreover, people can experience the feeling of relatedness when they interact in a social context in which warmth, care, affection, and nurturance are given (Skinner & Edge, 2002).

It is extremely obvious that SDT has played an important role in educational research that aims to determine effective instructional behaviours. Of course, in the education context, students are motivated to engage in learning tasks for the same reasons. A large and growing body of literature shows that “autonomy support, structure, and involvement” are effective teaching styles that can fulfil students' needs for autonomy (e.g., freedom to control their own learning), for competence (e.g., efficacy for their own learning), and for relatedness (e.g., connectedness with their teachers and peers), respectively (Assor, 2012; Ciani et al., 2011; Jang, Reeve, & Deci, 2010; Ryan & Deci, 2000, 2017, 2020; Skaalvik & Skaalvik,



2017a; Skinner & Belmont, 1993). In the context of teacher education, although limited in number, research has documented that pre-service teachers tend to have greater learning motivation and teaching self-efficacy in a learning context where their teacher educators use instructional behaviours that result in autonomy support, structure, and involvement (see Clark & Newberry, 2019; González et al., 2018; Yurekli, Bostan, & Cakiroglu, 2020).

### **2.4.1 Autonomy support**

Autonomy support is the amount of freedom students are offered to control their learning (Skinner & Belmont, 1993). In order to support student autonomy, teachers need to provide students with meaningful rationales and choices for learning; arouse their learning needs, interests, and curiosity; acknowledge their perspectives, feelings, and behaviours during learning activities; and assist them in setting meaningful learning goals and making timely decisions on their learning (see Assor, 2012; Guay et al., 2016; Jang, Reeve, & Deci, 2010; Patall & Zambrano, 2019; Ryan & Deci, 2020; Skinner & Belmont, 1993). Furthermore, teachers who engage in autonomy-supportive behaviours “support students’ motivational development and capacity for autonomous self-regulation” (Reeve, 2009, p. 162). What is contrasted with autonomy-supportive teaching is controlling teaching, where teachers take only their perspectives; encroach upon students’ opinions, emotions, and behaviours; and persuade students to think, feel, and behave in teacher-defined ways until they change their ideas and behaviours (Reeve, 2009). In this respect, controlling teaching behaviours reflect external rewards, pressures, as well as controls. According to Skinner and Belmont (1993), the need for autonomy can be fostered through the absence of the three attributes. Work by Patall et al. (2013) has established that students’ need for autonomy is satisfied when they perceive that teachers provide them with choices or options for learning tasks; take their perspectives; identify the importance, relevance, and usefulness of course work (i.e., rationales for learning); and design learning tasks around their thoughts and interests. However, only giving choices for learning and considering students’ ideas or suggestions when designing assignments and other learning tasks and activities were included into the present study to reflect teacher educators’ autonomy support.

The existing literature indicates that autonomy support is a reliable and robust predictor of effective learning. Multiple studies showed autonomy-supportive teaching behaviours to be significantly associated with intrinsic learning motivation (e.g., Black & Deci, 2000; Cheon, Reeve, & Moon, 2012; Reeve & Jang, 2006). Teachers who provide autonomy

support can enhance students' affective, behavioural, and cognitive engagement (Cheon, Reeve, & Moon, 2012; Gutiérrez & Tomás, 2019; Patall et al., 2018; Yu et al., 2016) and their academic performance (Hofferber, Eckes, & Wilde, 2014; Oriol-Granado et al., 2017). Furthermore, students of autonomy-supportive teachers are more likely to improve their self-esteem and well-being (Ferguson, Kasser, & Jahng, 2010; Gutiérrez & Tomás, 2019; Mouratidis, Lens, & Vansteenkiste, 2010) and reduce their anxiety and depression (Black & Deci, 2000; Yu et al., 2016). More recently, work by Zheng, Jiang, and Dou (2020) has revealed that autonomy support appears to reduce academic stress through self-regulated learning.

More specifically, studies have published that choice opportunities have significant effects on intrinsic learning motivation (Bao & Lam, 2008; Patall, Cooper, & Robinson, 2008; Reeve, Nix, & Hamm, 2003). Further studies have reported that, along with choices or options, teachers can increase students' academic engagement and conceptual learning (Jang, Reeve, & Halusic, 2016) and foster their emotion of curiosity (Schutte & Malouff, 2019). Teachers who take into account students' perspectives and interests when building lessons or designing learning tasks can promote student autonomy and enhance academic engagement and learning (Jang, Reeve, & Halusic, 2016; Patall et al., 2018). Furthermore, students, in classes where teachers engaged in offering choices and rationales for learning and in taking into consideration students' perspectives, interests, and preference, reported greater course value (i.e., intrinsic, attainment, and utility) (Patall et al., 2013) and more interest in the material (Patall et al., 2019). Although limited in number, teacher education research has shown that teacher educators' autonomy support is an important determinant of pre-service teachers' intrinsic learning motivation (Ciani et al., 2011) and self-perceived competence and teaching self-efficacy (González et al., 2018).

#### **2.4.2 Structure**

Structure is the amount and clarity of information students are given to effectively achieve the desired learning outcomes (Skinner & Belmont, 1993). To provide structure, teachers need to set clear expectations regarding the desired learning outcomes and communicate them to students in an understandable way; offer helpful support, constructive feedback, and coherent explanations; and adjust teaching methods to suit the proper level of student learning (Aelterman et al., 2013; Guay et al., 2016; Jang, Reeve, & Deci, 2010; Mouratidis et al., 2013; Ryan & Deci, 2020; Skinner & Belmont, 1993). Additionally, to build a well-

structured learning environment, teachers need to give clear and detailed guidance during learning activities, set clear rules for learning, and form the boundaries of learning activities (González et al., 2018). As Jang, Reeve, and Deci (2010) explain, structured teachers can aid students in managing their learning activities (through explicit direction and coherent expectations), in instigating and maintaining their effort towards achieving their learning goals and desired learning outcomes (through clear guidance), and in building skills and sense of competence (through constructive feedback). The opposite of structure is chaos, where teachers are confusing, fail to provide clarity of their expectations and directions, and plead for results without demonstrating how to achieve them (Jang, Reeve, & Deci, 2010). When exposed to chaotic learning contexts, students will find it difficult to know what is expected from them and they might think that their teachers are unhelpful and inconsistent (Mouratidis et al., 2013). In general, structured instructional styles can take place in either controlling or autonomy-supportive learning contexts, but the combination of autonomy-supportive and structured teaching tends to contribute to greater competence (Ryan & Deci, 2020).

However, this study focused only on helpful support, constructive feedback, and coherent explanations as aspects of structure. Teacher support that is helpful for student learning is instrumental support, which exists when teachers assist students in understanding learning problems or accomplishing difficult learning tasks (Semmer et al., 2008). Teacher feedback refers to “information provided by the teacher about the correctness of a statement, a task performance, or working and learning behaviour” (Wulfschleger et al., 2020, p. 2). Within the Cambodian higher education context, teacher support and feedback have been found to emerge as one construct of instructional behaviours (Heng, 2014). Therefore, support and feedback were treated as one aspect of teacher educators’ instructional behaviours in the present study. Coherent explanations, in the context of instruction, can occur in the form of instructional clarity, which is usually about clear explanations about course objectives, course content, and homework or assignments (see Cabrera, Colbeck, & Terenzini, 2001; Feldman, 1976; Marsh, 1982; Toland & Ayala, 2005). Hence, two aspects of instructional behaviours of teacher educators that were used to reflect structured teaching behaviours were instructional clarity and support and feedback.

Prior studies have also demonstrated significant associations between structured teaching styles and students’ learning outcomes. For example, teacher-provided structure has been

found to satisfy students' need for competence and enhance their learning strategies such as critical thinking, meta-cognitive self-regulation, and effort-regulation (Mouratidis et al., 2013). Moreover, structure, along with frequently-used differentiated instruction, has both direct and indirect influence on students' intrinsic learning motivation through their self-perceived competence (Guay, Roy, & Valois, 2017). When used in an autonomy-supportive way, structured teaching behaviours can enhance students' intrinsic learning motivation, academic engagement, self-regulated learning, task value, and self-perceived competence (Hospel & Galand, 2016; Jang, Reeve, & Deci, 2010; Olivier et al., 2020; Vansteenkiste et al., 2012).

Concerning specific aspects of structured teaching styles, prior studies have demonstrated that teacher support and feedback can facilitate students' behavioural engagement as well as increase their learning achievement (Harbour et al., 2015; Heng, 2014) whereas clear instruction has a positive influence on their intrinsic learning motivation, cognitive learning processes, and competence development (Seidel, Rimmmele, & Prenzel, 2005). Moreover, instructional clarity and organisation are predictive of a wide array of learning outcomes including leaning motivation (Bolkan, Goodboy, & Kelsey, 2016), critical thinking and deep approaches to learning (Loes, Salisbury, & Pascarella, 2015; Wang et al., 2015), and academic engagement (Opdenakker & Minnaert, 2011). In the teacher education context, although limited in number, previous studies have shown that teacher educators' support and feedback can enhance pre-service teachers' teaching self-efficacy (Clark & Newberry, 2019; Juuti et al., 2018).

### **2.4.3 Involvement**

Involvement refers to the quality of relationships between teachers and their students and between students and their peers (Skinner & Belmont, 1993). Teachers can have strong relationship with their students by taking time for, displaying affection to, and distributing resources to them (Skinner & Belmont, 1993). Other emotionally-supportive relationship in the classroom includes teachers' expressions of care, concern, and respect for students; their desire to acknowledge students' opinions and emotions; and their dependability (see Patrick, Anderman, & Ryan, 2002; Pianta & Allen, 2008; Pianta & Hamre, 2009; Ruzek et al., 2016). When teachers engage in these instructional behaviours, they are more likely to satisfy students' relatedness need and enhance their self-determined motivation (Tessier, Sarrazin, & Ntoumanis, 2010). In contrast, when teachers are neglectful of these teaching

styles or hostile towards students, students appear to feel that they are unlovable and that the learning environment is untrustworthy (see Skinner & Edge, 2002). In this sense, what involvement sharply contrasts with is hostility (Skinner & Edge, 2002; Tessier, Sarrazin, & Ntoumanis, 2010). With regard to peer relationship, Ryan and Patrick (2001) suggest that peers are uniquely influential in building the social context and learning environment in the classroom. Students can establish strong relationship through interacting with each other in a positive, supportive, and respectful way. When students have positive interaction with their teachers and classmates, they may experience the feeling of being connected to a community of learners, and so their relatedness need is supported (Skinner & Belmont, 1993). In this respect, their relatedness satisfaction is gained when they feel that they are accepted or welcomed, and it is frustrated when they feel that they are rejected or ignored. However, peer interaction may contribute to the decrease in students' task efficiency and learning engagement when it is not involved with purposeful and knowledge-constructive collaboration (see Moon & Ke, 2020). Thus, in addition to peer relationship, collaborative or cooperative learning should be taken into account to reflect effective peer involvement (see Kember & Leung, 2006). Of course, teachers can promote meaningful cooperation among students by providing a cooperative learning context in which students can engage in small group learning activities such as group discussion, peer teaching, peer feedback, and peer assistance with needed materials and information (see Gillies, 2007; Johnson & Johnson, 2014; Kuh, 2009; McRobbie & Tobin, 1997; Slavin, 2011). In the present study, only support for cooperative learning was selected to reflect how teacher educators promoted effective involvement among pre-service teachers.

Given the effectiveness of involvement, previous research in the area has demonstrated significant effects of teacher-student and peer relationship on students' learning outcomes. Multiple studies have shown that teacher-student relationship is an outstanding predictor of students' learning motivation and achievement (Heng, 2014; Komarraju, Musulkin, & Bhattacharya, 2010) and that peer relationship is an important determinant of their affective well-being (Schmidt, Dirk, & Schmiedek, 2019). Recent work by Vollet, Kindermann, and Skinner (2017) has established that peer relationship, combined with teacher involvement, exerts a significant effect on affective and behavioural engagement. Similarly, work by Lerdpornkulrat, Koul, and Poondej (2018) has documented that peer involvement has a positive association with students' intrinsic learning motivation, affective engagement, and self-regulation strategies.

Further studies have published that teacher support for cooperative learning is positively associated with students' learning motivation (Thoonen et al., 2011) and their affective and behavioural engagement (Gasiewski et al., 2012; Mikami et al., 2017; Xerri, Radford, & Shacklock, 2018). Moreover, students who engage in peer teaching, peer feedback, and peer support groups are more likely to use deep learning approaches (Bold, 2008; Cheung & Wong, 2016; Filius et al., 2019; Moon & Ke, 2020). To pre-service teachers, their peer discussion can contribute to their critical reflection (McGarr, McCormack, & Comerford, 2019) and their peer teaching greatly affects their conceptual comprehension (Al-Hebaishi, 2017). Recently, work by Yurekli, Bostan, and Cakiroglu (2020) has established that pre-service teachers' group work and peer feedback tend to foster their teaching self-efficacy.

## **2.5 Cooperative learning**

CL is a teaching model where students are organised to learn and work together in small heterogeneous groups in order to maximise each other's learning or achieve joint learning goals under the conditions of socially-structured exchange of information (Gillies, 2007; Johnson & Johnson, 2014; Jolliffe, 2007; Marr, 1997; Olsen & Kagan, 1992; Panitz, 1999; Slavin, 2011). According to Kagan and Kagan (2009), CL was originally introduced to respond to the four interconnected crises in the US education sector: (1) the achievement crisis, (2) the achievement gap crisis, (3) the race relations crisis, and (4) the social skills crisis. To date, CL has been applied with middle school, high school, and college students (Herrmann, 2013; Slavin, 2011). However, the implementation of CL in teacher education is still limited.

Theoretically, CL is rooted in both constructivist epistemology (Panitz, 1999) and social interdependence theory (Johnson & Johnson, 2002a). To constructivists, students perform as active agents to create understanding and knowledge for themselves through their own beliefs and experiences. In social interdependence theory, students are believed to achieve their learning goals through their own actions and the actions of the other members of the group (Johnson & Johnson, 1989). In this sense, students need to work both individually and cooperatively towards their own learning goals and the learning goals of their peers. Therefore, in the CL process, students can construct their understanding and knowledge for themselves through their own effort and performance and through interactions with their groupmates.

Ideally, CL involves the noted teaching behaviours (i.e., autonomy support, structure, and involvement) in its process. First, teachers can provide students with autonomy support in learning (Gillies, 2007; Shi & Han, 2019; Yasmin & Naseem, 2019). Second, teachers need to give clear explanations about academic tasks and cooperative structure and offer constructive feedback on students' work and performance so that they can effectively learn and complete assignments and other learning tasks (Johnson & Johnson, 2014). Finally, with CL, teachers can promote student involvement through some learning activities such as discussing ideas with groupmates, teaching groupmates, giving constructive feedback on groupmates' work and performance, and sharing needed materials and information with groupmates (Gillies, 2007; Johnson & Johnson, 2014; Johnson & Johnson, 2017a, 2019). Consistent with the above assertion, work by Hänze and Berger (2007) has demonstrated that students tend to have greater autonomy support, competence, and relatedness in the CL context than in the conventional teaching classroom.

### **2.5.1 Key elements of cooperative learning**

CL is not just organising students into groups and providing them with a topic to discuss or a task to do. They might not cooperate effectively as not all groups working together are cooperative (Johnson & Johnson, 2014). According to Gillies (2007), the CL process will not be effective unless successful cooperative groups are formed. To create such groups, five components should be structured into the learning process: positive interdependence, individual accountability, promotive interaction, appropriate use of social skills, and group processing (Gillies, 2007; Johnson & Johnson, 1989; Jolliffe, 2007). However, individual accountability and positive interdependence are believed to be more significant (Jolliffe, 2007).

*Positive interdependence* occurs when group members believe that each member's effort and performance is very important for achieving the group's goal and that they will never succeed unless their peers will. These perceptions motivate them to positively interact or work with each other in groups. Positive interdependence among students can be ensured through interdependent tasks, interdependent roles, shared resources, group rewards, and a shared group goal and identity (Johnson & Johnson, 2017a, 2019; Jolliffe, 2007).

*Individual accountability* happens when group members are totally responsible for their own learning and the learning of their groupmates. In this respect, they must be sure that

all group members can deal with the assigned materials and tasks effectively. To ensure individual accountability, teachers need to (1) randomly select one member as the group representative to provide the answers or present the group work to the whole class and (2) assess each member's effort and performance and give the results with feedback back to the individual and the group (Johnson & Johnson, 2017b, 2019; Jolliffe, 2007).

*Promotive interaction* takes place when group members are dependent on each other to attain the group's goal as well as the learning goal of their own. In this respect, they have to encourage and facilitate each other's efforts to accomplish the group's goal. Teachers can ensure promotive interaction among students by engaging group members in discussing ideas, teaching each other, sharing necessary materials and information, giving feedback on each other's work and learning performance, challenging each other's conclusions and reasoning, and elaborating on each other's opinions (Gillies, 2007; Johnson & Johnson, 2017a, 2019; Jurkowski & Hänze, 2015).

*Appropriate use of social skills* requires teachers to teach group members social skills in order that they can effectively work together towards the group's goal. The social skills that serve the purpose are communication, leadership, problem-solving, decision-making, trust-building, and conflict management (Gillies, 2007; Johnson & Johnson, 2017b; Jolliffe, 2007). Of course, it will never be successful in asking group members to cooperate when they lack these social skills (Johnson & Johnson, 2017b).

*Group processing* happens when group members are asked to analyse their own and each other's learning processes. In so doing, all group members need to identify what member actions and behaviours can contribute to the group's achievement and what behaviours should be maintained or changed in order to improve the next learning process (Johnson & Johnson, 2017b).

However, during the CL process, teachers still play the crucial role in facilitating student learning. They need to intervene and give feedback that can promote student involvement during the learning process, otherwise the effectiveness of CL will greatly decrease. Wu and Liu (2019) assure that students will find it difficult to change their understanding or behaviours or continue to collaborate with each other when teachers fail to provide timely feedback on their work and performance. On the other hand, teacher guidance in the form



of feedback that is offered both during and at the end of the learning and working process has been found to make a positive contribution to student collaboration and outcomes (van Leeuwen & Janssen, 2019).

### **2.5.2 Types of cooperative learning**

In practical implementation, there are three main types of CL: formal CL, informal CL, and cooperative base groups (Johnson & Johnson, 2014; Johnson & Johnson, 2017a, 2019). Of course, the three types of CL should be incorporated into the system to make the learning process more effective.

#### ***Formal cooperative learning***

In the formal CL, students have to work in groups to learn lessons, complete assignments, and do other learning tasks, in order to maximise their own learning and that of their peers in the group. There are four main steps for teachers to follow in the formal CL process. First, teachers have to make pre-instructional decisions. Within this step, teachers need to specify learning objectives based on a conceptual or task analysis. Additionally, teachers need to decide on the size of the group, assigns students to small groups of diverse abilities and interests, and assigns positive interdependent roles such as reader, recorder, encourager, understanding checker, and idea elaborator to group members to ensure interdependence. However, these roles should not be assigned to students before they get used to working together. The other things teachers need to do within this step are arranging the room (e.g., designating work and resource areas) and planning the teaching materials that can ensure interdependence. Second, teachers have to explain the academic task as well as cooperative structure. Within this step, teachers need to explain to students the academic assignment (i.e., what the assignment is, what to do to accomplish it, and how to do it) and the criteria for success (i.e., criterion-based evaluation). Moreover, teachers need to structure positive interdependence and individual accountability in each group as well as specify intended behaviours (i.e., interpersonal and small group skills) that students are expected to learn and use when working together. One more thing teachers need to do to reduce competition among students in the whole class is structuring intergroup cooperation. This can be done through encouraging the group that is finished to help other groups that are not finished. Third, teachers have to monitor students' learning and intervene to provide assistance. In this step, when students are working together in groups, teachers need to observe and assess their academic progress and interactions (i.e., use of interpersonal and small group skills)

in order that they will stay on task and fully cooperate with each other. Besides, teachers need to intervene when needed to assist students in completing the assigned task and in using the desired social skills. At the end of each lesson, teachers need to provide closure to the lesson through getting students to summarise the main points of the lesson, recall ideas, and ask questions before moving on. Finally, teachers have to evaluate students' learning and group processing. In this step, teachers need to regularly assess and occasionally evaluate the quantity and quality of students' learning. At the end of a lesson or when students have finished the assignment, teachers should assist them in assessing group functioning and interactions. In so doing, students are asked to identify what actions were useful and not useful for completing the group's task and decide on what behaviours should be continued or changed for improving the quality of their work. After that, teachers provide feedback that can enhance the effectiveness of group work and teamwork.

### ***Informal cooperative learning***

Within the informal CL, students are placed to work in small groups on a task that lasts for a few minutes to one class period in order to achieve their learning goals. With such a technique, students can pay more attention to the material to be learned. Teachers have to follow three main steps in the informal CL. First, teachers need to structure an introductory-focused discussion. In so doing, teachers can assign students to pairs and provide them with a four or five-minute assignments of completing an initial task so as to promote their prior knowledge about the topic to be presented and their expectations about what will be covered in the lesson. Second, teachers need to structure an intermittent-focused discussion. In this case, teachers divide the lesson into several parts and each part should last ten to fifteen minutes or shorter depending on the conditions of students. After presenting each part of the lesson, teachers ask students to discuss it in pairs for two to four minutes. During the discussion, students prepare what they are going to say, share their own answers with each other, listen carefully to each other's answers, and formulate answers that are better than their initial ones. After the discussion, teachers randomly choose a student from each pair to make a short summary of what they have discussed to ensure individual accountability. Finally, teachers need to structure a closure-focused discussion that lasts for three to five minutes. After the lesson, teachers ask students to summarise what they have learned and integrate it into existing conceptual frameworks. This task should provide students with what will be covered in the homework or assignments and what will be presented in the next session.

### ***Cooperative base groups***

In cooperative base groups, students are required to work together for one semester, one year, or longer to make certain that all group members can make academic progress and develop cognitive and social skills in a healthy way. In this case, teachers need to structure opening class meeting to check students' homework so as to ensure that they understand the content taught. Teachers also structure ending class meeting to see whether students can understand the material, know what homework to do, and are making progress on long-term assignments. Of course, cooperative base groups have stable membership and group members must offer each other support, encouragement, and assistance in learning course content and doing assignments; make each other accountable for learning; and ensure that each member is making good academic progress. Moreover, cooperative base groups can meet regularly, for example, daily or biweekly, and can happen in four forms: (1) academic support tasks (e.g., encouraging each other to learn course content and do all assignments and editing each other's papers), (2) personal support tasks (e.g., assisting each other in solving nonacademic problems), (3) routine tasks (e.g., taking attendance and homework), and assessment and evaluation tasks (e.g., checking each other's academic learning). As CL groups are long-term learning groups, teachers need to teach group members needed social skills in order that they can effectively work together towards their shared learning goals.

### **2.5.3 Cooperative learning and learning outcomes**

Over four decades, considerable research has demonstrated the effectiveness of CL at all levels of education (Johnson & Johnson, 1989; Kyndt et al., 2013). In recent years, more empirical evidence has been added to the existing literature, showing that CL significantly contributes to a wide array of students' learning outcomes. Multiple studies have reported that CL exerts a significant influence on students' learning motivation and self-regulation strategies (Fernandez-Rio et al., 2017; Sanaie et al., 2019; Tombak & Altun, 2016; Zhou, 2012), their self-directed learning (Mentz & Zyl, 2018); their critical thinking skills (Silva, Lopes, & Dominguez, 2019; Zhang & Chen, 2021); their self-efficacy and learning beliefs (Tombak & Altun, 2016); and their academic achievement (Genç, 2016; Gull & Shehzad, 2015; Hsiung, 2012; Kyndt et al., 2013; Parveen, Yousuf, & Mustafa, 2017; Yamarik, 2007). Moreover, work by Othman et al. (2012) has established that students who are exposed to CL contexts tend to be more interested in teamwork and improve social and interpersonal skills such as positive behaviours and interpersonal relationships.

To EFL learners, previous studies have established that the CL process can enhance their listening, speaking, and reading competences (Jalilifar, 2010; Marzban & Alinejad, 2013; Namaziandost, Homayouni, & Rahmani, 2020; Ning & Hornby, 2010); their social skills (Ning, 2013), their critical thinking (Sadeghi, 2012); and their grammar and vocabulary achievement (Anwer, Tatlah, & Butt, 2018; Ghorbani, 2012; Ishtiaq, Ali, & Salem, 2017; Khan & Akhtar, 2017; Yavuz & Arslan, 2018; Zarifi, 2016). Furthermore, EFL learners who are organised to work in cooperative groups are more intrinsically motivated to learn than their counterparts whose learning is facilitated through traditional teaching methods (Ning & Hornby, 2013). More recently, work by Sadeghi and Ganji (2020) has published that CL is more effective than conventional instruction for EFL learners' self-esteem; self-confidence; as well as affective, behavioural, and cognitive engagement.

In the teacher education context, CL also exerts a significant influence upon pre-service teachers' learning outcomes. Pre-service teachers who learn through CL are more likely to improve their learning performance and learning confidence (Kopparla & Goldsby, 2019) and their factual knowledge (Hornby, 2009). Additionally, pre-service teachers tend to have greater conceptual knowledge, task value, and self-perceived competence when they are grouped to learn in either low or high-structured CL than in group presentations (Supanc, Völlinger, & Brunstein, 2017). However, Cecchini et al. (2020) found that high-structured CL is more effective than low-structured CL in terms of pre-service teachers' intrinsic learning motivation, content knowledge, and learning responsibility.

Apart from the noted effect of CL, few experimental studies have published contradictory findings about the impact of this learning approach on the construction of teaching self-efficacy of pre-service teachers. For instance, Scharmann and Hampton (1995) found pre-service elementary teachers in the heterogeneous CL group developed stronger senses of efficacy for teaching science than their counterparts in either the self-selected or randomly-selected CL groups. Unfortunately, work by Cohen and Zach (2013) has established that CL is inferior to direct instruction for physical education pre-service teachers' teaching self-efficacy. However, Legrain et al. (2018) found no significant differences in efficacy for teaching of physical education pre-service teachers in three different training methods: CL, CL with pre-activity scaffolding, and direct instruction. Hence, it is still questionable whether CL could foster efficacy for teaching of pre-service teachers of other educational fields, especially EFL pre-service teachers in developing countries like Cambodia.

#### 2.5.4 Adapted cooperative learning procedures for pre-service instruction

As previously reviewed, students are motivated to engage in learning tasks effectively when their fundamental needs for autonomy, competence, and relatedness are satisfied (Ryan & Deci, 2000, 2017, 2020). Many researchers have found that these needs can be supported when teachers create a learning environment that results in autonomy support, structure, and involvement (Assor, 2012; Ciani et al., 2011; Jang, Reeve, & Deci, 2010; Ryan & Deci, 2000, 2017, 2020; Skaalvik & Skaalvik, 2017a; Skinner & Belmont, 1993). However, a specific learning procedure should be provided within pre-service instruction in order that teacher educators can follow it to improve the quality of teaching and learning.

CL is generally believed to be one of the most significant learning models that can lead to a wide variety of learning outcomes at all educational levels. However, the application of CL is still limited, especially in teacher education. In our present study, the CL process was adapted from Johnson and Johnson (2014) in order that teacher educators would use it to enhance pre-service teachers' content knowledge and teaching self-efficacy. The adapted instructional procedures within the process of CL are presented in Table 2.1.

**Table 2.1** Adapted instructional procedures of CL

Steps/Items	Teaching/Learning Activities
1. Pre-instructional decisions	
1) Instructional objectives	<ul style="list-style-type: none"> <li>Teacher educators identify academic objectives based on the textbook of TEPs.</li> </ul>
2) Learner analysis/pre-test assessment	<ul style="list-style-type: none"> <li>Teacher educators collect data on pre-service teachers' prior knowledge, learning motivation, academic engagement, teaching self-efficacy, and other demographic information.</li> </ul>
3) Group setting	<ul style="list-style-type: none"> <li>Teacher educators organise pre-service teachers into groups of mixed abilities (heterogeneous groups) based on the pre-test assessment.</li> <li>The groups stay together the whole semester.</li> </ul>
4) Interdependence roles	<ul style="list-style-type: none"> <li>Teacher educators assign interdependence roles to group members based on their real conditions.</li> </ul>

**Table 2.1** Adapted instructional procedures of CL (Cont.)

Steps/Items	Teaching/Learning Activities
5) Instructional materials	<ul style="list-style-type: none"> <li>Teacher educators distribute learning materials in a way that promotes a joint effort to accomplish group assignments.</li> <li>Teacher educators give each group only one copy of the materials that is arranged as a jigsaw.</li> </ul>
2. Academic Tasks and Social Skills	
1) Learning tasks	<ul style="list-style-type: none"> <li>Teacher educators explain what academic tasks or assignments are and how to complete them.</li> </ul>
2) Criteria for success	<ul style="list-style-type: none"> <li>Teacher educators explain what criteria are used to evaluate their pre-service teachers.</li> </ul>
3) Positive interdependence	<ul style="list-style-type: none"> <li>Teacher educators help their pre-service teachers in each group set positive goal interdependence.</li> <li>Teacher educators used positive reward interdependence.</li> </ul>
4) Individual accountability	<ul style="list-style-type: none"> <li>Teacher educators encourage group members to help each other with the given learning tasks.</li> </ul>
5) Social skills	<ul style="list-style-type: none"> <li>Teacher educators teach group members needed social skills such as communication, leadership, trust building, problem solving, decision making, and conflict management.</li> </ul>
3. Monitoring and Intervening	
1) Learning activities	<ul style="list-style-type: none"> <li>Group members are involved with some learning activities such as group discussion, peer teaching, peer feedback, and group assistance and support for needed information sources and materials.</li> <li>Group members are randomly selected to provide answers and present what they have learned and done in their groups to the class unit by unit.</li> </ul>
2) Learning progress	<ul style="list-style-type: none"> <li>Teacher educators continuously check academic progress and expected behaviours in learning and working in groups throughout the semester.</li> </ul>

**Table 2.1** Adapted instructional procedures of CL (Cont.)

Steps/Items	Teaching/Learning Activities
	<ul style="list-style-type: none"> <li>Teacher educators select pre-service teachers in each group, train them, and have them collect data related to group members' learning behaviours.</li> </ul>
3) Task assistance	<ul style="list-style-type: none"> <li>Teacher educators observe group members to determine what they can and cannot understand.</li> <li>Teacher educators intervene to clarify the instruction, review important procedures and strategies for completing the assignment, answer questions, and teach other task skills as necessary.</li> </ul>
4) Closure to the lesson	<ul style="list-style-type: none"> <li>Teacher educators check if their pre-service teachers in each group understand what they have learned.</li> </ul>
4. Student Assessment	
1) Student learning	<ul style="list-style-type: none"> <li>Teacher educators assess pre-service teachers' learning outcomes based on pre-test assessment.</li> </ul>
2) Group processing	<ul style="list-style-type: none"> <li>At the end of each session or after the assignment has been completed, teacher educators ask each group members to describe what actions are helpful/unhelpful in completing the group's work.</li> <li>Teacher educators ask each group members to decide on what behaviours to continue and what behaviours to change.</li> <li>Teacher educators give specific feedback on the effectiveness of task work and teamwork to each group.</li> <li>Teacher educators have each group analyse and reflect on the feedback they receive.</li> <li>Teacher educators and their pre-service teachers encourage the celebration of the group members' hard work and the group success.</li> </ul>

## 2.6 Conclusion

The literature review leads to the conclusion that instructional behaviours (i.e., autonomy support, structure, and involvement) and CL should be incorporated into TEPs to create a learning environment that will not only promote the quality of pre-service instruction but also equip pre-service teachers with an effective teaching method that they could use as a model for their future classroom practices.

According to the literature review, the relationship between teacher educators' instructional behaviours and learning motivation, academic engagement, and teaching self-efficacy of pre-service teachers have already been analysed, but in separate studies. Further research should be conducted to analyse these teacher educator and pre-service teacher variables simultaneously, especially in developing countries like Cambodia. Additionally, although prior studies have demonstrated positive associations between these educational variables, most of them were conducted in developing countries. Findings might be different across learning contexts in that academic engagement can vary from one learning environment to another (Martin et al., 2015; Pöysä et al., 2018; Shernoff et al., 2016) and teaching self-efficacy is also sensitive to cultural and national settings (O'Neill & Stephenson, 2012).

In respect of CL, although previous studies have shown that this learning model improves a wide array of learning outcomes among pre-service teachers, very little is known about its significant effect on pre-service teacher's learning motivation, academic engagement, and teaching self-efficacy, which are reliable and robust determinants of their learning and teaching success. Indeed, our search of the literature did not locate any study evaluating the influence of the CL process upon academic engagement of EFL pre-service teachers. Furthermore, to our knowledge, research on how the CL process influences teaching self-efficacy is rarely conducted with pre-service teachers as participants, especially with those in other fields besides mathematics, science, and physical education. To date, studies have yielded conflicting results across the disciplines concerning the effect of CL contexts on the development of teaching self-efficacy among pre-service teachers (see Cohen & Zach, 2013; Legrain et al., 2018; Scharmann & Hampton, 1995). Therefore, it is imperative to examine whether the pedagogical implementation of CL would significantly contribute to the development of teaching self-efficacy of EFL pre-service teachers, especially in the context of developing countries.



In conclusion, this research had two major aims: (1) investigating the relationship between teacher educators' instructional behaviours and pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy and (2) examining the impact of CL on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy, compared to lecture-based learning.

## **CHAPTER 3 RESEARCH METHODS**

The present study was composed of two major phases. The first phase was involved with the correlational design, which aimed to investigate the relationship between instructional behaviours of teacher educators and pre-service teachers' learning motivation, academic engagement, as well as teaching self-efficacy. The second phase was concerned with the experimental design, which was intended to examine the effect of CL on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy. This chapter highlights the research design and procedures adopted in these two phases of the study.

### **3.1 Research design**

The present study used a quantitative approach with two research designs: the correlational and the experimental designs. Generally, the correlational design is intended to explore the causal relationship among variables or relate variables in a predictable pattern for one group of individuals whereas the experimental design is used to examine whether an intervention (i.e., practices or procedures) can influence an outcome for one group as opposed to another group (Creswell, 2012; Creswell & Creswell, 2018). For the correlational design within the present study, teacher educators' instructional behaviours (i.e., instructional clarity, support and feedback, autonomy support, and support for cooperative learning) were examined to see their predictive influences upon pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy.

The experimental design was applied to examine whether CL, which involved autonomy support, structure, and involvement in the learning process, could significantly contribute to better increase in learning motivation, academic engagement, content knowledge, and teaching self-efficacy of EFL pre-service teachers, when compared to lecture-based learning. This experimental design was involved with a pre-test-post-test quasi-experiment with an experimental group and a control group.

In this research, teacher educators' instructional clarity, support and feedback, autonomy support, as well as support for cooperative learning were investigated in the first phase.

The instructional behaviours that were significantly associated with pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy were integrated into cooperative learning procedures in the second phase. In this respect, the results from the correlational design were used in creating a learning environment within the experimental design.

### 3.2 Sample

The population for this research included first-year pre-service secondary teachers in a 2-year teacher education programme at the six regional teacher training centres (RTTCs) in Cambodia in 2018. Two groups of samples were recruited for the two research designs. For the correlational design, the sample size was determined based on the recommendation by Hair et al. (2019). When confirmatory factor analysis and structural equation modelling are involved, the sample size should normally be at least five times as large as the number of observed variables to be analysed, but to be more acceptable, it should be at least ten times as large as the number of observed variables or items (Hair et al., 2019). The participants for this design were randomly selected to respond to the survey questionnaire. More than 95% of the responses were complete. The final sample for analysis consisted of 601 pre-service teachers, 42.9% males and 57.1% females. Mean age was 20.98 (SD = 2.48). Pre-service teachers majoring in teaching English and Khmer languages accounted for more than half of the noted sample (54.7%). The other pre-service teachers were those majoring in teaching information and communications technology and English language (10.6%), in teaching mathematics and physics (10.1%), in teaching biology and earth sciences (7.8%), in teaching physics and chemistry (6.2%), in teaching Khmer and civics (5.5%), and in teaching history and geography (5.0%).

For the experimental design, the participants were pre-service teachers majoring in teaching English and Khmer. These pre-service teachers were called EFL pre-service teachers in this research. The participants were 65 EFL pre-service teachers (44.6% males and 55.4% females, mean age of 20.26 with SD of 1.36) in two classes that were randomly selected from all classes in the RTTCs, with one class from one RTTC. After that, through the simple random sampling technique, one class was assigned as the experimental group (N = 35) and the other as the control group (N = 30). The EFL pre-service teachers in the two groups had never been taught through CL before. Two male teacher educators of English in the two

RTTCs volunteered to participate in this experiment. One teacher educator was trained to employ CL with the experimental group whereas the other teacher educator agreed to use lecture-based learning with the control group.

### **3.3 Research variables**

Since this study used a quantitative approach with two research designs, research variables were divided into two groups. For the correlational design, the independent variables were pre-service teachers' perceptions of their teacher educators' instructional clarity, support and feedback, autonomy support, and support for cooperative learning; the dependent variables included pre-service teachers' perceptions of their intrinsic learning motivation, extrinsic learning motivation, task value, academic engagement, behavioural engagement, cognitive engagement, efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement; and the mediating variables were pre-service teachers' intrinsic learning motivation, extrinsic learning motivation, as well as task value. For the experimental design, the independent variables included CL and lecture-based learning; the dependent or outcome variables were EFL pre-service teachers' knowledge of grammar and vocabulary and their perceptions of their intrinsic learning motivation, extrinsic learning motivation, task value, academic engagement, behavioural engagement, cognitive engagement, efficacy for instructional strategies, efficacy for classroom management, as well as efficacy for student engagement; and the control variables included EFL pre-service teachers' pre-test grammar, vocabulary, intrinsic learning motivation, extrinsic learning motivation, task value, academic engagement, behavioural engagement, cognitive engagement, efficacy for instructional strategies, efficacy for classroom management, as well as efficacy for student engagement. Further details about these research variables are discussed in the following section of this chapter.

### **3.4 Research instrument**

Three types of instruments were adapted and developed for data collection in this study. The first instrument was a survey questionnaire and it was used in the correlational design to measure each subconstruct of instructional behaviours, learning motivation, academic engagement, and teaching self-efficacy. However, adapted scales on learning motivation, academic engagement, as well as teaching self-efficacy were also used in the experimental design. The second instrument was a learning achievement test. This test was used in the

experimental design to measure content knowledge. The last instrument was involved with instructional procedures that were used to guide the learning processes in the experimental design.

### **3.4.1 Survey questionnaire**

The survey questionnaire measuring each subconstruct of teacher educators' instructional behaviours (i.e., instructional clarity, support and feedback, autonomy support, and support for cooperative learning) and of pre-service teachers' learning motivation (i.e., intrinsic learning motivation, extrinsic learning motivation, and task value), academic engagement (i.e., affective, behavioural, and cognitive engagement), as well as teaching self-efficacy (i.e., efficacy for instructional strategies, for classroom management, and for student engagement) was developed based on the translation and back-translation technique of Behling and Law (2000). First, the original subconstructs in English were adapted by the researchers. Then, they were translated into Khmer by two bilingual Cambodian researchers. Next, using the translated version, we translated the subconstructs back into English. After that we compared the adapted versions to see whether each item in each subconstruct could match the initial meaning. Finally, the questionnaire in Khmer was applied to other 65 pre-service teachers so as to evaluate the appropriateness of each item. In this research, we employed a self-report method to assess subjective perceptions of each item in each subconstruct, which might lead to response bias. In all the subconstructs, pre-service teachers had to rate each item on a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree").

To validate the subconstructs in the teacher education context in Cambodia, confirmatory factor analysis (CFA) was conducted. Before the CFA, we checked for normal distribution and multicollinearity. The normal distribution of the data being analysed was measured by the skewness and kurtosis of each item (Cohen, Manion, & Morrison, 2018; Hair et al., 2019). Normally, the skewness and kurtosis values of normal distribution range between  $-1$  and  $+1$  and between  $-1.96$  and  $+1.96$ , respectively (Hair et al., 2019). In the present research, the skewnesses and kurtoses of all the items used ranged from  $-0.90$  to  $+0.64$  and from  $-1.03$  to  $+1.72$ , respectively. The multicollinearity exists when the intercorrelation between items or variables is greater than  $0.85$  (Kline, 2005). The intercorrelation between items in this study ranged from  $0.08$  to  $0.76$ , which eliminated multicollinearity problems. During the CFA, we checked for construct validity and reliability for each subconstruct. To ensure construct validity, convergent and discriminant validities were assessed by calculating and

comparing the average variance extracted (AVE), the maximum shared variance (MSV), and the average shared variance (ASV) for each subconstruct. The AVE should be 0.50 or higher for adequate convergent validity, which means that a group of measured variables or items share a high proportion of variance in the same construct, and the AVE should be greater than the MSV and ASV for acceptable discriminant validity, which means that one construct is distinct from other constructs (Hair et al., 2019). In the present study, the AVEs for the subconstructs were greater than 0.50 and the AVE for each subconstruct was also higher than its MSV and ASV. Furthermore, cross-loadings were not allowed so as to ensure unidimensionality. Finally, 15 items with factor loadings of lower than 0.50 were removed for desirable internal consistency (Hair et al., 2019). The standardised factor loadings for the items used ranged from 0.56 to 0.91, exceeding the recommended threshold of 0.50, and the construct reliabilities for the subconstructs ranged between 0.83 and 0.91, exceeding the recommended threshold of 0.70 (Hair et al., 2019). There were two CFAs in this study. The CFA results for the model for the relationship between instructional behaviours, learning motivation, and academic engagement demonstrated that the measurement model fitted the empirical data very well,  $\chi^2(1022,601) = 1932.19, p < 0.001$ , CFI = 0.94, TLI = 0.94, SRMR = 0.049, and RMSEA = 0.038. The CFA results for the model for the relationship between instructional behaviours, learning motivation, and teaching self-efficacy indicated that the measurement model also fitted the empirical data well,  $\chi^2(1164,601) = 2484.88, p < 0.001$ , CFI = 0.93, TLI = 0.92, SRMR = 0.051, and RMSEA = 0.043. These results recommended that the four subconstructs of instructional behaviours, the three subconstructs of learning motivation, the three subconstructs of academic engagement, and the three subconstructs of teaching self-efficacy could match the teacher education context in Cambodia.

### ***Instructional behaviours***

Measures of instructional behaviours were adapted from prior studies (Cabrera, Colbeck, & Terenzini, 2001; Feldman, 1976; Heng, 2014; Kuh, 2009; Lam, Pak, & Ma, 2007; Marsh, 1982; McRobbie & Tobin, 1997; Toland & Ayala, 2005). Instructional behaviours were assessed through pre-service teachers' perceptions of teacher educators' instructional clarity (5 items, e.g., "In this education course, teacher educators explain course content clearly", support and feedback (5 items, e.g., "In this education course, teacher educators give feedback that can enhance my understanding of the content taught"), autonomy support (5 items, e.g., "In this education course, teacher educators let me choose homework or assignments that match my own interests"), and support for cooperative learning (5 items, e.g., "In this

education course, I teach or help other students in my group when they encounter problems with course content, homework, or assignments”). The Cronbach’s alpha values for instructional clarity, support and feedback, autonomy support, and support for cooperative learning were 0.86, 0.84, 0.87, and 0.84, respectively, demonstrating good internal consistency. The construct reliability values for these subconstructs were 0.86, 0.83, 0.87, and 0.84, respectively, with AVEs of 0.55, 0.50, 0.58, and 0.51, respectively. More information about factor loadings and item sources for each subconstruct of instructional behaviours is shown in Table 3.1 below.

**Table 3.1** Factor loadings and item sources for measures of instructional behaviours

Subconstruct/Item	Factor loading	Source
<i>Instructional clarity (<math>\alpha = 0.86</math>)</i>		
5. Teacher educators explain course objective clearly.	0.74	(Cabrera, Colbeck, & Terenzini, 2001;
15. Teacher educators explain course content clearly.	0.77	Feldman, 1976;
12. Teacher educators explain how to do homework or assignments clearly.	0.84	Marsh, 1982; Toland & Ayala, 2005)
6. Teacher educators use good examples to explain course content, homework, or assignments.	0.64	
1. Teacher educators interpret important concepts or theories clearly.	0.71	
<i>Support and feedback (<math>\alpha = 0.84</math>)</i>		
7. Teacher educators are available for consultation when I have problems with course content, homework, or assignments.	0.62	(Cabrera, Colbeck, & Terenzini, 2001;
17. Teacher educators check whether I have learned the content taught before moving on.	0.74	Feldman, 1976; Heng, 2014; Toland & Ayala, 2005)
14. Teacher educators give feedback that can enhance my understanding of the content taught.	0.73	
9. Teacher educators provide constructive feedback on my homework or assignments.	0.64	

**Table 3.1** Factor loadings and item sources for measures of instructional behaviours  
(Cont.)

Subconstruct/Item	Factor loading	Source
3. Teacher educators provide feedback that can improve my learning performance.	0.79	
<i>Autonomy support (<math>\alpha = 0.87</math>)</i>		
16. Teacher educators decide with me on what I should learn.	0.75	(Lam, Pak, & Ma, 2007; McRobbie & Tobin, 1997)
13. Teacher educators decide with me on who I should learn or do group work with.	0.67	
2. Teacher educators let me choose homework or assignments that match my own interests.	0.84	
4. Teacher educators provide more than one format of assignments so that I can choose to do what I want to.	0.73	
8. Teacher educators accept my suggestions or ideas when designing assignments for me.	0.82	
<i>Support for cooperative learning (<math>\alpha = 0.84</math>)</i>		
35. I discuss my ideas with other students in my group.	0.67	(Cabrera, Colbeck, & Terenzini, 2001; Kuh, 2009; McRobbie & Tobin, 1997)
19. I try to understand other students' ideas in my group.	0.59	
20. I teach or help other students in my group when they encounter problems with course content, homework, or assignments.	0.76	
25. I get constructive feedback from other students in my group about learning course content or doing homework or assignment.	0.77	
26. I collaborate with other students in my group to prepare group assignments.	0.75	



### ***Learning motivation***

Measures of learning motivation were adapted from previous studies (Hilpert et al., 2012; Pintrich et al., 1991). Pre-service teachers' learning motivation was measured through their perceived intrinsic learning motivation (5 items, e.g., "In this education course, I prefer course content from which I can learn new things"), perceived extrinsic learning motivation (5 items, e.g., "In this education course, if I can, I want to get better grades than most of my classmates"), and perceived task value (5 items, e.g., "I will be able to use what I learn in this education course in my future teaching career"). The Cronbach's alpha values for intrinsic learning motivation, extrinsic learning motivation, and task value were 0.87, 0.87, and 0.84, respectively, indicating good internal consistency. The construct reliability values for these subconstructs were 0.86, 0.87, and 0.83, respectively, with AVEs of 0.55, 0.57, and 0.50, respectively. More information about factor loadings and item sources for each subconstruct of learning motivation is shown in Table 3.2 below.

**Table 3.2** Factor loadings and item sources for measures of learning motivation

Subconstruct/Item	Factor loading	Source
<i>Intrinsic learning motivation (<math>\alpha = 0.87</math>)</i>		
29. I prefer course content from which I can learn new things.	0.82	(Pintrich et al., 1991)
21. I prefer course content that satisfies my curiosity even if it is difficult to learn.	0.79	
27. The most satisfying thing for me is trying to understand course content as much as I can.	0.86	
24. I choose assignments from which I can learn new things even if they don't guarantee a good grade.	0.58	
31. Trying to learn new things as much as I can is the most satisfying thing for me.	0.62	
<i>Extrinsic learning motivation (<math>\alpha = 0.87</math>)</i>		
28. The most satisfying thing for me is to get a good grade.	0.71	(Pintrich et al., 1991)
36. If I can, I want to get better grades than most of my classmates.	0.72	

**Table 3.2** Factor loadings and item sources for measures of learning motivation (Cont.)

Subconstruct/Item	Factor loading	Source
33. I need to perform well because I want to show off my ability.	0.79	
30. Getting a good grade is my main concern.	0.81	
23. It is important for me to improve my overall grade point average.	0.74	
<i>Task value (<math>\alpha = 0.84</math>)</i>		
59. I will be able to use what I learn in this education course in my future teaching career.	0.67	(Hilpert et al., 2012; Pintrich et al., 1991)
56. What I learn in this education course is beneficial for me.	0.79	
58. It is important for me to learn the content taught in this education course.	0.70	
54. What I learn in this education course will lead to my future occupational success.	0.80	
61. I will be able to use the content taught in this education course in the future.	0.56	

### ***Academic engagement***

Measures of academic engagement were adapted from (Lam et al., 2014; Mazer, 2013). Pre-service teachers' academic engagement was tapped through their perceived affective engagement (6 items, e.g., "What I learn in this education course is interesting"), perceived behavioural engagement (5 items, e.g., "In this education course, when I study, I actively participate in class activities"), and perceived cognitive engagement (5 items, e.g., "In this education course, when I study, I try to match what I am learning with my own experiences"). The Cronbach's alpha values for affective, behavioural, and cognitive engagement were 0.87, 0.91, and 0.88, respectively, which indicates good internal consistency. The construct reliability values for these subconstructs were 0.86, 0.91, and 0.87, respectively, with AVEs of 0.51, 0.66, and 0.58, respectively. More information about factor loadings and item sources for each subconstruct of academic engagement is shown in Table 3.3 below.

**Table 3.3** Factor loadings and item sources for measures of academic engagement

Subconstruct/Item	Factor loading	Source
<i>Affective engagement (<math>\alpha = 0.87</math>)</i>		
57. I am interested in learning in this education course.	0.63	(Lam et al., 2014)
51. What I learn in this education course is interesting.	0.79	
54. I think learning in this education course is boring. (R)	0.78	
60. I like what I learn in this education course.	0.66	
50. I like this teacher education programme.	0.75	
55. I am proud to be part of this regional teacher training centre.	0.64	
<i>Behavioural engagement (<math>\alpha = 0.91</math>)</i>		
38. I study as hard as I can.	0.81	(Lam et al., 2014; Mazer, 2013)
43. When I study, my mind wanders. (R)	0.69	
45. When I study, I actively participate in class activities.	0.82	
41. I review what I have learned from school.	0.91	
46. When I encounter difficulties in learning course content or doing homework or assignments, I keep working at it until I think I've solved it.	0.82	
<i>Cognitive engagement (<math>\alpha = 0.88</math>)</i>		
48. In order to better understand course content, I try to relate it to what I already know.	0.74	(Lam et al., 2014)
49. When I study, I try to match what I am learning with my own experiences.	0.74	
44. I try to summarise what I have just learned in my own words.	0.88	
47. I make up my own examples in order that I can better understand important concepts or theories I have learned from school.	0.67	

**Table 3.3** Factor loadings and item sources for measures of academic engagement (Cont.)

Subconstruct/Item	Factor loading	Source
40. When I study, I try to identify the similarities and differences between what I am learning and what I already know.	0.76	

***Teaching self-efficacy***

Measures of teaching self-efficacy were adapted from prior work by Tschannen-Moran and Woolfolk Hoy (2001). Pre-service teachers' teaching self-efficacy was measured through their perceived efficacy for instructional strategies (5 items, e.g., "In my future classes, I will be able to apply various teaching techniques effectively"), perceived efficacy for classroom management (4 items, e.g., "In my future classes, I will be able to calm down a student who is disruptive or noisy"), and efficacy for student engagement (4 items, e.g., "In my future classes, I will be able to motivate students with low interest in learning to study harder"). The Cronbach's alpha values for efficacy for instructional strategies, for classroom management, and for student engagement were 0.86, 0.89, and 0.87, respectively, demonstrating good internal consistency. The construct reliabilities for these subconstructs were 0.86, 0.90, and 0.88, respectively, with AVEs of 0.56, 0.64, and 0.59, respectively. More information on factor loadings and item sources for each subconstruct of teaching self-efficacy is shown in Table 3.4 below.

**Table 3.4** Factor loadings and item sources for measures of teaching self-efficacy

Subconstruct/Item	Factor loading	Source
<i>Efficacy for instructional strategies (<math>\alpha = 0.86</math>)</i>		
78. I will be able to apply various teaching techniques effectively.	0.78	(Tschannen-Moran & Woolfolk Hoy, 2001)
62. I will be able to use various assessment methods effectively.	0.77	
71. I will be able to use various examples to explain what students are difficult to understand.	0.73	

**Table 3.4** Factor loadings and item sources for measures of teaching self-efficacy (Cont.)

Subconstruct/Item	Factor loading	Source
64. I will be able to ask various questions that can improve student learning.	0.69	
77. I will be able to respond to difficult questions from students.	0.77	
<i>Efficacy for classroom management (<math>\alpha = 0.89</math>)</i>		
65. I will be able to control disruptive behaviour.	0.84	(Tschannen-Moran & Woolfolk Hoy, 2001)
74. I will be able to get students to follow classroom rules.	0.86	
70. I will be able to calm down a student who is disruptive or noisy.	0.75	
72. I will be able to keep problem students from ruining an entire lesson.	0.74	
<i>Efficacy for student engagement (<math>\alpha = 0.87</math>)</i>		
75. I will be able to motivate students with low interest in learning to study harder.	0.78	(Tschannen-Moran & Woolfolk Hoy, 2001)
69. I will be able to help students to value learning.	0.83	
66. I will be able to get students to believe that they can do well in schoolwork.	0.80	
68. I will be able to improve the understanding of a student who is failing.	0.65	

### 3.4.2 Learning achievement test

EFL pre-service teachers were taking a language improvement course when they agreed to participate in the experiment. The course dealt with English grammar, vocabulary, and other four basic language skills at the intermediate level. The learning achievement test measured EFL pre-service teachers' knowledge of grammar and vocabulary. The grammar section was involved with verb patterns, conditionals, articles, present perfect simple, passive voice, and modals of probability. The vocabulary part was concerned with compound nouns, reporting verbs, and words with similar meaning. This learning achievement test was developed by the researchers and the two teacher educators of English. First, we analysed the content to

be taught to construct 100 four-choice items and then had them checked to ensure content validity. After that, the learning achievement test was applied to 48 second-year EFL pre-service teachers who had finished the course. Item analysis was conducted and some items were removed to ensure test quality. Finally, 80 items (i.e., 60 for the grammar section and 20 for the vocabulary section) were kept for the experimental design. The item difficulty indices ranged between 0.25 and 0.90, suggesting that the items were not too easy or too difficult for achievement criterion tests (Miller & Lovler, 2016). The item discrimination indices ranged between 0.23 and 0.69, showing that the items could discriminate between the high and the low achievers (Ebel & Frisbie, 1991). The learning achievement test had the Cronbach's alpha value of 0.94, demonstrating that it was a quality learning achievement test. More information about the learning achievement test is shown in Table 3.5 below.

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test

Section/Item	NoCA	IDI	IDI*
<i>Grammar section</i>			
2. _____ famous when she was still alive?	27	0.56	0.39
A. Was she			
B. Has she been			
C. Did she			
D. Had she been			
3. If I _____ your boss, I would tell him that he was wrong.	42	0.88	0.31
A. meet			
B. had met			
C. met			
D. have met			
4. My mother asked me _____ her with the shopping.	41	0.85	0.39
A. help			
B. to help			
C. helping			
D. helped			
5. I _____ the exam if I had studied hard.	36	0.75	0.62
A. will pass			
B. would pass			
C. passed			
D. would have passed			
6. If she had seen me, she _____ so angry.	31	0.65	0.62
A. will be			
B. would have been			
C. would be			
D. was			

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
9. Could you tell me _____?	42	0.88	0.23
A. what time does it start			
B. what time it starts			
C. it starts what time			
D. if it starts what time			
10. We asked _____.	28	0.58	0.39
A. what the problem is			
B. what is the problem			
C. what the problem was			
D. what was the problem			
11. My grandmother _____ when she was 60.	29	0.60	0.39
A. was retired			
B. had retired			
C. retired			
D. would retire			
12. More than 5 million copies of the book _____ worldwide.	28	0.58	0.54
A. are sold			
B. have been sold			
C. sold			
D. have sold			
14. I can't stand people _____ me what to do.	36	0.75	0.46
A. telling			
B. tell			
C. to tell			
D. to telling			
16. John's decided _____ for the job again.	42	0.88	0.31
A. apply			
B. applying			
C. applied			
D. to apply			
17. Bora and Borey look totally different. They _____ be identical twins.	42	0.88	0.31
A. can't			
B. might			
C. should			
D. shouldn't			
19. Phalla admitted that she _____ the shopping.	30	0.63	0.46
A. have forgotten			
B. forgot			
C. forget			
D. had forgotten			
20. I told you _____ switch off the computer, didn't I?	35	0.73	0.77
A. don't			
B. not to			
C. not			
D. to not			

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
21. I asked her _____. A. why had she come here    B. why she had come here C. she had come here        D. why did she come here	34	0.71	0.69
22. Shakespeare's plays _____ for film many times. A. are adopted                B. adopted C. have been adopted        D. have adopted	24	0.50	0.62
23. Suzuki Swift cars _____ in Hungary since 1992. A. made                        B. are made C. have made                 D. have been made	20	0.42	0.54
24. We're looking forward _____ them. A. to meeting                B. meet C. to meet                     D. meeting	20	0.42	0.46
25. You promised that you _____ the work by the end of this week. A. will finish                 B. are going to finish C. would finish              D. had to finish	24	0.50	0.62
26. They _____ their house. They've always loved living there. A. might have solved        B. must have sold C. can't have sold            D. should have sold	39	0.81	0.23
27. She never lets me _____ anything. A. to do                        B. do C. doing                        D. to doing	36	0.75	0.54
28. If I _____ you, I would buy the red jacket. A. am                            B. was C. were                         D. had been	43	0.90	0.39
29. She _____ here in Battambang province for 11 years. A. lives                         B. had lived C. would live                 D. has lived	38	0.79	0.39

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index



**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
30. What _____ if you had won? A. had you done                      B. would you do C. did you do                         D. would you have done	35	0.73	0.69
31. He knows it was a mistake. He _____ the money. A. shouldn't have stolen      B. shouldn't steal C. shouldn't have to steal      D. should steal	26	0.54	0.39
32. They could have escaped if they _____ to put petrol in the car. A. don't forget                        B. didn't forget C. hadn't forgotten                 D. wouldn't forget	35	0.73	0.69
33. I _____ so embarrassed if he'd seen me staring at him. A. will be                                B. would have been C. would be                             D. was	36	0.75	0.62
34. They warned us _____ that restaurant. A. not try                                B. not trying C. don't try                              D. not to try	35	0.73	0.69
35. She doesn't mind _____ with the lights on. A. sleep                                  B. sleeping C. to sleep                                D. to sleeping	30	0.63	0.54
37. My brother _____ for this company since he left university in 2010. A. worked                                B. had worked C. works                                  D. has worked	36	0.75	0.54
39. Sorry, this isn't the police, this is McDonald's. You _____ the wrong number. A. can't have rung                      B. have rung C. must have rung                      D. mustn't have rung	13	0.27	0.31

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
41. John _____ if you'd asked him. A. might help                      B. might have helped C. might be helping              D. helped	37	0.77	0.69
42. _____ my brother lately? A. Did you see                      B. Do you see C. Have you been seeing        D. Have you seen	33	0.69	0.23
43. My grandfather _____ until he was 66. A. hasn't retired                      B. wasn't retired C. wouldn't retire                  D. didn't retired	21	0.44	0.54
44. You shouldn't have told her the truth. It _____ her. A. might have upset                  B. might upset C. would upset                      D. couldn't have upset	13	0.27	0.31
45. Someone _____ the money because it is not here. A. might take                      B. can't have taken C. would take                      D. must have taken	21	0.44	0.62
46. How _____ with the problems he has? A. had you dealt                      B. would you deal C. would you have dealt          D. will you deal	26	0.54	0.46
47. _____ a good student when she was younger? A. Has she been                      B. Would she C. Is she                              D. Was she	38	0.79	0.54
48. Hundreds of trees were blown over in the night so the wind _____ very strong. A. must have been                      B. can't have been C. could have been                  D. couldn't have been	12	0.25	0.31
50. If you'd asked me, I _____ you. A. could help                      B. could have helped C. could be helping                  D. would help	32	0.67	0.69

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
51. Natalie's looking really depressed. She _____ her exam. A. should have failed      B. can't have failed C. may have failed      D. mustn't have failed	42	0.88	0.31
52. She's been driving all day. She _____ be tired. A. must      B. might C. can't      D. shouldn't	36	0.75	0.46
53. Don't forget _____ those letters today. They're urgent. A. post      B. posting C. to posting      D. to post	40	0.83	0.39
54. Where _____ to primary school when you were a small child? A. did you go      B. have you gone C. would you go      D. do you go	34	0.71	0.23
55. You can't stop me _____ what I love. A. do      B. to do C. doing      D. to doing	32	0.67	0.85
56. I'll never forget _____ the King. A. meet      B. to meet C. meeting      D. to meeting	31	0.65	0.23
57. They still remember _____ me a postcard. A. send      B. sending C. to send      D. to sending	25	0.52	0.46

I remember (58) \_\_\_\_\_ embarrassing moment. when I was starting to learn English. My teacher's name was Trevor Jones. He was from Cardiff in Wales. He was always making (59) \_\_\_\_\_ jokes. One day he wrote (60) \_\_\_\_\_ words "English Gramer" on (61) \_\_\_\_\_ blackboard. He asked us if that was correct. Immediately I offered to answer (62) \_\_\_\_\_ question.

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*	
I told him (63) _____ E should be changed to A. Trevor said that was (64) _____ good answer and he changed (65) _____ letter. Then he asked me if I was happy with (66) _____ new spelling. With absolute confidence, I said that it was now correct. Suddenly, the other students started laughing. I looked around in confusion. My friend whispered that it needed (67) _____ second M. “Oh, it should have (68) _____ M too!” I shouted out and Trevor nodded with (69) _____ smile. It was correct. However, I still remember (70) _____ terrible feeling of embarrassment from that moment.				
58. A. no article C. an	B. a D. the	43	0.90	0.23
59. A. no article C. an	B. a D. the	41	0.85	0.39
60. A. no article C. an	B. a D. the	41	0.85	0.23
61. A. no article C. an	B. a D. the	43	0.90	0.31
62. A. no article C. an	B. a D. the	42	0.88	0.31
63. A. no article C. an	B. a D. the	34	0.71	0.23
64. A. no article C. an	B. a D. the	43	0.90	0.23
65. A. no article C. an	B. a D. the	39	0.81	0.23
66. A. no article C. an	B. a D. the	26	0.54	0.46

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item		NoCA	IDI	IDI*
67. A. no article C. an	B. a D. the	36	0.75	0.62
68. A. no article C. an	B. a D. the	36	0.75	0.77
69. A. no article C. an	B. a D. the	41	0.85	0.39
70. A. no article C. an	B. a D. the	42	0.88	0.31
<i>Vocabulary section</i>				
71. Her father _____ that Kanha had been to Bangkok before. A. persuaded C. told	B. reminded D. mentioned	28	0.58	0.46
72. Judy _____ going for a walk, but no one else wanted to. A. admitted C. suggested	B. offered D. promised	38	0.79	0.31
74. The last time I saw Jonathan, he looked very relaxed. He explained that he'd been on holiday the _____ week. A. previous C. following	B. earlier D. next	16	0.33	0.39
75. The police officer _____ him to put down his gun and put his hands above his head. A. ordered C. reminded	B. advised D. suggested	40	0.83	0.46
76. I want to watch TV now. Could you _____, please? A. look it up C. look for it	B. turn it on D. switch it off	43	0.90	0.39

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
77. You can try on clothes in the _____ room. A. waiting                      B. clothing C. changing                    D. living	43	0.90	0.31
78. She _____ that she liked cold coffee. A. replied                      B. described C. spoke                         D. talked	35	0.73	0.62
82. I hate _____ about friends, but I'll tell you what I've heard about Jill. A. gossiping                    B. chatting C. protesting                   D. accusing	42	0.88	0.39
83. I thought she'd taken my car, but she _____ it. A. suggested taking          B. denied taking C. allowed taking             D. refused to take	43	0.90	0.23
85. Last week, workers _____ about their bad conditions. A. suggested                    B. protested C. demanded                   D. quarreled	15	0.31	0.46
86. The police are _____ him of stealing the necklace. A. accusing                      B. denying C. criticising                   D. chatting	37	0.77	0.39
87. People often _____ Derek for his rude behavior. A. criticise                      B. refuse C. accuse                         D. gossip	43	0.90	0.23
88. _____ it in my ear – I don't want anyone to hear. A. Talk                            B. Whisper C. Speak                         D. Scream	38	0.79	0.39
90. The fastest way to get there is by taking the _____. A. headway                      B. motorway C. runway                       D. doorway	32	0.67	0.31

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

**Table 3.5** Number of correct answers, item difficulty indices, and item discrimination indices for learning achievement test (Cont.)

Section/Item	NoCA	IDI	IDI*
91. I quickly read the _____ in the newspaper to see what's happening. A. headlines                      B. headlights C. highlights                      D. landlines	40	0.83	0.31
93. I _____ a lot more money in my new job. A. have                      B. win C. make                      D. find	39	0.81	0.31
94. The bus is so _____. I can't move. A. modern                      B. crowded C. noisy                      D. interesting	42	0.88	0.46
95. I'm sorry I'm late. I _____ the bus. A. left                      B. lost C. missed                      D. had	43	0.90	0.31
99. She looks _____ her mother; they have the same eyes and nose. A. like                      B. as C. same                      D. the same	42	0.88	0.39
100. We spent the whole afternoon sitting in a traffic _____. A. jam                      B. halt C. error                      D. accident	43	0.90	0.39

Notes: NoCA = Number of correct answers, IDI = Item difficulty index, IDI\* = Item discrimination index

### 3.4.3 Instructional procedures

The experiment took place in a language improvement course that lasted for one semester (16 weeks). “New headway: Intermediate students’ book, 4th Edition” by Soars and Soars (2009) was used as the course book. In this course, EFL pre-service teachers had to do an assignment (i.e., group assignments for the experimental group and individual assignments for the control group) and take the final examination at the end of the course. The assignment

constituted 30% and the final examination comprised 70% of the course evaluation. More information about the course content is given in Appendix G. Below are the instructional procedures in the experimental and the control groups.

### ***Instructional procedures in the experimental group***

Before the use of CL, conventional teaching methods (e.g., explanations of course content, questions and answers, and group discussion for a short time) were normally implemented in EFL pre-service instruction. In the experimental group, the EFL pre-service teachers needed to learn and work in the same group through CL for the whole semester. In this experimental design, the CL process was adapted from Johnson and Johnson (2014). The following are the activities in each stage of the CL process.

*Assigning groups and academic tasks.* After specifying learning objectives and designing the learning achievement test, the teacher educator in the experimental group assessed the levels of his EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy. These EFL pre-service teachers were then divided into seven heterogeneous groups of five based on the pre-test content knowledge of grammar and vocabulary. Next, the teacher educator assigned positive interdependent roles to group members; provided each of them with a proportion of the course content and assignment; and explained to them what the assignment and other learning tasks were, how they would do to complete them, and how their learning performance would be assessed. After that, the teacher educator taught his EFL pre-service teachers social skills needed for group work such as communication, leadership, and conflict management.

*Monitoring and intervening the learning process.* In this stage, what the teacher educator did was encouraging group members to discuss ideas, offer constructive feedback on each other's work and performance, teach each other the given course content when needed, help each other to complete homework or assignments, and share needed materials and information with each other. Besides, each group had to teach the given materials or present what they had learned about those materials to the class unit by unit. In so doing, the representative of each group was randomly selected for group presentations. When group members were working together, the teacher educator checked their academic progress as well as desired behaviours to make sure that they could understand the given materials and behave as well as expected, and then gave constructive feedback on their learning performance. If needed,



the teacher educator intervened to clarify the instruction, review important procedures and strategies for doing assignments and other learning tasks, and answer questions.

*Assessing group processing and learning performance.* When the presentation of each group was over, the teacher educator gave constructive feedback on their work and performance. At the end of the semester, the teacher educator had each group present their assignments to the class and asked group members to analyse their learning and working processes by reflecting on their contribution to the group's accomplishment. The teacher educator also provided constructive feedback on their group assignment and group performance. Then, each group revised their group assignment before submitting it to their teacher educator. At the end of the course, the teacher educator reassessed the levels of learning motivation, academic engagement, content knowledge, and teaching self-efficacy of his EFL pre-service teachers.

### ***Instructional procedures in the control group***

In the control group, the existing teaching methods were used. They were defined as lecture-based learning for this experimental design. To start the course, the teacher educator in the control group also assessed the levels of his EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy. Using lecture-based learning, the teacher educator provided direct instructions unit by unit. The learning activities in this group included questions and answers, group discussions that lasted for a short time, and individual assignments and presentations. Other instructional strategies such as setting learning objectives, explaining the given assignments and how to complete them, checking academic progress, and giving constructive feedback were also used in the control group. However, the EFL pre-service teachers in this group had no opportunities to learn and work in groups throughout the semester. At the end of the course, the teacher educator in this group also reassessed the levels of his EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy.

## **3.5 Data collection procedures**

Data were gathered in two periods. After ethics approval was granted from the university's Board of Ethics (Certificate number: KMUTT-IRB-COA-2018-019) and all request forms for data collection were approved by the MoEYS, the six RTTCs were contacted, and then

the survey questionnaire was piloted in late May 2018. After that, actual administration of the survey questionnaire was conducted face to face the whole June 2018. After analysing the collected data for the correlational design, two teacher educators of English at the two target RTTCs were contacted to design and pilot the learning achievement test from late July to late September 2018. During this period, the teacher educator who was selected for the experimental group was trained to implement CL. Next, the experiment started after the selected EFL pre-service teachers signed the consent form. Finally, this experiment started in early November 2018 and ended in early April 2019.

### **3.6 Data analysis**

Data analysis was designed in response to the research questions in each phase. The main statistical methods used in this research included correlation analysis, structural equation modelling (SEM), and analysis of covariance (ANCOVA).

#### ***For the correlational design***

To answer the main research questions of the correlational design, two types of statistical analyses were chosen. First, correlation analysis was conducted to explore the relationship between latent variables or subconstructs of instructional behaviours, learning motivation, academic engagement, and teaching self-efficacy. Second, SEM was conducted to examine structural associations between aspects of instructional behaviours and aspects of learning motivation, academic engagement, and teaching self-efficacy. SEM was the best statistical technique for this correlational design as it can empirically test a theoretical model by taking both the measurement and the structural models into one analysis (Hair et al., 2019). In fact, the process of testing SEM involves a measurement part, which links a latent construct to observed or measured variables, and a structural part, which links one latent construct to the other latent constructs in the model (Hair et al., 2014; Sinharay, 2010). Moreover, SEM takes into account the estimates of measurement error for both exogenous (independent) and endogenous (dependent) variables (Byrne, 2012). SEM also permits the estimation of latent variables from observed variables, and thus the measurement errors are all included into a simultaneous analysis (Byrne, 2012). Referring to Tomarken and Waller (2005), SEM allows multiple linear equations for the structural model in one analysis rather than relying on equation-by-equation traditional methods.

In the present study, model fit was judged based on chi-square ( $\chi^2$ ), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Standardised Root Mean Squared Residual (SRMR), and Root Mean Squared Error of Approximation (RMSEA) (Hair et al., 2019; Hu & Bentler, 1999; Kline, 2016). As recommended by Hair et al. (2019), with sample sizes of more than 250 and measured variables of 30 or more, the characteristics of model fit are chi-square with significant  $p$  values, CFI or TLI of above 0.92, SRMR of 0.08 or less with CFI above 0.92, and RMSEA of less than 0.07 with CFI of 0.92 or higher. As Hu and Bentler (1999) suggest, CFI of 0.96 or higher and SRMR of 0.10 or less never reject a correct model. CFI of higher than 0.94 and SRMR of less than 0.06 indicate excellent model fit; CFI of 0.90 to 0.94 and SRMR of less than 0.06 indicate excellent model fit; and CFI of 0.90 to 0.94 and SRMR of 0.06 to 0.10 demonstrate acceptable model fit (Jöreskog & Sörbom, 2001). RMSEA of less than 0.05 indicates excellent model fit and RMSEA below 0.08 indicates acceptable model fit (Kline, 2016).

To address the research questions in the correlational design, we assessed the direct path coefficients between four subconstructs of instructional behaviours, three subconstructs of learning motivation, three subconstructs of academic engagement, and three subconstructs of teaching self-efficacy.

### ***For the experimental design***

To answer the main research questions of the experimental design, ANCOVA, which is an extension of analysis of variance, was conducted. ANCOVA is used to compare the changes in dependent or outcome variables by controlling the effects of other variables that can vary with the outcome variables. In ANCOVA, control variables are known as covariates. In this experimental design, ANCOVA was applied to compare the changes in post-test learning motivation, academic engagement, content knowledge, as well as teaching self-efficacy by statistically controlling the effects of pre-test learning motivation, academic engagement, content knowledge, and teaching self-efficacy, which were treated as covariate variables. To judge the effect size in this comparison, partial eta squared was used. As suggested by Cohen (1988), the values of eta squared of 0.01, 0.06, and 0.14 are defined as small, medium, and large effect sizes, respectively (see Richardson, 2011). Before the experiment started, both the experimental and the control groups reported no significant differences in terms of grammar ( $t = 1.09, p > 0.05$ ), vocabulary ( $t = 0.18, p > 0.05$ ), intrinsic learning motivation ( $t = 1.13, p > 0.05$ ), extrinsic learning motivation ( $t = 1.46, p > 0.05$ ), task value ( $t = 1.15,$

$p > 0.05$ ), affective engagement ( $t = -0.98, p > 0.05$ ), behavioural engagement ( $t = -0.31, p > 0.05$ ), cognitive engagement ( $t = 0.50, p > 0.05$ ), efficacy for instructional strategies ( $t = 0.07, p > 0.05$ ), efficacy for classroom management ( $t = 0.51, p > 0.05$ ), and efficacy for student engagement ( $t = 0.48, p > 0.05$ ).

## CHAPTER 4 RESULTS

The current study was aimed at (1) investigating the relationship between perceptions of instructional behaviours of teacher educators and pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy and (2) examining the impact of CL on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy. Hence, the results for this study are presented in two sections.

### 4.1 The correlational design

There were three research questions for the correlational design. Question 1 was asked to see how measures of instructional behaviours, learning motivation, academic engagement, and teaching self-efficacy were related with each other. Questions 2 and 3 were addressed to see how aspects of instructional behaviours and learning motivation were associated with academic engagement and with teaching self-efficacy, respectively. Correlation analysis was carried out to respond to Question 1 while SEM was conducted to answer to Questions 2 and 3.

*Research question 1: What is the relationship between measures of instructional behaviours, learning motivation, academic engagement, and teaching self-efficacy?*

As can be seen from Table 4.1, which presents correlations among all the latent subconstructs in the correlational design, all latent variables had low to moderate correlations (from 0.06 to 0.55), which could eliminate multicollinearity problems (Kline, 2005). Perceptions of instructional clarity, support and feedback, autonomy support, and support for cooperative learning were positively correlated with perceived intrinsic learning motivation, extrinsic learning motivation, task value, affective engagement, behavioural engagement, cognitive engagement, efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. Perceived task value was correlated positively with perceived intrinsic and extrinsic learning motivation. Perceptions of intrinsic learning motivation, extrinsic learning motivation, and task value were positively correlated with perceptions of affective, behavioural, and cognitive engagement and with perceptions of efficacy for instructional strategies, for classroom management, and for student engagement.

**Table 4.1** Descriptive statistics and Pearson's correlations between latent variables (N = 601)

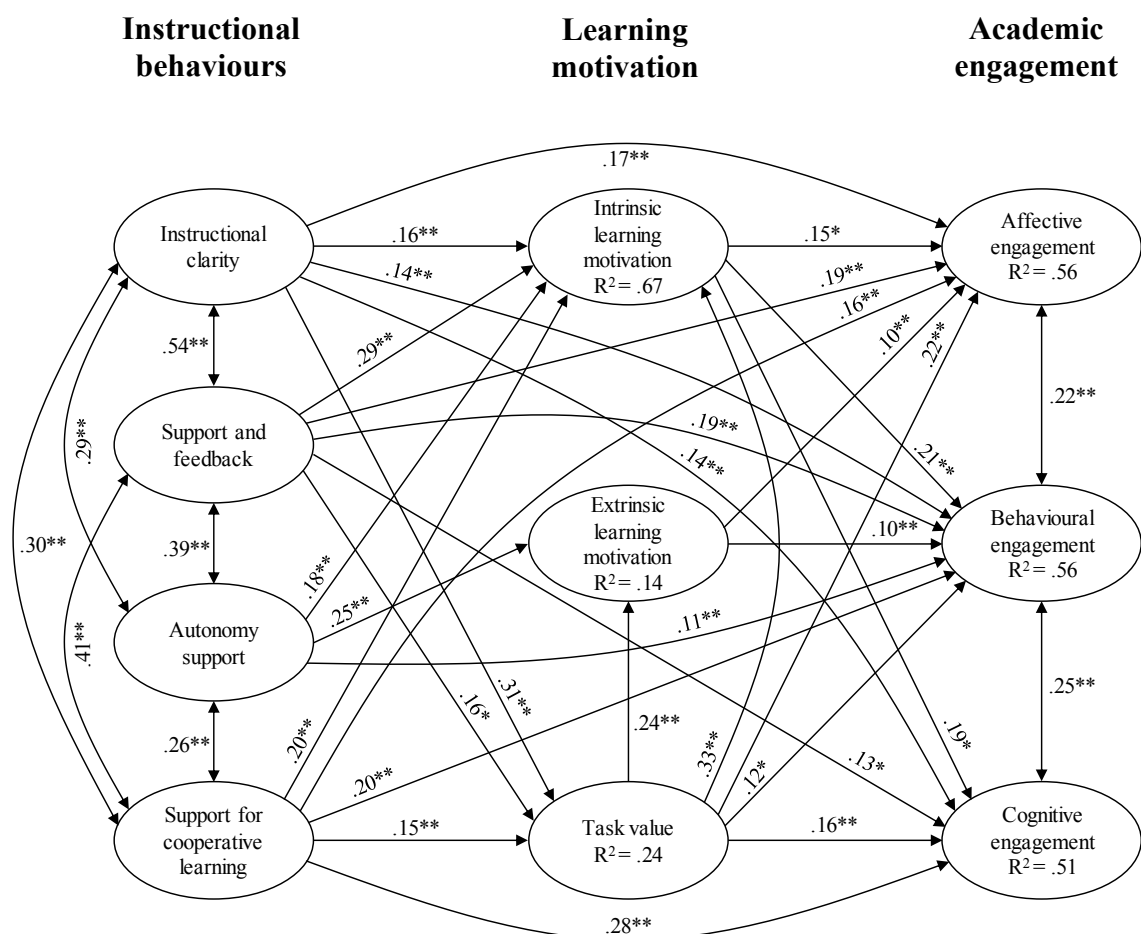
Variable	Instructional behaviours				Learning motivation			Academic engagement			Teaching self-efficacy		
	IC	SF	AS	SCL	ILM	ELM	TV	AE	BE	CE	EIS	ECM	ESE
IC	–												
SF	0.45**	–											
AS	0.25**	0.33**	–										
SCL	0.24**	0.33**	0.20**	–									
ILM	0.45**	0.52**	0.37**	0.43**	–								
ELM	0.19**	0.12**	0.22**	0.06**	0.27**	–							
TV	0.33**	0.27**	0.13**	0.22**	0.48**	0.22**	–						
AE	0.46**	0.45**	0.31**	0.34**	0.53**	0.25**	0.44**	–					
BE	0.46**	0.47**	0.36**	0.43**	0.55**	0.25**	0.37**	0.54**	–				
CE	0.38**	0.41**	0.25**	0.46**	0.51**	0.19**	0.33**	0.46**	0.55**	–			
EIS	0.46**	0.45**	0.32**	0.42**	0.54**	0.22**	0.40**	0.47**	0.49**	0.46**	–		
ECM	0.36**	0.31**	0.21**	0.30**	0.44**	0.25**	0.30**	0.44**	0.44**	0.40**	0.55**	–	
ESE	0.42**	0.42**	0.32**	0.41**	0.50**	0.26**	0.34**	0.47**	0.47**	0.46**	0.53**	0.54**	–
Mean	3.78	3.40	2.85	3.59	3.69	3.48	4.32	3.78	3.83	3.55	3.59	3.62	3.37
SD	0.64	0.69	0.78	0.61	0.62	0.80	0.45	0.51	0.64	0.64	0.52	0.65	0.63
Skewness	–0.35	–0.08	0.18	–0.62	0.32	–0.47	–0.26	–0.10	–0.68	–0.42	–0.50	–0.39	0.02
Kurtosis	–0.46	–0.91	–0.58	0.15	–0.73	–0.35	–0.23	–0.37	0.73	0.01	0.36	–0.12	–0.59

\*\*  $p < 0.01$ .

IC = Instructional clarity, SF = Support and feedback, AS = Autonomy support, SCL = Support for cooperative learning, ILM = Intrinsic learning motivation, ELM = Extrinsic learning motivation, TV = Task value, AE = Affective engagement, BE = Behavioural engagement, CE = Cognitive engagement, EIS = Efficacy for instructional strategies, ECM = Efficacy for classroom management, ESE = Efficacy for student engagement

*Research question 2: Which aspects of instructional behaviours and learning motivation are associated with academic engagement?*

Figure 4.1 presents the standardised path coefficients for the final model with significant paths only. Within this model, perceptions of learning motivation mediate the relationship between perceptions of instructional behaviours and perceptions of academic engagement. The overall fit of this final model was excellent,  $\chi^2(1165, 601) = 2490.04$ ,  $p < 0.001$ , CFI = 0.93, TLI = 0.92, SRMR = 0.051, and RMSEA = 0.044. The model accounted for a large portion of the variance in the outcomes ( $R^2 = 0.67$  and  $0.24$  for intrinsic learning motivation and task value, respectively;  $R^2 = 0.56$ ,  $0.56$ , and  $0.51$  for affective, behavioural, as well as cognitive engagement, respectively).



**Figure 4.1** Standardised coefficients for model of pre-service teachers' learning motivation mediating the relations between their perceptions of instructional behaviours and academic engagement (N = 601)

Notes: \* $p < 0.05$ ; \*\* $p < 0.01$

Table 4.2 presents the significant direct and indirect effects of instructional behaviours on learning motivation and academic engagement. As shown in Figure 4.1, the perception that teacher educators provide instrumental support and constructive feedback was positively associated with pre-service teachers' intrinsic learning motivation ( $\beta = 0.29$ ). Moreover, the perception that teacher educators promote cooperative learning was associated positively with behavioural engagement ( $\beta = 0.20$ ) and cognitive engagement ( $\beta = 0.28$ ). Among the measures of instructional behaviours, support and feedback was the strongest predictor of intrinsic learning motivation while support for cooperative learning was the most important determinant of cognitive engagement. Among the measures of learning motivation, intrinsic learning motivation was the strongest predictor of behavioural and cognitive engagement while task value was the most significant contributor to affective engagement.

**Table 4.2** Direct, indirect, and total associations for Figure 4.1

Effect	Standardised coefficient ( $\beta$ )		
	Direct	Indirect	Total
On intrinsic learning motivation			
Instructional clarity	0.158**	0.103**	0.261**
Support and feedback	0.286**	0.052*	0.338**
Autonomy support	0.184**	—	0.184**
Support for cooperative learning	0.204**	0.051**	0.255**
Task value	0.332**	—	0.332**
On extrinsic learning motivation			
Instructional clarity	—	0.075**	0.075**
Support and feedback	—	0.037*	0.037*
Autonomy support	0.251**	—	0.251**
Support for cooperative learning	—	0.038*	0.038*
Task value	0.241**	—	0.241**
On task value			
Instructional clarity	0.310**	—	0.310**
Support and feedback	0.156*	—	0.156*
Support for cooperative learning	0.154**	—	0.154**
On affective engagement			
Instructional clarity	0.170**	0.124**	0.294**
Support and feedback	0.187**	0.083**	0.270**
Autonomy support	—	0.052*	0.052*



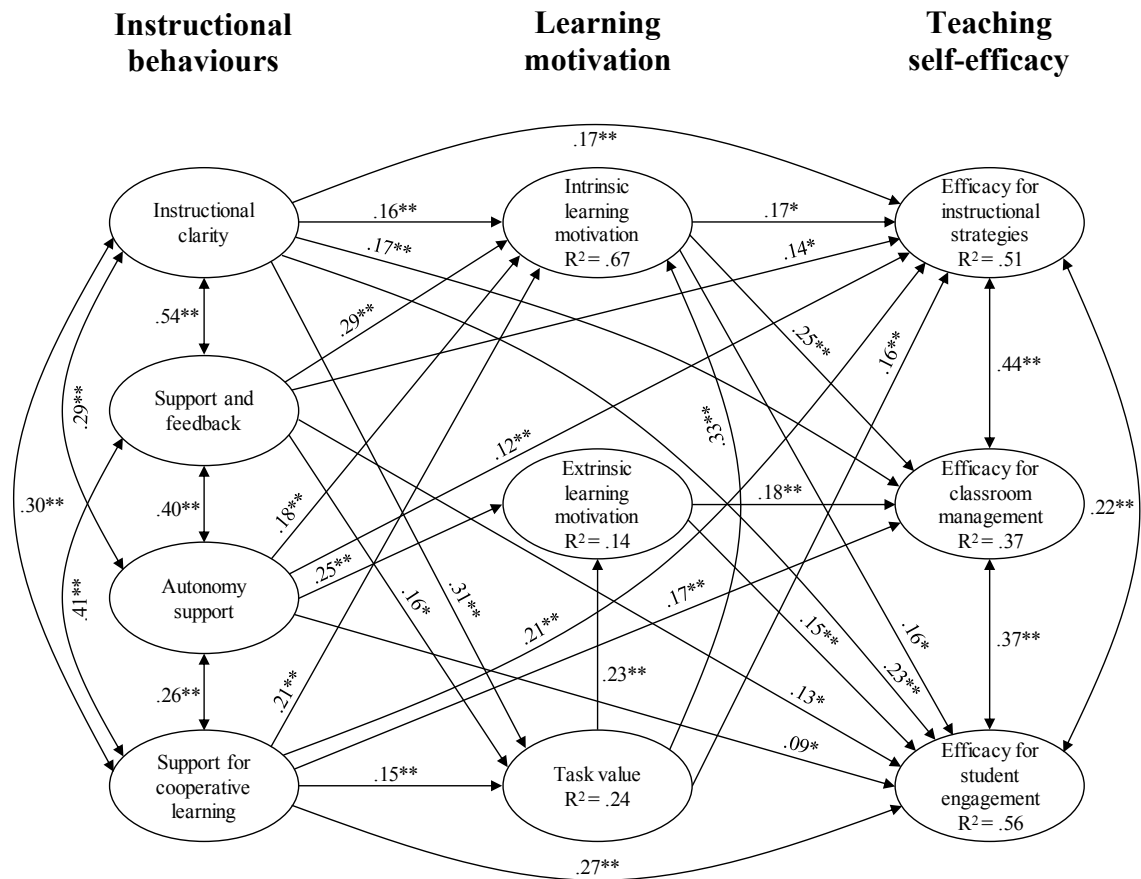
**Table 4.2** Direct, indirect, and total associations for Figure 4.1 (Cont.)

Effect	Standardised coefficient ( $\beta$ )		
	Direct	Indirect	Total
Support for cooperative learning	0.161**	0.070**	0.231**
Task value	0.219**	0.074**	0.293**
Intrinsic learning motivation	0.154*	—	0.154*
Extrinsic learning motivation	0.096*	—	0.096*
On behavioural engagement			
Instructional clarity	0.137**	0.109**	0.246**
Support and feedback	0.188**	0.088**	0.276**
Autonomy support	0.110**	0.065**	0.175**
Support for cooperative learning	0.201**	0.070**	0.271**
Task value	0.116*	0.096**	0.212**
Intrinsic learning motivation	0.214**	—	0.214**
Extrinsic learning motivation	0.101**	—	0.101**
On cognitive engagement			
Instructional clarity	0.138**	0.112**	0.250**
Support and feedback	0.126*	0.087*	0.213*
Autonomy support	—	0.054*	0.054*
Support for cooperative learning	0.282*	0.071**	0.353**
Task value	0.161**	0.081*	0.242**
Intrinsic learning motivation	0.189*	—	0.189*

\* $p < 0.05$ ; \*\* $p < 0.01$ .

*Research question 3: Which aspects of instructional behaviours and learning motivation are associated with teaching self-efficacy?*

Figure 4.2 presents the standardised path coefficients for the final model with significant paths only. Within this model, perceptions of learning motivation mediate the relationship between perceptions of instructional behaviours and perceptions of teaching self-efficacy. The overall fit of the final model was excellent,  $\chi^2(1023,601) = 1937.18$ ,  $p < 0.001$ , CFI = 0.94, TLI = 0.94, SRMR = 0.049, and RMSEA = 0.039. The model accounted for a large portion of the variance in the outcomes ( $R^2 = 0.67$  and  $0.24$  for intrinsic learning motivation and task value, respectively;  $R^2 = 0.51$ ,  $0.37$ , and  $0.56$  for efficacy for instructional strategies, for classroom management, and for student engagement, respectively).



**Figure 4.2** Standardised coefficients for model of pre-service teachers' learning motivation mediating the relations between their perceptions of instructional behaviours and teaching self-efficacy (N = 601)

Notes: \* $p < 0.05$ ; \*\* $p < 0.01$

Table 4.3 shows the significant direct and indirect effects of instructional behaviours upon learning motivation and teaching self-efficacy. As presented in Figure 4.2, the perception that teacher educators give instrumental support and constructive feedback was associated positively with pre-service teachers' intrinsic learning motivation ( $\beta = 0.29$ ). The perception that teacher educators provide clear instruction was positively associated with pre-service teachers' task value ( $\beta = 0.31$ ) and efficacy for instructional strategies ( $\beta = 0.17$ ). Among the measures of instructional behaviours, support and feedback was the strongest predictor of intrinsic learning motivation and support for cooperative learning was the strongest predictor of efficacy for instructional strategies and for student engagement. Among the measures of learning motivation, intrinsic learning motivation was the strongest predictor of the three aspects of teaching self-efficacy.

**Table 4.3** Direct, indirect, and total associations for Figure 4.2

Effect	Standardised coefficient ( $\beta$ )		
	Direct	Indirect	Total
On intrinsic learning motivation			
Instructional clarity	0.159**	0.102**	0.261**
Support and feedback	0.288**	0.051*	0.339**
Autonomy support	0.183**	—	0.183**
Support for cooperative learning	0.204**	0.051**	0.255**
Task value	0.330**	—	0.330**
On extrinsic learning motivation			
Instructional clarity	—	0.074**	0.074**
Support and feedback	—	0.037*	0.037*
Autonomy support	0.251**	—	0.251**
Support for cooperative learning	—	0.037*	0.037*
Task value	0.240**	—	0.240**
On task value			
Instructional clarity	0.310**	—	0.310**
Support and feedback	0.156*	—	0.156*
Support for cooperative learning	0.154**	—	0.154**
On efficacy for instructional strategies			
Instructional clarity	0.168**	0.103**	0.271**
Support and feedback	0.140*	0.082**	0.222**
Autonomy support	0.116**	0.043*	0.159**
Support for cooperative learning	0.210**	0.067**	0.277**
Task value	0.161**	0.068**	0.229**
Intrinsic learning motivation	0.172*	—	0.172*
On efficacy for classroom management			
Instructional clarity	0.173**	0.112**	0.285**
Support and feedback	—	0.087**	0.087**
Autonomy support	—	0.090**	0.090**
Support for cooperative learning	0.170**	0.066**	0.236**
Task value	—	0.124**	0.124**
Intrinsic learning motivation	0.246**	—	0.246**
Extrinsic learning motivation	0.180**	—	0.180**
On efficacy for student engagement			
Instructional clarity	0.225**	0.087**	0.312**
Support and feedback	0.133*	0.060*	0.193**

**Table 4.3** Direct, indirect, and total associations for Figure 4.2 (Cont.)

Effect	Standardised coefficient ( $\beta$ )		
	Direct	Indirect	Total
Autonomy support	0.092*	0.066**	0.158**
Support for cooperative learning	0.269**	0.047*	0.316**
Task value	–	0.088**	0.088**
Intrinsic learning motivation	0.159*	–	0.159*
Extrinsic learning motivation	0.146**	–	0.146**

\* $p < 0.05$ ; \*\* $p < 0.01$ .

## 4.2 The experimental design

There were three research questions for the experimental design. Questions 4, 5, 6, and 7 were addressed to compare the effects of CL and lecture-based learning on EFL pre-service teachers' content knowledge, learning motivation, academic engagement, and teaching self-efficacy, respectively. ANCOVA was conducted to respond to all these questions.

*Research question 4: Is there a significant difference between the experimental and the control groups in terms of their achievement levels?*

In this research study, we investigated the achievement levels of content knowledge of EFL pre-service teachers at grammar and vocabulary. The descriptive statistics for the pre-test and post-test of grammar and vocabulary for the experimental and the control groups are shown in Table 4.4. The ANCOVA results for the CL's effect on grammar and vocabulary are given in Tables 4.5 and 4.6, respectively.

**Table 4.4** Descriptive statistics for pre-test and post-test scores of grammar and vocabulary

Variable/group	N	Pre-test		Post-test	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Grammar					
<i>Experimental</i>	35	11.63	2.07	48.89	4.75
<i>Control</i>	30	11.10	1.79	45.37	4.03
Vocabulary					
<i>Experimental</i>	35	7.94	0.94	18.03	1.62
<i>Control</i>	30	7.90	0.96	16.27	2.38

The results in Table 4.5 demonstrate that there was a significant difference in the post-test English grammar of the two groups,  $F(1,62) = 8.76, p < 0.05$ , Partial  $\eta^2 = 0.12$ . This effect size was medium. The covariate (pre-test English grammar) also had a significant influence on the post-test English grammar,  $F(1,62) = 12.74, p < 0.05$ , Partial  $\eta^2 = 0.17$ . This effect size was large. These findings indicate that the EFL pre-service teachers who were exposed to CL performed better on the English grammar section of the learning achievement test than those who were taught through lecture-based learning.

**Table 4.5** ANCOVA results for the CL's effect on English grammar

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	205.438	12.42	0.000	0.29
Intercept	1	2388.971	144.41	0.000	0.70
Pre-test grammar	1	210.832	12.74	0.001	0.17
Group	1	144.834	8.76	0.004	0.12
Error	62	16.543			

Note:  $p < 0.05$ ; R squared = 0.286 (Adjusted R squared = 0.263)

As shown in Table 4.6, there was a significant difference between the two groups in terms of the post-test English vocabulary,  $F(1,62) = 13.43, p < 0.05$ , Partial  $\eta^2 = 0.18$ . This effect size was large. The covariate (pre-test English vocabulary) also had a significant effect on the post-test English vocabulary,  $F(1,62) = 8.19, p < 0.05$ , Partial  $\eta^2 = 0.12$ . This effect size was medium. These results show that the EFL pre-service teachers in the CL context did better on the English vocabulary part of the learning achievement test than those in the lecture-based environment.

**Table 4.6** ANCOVA results for the CL's effect on English vocabulary

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	39.824	11.06	0.000	0.26
Intercept	1	116.151	32.24	0.000	0.34
Pre-test vocabulary	1	29.500	8.19	0.006	0.12
Group	1	48.375	13.43	0.001	0.18
Error	62	3.602			

Note:  $p < 0.05$ ; R squared = 0.263 (Adjusted R squared = 0.239)

*Research question 5: Is there a significant difference between the experimental and the control groups in terms of their reported levels of learning motivation?*

In the present study, intrinsic learning motivation, extrinsic learning motivation, and task value were investigated as aspects of EFL pre-service teachers' learning motivation. The descriptive statistics for the pre-test and post-test of intrinsic learning motivation, extrinsic learning motivation, and task value for the experimental and the control groups are shown in Table 4.7. The ANCOVA results for the CL's effect on each aspect of learning motivation are given in Tables 4.8, 4.9, and 4.10, respectively.

**Table 4.7** Descriptive statistics for pre-test and post-test scores of intrinsic learning motivation (ILM), extrinsic learning motivation (ELM), and task value (TV)

Variable/group	N	Pre-test		Post-test	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
ILM					
<i>Experimental</i>	35	4.02	0.27	4.60	0.22
<i>Control</i>	30	3.94	0.32	4.41	0.29
ELM					
<i>Experimental</i>	35	3.45	0.99	3.12	0.50
<i>Control</i>	30	3.11	0.85	3.27	0.40
TV					
<i>Experimental</i>	35	3.71	0.43	4.65	0.26
<i>Control</i>	30	3.58	0.46	4.32	0.31

The results in Tables 4.8 and 4.10 indicate that there were significant differences between the experimental and the control groups in terms of the post-test intrinsic learning motivation,  $F(1,62) = 7.16, p < 0.05$ , Partial  $\eta^2 = 0.10$  and task value,  $F(1,62) = 20.22, p < 0.05$ , Partial  $\eta^2 = 0.25$ . These effect sizes were medium and very large, respectively. The covariates (pre-test intrinsic learning motivation and task value) also had significant effects on the post-test intrinsic learning motivation,  $F(1,62) = 11.54, p < 0.05$ , Partial  $\eta^2 = 0.16$  and task value,  $F(1,62) = 6.58, p < 0.05$ , Partial  $\eta^2 = 0.10$ , respectively. These effect sizes were large and medium, respectively. These results demonstrate that the EFL pre-service teachers who were assigned to the CI group improved better intrinsic learning motivation and task value than did the EFL pre-service teachers who were assigned to the lecture-based learning group.

However, as can be seen from Table 4.9, there was no significant difference between the experimental and the control groups in terms of the post-test extrinsic learning motivation,  $F(1,62) = 2.31, p > 0.05$ , Partial  $\eta^2 = 0.04$ , and the covariate (pre-test extrinsic learning motivation) also had no influence on the post-test extrinsic learning motivation,  $F(1,62) = 1.02, p > 0.05$ , Partial  $\eta^2 = 0.02$ . These results demonstrate that both CL and lecture-based learning failed to reduce the level of extrinsic learning motivation of the EFL pre-service teachers.

**Table 4.8** ANCOVA results for the CL's effect on intrinsic learning motivation (ILM)

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	0.601	10.85	0.000	0.26
Intercept	1	3.364	60.71	0.000	0.50
Pre-test ILM	1	0.639	11.54	0.001	0.16
Group	1	0.396	7.16	0.010	0.10
Error	62	0.055			

Note:  $p < 0.05$ ; R squared = 0.259 (Adjusted R squared = 0.235)

**Table 4.9** ANCOVA results for the CL's effect on extrinsic learning motivation (ELM)

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	0.295	1.44	0.246	0.04
Intercept	1	41.824	203.79	0.000	0.77
Pre-test ELM	1	0.210	1.02	0.316	0.02
Group	1	0.475	2.31	0.133	0.04
Error	62	0.205			

Note:  $p < 0.05$ ; R squared = 0.044 (Adjusted R squared = 0.013)

**Table 4.10** ANCOVA results for the CL's effect on task value (TV)

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	1.129	15.37	0.000	0.33
Intercept	1	13.422	182.81	0.000	0.75
Pre-test TV	1	0.483	6.58	0.013	0.10
Group	1	1.485	20.22	0.000	0.25
Error	62	0.073			

Note:  $p < 0.05$ ; R squared = 0.332 (Adjusted R squared = 0.310)

*Research question 6: Is there a significant difference between the experimental and the control groups in terms of their reported levels of academic engagement?*

In this study, we investigated EFL pre-service teachers' academic engagement at affective, behavioural, and cognitive engagement. The descriptive statistics for the pre-test and post-test of affective, behavioural, and cognitive engagement for the experimental and the control groups are shown in Table 4.11. The ANCOVA results for the CL's effect on each aspect of academic engagement are given in Tables 4.12, 4.13, and 4.14, respectively.

**Table 4.11** Descriptive statistics for pre-test and post-test scores of affective engagement (AE), behavioural engagement (BE), and cognitive engagement (CE)

Variable/group	N	Pre-test		Post-test	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
AE					
<i>Experimental</i>	35	3.90	0.46	4.59	0.27
<i>Control</i>	30	4.00	0.38	4.37	0.30
BE					
<i>Experimental</i>	35	4.04	0.37	4.62	0.26
<i>Control</i>	30	4.07	0.32	4.35	0.26
CE					
<i>Experimental</i>	35	3.55	0.26	4.29	0.24
<i>Control</i>	30	3.53	0.17	4.00	0.29

As can be seen from Tables 4.12, 4.13, and 4.14, significant differences were found between the experimental and the control groups in terms of the post-test affective engagement,  $F(1,62) = 12.21, p < 0.05$ , Partial  $\eta^2 = 0.17$ ; behavioural engagement,  $F(1,62) = 21.05, p < 0.05$ , Partial  $\eta^2 = 0.25$ ; and cognitive engagement,  $F(1,62) = 21.75, p < 0.05$ , Partial  $\eta^2 = 0.26$ ; respectively. These effect sizes were large, very large, and very large, respectively. The covariates (pre-test affective, behavioural, and cognitive engagement) also exerted significant influences upon the post-test affective engagement,  $F(1,62) = 4.07, p < 0.05$ , Partial  $\eta^2 = 0.06$ ; behavioural engagement,  $F(1,62) = 9.52, p < 0.05$ , Partial  $\eta^2 = 0.13$ ; and cognitive engagement,  $F(1,62) = 16.26, p < 0.05$ , Partial  $\eta^2 = 0.21$ ; respectively. The effect sizes were medium, medium, and very large, respectively. These results show that the EFL pre-service teachers in the CL group had higher affective, behavioural, and cognitive engagement than did their conventionally trained counterparts.



**Table 4.12** ANCOVA results for the CL's effect on affective engagement (AE)

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	0.578	7.39	0.001	0.19
Intercept	1	10.546	134.90	0.000	0.69
Pre-test AE	1	0.318	4.07	0.048	0.06
Group	1	0.955	12.21	0.001	0.17
Error	62	0.078			

Note:  $p < 0.05$ ; R squared = 0.192 (Adjusted R squared = 0.166)

**Table 4.13** ANCOVA results for the CL's effect on behavioural engagement (BE)

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	0.866	14.76	0.000	0.32
Intercept	1	5.286	90.10	0.000	0.59
Pre-test BE	1	0.558	9.52	0.003	0.13
Group	1	1.235	21.05	0.000	0.25
Error	62	0.059			

Note:  $p < 0.05$ ; R squared = 0.167 (Adjusted R squared = 0.140)

**Table 4.14** ANCOVA results for the CL's effect on cognitive engagement (CE)

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	1.146	20.25	0.000	0.40
Intercept	1	1.259	22.26	0.000	0.26
Pre-test CE	1	0.920	16.26	0.000	0.21
Group	1	1.231	21.75	0.000	0.26
Error	62	0.057			

Note:  $p < 0.05$ ; R squared = 0.395 (Adjusted R squared = 0.376)

*Research question 7: Is there a significant difference between the experimental and the control groups in terms of their reported levels of teaching self-efficacy?*

In this study, EFL pre-service teachers' teaching self-efficacy was investigated at efficacy for instructional strategies, for classroom management, and for student engagement. The descriptive statistics for the pre-test and post-test of efficacy for instructional strategies, for

classroom management, and for student engagement for the experimental and the control groups are shown in Table 4.15. The ANCOVA results for the CL's effect on each aspect of teaching self-efficacy are provided in Tables 4.16, 4.17, and 4.18, respectively.

**Table 4.15** Descriptive statistics for pre-test and post-test scores of efficacy for instructional strategies (EIS), for classroom management (ECM), and for student engagement (ESE)

Variable/group	N	Pre-test		Post-test	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
EIS					
<i>Experimental</i>	35	3.51	0.36	4.45	0.27
<i>Control</i>	30	3.50	0.43	4.18	0.33
ECM					
<i>Experimental</i>	35	3.70	0.40	4.39	0.32
<i>Control</i>	30	3.65	0.39	4.12	0.34
ESE					
<i>Experimental</i>	35	3.81	0.40	4.57	0.25
<i>Control</i>	30	3.76	0.41	4.28	0.33

As can be seen from Tables 4.16, 4.17, and 4.18, significant differences were found between the experimental and the control groups in terms of the post-test efficacy for instructional strategies,  $F(1,62) = 14.34, p < 0.05$ , Partial  $\eta^2 = 0.19$ ; for classroom management,  $F(1,62) = 11.58, p < 0.05$ , Partial  $\eta^2 = 0.16$ ; and for student engagement,  $F(1,62) = 18.63, p < 0.05$ , Partial  $\eta^2 = 0.23$ . The effect sizes in this case were all large. The covariates (pre-test efficacy for instructional strategies, for classroom management, and for student engagement) also exerted significant influences on the post-test efficacy for instructional strategies,  $F(1,62) = 4.66, p < 0.05$ , Partial  $\eta^2 = 0.07$ ; for classroom management,  $F(1,62) = 15.61, p < 0.05$ , Partial  $\eta^2 = 0.20$ ; and for student engagement,  $F(1,62) = 21.73, p < 0.05$ , Partial  $\eta^2 = 0.26$ ; respectively. The effect sizes in this case were medium, large, and very large, respectively. These results indicate that the EFL pre-service teachers in the CL group cultivated stronger teaching self-efficacy than did their conventionally trained counterparts.

**Table 4.16** ANCOVA results for the CL's effect on EIS

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	0.807	9.58	0.000	0.24
Intercept	1	10.143	120.33	0.000	0.66
Pre-test EIS	1	0.393	4.66	0.035	0.07
Group	1	1.209	14.34	0.000	0.19
Error	62	0.084			

Note:  $p < 0.05$ ; R squared = 0.236 (Adjusted R squared = 0.211)

**Table 4.17** ANCOVA results for the CL's effect on ECM

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	1.264	14.52	0.000	0.32
Intercept	1	5.962	68.45	0.000	0.53
Pre-test ECM	1	1.359	15.61	0.000	0.20
Group	1	1.009	11.58	0.001	0.16
Error	62	0.087			

Note:  $p < 0.05$ ; R squared = 0.319 (Adjusted R squared = 0.297)

**Table 4.18** ANCOVA results for the CL's effect on ESE

Source	df	Mean square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Correct model	2	1.357	21.48	0.000	0.41
Intercept	1	6.743	106.77	0.000	0.63
Pre-test ESE	1	1.372	21.73	0.000	0.26
Group	1	1.177	18.63	0.000	0.23
Error	62	0.063			

Note:  $p < 0.05$ ; R squared = 0.409 (Adjusted R squared = 0.390)

## **CHAPTER 5 DISCUSSION AND IMPLICATIONS**

As previously mentioned in Chapter 1, the purpose of this study was to (1) investigate the relationship between perceptions of teacher educators' instructional behaviours and pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy and (2) examine the influence of CL upon learning motivation, academic engagement, content knowledge, and teaching self-efficacy of EFL pre-service teachers, when compared with lecture-based learning. The two designs (i.e., the correlational and the experimental designs) were intended to provide a learning environment that will promote and sustain the quality of pre-service instruction. In this chapter, discussion, limitations and recommendations for future research, and conclusion and suggestions for practical implications are provided.

### **5.1 Discussion**

#### **5.1.1 The correlational design**

The correlational design examined the relationship between perceptions of instructional behaviours of teacher educators' instructional behaviours (i.e., instructional clarity, support and feedback, autonomy support, as well as support for cooperative learning) and pre-service teachers' learning motivation (i.e., intrinsic learning motivation, extrinsic learning motivation, and task value), academic engagement (i.e., affective, behavioural, and cognitive engagement), and teaching self-efficacy (i.e., efficacy for instructional strategies, for classroom management, and for student engagement). As previously reviewed, few studies have analysed how these teaching styles influence pre-service teachers' learning motivation, academic engagement, and teaching self-efficacy. Even rarer is the investigation into the association between pre-service teachers' learning motivation and their academic engagement and teaching self-efficacy. However, this design yielded satisfactory results.

#### ***Effects on learning motivation***

We found that teacher educators' teaching behaviours play the crucial role in motivating pre-service teachers to learn during their education course. Consistent with the results of multiple studies (Black & Deci, 2000; Ciani et al., 2011; Federici & Skaalvik, 2014; Jurik, Gröschner, & Seidel, 2014; Lazarides, Dietrich, & Taskinen, 2019; Patall et al., 2013; Reeve

& Jang, 2006; Roksa et al., 2017; Thoonen et al., 2011), we found pre-service teachers are intrinsically motivated to learn in a learning environment in which their teacher educators offer clear instruction, instrumental support and feedback, autonomy support, and support for cooperative learning. However, among these instructional styles, support and feedback was the strongest predictor of intrinsic learning motivation. This might be because when teacher educators provided instrumental support for and constructive feedback on learning, pre-service teachers could effectively learn the given materials and complete the assigned tasks. If so, their competence need was directly fulfilled, which subsequently drove their learning behaviours towards learning satisfaction, curiosity, mastery learning, and challenging tasks. We also found that instructional clarity has a significant and positive influence on task value, which indicates that pre-service teachers tend to appreciate what they learn and do during their education course when their teacher educators give clear explanations about course objectives, course content, and homework or assignments. This finding agrees with the results of previous studies that have reported that instructional clarity is significantly associated with task value (Lazarides, Dietrich, & Taskinen, 2019; Maulana, Opdenakker, & Bosker, 2016). Furthermore, in line with work by Lee, Turner, and Thomson (2015), we found a significant association between task value and intrinsic learning motivation, which demonstrates that pre-service teachers are intrinsically motivated to learn when they feel that what they learn and do in their education course is important for them and their future teaching profession.

### ***Effects on academic engagement***

We found that teacher educators' instructional behaviours significantly contribute to the increase in academic engagement among pre-service teachers. We found that pre-service teachers tend to be affectively, behaviourally, and cognitively engaged in learning in classes where teacher educators offer clear instruction and instrumental support and constructive feedback and promote peer involvement through providing support for cooperative learning. These findings are in agreement with multiple studies in school and college environments (Cheung & Wong, 2016; Federici & Skaalvik, 2014; Harbour et al., 2015; Heng, 2014; Jurik, Gröschner, & Seidel, 2014; Mikami et al., 2017; Roksa et al., 2017; Xerri, Radford, & Shacklock, 2018). However, support for cooperative learning was the strongest predictor of pre-service teachers' cognitive engagement in the form of deep approaches to learning. This might be because, when learning and working cooperatively, pre-service teachers were engaged in specific activities including group discussion, peer teaching, and peer feedback.

These learning activities might have resulted in their use of deep approaches to learning as previous research in both school and college settings have documented that students are more likely to employ deep learning strategies when they are involved with peer feedback and peer teaching (Cheung & Wong, 2016; Filius et al., 2019; Moore & Teather, 2013).

Concerning the relationship between pre-service teachers' learning motivation and their academic engagement, we found the three aspects of learning motivation are significantly and positively associated with the three aspects of academic engagement save that extrinsic learning motivation has no influence upon cognitive engagement. These findings indicate that pre-service teachers are more likely to be interested in what and where they learn, invest time and efforts in learning, and adopt deep learning strategies when they are intrinsically motivated to learn and when they appreciate what they learn during their education course. These findings are in line with the results of prior studies that have revealed that students' intrinsic learning motivation significantly fosters their affective and behavioural engagement (Froiland & Worrell, 2016; Karimi & Sotoodeh, 2020; Lerdpornkulrat, Koul, & Poondej, 2018; Wu et al., 2020) and enhance their deep learning approaches (Diseth, 2011; Everaert, Opdecam, & Maussen, 2017). Furthermore, this research further supports prior studies that have reported that students' perceptions that their learning courses are worth learning are significantly associated with their behavioural engagement (Lerdpornkulrat, Koul, & Poondej, 2018; Marchand & Gutierrez, 2017) and deep learning approaches (Floyd, Harrington, & Santiago, 2009; Johnson & Sinatra, 2013; Jones, Johnson, & Campbell, 2015).

### ***Effects on teaching self-efficacy***

We found that teacher educators' teaching styles significantly foster pre-service teachers' teaching self-efficacy. Among the measures of teaching behaviours, support for cooperative learning was the most influential source of all aspects of teaching self-efficacy, suggesting that pre-service teachers are more likely to develop the strongest confidence in applying various teaching strategies, managing classrooms, and engaging students in learning when their teacher educators promote peer involvement through cooperative learning. This might be because when learning and working cooperatively, pre-service teachers were involved with group work, group discussion, peer teaching, and peer feedback. Such activities might have brought about mastery experiences, vicarious experiences, verbal persuasion, as well as affective states, which are influential sources of teaching self-efficacy (Bandura, 1997; Bernadowski, Perry, & Greco, 2013; Knoblauch & Chase, 2015; Knoblauch & Woolfolk

Hoy, 2008; Yurekli, Bostan, & Cakiroglu, 2020). We also found that instructional clarity exerts a significant and positive effect on the three aspects of teaching self-efficacy, which indicates that pre-service teachers tend to cultivate their teaching self-efficacy when their teacher educators provide clear explanations about course objectives, course content, and homework or assignments. This is because when teacher educators provided structure in the form of clear instruction, they felt competent to learn the content taught effectively. If so, this might have affected their teaching self-efficacy as pre-service teachers who think that they have achieved basic competences (e.g., knowledge about teaching and learning, reflective learning skills, and ability and commitment to promote student learning) tend to develop their teaching self-efficacy (González et al., 2018; Rots et al., 2010). We also found that support and feedback and autonomy support exert significant and positive influences on efficacy for instructional strategies and for student engagement. These findings are in line with the results of prior studies that have reported that pre-service teachers are more likely to strengthen their teaching self-efficacy when their teacher educators support their autonomy in learning as well as provide constructive feedback (Clark & Newberry, 2019; González et al., 2018; Yurekli, Bostan, & Cakiroglu, 2020).

Given the association between pre-service teachers' learning motivation and their teaching self-efficacy, we found positive associations between intrinsic learning motivation and efficacy for instructional strategies, for classroom management, and for student engagement. To our knowledge, although the relationship between the two main constructs has never been analysed, our findings demonstrated that the more intrinsically pre-service teachers are motivated to learn, the more confident they feel in their teaching capabilities. In this case, their learning behaviours were driven towards mastery learning and challenging tasks, which might have resulted in mastery experiences in learning the content taught and doing homework or assignments. If so, these findings are consistent with the result of previous research that has revealed that pre-service teachers' successful experiences in mastering science conceptual knowledge and science teaching methods significantly contribute to the development of their teaching self-efficacy (Palmer, 2006).

### **5.1.2 The experimental design**

The experimental design examined the influences of CL and lecture-based learning on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy. Although the CL's effect on these educational outcomes of EFL pre-

service teachers has scarcely or even never been analysed, the ANCOVA results revealed that content knowledge; learning motivation, except extrinsic learning motivation; academic engagement; and teaching self-efficacy were statistically greater in the CL group.

### ***Effects on content knowledge***

We found that CL is more effective in enhancing EFL pre-service teachers' grammar and vocabulary achievement. This is because, the EFL pre-service teachers in the CL process could learn, retain, and transfer what is being taught to their groupmates and classmates. Indeed, the process of learning, retaining, and transferring what is taught is more effective than competitive and individualistic learning (Johnson & Johnson, 2017b). These findings are consistent with the results of previous studies that have documented that pre-service teachers are more likely to acquire greater content knowledge in a learning context where teacher educators adopt CL as their instructional strategies (Cecchini et al., 2020; Hornby, 2009; Supanc, Völlinger, & Brunstein, 2017). More specifically, this study is in line with prior research that has shown that CL can improve grammar and vocabulary achievement among students (Ghorbani, 2012; Ney, 1991; Yavuz & Arslan, 2018; Zarifi, 2016).

### ***Effects on learning motivation***

We found CL is more effective in facilitating EFL pre-service teachers' intrinsic learning motivation, which is consistent with previous studies that have reported that EFL learners are more likely to increase their intrinsic learning motivation in a learning environment in which their teacher educators use CL methods to facilitate their learning (Namaziandost et al., 2019; Ning & Hornby, 2013). Since CL can involve effective instructional behaviours (i.e., autonomy support, structure, and involvement) in its process, the explanation of this finding may be related to SDT. First, during the CL process, EFL pre-service teachers were provided with more freedom or ownership to control their own learning. For example, they could select homework or assignments that they liked and negotiate positive interdependent roles with each other in the group. In this respect, CL could offer them autonomy support (Shi & Han, 2019; Yasmin & Naseem, 2019). If so, their need for autonomy was fulfilled. Second, during the CL process, EFL pre-service teachers were given timely feedback from both their teacher educators and peers (Johnson & Johnson, 2014), which might have helped them to learn the content taught and do their group assignments more effectively. If so, their need for competence was supported. Finally, CL could involve EFL pre-service teachers in group discussion, peer teaching, peer feedback, mutual help and assistance, and group



reflection (Gillies, 2007; Johnson & Johnson, 2017a, 2019). These learning activities could result in better relationship and involvement among them, which supported their need for relatedness. In fact, CL, when compared to conventional teaching methods, provides better senses of autonomy support, competence, and relatedness (Hänze & Berger, 2007). Thus, it can be concluded that CL is more likely to intrinsically motivate EFL pre-service teachers to learn during their education course.

We also found that CL is more effective in increasing task value, indicating that EFL pre-service teachers are more likely to value what they learn and do in their education course in classes where CL is implemented. This finding is in agreement with the result of prior research that has reported that pre-service teachers tend to have greater levels of task value when they are taught through either high or low-structured CL than through a conventional teaching method (Supanc, Völlinger, & Brunstein, 2017). This might be because the EFL pre-service teachers in the CL group were given better autonomy support (Hänze & Berger, 2007). Indeed, students tend to attach a high value to what they learn when their teachers give them choices and rationales for learning and consider their opinions (Patall et al., 2013).

However, no significant difference was found between the CL and the lecture-based learning groups in terms of EFL pre-service teachers' extrinsic learning motivation, which is in line with the result of previous research that has indicated that CL and traditional instruction have no significant effects on extrinsic learning motivation among EFL learners (Ning & Hornby, 2013). Of course, there should be no competition in the classroom in that learning competitively is inferior to learning cooperatively in terms of students' academic and social outcomes (Johnson & Johnson, 2002b). Concerning this finding, CL could not significantly decrease extrinsic learning motivation of EFL pre-service teachers. The explanation of this finding might be associated with a couple of factors. First, earning a good grade seemed to be the only way for the EFL pre-service teachers who were taught through CL to show their learning abilities. In fact, the group scores constituted only 30% of the evaluation of the course. They needed to get the other 70% of the final grade from the final examination through their own efforts. In this sense, what they wanted to do is to strive towards a good grade. Second, grade point averages were part of the criteria for placing new teachers into public secondary schools. All pre-service secondary teachers have to be posted after they have graduated from teacher education and the best achiever is given the right to choose a teaching post first. In conclusion, competitive learning was common in teacher education.

### ***Effects on academic engagement***

We found CL makes more contribution to affective, behavioural, and cognitive engagement of EFL pre-service teachers, which suggests that EFL pre-service teachers tend to be more interested in what and where they learn, devote more time and efforts in learning, employ deeper learning approaches in classes in which CL is implemented. These findings are in agreement with the findings of previous studies that have shown that CL can increase the levels of affective engagement (Cavanagh, 2011), behavioural engagement (Herrmann, 2013; Ryzin & Roseth, 2020), and cognitive engagement (Azizan et al., 2018; Shahri, Rahman, & Hussain, 2017) among students. Some explanations are provided about these findings. First, CL could provide better autonomy support for the EFL pre-service teachers (Gillies, 2007; Hänze & Berger, 2007), for example, in choosing to do assignments that they liked. Research has established that students are more likely to be affectively, behaviourally, and cognitively engaged in learning when teachers support their autonomy (e.g., offering them choices for learning and considering their interests and thoughts) (Cheon, Reeve, & Moon, 2012; Gutiérrez & Tomás, 2019; Jang, Reeve, & Halusic, 2016; Yu et al., 2016). Second, the EFL pre-service teachers in the CL group could build stronger relationship with their teacher educator and groupmates, which might have contributed to bigger increase in the levels of academic engagement. Previous studies have reported that students appear to have greater senses of belonging to their school or university when they have better relationship with their teachers (Chiu et al., 2012; Kim & Lundberg, 2016; Meeuwisse, Severiens, & Born, 2010). Furthermore, meaningful student-teacher and student-student interactions can lead to higher levels of affective and behavioural engagement (Gasiewski et al., 2012; Mikami et al., 2017; Xerri, Radford, & Shacklock, 2018). Finally, CL could engage the EFL pre-service teachers in group discussion, peer teaching, peer feedback, peer assistance with needed materials and information, as well as group processing. These activities might have contributed to their adoption of deeper learning approaches because multiple studies have shown that students tend to employ deeper learning strategies when they are engaged in peer feedback (Filius et al., 2019; Moore & Teather, 2013), peer teaching (Cheung & Wong, 2016), and peer support groups (Bold, 2008).

### ***Effects on teaching self-efficacy***

We found that CL has more effect on the three aspects of teaching self-efficacy of EFL pre-service teachers (i.e., efficacy for instructional strategies, for classroom management, and for student engagement). Some explanations about these findings are provided. First, in the

CL group, the EFL pre-service teachers had to teach what is being taught to their groupmates and classmates. Such teaching practices helped them to gain mastery experiences, which are the most powerful source of their teaching self-efficacy (Bandura, 1997; Bautista, 2011; Knoblauch & Chase, 2015; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Second, in the CL group, the process of learning, retaining, and transferring what is being taught could help the EFL pre-service teachers to learn the content taught more effectively. In this sense, they had successful learning experiences, which might have made more contribution to their efficacy for teaching. If so, this study agrees with a previous study by Palmer (2006) who found that pre-service teachers' successful experiences in learning science content as well as science teaching techniques significantly enhance their science teaching self-efficacy. Similarly, pre-service teachers who think that they have learned basic competences (e.g., knowledge, skills, and disposition) are more likely to cultivate their teaching self-efficacy (González et al., 2018; Rots et al., 2010). Third, within the CL process, the EFL pre-service teachers were given better autonomy support (Gillies, 2007; Hänze & Berger, 2007), which might have contributed to larger increase in their teaching self-efficacy. If so, this study is consistent with a previous study that has established that pre-service teachers significantly improve their efficacy for teaching when their teacher educators support their autonomy in learning (González et al., 2018). Finally, in the CL group, the EFL pre-service teachers were engaged in group work, group discussion, peer teaching, peer feedback, and group reflection. These learning activities might have brought about mastery experiences (i.e., experiences of teaching peers), vicarious experiences (i.e., experiences of observing peer teaching), and verbal persuasion (i.e., constructive feedback provided by their groupmates and teacher educator), which are their teaching self-efficacy sources (Bandura, 1997; Clark & Newberry, 2019; Yurekli, Bostan, & Cakiroglu, 2020).

## **5.2 Limitations and suggestions for future research**

Like most studies, the present study had some limitations for both the correlational and the experimental designs. For the correlational design, first, perceptions of teaching behaviours did not come directly from teacher educators, but from pre-service teachers. Future research should take both teacher educators' and pre-service teachers' perceptions in order to avoid subjective responses concerning teaching behaviours. Second, the respondents in this study were first-year secondary pre-service teachers in Cambodia, which might lead to an issue of generalisability of the findings. Therefore, replication studies should be carried out with

pre-service teachers of other levels (e.g., elementary, high school, and higher education) across the disciplines and nationalities to verify these results. Last but not least, pre-service teachers' academic achievement has been found to be an outcome of their learning motivation (Oz, 2016) and a predictor of their teaching self-efficacy (Leader-Janssen & Rankin-Erickson, 2013; Menon & Sadler, 2016). However, we did not add this variable into this design. Thus, further research should take into account pre-service teachers' academic achievement to see if it can mediate the relationship between instructional behaviours, learning motivation, and teaching self-efficacy.

For the experimental design, first, the participants were first-year EFL pre-service teachers in Cambodia, which might lead to a generalisation issue. Thus, replication studies should be conducted with pre-service teachers of other majors and levels from different cultural settings. Second, this design collected only quantitative data about the influence of CL on learning motivation, academic engagement, and teaching self-efficacy. Thus, to gain greater insight into how EFL pre-service teachers significantly contributes to the increase in their learning motivation, academic engagement, and teaching self-efficacy in the CL context, future research should apply mixed methods approaches to collect both quantitative data from an experiment and qualitative data from a deep interview after the experiment. Last but not least, learning outcomes in this design were only English grammar and vocabulary. Future research should take into account other language learning outcomes such as reading, writing, listening, and speaking competences.

### **5.3 Conclusion and suggestions for implications**

Despite the above limitations, the correlational design does broaden the understanding of predictors of learning motivation, academic engagement, and teaching self-efficacy. This design found that teacher educators' instructional clarity, support and feedback, autonomy support, and support for cooperative learning exert significant and positive influences on pre-service teachers' intrinsic learning motivation. Our findings also show that such teaching behaviours have direct and indirect effects on pre-service teachers' affective, behavioural, and cognitive engagement and on their efficacy for instructional strategies, for classroom management, and for student engagement. Moreover, our experimental design also found that CL, which involved these instructional behaviours in the learning process, significantly and positively contributed to greater levels in learning motivation, academic engagement,

content knowledge, and teaching self-efficacy of EFL pre-service teachers, when compared to lecture-based learning. This research suggests that a learning environment that supports basic psychological needs of pre-service teachers, especially EFL pre-service teachers, is more likely to increase their learning motivation, academic engagement, content knowledge, and teaching self-efficacy.

These findings highlight the need for incorporating these teaching behaviours into TEPs in order to improve the quality of pre-service instruction. However, to enhance the noted learning outcomes of pre-service teachers, we recommend that teacher educators should (1) offer autonomy support through providing pre-service teachers with choices and rationales for learning and taking into consideration their ideas or interests when designing learning tasks and assignments; (2) offer structure through providing pre-service teachers with clear instruction, instrumental support, and constructive feedback; and (3) promote meaningful peer involvement through small group learning activities (i.e., group work, group discussion, peer teaching, peer feedback, and peer assistance with needed materials and information) during the education course or throughout the academic year. More specifically, teacher educators should carefully integrate these instructional styles into CL. To effectively use CL, teacher educators should (1) analyse pre-service teachers to organise them into small heterogeneous groups and assign positive interdependent roles to group members; (2) give each group a learning task that needs joint effort to complete and clearly explain what and how to do to complete it; (3) support pre-service teachers' autonomy in learning through allowing them to learn and do what they want to under the socially-structured exchange of information; (4) teach group work skills (i.e., communication, leadership, trust-building, problem-solving, and conflict management) to group members and encourage them to use these skills when they are engaged in group learning activities including group discussion, peer teaching, and peer feedback; (5) check academic progress and expected behaviours and, if needed, intervene to facilitate their learning; (6) randomly select the representative of each group to provide the answers or present their group work to the class; (7) encourage group members to analyse each other's and their own learning processes through identifying what member actions are helpful or unhelpful to the group's accomplishment as well as what behaviour should be continued or changed; and (8) offer timely feedback on their learning and teaching performance. Therefore, TEPs should take into account a learning context that emphasises autonomy support, structure, and involvement to encourage the establishment of effective teachers for the education system.

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## **APPENDICES**

## **APPENDIX A.**

Survey questionnaire: Khmer version

## កម្រងសំណួរ

កម្រងសំណួរនេះត្រូវបានសាងឡើងដើម្បីប្រមូលព័ត៌មានពីគុណសិទ្ធិទី១ដែលកំពុងសិក្សានៅតាមមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគទាំង០៦ ក្នុងប្រទេសកម្ពុជា។ កម្រងសំណួរនេះមាន០៤ផ្នែកធំៗគឺ៖ (1) ព័ត៌មានផ្ទាល់ខ្លួន, (2) ការបង្រៀននិងរៀន, (3) ការវាយតម្លៃវគ្គសិក្សា និង ការចាប់អារម្មណ៍ទៅលើខ្លឹមសារមេរៀននិងមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគ, និង (4) ភាពជឿជាក់ក្នុងការបង្រៀននាពេលអនាគត។ ព័ត៌មានទាំងអស់ដែលឆ្លើយតបក្នុងកម្រងសំណួរនេះនឹងត្រូវរក្សាជាការសម្ងាត់។

បើអ្នកត្រូវការជំនួយបន្ថែមទាក់ទងនឹងការបំពេញកម្រងសំណួរនេះ សូមទាក់ទងតាមលេខទូរស័ព្ទ៖ ០៨៩ ២៧០ ២៨០ ឬ តាមរយៈអ៊ីម៉ែល៖ [channsokhom@gmail.com](mailto:channsokhom@gmail.com)។

### ផ្នែកទី១៖ ព័ត៌មានផ្ទាល់ខ្លួន

សូមគូសសញ្ញា (✓) ក្នុងប្រអប់ព័ត៌មានដែលពិតចំពោះអ្នក និង បំពេញព័ត៌មានផ្ទាល់ខ្លួនក្នុងចន្លោះដែលបានផ្តល់ជូនដូចខាងក្រោម។

1. ភេទ៖  
1) ☐ ប្រុស  
2) ☐ ស្រី
2. អាយុ៖ ..... ឆ្នាំ
3. ឯកទេស៖  
1) ☐ គណិត-រូប  
2) ☐ រូប-គីមី  
3) ☐ ជីវៈ-ផែនដី  
4) ☐ ប្រវត្តិ-ភូមិ  
5) ☐ ICT-អង់គ្លេស  
6) ☐ ខ្មែរ-ពលរដ្ឋ  
7) ☐ អង់គ្លេស-ខ្មែរ  
8) ☐ ខ្មែរ-គេហៈ
4. គ្រឹះស្ថានសិក្សា៖  
1) ☐ វិទ្យាស្ថានគរុកោសល្យខេត្តបាត់ដំបង  
2) ☐ វិទ្យាស្ថានគរុកោសល្យរាជធានីភ្នំពេញ  
3) ☐ មជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគកណ្តាល  
4) ☐ មជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគតាកែវ  
5) ☐ មជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគព្រៃវែង  
6) ☐ មជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគកំពង់ចាម

**ផ្នែកទី២៖ ការបង្រៀននិងរៀន**

- I. សូមពិចារណាល្អ៖នីមួយៗក្នុងតារាងខាងក្រោម ហើយគូសរង្វង់ជុំវិញលេខចម្លើយដែលពិតចំពោះគ្រូឧទ្ទេស របស់អ្នកដែលកំពុងបង្រៀនអ្នកក្នុងធនាគារនេះ។ អ្នកអាចជ្រើសរើសចម្លើយបានតែមួយគត់ ( 1, 2, 3, 4, ឬ 5 ) ចេញពីកូឡោនចម្លើយ។

តើអ្នកយល់ស្របតាមល្អ៖នីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងធនាគារនេះ ...						
1. គ្រូឧទ្ទេសរបស់ខ្ញុំបកស្រាយគោលគំនិតឬទ្រឹស្តីសំខាន់ៗបានច្បាស់លាស់។	1	2	3	4	5	
2. គ្រូឧទ្ទេសរបស់ខ្ញុំអនុញ្ញាតឱ្យខ្ញុំជ្រើសរើសកិច្ចការផ្ទះឬកិច្ចការស្រាវជ្រាវតាមចំណង់ចំណូលចិត្តរបស់ខ្ញុំ។	1	2	3	4	5	
3. គ្រូឧទ្ទេសរបស់ខ្ញុំផ្តល់មតិស្តាប់នាដែលអាចជួយឱ្យការសិក្សារបស់ខ្ញុំប្រសើរឡើង។	1	2	3	4	5	
4. គ្រូឧទ្ទេសរបស់ខ្ញុំដាក់កិច្ចការស្រាវជ្រាវច្រើនប្រភេទ ដើម្បីឱ្យខ្ញុំអាចជ្រើសរើសធ្វើមួយណាក៏បាន។	1	2	3	4	5	
5. គ្រូឧទ្ទេសរបស់ខ្ញុំពន្យល់អំពីវត្ថុបំណងនៃមុខវិជ្ជាបានច្បាស់លាស់។	1	2	3	4	5	
6. គ្រូឧទ្ទេសរបស់ខ្ញុំប្រើប្រាស់ឧទាហរណ៍ល្អៗដើម្បីពន្យល់មេរៀន កិច្ចការផ្ទះ ឬ កិច្ចការស្រាវជ្រាវ។	1	2	3	4	5	
7. គ្រូឧទ្ទេសរបស់ខ្ញុំមានពេលក្នុងការផ្តល់ការប្រឹក្សាដល់ខ្ញុំ ពេលខ្ញុំមានបញ្ហាទាក់ទងនឹងមេរៀន កិច្ចការផ្ទះ ឬ កិច្ចការស្រាវជ្រាវ។	1	2	3	4	5	
8. គ្រូឧទ្ទេសរបស់ខ្ញុំទទួលយកយោបល់របស់ខ្ញុំ នៅពេលរៀបចំកិច្ចការស្រាវជ្រាវឱ្យខ្ញុំធ្វើ។	1	2	3	4	5	
9. គ្រូឧទ្ទេសរបស់ខ្ញុំផ្តល់មតិស្តាប់នាដែលមានប្រយោជន៍ចំពោះកិច្ចការផ្ទះ ឬកិច្ចការស្រាវជ្រាវរបស់ខ្ញុំ។	1	2	3	4	5	
10. គ្រូឧទ្ទេសរបស់ខ្ញុំសង្ខេបមេរៀនដែលគាត់បង្រៀនបានយ៉ាងល្អ។	1	2	3	4	5	
11. គ្រូឧទ្ទេសរបស់ខ្ញុំលើកទឹកចិត្តខ្ញុំឱ្យចូលរួមសកម្មភាពក្នុងថ្នាក់ ឬ សកម្មភាពការងារជាក្រុម។	1	2	3	4	5	
12. គ្រូឧទ្ទេសរបស់ខ្ញុំពន្យល់អំពីវិធីធ្វើកិច្ចការផ្ទះ ឬ កិច្ចការស្រាវជ្រាវផ្សេងៗបានច្បាស់លាស់។	1	2	3	4	5	
13. គ្រូឧទ្ទេសរបស់ខ្ញុំធ្វើការសម្រេចចិត្តជាមួយខ្ញុំអំពីអ្នកដែលខ្ញុំគួររៀនឬធ្វើការងារក្រុមជាមួយ។	1	2	3	4	5	

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងធមាសនេះ ...						
14. គ្រូឧទ្ទេសរបស់ខ្ញុំផ្តល់មតិស្ថាបនាដែលអាចធ្វើឱ្យការយល់មេរៀនរបស់ខ្ញុំកាន់តែប្រសើរឡើង។	1	2	3	4	5	
15. គ្រូឧទ្ទេសរបស់ខ្ញុំពន្យល់មេរៀនបានច្បាស់លាស់។	1	2	3	4	5	
16. គ្រូឧទ្ទេសរបស់ខ្ញុំធ្វើការសម្រេចចិត្តជាមួយខ្ញុំអំពីអ្វីដែលខ្ញុំគួររៀន។	1	2	3	4	5	
17. គ្រូឧទ្ទេសរបស់ខ្ញុំត្រួតពិនិត្យមើលថាតើខ្ញុំយល់មេរៀនឬអត់ មុននឹងគាត់បន្តមេរៀនទៅមុខទៀត។	1	2	3	4	5	
18. គ្រូឧទ្ទេសរបស់ខ្ញុំធ្វើការសម្រេចចិត្តជាមួយខ្ញុំអំពីរបៀបវាយតម្លៃនូវអ្វីដែលខ្ញុំបានរៀនក្នុងមុខវិជ្ជារបស់ពួកគាត់។	1	2	3	4	5	

II. សូមពិចារណាល្អៗនីមួយៗក្នុងតារាងខាងក្រោម ហើយគូសរង្វង់ជុំវិញលេខចម្លើយដែលពិតចំពោះអ្នកនៅក្នុងធមាសនេះ។ អ្នកអាចជ្រើសរើសចម្លើយបានតែមួយគត់ (1, 2, 3, 4, ឬ 5) ចេញពីកូឡេនចម្លើយ។

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប	3 = មិនប្រាកដ	4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង				
ក្នុងធមាសនេះ ...						
19. ខ្ញុំព្យាយាមឱ្យយល់ពីគំនិតយោបល់របស់សិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំ។	1	2	3	4	5	
20. ខ្ញុំបង្រៀនឬជួយសិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំ នៅពេលពួកគេមានបញ្ហាទាក់ទងនឹងមេរៀនកិច្ចការផ្ទះ ឬ កិច្ចការស្រាវជ្រាវ។	1	2	3	4	5	
21. ខ្ញុំពេញចិត្តមេរៀនណាដែលអាចឆ្លើយតបទៅនឹងតម្រូវការនៃការចង់ចេះចង់ដឹងរបស់ខ្ញុំ ទោះបីជាវាពិបាករៀនក៏ដោយ។	1	2	3	4	5	
22. ខ្ញុំចូលរួមសកម្មភាពក្នុងថ្នាក់ឬធ្វើកិច្ចការស្រាវជ្រាវជាក្រុមដោយសារខ្ញុំចង់រៀនអ្វីដែលថ្មី។	1	2	3	4	5	
23. វាសំខាន់សម្រាប់ខ្ញុំក្នុងការធ្វើឱ្យមធ្យមភាគពិន្ទុរបស់ខ្ញុំល្អជាងមុន។	1	2	3	4	5	
24. ខ្ញុំជ្រើសរើសធ្វើកិច្ចការស្រាវជ្រាវណាដែលអាចធ្វើឱ្យខ្ញុំរៀនអ្វីថ្មីបាន ទោះបីជាវាមិនធ្វើឱ្យខ្ញុំទទួលបានពិន្ទុល្អក៏ដោយ។	1	2	3	4	5	
25. ខ្ញុំទទួលបានមតិស្តាបនាល្អៗពីសិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំទាក់ទងនឹងការរៀនមេរៀនឬ ការធ្វើកិច្ចការផ្ទះឬកិច្ចការស្រាវជ្រាវ។	1	2	3	4	5	

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប		3 = មិនប្រាកដ		4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង		
ក្នុងធម៌នេះ ...						
26. ខ្ញុំសហការជាមួយសិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំដើម្បីរៀបចំកិច្ចការស្រាវជ្រាវតាមក្រុម។	1	2	3	4	5	
27. អ្វីដែលធ្វើឱ្យខ្ញុំរីករាយបំផុតគឺការព្យាយាមរៀនឱ្យយល់មេរៀនបានកាន់តែច្រើនតាមដែលខ្ញុំអាចធ្វើបាន។	1	2	3	4	5	
28. អ្វីដែលធ្វើឱ្យខ្ញុំរីករាយបំផុតគឺការទទួលបានពិន្ទុល្អ។	1	2	3	4	5	
29. ខ្ញុំពេញចិត្តមេរៀនណាដែលខ្ញុំអាចរៀនអ្វីថ្មីៗបាន។	1	2	3	4	5	
30. ការរៀនឱ្យបានពិន្ទុល្អជាងរឿងដែលគួរឱ្យខ្វល់ខ្វាយបំផុតសម្រាប់ខ្ញុំ។	1	2	3	4	5	
31. ការព្យាយាមរៀនអ្វីដែលថ្មីឱ្យបានច្រើនតាមដែលខ្ញុំអាចធ្វើបានជាអ្វីដែលធ្វើឱ្យខ្ញុំរីករាយបំផុត។	1	2	3	4	5	
32. ខ្ញុំសួរសិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំអំពីគំនិតយោបល់របស់ពួកគេ។	1	2	3	4	5	
33. ខ្ញុំចង់រៀនឱ្យពូកែដោយសារខ្ញុំចង់បង្ហាញសមត្ថភាពរបស់ខ្ញុំ។	1	2	3	4	5	
34. ខ្ញុំចង់រៀនឱ្យពូកែពីព្រោះខ្ញុំចង់ឱ្យគេសរសើរ។	1	2	3	4	5	
35. ខ្ញុំពិភាក្សាអំពីគំនិតយោបល់របស់ខ្ញុំជាមួយសិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំ។	1	2	3	4	5	
36. បើអាច ខ្ញុំចង់ទទួលបានពិន្ទុល្អជាងមិត្តរួមថ្នាក់ភាគច្រើនរបស់ខ្ញុំ។	1	2	3	4	5	
37. ខ្ញុំចូលរួមសកម្មភាពក្រុមយ៉ាងសកម្មជាមួយសិស្សផ្សេងទៀតក្នុងក្រុមរបស់ខ្ញុំ។	1	2	3	4	5	
38. ខ្ញុំប្រឹងប្រែងរៀនតាមដែលខ្ញុំអាចធ្វើបាន។	1	2	3	4	5	
39. ខ្ញុំព្យាយាមសង្ខេបគោលគំនិតឬទ្រឹស្តីដែលខ្ញុំបានរៀនពីសាលាដោយប្រើពាក្យពេចន៍របស់ខ្ញុំផ្ទាល់។	1	2	3	4	5	
40. នៅពេលរៀន ខ្ញុំព្យាយាមរកឱ្យឃើញពីភាពដូចគ្នានិងភាពខុសគ្នារវាងអ្វីដែលខ្ញុំកំពុងរៀននិងអ្វីដែលខ្ញុំចេះរួចហើយ។	1	2	3	4	5	
41. ខ្ញុំផ្អែកឡើងវិញនូវអ្វីដែលខ្ញុំបានរៀនពីសាលា។	1	2	3	4	5	
42. ក្រៅម៉ោងសិក្សា ខ្ញុំពិភាក្សាអំពីមេរៀនឬកិច្ចការស្រាវជ្រាវរបស់ខ្ញុំជាមួយសិស្សផ្សេងទៀត។	1	2	3	4	5	
43. នៅពេលរៀន អារម្មណ៍របស់ខ្ញុំរើវាយ។	1	2	3	4	5	

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងធម៌នេះ ...						
44. ខ្ញុំព្យាយាមសង្ខេបអ្វីដែលខ្ញុំទើបរៀនរួចដោយប្រើពាក្យរបស់ខ្ញុំផ្ទាល់។	1	2	3	4	5	
45. នៅពេលរៀន ខ្ញុំចូលរួមសកម្មភាពក្នុងថ្នាក់យ៉ាងសកម្ម។	1	2	3	4	5	
46. ពេលខ្ញុំជួបបញ្ហាពិបាកក្នុងការរៀនមេរៀនឬការធ្វើកិច្ចការស្រាវជ្រាវ ខ្ញុំនៅតែបន្តធ្វើវាហូតទាល់តែខ្ញុំគិតថាខ្ញុំអាចដោះស្រាយនឹងវាបាន។	1	2	3	4	5	
47. ខ្ញុំបង្កើតឧទាហរណ៍ផ្ទាល់ខ្លួនដើម្បីឱ្យយល់ពីគោលគំនិតឬទ្រឹស្តីសំខាន់ៗដែលខ្ញុំបានរៀនពីសាលា។	1	2	3	4	5	
48. ដើម្បីឱ្យយល់មេរៀនមួយកាន់តែច្បាស់ ខ្ញុំភ្ជាប់មេរៀននោះទៅនឹងអ្វីដែលខ្ញុំចេះរួចហើយ។	1	2	3	4	5	
49. នៅពេលរៀន ខ្ញុំព្យាយាមភ្ជាប់អ្វីដែលខ្ញុំកំពុងរៀនទៅនឹងបទពិសោធន៍ផ្ទាល់ខ្លួនរបស់ខ្ញុំ។	1	2	3	4	5	

**ផ្នែកទី៣៖ ការវាយតម្លៃវគ្គសិក្សា និង ការចាប់អារម្មណ៍ទៅលើខ្លឹមសារមេរៀននិងមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគ**

I. សូមពិចារណាល្អៗនីមួយៗក្នុងតារាងខាងក្រោម ហើយគូសរង្វង់ជុំវិញលេខចម្លើយដែលពិតចំពោះអ្នកនៅក្នុងធម៌នេះ។ អ្នកអាចជ្រើសរើសចម្លើយបានតែមួយគត់ ( 1, 2, 3, 4, ឬ 5 ) ចេញពីកូឡោនចម្លើយ។

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?	ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប	3 = មិនប្រាកដ		4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង		
50. ខ្ញុំពេញចិត្តកម្មវិធីបណ្តុះបណ្តាលគ្រូបង្រៀនមួយនេះ។	1	2	3	4	5
51. អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះគួរឱ្យចាប់អារម្មណ៍។	1	2	3	4	5
52. អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះនឹងនាំទៅរកភាពជោគជ័យក្នុងអាជីពការងាររបស់ខ្ញុំនាពេលអនាគត។	1	2	3	4	5
53. អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះឆ្លើយតបទៅនឹងការចង់ចេះចង់ដឹងរបស់ខ្ញុំ។	1	2	3	4	5
54. ខ្ញុំគិតថាការរៀនក្នុងធម៌នេះគួរឱ្យជឿទាន់។	1	2	3	4	5
55. ខ្ញុំមានមោទនភាពពេលដែលបានក្លាយជាផ្នែកមួយនៃមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគមួយនេះ។	1	2	3	4	5

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?	ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប	3 = មិនប្រាកដ		4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង		
56. អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះមានប្រយោជន៍ចំពោះខ្ញុំ។	1	2	3	4	5
57. ខ្ញុំចាប់អារម្មណ៍នឹងការរៀនក្នុងធម៌នេះ។	1	2	3	4	5
58. វាសំខាន់ចំពោះខ្ញុំក្នុងការរៀនមេរៀនសម្រាប់ធម៌នេះ។	1	2	3	4	5
59. ខ្ញុំអាចប្រើប្រាស់អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះក្នុងអាជីពបង្រៀនរបស់ខ្ញុំនាពេលអនាគតបាន។	1	2	3	4	5
60. ខ្ញុំពេញចិត្តនឹងអ្វីដែលខ្ញុំកំពុងរៀនក្នុងធម៌នេះ។	1	2	3	4	5
61. ខ្ញុំអាចប្រើប្រាស់មេរៀនក្នុងធម៌នេះនាពេលអនាគតបាន។	1	2	3	4	5

**ផ្នែកទី៤៖ ភាពជឿជាក់ក្នុងការបង្រៀននាពេលអនាគត**

I. សូមពិចារណាល្អៗនីមួយៗក្នុងតារាងខាងក្រោម ហើយគូសរង្វង់ជុំវិញលេខចម្លើយដែលពិតចំពោះអ្នក។ អ្នកអាចជ្រើសរើសចម្លើយបានតែមួយគត់ (1, 2, 3, 4, ឬ 5) ចេញពីកូឡោនចម្លើយ។

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងការបង្រៀននាពេលខាងមុខ ...						
62. ខ្ញុំនឹងអាចប្រើប្រាស់វិធីសាស្ត្រវាយតម្លៃផ្សេងៗបានយ៉ាងមានប្រសិទ្ធភាព។	1	2	3	4	5	
63. ខ្ញុំនឹងអាចកែសម្រួលមេរៀនរបស់ខ្ញុំឱ្យស្របទៅតាមកម្រិតសិស្សម្នាក់ៗបាន។	1	2	3	4	5	
64. ខ្ញុំនឹងអាចប្រើប្រាស់សំណួរផ្សេងៗដែលអាចជួយឱ្យការរៀនរបស់សិស្សប្រសើរឡើង។	1	2	3	4	5	
65. ខ្ញុំនឹងអាចគ្រប់គ្រងសកម្មភាពរំខានបាន។	1	2	3	4	5	
66. ខ្ញុំនឹងអាចធ្វើឱ្យសិស្សជឿជាក់ថាពួកគេអាចធ្វើកិច្ចការសាលាបានយ៉ាងល្អ។	1	2	3	4	5	
67. ខ្ញុំនឹងអាចសហការជាមួយគ្រួសាររបស់សិស្សបាន ដើម្បីជួយឱ្យពួកគេរៀនបានល្អក៏។	1	2	3	4	5	
68. ខ្ញុំនឹងអាចធ្វើឱ្យការយល់ដឹងរបស់សិស្សដែលរៀនខ្សោយប្រសើរឡើងបាន។	1	2	3	4	5	



តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងការបង្រៀននាពេលខាងមុខ ...						
69. ខ្ញុំនឹងអាចជួយឱ្យសិស្សផ្តល់តម្លៃលើការសិក្សារបស់ខ្លួនបាន។	1	2	3	4	5	
70. ខ្ញុំនឹងអាចគ្រប់គ្រងសិស្សដែលធ្វើសកម្មភាពរំខានឬឡើងក្បាលបាន។	1	2	3	4	5	
71. ខ្ញុំនឹងអាចប្រើប្រាស់ឧទាហរណ៍ផ្សេងៗដើម្បីពន្យល់នូវអ្វីដែលសិស្សគិតថាពិបាកយល់។	1	2	3	4	5	
72. ខ្ញុំនឹងអាចទប់ស្កាត់សិស្សដែលមានបញ្ហាមិនឱ្យបង្កការរំខានដល់ថ្នាក់រៀនទាំងមូលបាន។	1	2	3	4	5	
73. ខ្ញុំនឹងអាចបង្កើតប្រព័ន្ធគ្រប់គ្រងថ្នាក់រៀនមួយបានយ៉ាងល្អជាមួយសិស្ស។	1	2	3	4	5	
74. ខ្ញុំនឹងអាចធ្វើឱ្យសិស្សគោរពវិន័យសិក្សាបាន។	1	2	3	4	5	
75. ខ្ញុំនឹងអាចលើកទឹកចិត្តសិស្សដែលមិនសូវចាប់អារម្មណ៍ក្នុងការរៀនឱ្យខំរៀនជាងមុន។	1	2	3	4	5	
76. ខ្ញុំនឹងអាចទប់ទល់បានយ៉ាងល្អជាមួយសិស្សដែលមានឥរិយាបថចេសវីធីរូស។	1	2	3	4	5	
77. ខ្ញុំនឹងអាចឆ្លើយតបទៅនឹងសំណួរពិបាកៗរបស់សិស្សបាន។	1	2	3	4	5	
78. ខ្ញុំនឹងអាចប្រើប្រាស់វិធីសាស្ត្របង្រៀនផ្សេងៗបានយ៉ាងមានប្រសិទ្ធភាព។	1	2	3	4	5	
79. ខ្ញុំនឹងអាចជួយឱ្យសិស្សគិតបែបស៊ីជម្រៅបាន។	1	2	3	4	5	

**សូមមេត្តាពិនិត្យមើលឡើងវិញដើម្បីឱ្យប្រាកដថាអ្នកបានឆ្លើយតបគ្រប់ល្អៗហើយ !**  
**សូមអរគុណចំពោះការសហការរបស់អ្នក ៕៕៕**

## **APPENDIX B.**

Survey questionnaire: English version

## Survey Questionnaire

This questionnaire is designed to gather information from first-year pre-service secondary teachers in the six regional teacher training centres in Cambodia. The questionnaire consists of four main parts: (1) demographic information, (2) teaching and learning, (3) the evaluation of learning courses and interests in course content and regional teacher training centres, and (4) confidence in future teaching practices. All responses to this questionnaire will be confidential.

Should you need help with this questionnaire, please feel free to contact me at 089270280 or [channsokhom@gmail.com](mailto:channsokhom@gmail.com).

### Part 1: Demographic information

Please tick (✓) in the box that is true to you and fill in your own information in the space provided.

1. Sex:                      1. ☐ Male                      2. ☐ Female

2. Age: ..... years

3. Major:                      1. ☐ Mathematics-Physics                      2. ☐ Physics-Chemistry  
    3. ☐ Biology-Earth Science                      4. ☐ History-Geography  
    5. ☐ ICT-English                      6. ☐ Khmer-Civics  
    7. ☐ English-Khmer                      8. ☐ Khmer-Home Economics

4. Study place:                      1. ☐ Battambang Regional Teacher Training Centre  
    2. ☐ Phnom Penh Regional Teacher Training Centre  
    3. ☐ Kandal Regional Teacher Training Centre  
    4. ☐ Takeo Regional Teacher Training Centre  
    5. ☐ Prey Veng Regional Teacher Training Centre  
    6. ☐ Kampong Cham Regional Teacher Training Centre

## Part 2: Teaching and learning

- I. Please carefully consider each of the following statements and circle the number of a response that is true to your teacher educators who are teaching you in this education course. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<b><i>In this education course, ...</i></b>					
1. Teacher educators interpret important concepts or theories clearly	1	2	3	4	5
2. Teacher educators let me choose homework or assignments that match my own interests.	1	2	3	4	5
3. Teacher educators provide feedback that can improve my learning performance.	1	2	3	4	5
4. Teacher educators provide more than one format of assignments so that I can choose to do what I want to.	1	2	3	4	5
5. Teacher educators explain course objectives clearly.	1	2	3	4	5
6. Teacher educators use good examples to explain course content, homework, or assignments.	1	2	3	4	5
7. Teacher educators are available for consultation when I have problems with course content, homework, or assignments.	1	2	3	4	5
8. Teacher educators accept my suggestions or ideas when designing assignments for me.	1	2	3	4	5
9. Teacher educators provide constructive feedback on my homework or assignments.	1	2	3	4	5
10. Teacher educators summarise course content effectively.	1	2	3	4	5
11. Teacher educators encourage me to participate in class or group activities.	1	2	3	4	5

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<i>In this education course, ...</i>					
12. Teacher educators explain how to do homework or assignments clearly.	1	2	3	4	5
13. Teacher educators decide with me on who I should learn or do group work with.	1	2	3	4	5
14. Teacher educators give feedback that can enhance my understanding of the content taught.	1	2	3	4	5
15. Teacher educators explain course content clearly.	1	2	3	4	5
16. Teacher educators decide with me on what I should learn.	1	2	3	4	5
17. Teacher educators check whether I have learned the content taught before moving on.	1	2	3	4	5
18. Teacher educators decide with me on how to assess what I have learned in their courses.	1	2	3	4	5

II. Please carefully consider each of the following statements and circle the number of a response that is true to you in this education course. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<i>In this education course, ...</i>					
19. I try to understand other students' ideas in my group.	1	2	3	4	5
20. I teach or help other students in my group when they encounter problems with course content, homework, or assignments.	1	2	3	4	5

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<b><i>In this education course, ...</i></b>					
21. I prefer course content that satisfies my curiosity even if it is difficult to learn.	1	2	3	4	5
22. I participate in class activities or group assignments because I want to learn new things.	1	2	3	4	5
23. It is important for me to improve my overall grade point average.	1	2	3	4	5
24. I choose assignments from which I can learn new things even if they don't guarantee a good grade.	1	2	3	4	5
25. I get constructive feedback from other students in my group about learning course content or doing homework or assignments.	1	2	3	4	5
26. I collaborate with other students in my group to prepare group assignments.	1	2	3	4	5
27. The most satisfying thing for me is trying to understand course content as much as I can.	1	2	3	4	5
28. The most satisfying thing for me is to get a good grade.	1	2	3	4	5
29. I prefer course content from which I can learn new things.	1	2	3	4	5
30. Getting a good grade is my main concern.	1	2	3	4	5
31. Trying to learn new things as much as I can is the most satisfying thing for me.	1	2	3	4	5
32. I ask other students in my group about their ideas.	1	2	3	4	5
33. I need to perform well because I want to show off my ability.	1	2	3	4	5
34. I want to perform well because I want to be praised.	1	2	3	4	5

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<b><i>In this education course, ...</i></b>					
35. I discuss my ideas with other students in my group.	1	2	3	4	5
36. If I can, I want to get better grades than most of my classmates.	1	2	3	4	5
37. I actively participate in group activities with other students in my group.	1	2	3	4	5
38. I study as hard as I can.	1	2	3	4	5
39. I try to summarise the concepts or theories that I have learned from school in my own words.	1	2	3	4	5
40. When I study, I try to identify the similarities and differences between what I am learning and what I already know.	1	2	3	4	5
41. I review what I have learned from school.	1	2	3	4	5
42. I talk about course content or my assignments with other students after class time.	1	2	3	4	5
43. When I study, my mind wanders.	1	2	3	4	5
44. I try to summarise what I have just learned in my own words.	1	2	3	4	5
45. When I study, I actively participate in class activities.	1	2	3	4	5
46. When I encounter difficulties in learning course content or doing an assignment, I keep working at it until I think I have solved it.	1	2	3	4	5
47. I make up my own examples in order that I can better understand important concepts or theories I have learned from school.	1	2	3	4	5

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<b><i>In this education course, ...</i></b>					
48. In order to better understand course content, I try to relate it to what I already know.	1	2	3	4	5
49. When I study, I try to match what I am learning with my own experiences.	1	2	3	4	5

**Part 3: Evaluation of learning courses and interests in course content and regional teacher training centres**

- I. Please carefully consider each of the following statements and circle the number of a response that is true to you in this education course. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
50. I like this teacher education programme.	1	2	3	4	5
51. What I learn in this education course is interesting.	1	2	3	4	5
52. What I learn in this education course will lead to my future occupational success.	1	2	3	4	5
53. What I learn in this education course satisfies my curiosity.	1	2	3	4	5
54. I think learning in this education course is boring.	1	2	3	4	5
55. I am proud to be part of this regional teacher training centre.	1	2	3	4	5
56. What I learn in this education course is beneficial for me.	1	2	3	4	5
57. I am interested in learning in this education course.	1	2	3	4	5



<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>2 = disagree</i>	<i>3 = unsure</i> 	<i>4 = agree</i> <i>5 = strongly agree</i>			
58. It is important for me to learn the content taught in this education course.	1	2	3	4	5
59. I will be able to use what I learn in this education course in my future teaching career.	1	2	3	4	5
60. I like what I learn in this education course.	1	2	3	4	5
61. I will be able to use the content taught in this education course in the future.	1	2	3	4	5

#### **Part 4: Confidence in future teaching practices**

- I. Please carefully consider each of the following statements and circle the number of a response that is true to you. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>2 = disagree</i>	<i>3 = unsure</i> 	<i>4 = agree</i> <i>5 = strongly agree</i>			
<i><b>In my future classes, ...</b></i>					
62. I will be able to use various assessment methods effectively.	1	2	3	4	5
63. I will be able to adjust my lessons to the proper level for individual students.	1	2	3	4	5
64. I will be able to ask various questions that can improve student learning.	1	2	3	4	5
65. I will be able to control disruptive behaviour.	1	2	3	4	5
66. I will be able to get students to believe that they can do well in schoolwork.	1	2	3	4	5

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<b><i>In my future classes, ...</i></b>					
67. I will be able to collaborate with students' families to help them to do well in their learning.	1	2	3	4	5
68. I will be able to improve the understanding of a student who is failing.	1	2	3	4	5
69. I will be able to help students value learning.	1	2	3	4	5
70. I will be able to calm down a student who is disruptive or noisy.	1	2	3	4	5
71. I will be able to use various examples to explain what students find difficult to understand.	1	2	3	4	5
72. I will be able to keep problem students from ruining an entire lesson.	1	2	3	4	5
73. I will be able to create a classroom management system with students well.	1	2	3	4	5
74. I will be able to get students to follow classroom rules.	1	2	3	4	5
75. I will be able to motivate students with low interest in learning to study harder.	1	2	3	4	5
76. I will be able to respond to defiant students well.	1	2	3	4	5
77. I will be able to respond to difficult questions from students.	1	2	3	4	5
78. I will be able to apply various teaching techniques effectively.	1	2	3	4	5
79. I will be able to help students think critically.	1	2	3	4	5

**Please check again to make sure that you have responded to all items!**

THANK YOU FOR YOUR COOPERATION

## **APPENDIX C.**

Learning achievement test: A pilot test





21. I asked her \_\_\_\_\_.  
 A. why had she come here                      B. why she had come here  
 C. she had come here                              D. why did she come here
22. Shakespeare's plays \_\_\_\_\_ for film many times.  
 A. are adopted                                      B. adopted  
 C. have been adopted                              D. have adopted
23. Suzuki Swift cars \_\_\_\_\_ in Hungary since 1992.  
 A. made    B. are made  
 C. have made                                        D. have been made
24. We're looking forward \_\_\_\_\_ them.  
 A. to meeting                                        B. meet  
 C. to meet    D. meeting
25. You promised that you \_\_\_\_\_ the work by the end of this week.  
 A. will finish                                        B. are going to finish  
 C. would finish                                      D. had to finish
26. They \_\_\_\_\_ their house. They've always loved living there.  
 A. might have solved                              B. must have sold  
 C. can't have sold                                   D. should have sold
27. She never lets me \_\_\_\_\_ anything.  
 A. to do    B. do  
 C. doing    D. to doing
28. If I \_\_\_\_\_ you, I would buy the red jacket.  
 A. am    B. was  
 C. were    D. had been
29. She \_\_\_\_\_ here in Battambang province for 11 years.  
 A. lives    B. had lived  
 C. would live                                        D. has lived
30. What \_\_\_\_\_ if you had won?  
 A. had you done                                    B. would you do  
 C. did you do                                        D. would you have done
31. He knows it was a mistake. He \_\_\_\_\_ the money.  
 A. shouldn't have stolen                        B. shouldn't steal  
 C. shouldn't have to steal                       D. should steal



43. My grandfather \_\_\_\_\_ until he was 66.  
 A. hasn't retired B. wasn't retired  
 C. wouldn't retire D. didn't retired
44. You shouldn't have told her the truth. It \_\_\_\_\_ her.  
 A. might have upset B. might upset  
 C. would upset D. couldn't have upset
45. Someone \_\_\_\_\_ the money because it is not here.  
 A. might take B. can't have taken  
 C. would take D. must have taken
46. How \_\_\_\_\_ with the problems he has?  
 A. had you dealt B. would you deal  
 C. would you have dealt D. will you deal
47. \_\_\_\_\_ a good student when she was younger?  
 A. Has she been B. Would she  
 C. Is she D. Was she
48. Hundreds of trees were blown over in the night so the wind \_\_\_\_\_ very strong.  
 A. must have been B. can't have been  
 C. could have been D. couldn't have been
49. He would have married her sister if he \_\_\_\_\_ her.  
 A. had loved B. loves  
 C. loved D. would love
50. If you'd asked me, I \_\_\_\_\_ you.  
 A. could help B. could have helped  
 C. could be helping D. would help
51. Natalie's looking really depressed. She \_\_\_\_\_ her exam.  
 A. should have failed B. can't have failed  
 C. may have failed D. mustn't have failed
52. She's been driving all day. She \_\_\_\_\_ be tired.  
 A. must B. might  
 C. can't D. shouldn't
53. Don't forget \_\_\_\_\_ those letters today. They're urgent.  
 A. post B. posting  
 C. to posting D. to post





- |                   |        |
|-------------------|--------|
| 62. A. no article | B. a   |
| C. an             | D. the |
| 63. A. no article | B. a   |
| C. an             | D. the |
| 64. A. no article | B. a   |
| C. an             | D. the |
| 65. A. no article | B. a   |
| C. an             | D. the |
| 66. A. no article | B. a   |
| C. an             | D. the |
| 67. A. no article | B. a   |
| C. an             | D. the |
| 68. A. no article | B. a   |
| C. an             | D. the |
| 69. A. no article | B. a   |
| C. an             | D. the |
| 70. A. no article | B. a   |
| C. an             | D. the |

**II. Vocabulary section: Circle the letter A, B, C, or D of the best answer. (30 pts)**

71. Her father \_\_\_\_\_ that Kanha had been to Bangkok before.  
 A. persuaded B. reminded  
 C. told D. mentioned
72. Judy \_\_\_\_\_ going for a walk, but no one else wanted to.  
 A. admitted B. offered  
 C. suggested D. promised
73. The kids \_\_\_\_\_ over the garden wall to get their football back.  
 A. climbed B. hugged  
 C. chewed D. crawled
74. The last time I saw Jonathan, he looked very relaxed. He explained that he'd been on holiday the \_\_\_\_\_ week.  
 A. previous B. earlier  
 C. following D. next

75. The police officer \_\_\_\_\_ him to put down his gun and put his hands above his head.  
A. ordered  
B. advised  
C. reminded  
D. suggested
76. I want to watch TV now. Could you \_\_\_\_\_, please?  
A. look it up  
B. turn it on  
C. look for it  
D. switch it off
77. You can try on clothes in the \_\_\_\_\_ room.  
A. waiting  
B. clothing  
C. changing  
D. living
78. She \_\_\_\_\_ that she liked cold coffee.  
A. replied  
B. described  
C. spoke  
D. talked
79. The \_\_\_\_\_ of NATO are in Brussels.  
A. amenities  
B. headquarters  
C. chairmen  
D. offices
80. You'll need to \_\_\_\_\_ an answer to this problem.  
A. get on with  
B. run out of  
C. come up with  
D. get rid of
81. We all hated the film – it was really \_\_\_\_\_.  
A. hilarious  
B. superb  
C. great  
D. awful
82. I hate \_\_\_\_\_ about friends, but I'll tell you what I've heard about Jill.  
A. gossiping  
B. chatting  
C. protesting  
D. accusing
83. I thought she'd taken my car, but she \_\_\_\_\_ it.  
A. suggested taking  
B. denied taking  
C. allowed taking  
D. refused to take
84. People carry their important documents in their \_\_\_\_\_.  
A. suitcase  
B. papercase  
C. briefcase  
D. bookcase
85. Last week, workers \_\_\_\_\_ about their bad conditions.  
A. suggested  
B. protested  
C. demanded  
D. quarreled



97. We're going to watch the evening \_\_\_\_\_ from our window.  
A. heatwave B. skyline  
C. sunset D. sunrise
98. Oops. I'm afraid I've dropped a \_\_\_\_\_. It may be broken.  
A. teacup B. tea bag  
C. teaspoon D. tea ball
99. She looks \_\_\_\_\_ her mother; they have the same eyes and nose.  
A. like B. as  
C. same D. the same
100. We spent the whole afternoon sitting in a traffic \_\_\_\_\_.  
A. jam B. halt  
C. error C. accident

**Good Luck!**

## **APPENDIX D.**

Pre-test and post-test learning achievement test



10. I can't stand people \_\_\_\_\_ me what to do.  
 A. telling B. tell  
 C. to tell D. to telling
11. John's decided \_\_\_\_\_ for the job again.  
 A. apply B. applying  
 C. applied D. to apply
12. Bora and Borey look totally different. They \_\_\_\_\_ be identical twins.  
 A. can't B. might  
 C. should D. shouldn't
13. Phalla admitted that she \_\_\_\_\_ the shopping.  
 A. have forgotten B. forgot  
 C. forget D. had forgotten
14. I told you \_\_\_\_\_ switch off the computer, didn't I?  
 A. don't B. not to  
 C. not D. to not
15. I asked her \_\_\_\_\_.  
 A. why had she come here B. why she had come here  
 C. she had come here D. why did she come here
16. Shakespeare's plays \_\_\_\_\_ for film many times.  
 A. are adopted B. adopted  
 C. have been adopted D. have adopted
17. Suzuki Swift cars \_\_\_\_\_ in Hungary since 1992.  
 A. made B. are made  
 C. have made D. have been made
18. We're looking forward \_\_\_\_\_ them.  
 A. to meeting B. meet  
 C. to meet D. meeting
19. You promised that you \_\_\_\_\_ the work by the end of this week.  
 A. will finish B. are going to finish  
 C. would finish D. had to finish
20. They \_\_\_\_\_ their house. They've always loved living there.  
 A. might have solved B. must have sold  
 C. can't have sold D. should have sold



21. She never lets me \_\_\_\_\_ anything.  
 A. to do B. do  
 C. doing D. to doing
22. If I \_\_\_\_\_ you, I would buy the red jacket.  
 A. am B. was  
 C. were D. had been
23. She \_\_\_\_\_ here in Battambang province for 11 years.  
 A. lives B. had lived  
 C. would live D. has lived
24. What \_\_\_\_\_ if you had won?  
 A. had you done B. would you do  
 C. did you do D. would you have done
25. He knows it was a mistake. He \_\_\_\_\_ the money.  
 A. shouldn't have stolen B. shouldn't steal  
 C. shouldn't have to steal D. should steal
26. They could have escaped if they \_\_\_\_\_ to put petrol in the car.  
 A. don't forget B. didn't forget  
 C. hadn't forgotten D. wouldn't forget
27. I \_\_\_\_\_ so embarrassed if he'd seen me staring at him.  
 A. will be B. would have been  
 C. would be D. was
28. They warned us \_\_\_\_\_ that restaurant.  
 A. not try B. not trying  
 C. don't try D. not to try
29. She doesn't mind \_\_\_\_\_ with the lights on.  
 A. sleep B. sleeping  
 C. to sleep D. to sleeping
30. My brother \_\_\_\_\_ for this company since he left university in 2010.  
 A. worked B. had worked  
 C. works D. has worked
31. Sorry, this isn't the police, this is McDonald's. You \_\_\_\_\_ the wrong number.  
 A. can't have rung B. have rung  
 C. must have rung D. mustn't have rung

32. John \_\_\_\_\_ if you'd asked him.  
 A. might help  
 B. might have helped  
 C. might be helping  
 D. helped
33. \_\_\_\_\_ my brother lately?  
 A. Did you see  
 B. Do you see  
 C. Have you been seeing  
 D. Have you seen
34. My grandfather \_\_\_\_\_ until he was 66.  
 A. hasn't retired  
 B. wasn't retired  
 C. wouldn't retire  
 D. didn't retired
35. You shouldn't have told her the truth. It \_\_\_\_\_ her.  
 A. might have upset  
 B. might upset  
 C. would upset  
 D. couldn't have upset
36. Someone \_\_\_\_\_ the money because it is not here.  
 A. might take  
 B. can't have taken  
 C. would take  
 D. must have taken
37. How \_\_\_\_\_ with the problems he has?  
 A. had you dealt  
 B. would you deal  
 C. would you have dealt  
 D. will you deal
38. \_\_\_\_\_ a good student when she was younger?  
 A. Has she been  
 B. Would she  
 C. Is she  
 D. Was she
39. Hundreds of trees were blown over in the night so the wind \_\_\_\_\_ very strong.  
 A. must have been  
 B. can't have been  
 C. could have been  
 D. couldn't have been
40. If you'd asked me, I \_\_\_\_\_ you.  
 A. could help  
 B. could have helped  
 C. could be helping  
 D. would help
41. Natalie's looking really depressed. She \_\_\_\_\_ her exam.  
 A. should have failed  
 B. can't have failed  
 C. may have failed  
 D. mustn't have failed
42. She's been driving all day. She \_\_\_\_\_ be tired.  
 A. must  
 B. might  
 C. can't  
 D. shouldn't

43. Don't forget \_\_\_\_\_ those letters today. They're urgent.  
 A. post B. posting  
 C. to posting D. to post
44. Where \_\_\_\_\_ to primary school when you were a small child?  
 A. did you go B. have you gone  
 C. would you go D. do you go
45. You can't stop me \_\_\_\_\_ what I love.  
 A. do B. to do  
 C. doing D. to doing
46. I'll never forget \_\_\_\_\_ the King.  
 A. meet B. to meet  
 C. meeting D. to meeting
47. They still remember \_\_\_\_\_ me a postcard.  
 A. send B. sending  
 C. to send D. to sending

I remember (48) \_\_\_\_\_ embarrassing moment. when I was starting to learn English. My teacher's name was Trevor Jones. He was from Cardiff in Wales. He was always making (49) \_\_\_\_\_ jokes. One day he wrote (50) \_\_\_\_\_ words "English Gramer" on (51) \_\_\_\_\_ blackboard. He asked us if that was correct. Immediately I offered to answer (52) \_\_\_\_\_ question. I told him (53) \_\_\_\_\_ E should be changed to A. Trevor said that was (54) \_\_\_\_\_ good answer and he changed (55) \_\_\_\_\_ letter. Then he asked me if I was happy with (56) \_\_\_\_\_ new spelling. With absolute confidence, I said that it was now correct. Suddenly, the other students started laughing. I looked around in confusion. My friend whispered that it needed (57) \_\_\_\_\_ second M. "Oh, it should have (58) \_\_\_\_\_ M too!" I shouted out and Trevor nodded with (59) \_\_\_\_\_ smile. It was correct. However, I still remember (60) \_\_\_\_\_ terrible feeling of embarrassment from that moment.

48. A. no article B. a  
 C. an D. the
49. A. no article B. a  
 C. an D. the
50. A. no article B. a  
 C. an D. the

- |                   |        |
|-------------------|--------|
| 51. A. no article | B. a   |
| C. an             | D. the |
| 52. A. no article | B. a   |
| C. an             | D. the |
| 53. A. no article | B. a   |
| C. an             | D. the |
| 54. A. no article | B. a   |
| C. an             | D. the |
| 55. A. no article | B. a   |
| C. an             | D. the |
| 56. A. no article | B. a   |
| C. an             | D. the |
| 57. A. no article | B. a   |
| C. an             | D. the |
| 58. A. no article | B. a   |
| C. an             | D. the |
| 59. A. no article | B. a   |
| C. an             | D. the |
| 60. A. no article | B. a   |
| C. an             | D. the |

**II. Vocabulary section: Circle the letter A, B, C, or D of the best answer. (20 pts)**

61. Her father \_\_\_\_\_ that Kanha had been to Bangkok before.
- |              |              |
|--------------|--------------|
| A. persuaded | B. reminded  |
| C. told      | D. mentioned |
62. Judy \_\_\_\_\_ going for a walk, but no one else wanted to.
- |              |             |
|--------------|-------------|
| A. admitted  | B. offered  |
| C. suggested | D. promised |
63. The last time I saw Jonathan, he looked very relaxed. He explained that he'd been on holiday the \_\_\_\_\_ week.
- |              |            |
|--------------|------------|
| A. previous  | B. earlier |
| C. following | D. next    |

64. The police officer \_\_\_\_\_ him to put down his gun and put his hands above his head.  
A. ordered  
B. advised  
C. reminded  
D. suggested
65. I want to watch TV now. Could you \_\_\_\_\_, please?  
A. look it up  
B. turn it on  
C. look for it  
D. switch it off
66. You can try on clothes in the \_\_\_\_\_ room.  
A. waiting  
B. clothing  
C. changing  
D. living
67. She \_\_\_\_\_ that she liked cold coffee.  
A. replied  
B. described  
C. spoke  
D. talked
68. I hate \_\_\_\_\_ about friends, but I'll tell you what I've heard about Jill.  
A. gossiping  
B. chatting  
C. protesting  
D. accusing
69. I thought she'd taken my car, but she \_\_\_\_\_ it.  
A. suggested taking  
B. denied taking  
C. allowed taking  
D. refused to take
70. Last week, workers \_\_\_\_\_ about their bad conditions.  
A. suggested  
B. protested  
C. demanded  
D. quarreled
71. The police are \_\_\_\_\_ him of stealing the necklace.  
A. accusing  
B. denying  
C. criticising  
D. chatting
72. People often \_\_\_\_\_ Derek for his rude behavior.  
A. criticise  
B. refuse  
C. accuse  
D. gossip
73. \_\_\_\_\_ it in my ear – I don't want anyone to hear.  
A. Talk  
B. Whisper  
C. Speak  
D. Scream
74. The fastest way to get there is by taking the \_\_\_\_\_.  
A. headway  
B. motorway  
C. runway  
D. doorway

75. I quickly read the \_\_\_\_\_ in the newspaper to see what's happening.  
A. headlines  
B. headlights  
C. highlights  
D. landlines
76. I \_\_\_\_\_ a lot more money in my new job.  
A. have  
B. win  
C. make  
D. find
77. The bus is so \_\_\_\_\_. I can't move.  
A. modern  
B. crowded  
C. noisy  
D. interesting
78. I'm sorry I'm late. I \_\_\_\_\_ the bus.  
A. left  
B. lost  
C. missed  
D. had
79. She looks \_\_\_\_\_ her mother; they have the same eyes and nose.  
A. like  
B. as  
C. same  
D. the same
80. We spent the whole afternoon sitting in a traffic \_\_\_\_\_.  
A. jam  
B. halt  
C. error  
D. accident

**Good Luck!**

## **Appendix E.**

Pre-test and post-test questionnaire: Khmer version





តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងធម៌នេះ ...						
12. នៅពេលរៀន ខ្ញុំព្យាយាមរកឱ្យឃើញពីភាពដូចគ្នានិងភាពខុសគ្នារវាងអ្វីដែលខ្ញុំកំពុងរៀននិងអ្វីដែលខ្ញុំចេះរួចហើយ។	1	2	3	4	5	
13. ខ្ញុំអ្នកឡើងវិញនូវអ្វីដែលខ្ញុំបានរៀនពីសាលា។	1	2	3	4	5	
14. នៅពេលរៀន អារម្មណ៍របស់ខ្ញុំរីករាយ។	1	2	3	4	5	
15. ខ្ញុំព្យាយាមសង្ខេបអ្វីដែលខ្ញុំទើបរៀនរួចដោយប្រើពាក្យរបស់ខ្ញុំផ្ទាល់។	1	2	3	4	5	
16. នៅពេលរៀន ខ្ញុំចូលរួមសកម្មភាពក្នុងថ្នាក់យ៉ាងសកម្ម។	1	2	3	4	5	
17. ពេលខ្ញុំជួបបញ្ហាពិបាកក្នុងការរៀនមេរៀនឬការធ្វើកិច្ចការស្រាវជ្រាវ ខ្ញុំនៅតែបន្តធ្វើវារហូតទាល់តែខ្ញុំគិតថាខ្ញុំអាចដោះស្រាយនឹងវាបាន។	1	2	3	4	5	
18. ខ្ញុំបង្កើតឧទាហរណ៍ផ្ទាល់ខ្លួនដើម្បីឱ្យយល់ពីគោលគំនិតឬទ្រឹស្តីសំខាន់ៗដែលខ្ញុំបានរៀនពីសាលា។	1	2	3	4	5	
19. ដើម្បីឱ្យយល់មេរៀនមួយកាន់តែច្បាស់ ខ្ញុំភ្ជាប់មេរៀននោះទៅនឹងអ្វីដែលខ្ញុំចេះរួចហើយ។	1	2	3	4	5	
20. នៅពេលរៀន ខ្ញុំព្យាយាមភ្ជាប់អ្វីដែលខ្ញុំកំពុងរៀនទៅនឹងបទពិសោធន៍ផ្ទាល់ខ្លួនរបស់ខ្ញុំ។	1	2	3	4	5	

**ផ្នែកទី៣៖ ការវាយតម្លៃវគ្គសិក្សា និង ការចាប់អារម្មណ៍ទៅលើខ្លឹមសារមេរៀននិងមជ្ឈមណ្ឌលគរុកោសល្យតូមីភាគ**

I. សូមពិចារណាល្អៗនីមួយៗក្នុងតារាងខាងក្រោម ហើយគូសរង្វង់ជុំវិញលេខចម្លើយដែលពិតចំពោះអ្នកនៅក្នុងធម៌នេះ។ អ្នកអាចជ្រើសរើសចម្លើយបានតែមួយគត់ ( 1, 2, 3, 4, ឬ 5 ) ចេញពីកូឡោនចម្លើយ។

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?	ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប	3 = មិនប្រាកដ		4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង		
21. ខ្ញុំពេញចិត្តកម្មវិធីបណ្តុះបណ្តាលគ្រូបង្រៀនមួយនេះ។	1	2	3	4	5
22. អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះគួរឱ្យចាប់អារម្មណ៍។	1	2	3	4	5
23. អ្វីដែលខ្ញុំរៀនក្នុងធម៌នេះនឹងនាំទៅរកភាពជោគជ័យក្នុងអាជីពការងាររបស់ខ្ញុំនាពេលអនាគត។	1	2	3	4	5

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?	ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប	3 = មិនប្រាកដ		4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង		
24. ខ្ញុំគិតថាការរៀនក្នុងធនាគារនេះគួរឱ្យធុញទ្រាន់។	1	2	3	4	5
25. ខ្ញុំមានមោទនភាពពេលដែលបានក្លាយជាផ្នែកមួយនៃមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគមួយនេះ។	1	2	3	4	5
26. អ្វីដែលខ្ញុំរៀនក្នុងធនាគារនេះមានប្រយោជន៍ចំពោះខ្ញុំ។	1	2	3	4	5
27. ខ្ញុំចាប់អារម្មណ៍នឹងការរៀនក្នុងធនាគារនេះ។	1	2	3	4	5
28. វាសំខាន់ចំពោះខ្ញុំក្នុងការរៀនមេរៀនសម្រាប់ធនាគារនេះ។	1	2	3	4	5
29. ខ្ញុំអាចប្រើប្រាស់អ្វីដែលខ្ញុំរៀនក្នុងធនាគារនេះក្នុងអាជីពបង្រៀនរបស់ខ្ញុំនាពេលអនាគតបាន។	1	2	3	4	5
30. ខ្ញុំពេញចិត្តនឹងអ្វីដែលខ្ញុំកំពុងរៀនក្នុងធនាគារនេះ។	1	2	3	4	5
31. ខ្ញុំអាចប្រើប្រាស់មេរៀនក្នុងធនាគារនេះនាពេលអនាគតបាន។	1	2	3	4	5

**ផ្នែកទី៤៖ តារាងជៀសវាងការបង្រៀននាពេលអនាគត**

I. សូមពិចារណាល្អៗនីមួយៗក្នុងតារាងខាងក្រោម ហើយគូសរង្វង់ជុំវិញលេខចម្លើយដែលពិតចំពោះអ្នក។ អ្នកអាចជ្រើសរើសចម្លើយបានតែមួយគត់ (1, 2, 3, 4, ឬ 5) ចេញពីកូឡោនចម្លើយ។

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ 2 = មិនយល់ស្រប		3 = មិនប្រាកដ		4 = យល់ស្រប 5 = យល់ស្របទាំងស្រុង		
ក្នុងការបង្រៀននាពេលខាងមុខ ...						
32. ខ្ញុំនឹងអាចប្រើប្រាស់វិធីសាស្ត្រវាយតម្លៃផ្សេងៗបានយ៉ាងមានប្រសិទ្ធភាព។		1	2	3	4	5
33. ខ្ញុំនឹងអាចប្រើប្រាស់សំណួរផ្សេងៗដែលអាចជួយឱ្យការរៀនរបស់សិស្សប្រសើរឡើង។		1	2	3	4	5
34. ខ្ញុំនឹងអាចគ្រប់គ្រងសកម្មភាពរំខានបាន។		1	2	3	4	5
35. ខ្ញុំនឹងអាចធ្វើឱ្យសិស្សជឿជាក់ថាពួកគេអាចធ្វើកិច្ចការសាលាបានយ៉ាងល្អ។		1	2	3	4	5

តើអ្នកយល់ស្របតាមល្អៗនីមួយៗខាងក្រោមកម្រិតណា ?		ចម្លើយ				
1 = មិនយល់ស្របសោះ	3 = មិនប្រាកដ	4 = យល់ស្រប				
2 = មិនយល់ស្រប		5 = យល់ស្របទាំងស្រុង				
ក្នុងការបង្រៀននាពេលខាងមុខ ...						
36. ខ្ញុំនឹងអាចធ្វើឱ្យការយល់ដឹងរបស់សិស្សដែលរៀនខ្សោយប្រសើរឡើងបាន។	1	2	3	4	5	
37. ខ្ញុំនឹងអាចជួយឱ្យសិស្សផ្តល់តម្លៃលើការសិក្សារបស់ខ្លួនបាន។	1	2	3	4	5	
38. ខ្ញុំនឹងអាចគ្រប់គ្រងសិស្សដែលធ្វើសកម្មភាពរំខានឬឡូឡាបាន។	1	2	3	4	5	
39. ខ្ញុំនឹងអាចប្រើប្រាស់ឧទាហរណ៍ផ្សេងៗដើម្បីពន្យល់នូវអ្វីដែលសិស្សគិតថាពិបាកយល់។	1	2	3	4	5	
40. ខ្ញុំនឹងអាចទប់ស្កាត់សិស្សដែលមានបញ្ហាមិនឱ្យបង្កការរំខានដល់ថ្នាក់រៀនទាំងមូលបាន។	1	2	3	4	5	
41. ខ្ញុំនឹងអាចធ្វើឱ្យសិស្សគោរពវិន័យសិក្សាបាន។	1	2	3	4	5	
42. ខ្ញុំនឹងអាចលើកទឹកចិត្តសិស្សដែលមិនសូវចាប់អារម្មណ៍ក្នុងការរៀនឱ្យខំរៀនជាងមុន។	1	2	3	4	5	
43. ខ្ញុំនឹងអាចឆ្លើយតបទៅនឹងសំណួរពិបាកៗរបស់សិស្សបាន។	1	2	3	4	5	
44. ខ្ញុំនឹងអាចប្រើប្រាស់វិធីសាស្ត្របង្រៀនផ្សេងៗបានយ៉ាងមានប្រសិទ្ធភាព។	1	2	3	4	5	

**សូមមេត្តាពិនិត្យមើលឡើងវិញដើម្បីឱ្យប្រាកដថាអ្នកបានឆ្លើយតបគ្រប់ល្អៗហើយ !**  
**សូមអរគុណចំពោះការសហការរបស់អ្នក ៤៤៤**

## **Appendix F.**

Pre-test and post-test questionnaire: English version

## Survey Questionnaire

Student's Code:.....

### Part 1: Demographic information

Please tick (✓) in the box that is true to you and fill in your own information in the space provided.

1. Sex:                      1. ☐ Male                      2. ☐ Female

2. Age: ..... years

### Part 2: Learning

Please carefully consider each of the following statements and circle the number of a response that is true to you in this education course. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree                      3 = unsure                      4 = agree</i> <i>2 = disagree                                      5 = strongly agree</i>					
<b><i>In this education course, ...</i></b>					
1. I prefer course content that satisfies my curiosity even if it is difficult to learn.	1	2	3	4	5
2. It is important for me to improve my overall grade point average.	1	2	3	4	5
3. I choose assignments from which I can learn new things even if they don't guarantee a good grade.	1	2	3	4	5
4. The most satisfying thing for me is trying to understand course content as much as I can.	1	2	3	4	5
5. The most satisfying thing for me is to get a good grade.	1	2	3	4	5
6. I prefer course content from which I can learn new things.	1	2	3	4	5
7. Getting a good grade is my main concern.	1	2	3	4	5

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<b><i>In this education course, ...</i></b>					
8. Trying to learn new things as much as I can is the most satisfying thing for me.	1	2	3	4	5
9. I need to perform well because I want to show off my ability.	1	2	3	4	5
10. If I can, I want to get better grades than most of my classmates.	1	2	3	4	5
11. I study as hard as I can.	1	2	3	4	5
12. When I study, I try to identify the similarities and differences between what I am learning and what I already know.	1	2	3	4	5
13. I review what I have learned from school.	1	2	3	4	5
14. When I study, my mind wanders.	1	2	3	4	5
15. I try to summarise what I have just learned in my own words.	1	2	3	4	5
16. When I study, I actively participate in class activities.	1	2	3	4	5
17. When I encounter difficulties in learning course content or doing an assignment, I keep working at it until I think I have solved it.	1	2	3	4	5
18. I make up my own examples in order that I can better understand important concepts or theories I have learned from school.	1	2	3	4	5
19. In order to better understand course content, I try to relate it to what I already know.	1	2	3	4	5
20. When I study, I try to match what I am learning with my own experiences.	1	2	3	4	5

**Part 3: Evaluation of learning courses and interests in course content and regional teacher training centres**

I. Please carefully consider each of the following statements and circle the number of a response that is true to you in this education course. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
21. I like this teacher education programme.	1	2	3	4	5
22. What I learn in this education course is interesting.	1	2	3	4	5
23. What I learn in this education course will lead to my future occupational success.	1	2	3	4	5
24. I think learning in this education course is boring.	1	2	3	4	5
25. I am proud to be part of this regional teacher training centre.	1	2	3	4	5
26. What I learn in this education course is beneficial for me.	1	2	3	4	5
27. I am interested in learning in this education course.	1	2	3	4	5
28. It is important for me to learn the content taught in this education course.	1	2	3	4	5
29. I will be able to use what I learn in this education course in my future teaching career.	1	2	3	4	5
30. I like what I learn in this education course.	1	2	3	4	5
31. I will be able to use the content taught in this education course in the future.	1	2	3	4	5

#### Part 4: Confidence in future teaching practices

I. Please carefully consider each of the following statements and circle the number of a response that is true to you. You can choose only one response (1, 2, 3, 4, or 5) from the responses column.

<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<i>In my future classes, ...</i>					
32. I will be able to use various assessment methods effectively.	1	2	3	4	5
33. I will be able to ask various questions that can improve student learning.	1	2	3	4	5
34. I will be able to control disruptive behaviour.	1	2	3	4	5
35. I will be able to get students to believe that they can do well in schoolwork.	1	2	3	4	5
36. I will be able to improve the understanding of a student who is failing.	1	2	3	4	5
37. I will be able to help students value learning.	1	2	3	4	5
38. I will be able to calm down a student who is disruptive or noisy.	1	2	3	4	5
39. I will be able to use various examples to explain what students find difficult to understand.	1	2	3	4	5
40. I will be able to keep problem students from ruining an entire lesson.	1	2	3	4	5
41. I will be able to get students to follow classroom rules.	1	2	3	4	5
42. I will be able to motivate students with low interest in learning to study harder.	1	2	3	4	5
43. I will be able to respond to difficult questions from students.	1	2	3	4	5



<i>How much do you agree with each of the following statements?</i>	<b>Responses</b>				
<i>1 = strongly disagree</i> <i>3 = unsure</i> <i>4 = agree</i> <i>2 = disagree</i> <i>5 = strongly agree</i>					
<i>In my future classes, ...</i>					
44. I will be able to apply various teaching techniques effectively.	1	2	3	4	5

**Please check again to make sure that you have responded to all items!**

THANK YOU FOR YOUR COOPERATION

**Appendix G.**  
Course syllabus

## **Course Syllabus**

### **Language Improvement Course**

#### **1. Course description**

The language improvement course is designed to improve English proficiency of first-year pre-service teachers majoring in teaching English and Khmer languages, called EFL pre-service teachers. The course deals with intermediate grammar and vocabulary and other four basic language learning skills. The grammar content includes present perfect tenses, present perfect passive and time adverbs and time expression used with present perfect tenses, verb patterns, conditionals, articles, and modals of probability. The vocabulary content is involved with compound nouns and pronouns, words expressing likes and dislikes, phrasal verbs and words with similar meaning, and reporting verbs. The reading, writing, listening, and speaking skills are combined with appropriate content of grammar and vocabulary.

#### **2. Course expectations/objectives**

The language improvement course is intended to help EFL pre-service teachers to:

- accurately integrate present perfect simple and continuous into natural conversation;
- accurately use conditional sentences in real-life settings;
- properly use articles with nouns used in various purposes;
- accurately report other people's statements;
- properly use deduction in the present and the past;
- correctly use verb forms in the sentence;
- correctly uses words with similar meaning, compound nouns and pronouns, words expressing likes and dislikes, and reporting verbs; and
- effectively use the above grammatical functions and rules to write a 3-page report.

#### **3. Course outcomes**

At the end of the language improvement course, EFL pre-service teachers will be able to know how to use present perfect simple and continuous; conditional sentences; modals of probability; articles; verb patterns; reported speech and questions; present perfect passive; and words expressing likes and dislikes, words with similar meaning, and compound nouns and pronouns.

#### 4. Teaching materials and course assignments

- Teaching materials
  - Textbooks
  - Handouts
  - Slides
- Course assignments
  - Report writing and presentation

#### 5. Course evaluation

- Assignment
  - Presentation 10%
  - The quality of assignment 20%
- Content knowledge
  - Final examination 70%

#### 6. Course content

Week	Content/Topic	Duration	Others
1	Pre-test assessment	2 hours	
	Orientation and assigning course assignments	2 hours	
2	Present perfect simple	2 hours	
	Present perfect continuous	2 hours	
3	Questions with “How long” for duration	2 hours	
	Words expressing likes and dislikes	2 hours	
4	Present perfect passive	2 hours	
	Adverbs and time expressions used with perfect tenses	2 hours	
5	Verb patterns 1: V + to infinitive and V + gerund (1)	2 hours	
	Verb patterns 1: V + to infinitive and V + gerund (2)	2 hours	
6	Verb patterns 2: V + sb + infinitive with and without “to”	2 hours	
	Verb patterns 3: Adjective/noun + to infinitive	2 hours	
7	Second conditionals	2 hours	
	Third conditionals	2 hours	
8	Phrasal verbs	2 hours	
	Words with similar meaning	2 hours	

Week	Content/Topic	Duration	Others
9	Noun phrases/compound nouns/compound pronouns	2 hours	
	Possessive adjectives/pronouns	2 hours	
10	Articles for specific nouns	2 hours	
	Articles for generic nouns	2 hours	
11	Articles for indefinite nouns	2 hours	
	No articles	2 hours	
12	Modals of probability in present tenses	2 hours	
	Modals of probability in past tenses	2 hours	
13	Reported speech and reporting verbs	2 hours	
	Reported questions	2 hours	
14	Presentations of assignments	2 hours	
	Presentations of assignments	2 hours	
15	Presentations of assignments	2 hours	
	Presentations of assignments	2 hours	
16	Submission of assignments	2 hours	
	Final Examination	2 hours	

## **Appendix H.**

Approval from the committee of research ethics in human



King Mongkut's University of Technology Thonburi

Certification of Exemption

Certificate Number KMUTT-IRB-COA-2018-019

Type of Review Expedited Review

Research Title

(Thai) อิทธิพลของการจัดการเรียนการสอนต่อแรงจูงใจและการมีส่วนร่วมในการเรียนของนักศึกษาครู เพื่อพัฒนาความรู้และการรับรู้ความสามารถด้านการสอนของตนเอง

(English) Effect of Instructional Practices on Preservice Teachers' Motivation and Engagement to Improve Their Content Knowledge and Teaching Self-Efficacy

Name of Principal Investigator (Advisor): Asst. Prof. Dr.Sorakrich Maneewan

Name of Student: Mr.Sukhom Chan

Office: Learning Innovation and Technology, Faculty of Industrial Education and Technology

Project Number: KMUTT-IRB-2018/0111/052

Issue Date: 11 May 2018

Expiration Date: 10 May 2019

This research project has been evaluated by the Institutional Review Board of King Mongkut's University of Technology Thonburi

*V. Bhavakul.*

(Assoc. Prof. Dr.Vanida Bhavakul)  
Chairperson of IRB

## **Appendix I.**

Approval from the ministry of education, youth, and sport





**ព្រះរាជាណាចក្រកម្ពុជា**  
**ជាតិ សាសនា ព្រះមហាក្សត្រ**

**ក្រសួងអប់រំ យុវជន និងកីឡា**  
**លេខ: ៧២៦ អយក. ៩៦៧**

ថ្ងៃសុក្រ ៥ កើត ខែបុស្ស ឆ្នាំរកា នព្វស័ក ព.ស ២៥៦១  
រាជធានីភ្នំពេញ, ថ្ងៃទី ២២ ខែ ធ្នូ គ.ស ២០១៧

**ជម្រាបជូន**

- លោកនាយកវិទ្យាស្ថានគរុកោសល្យរាជធានីភ្នំពេញ
- លោកនាយកមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគខេត្តព្រៃវែង
- លោកនាយកមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគខេត្តកំពង់ចាម
- លោកនាយកមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគខេត្តកណ្តាល
- លោកនាយកវិទ្យាស្ថានគរុកោសល្យខេត្តបាត់ដំបង
- លោកនាយកមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគខេត្តតាកែវ

**កម្មវត្ថុ :** សំណើសុំចុះធ្វើការសិក្សាស្រាវជ្រាវប្រមូលទិន្នន័យ សម្រាប់សរសេរនិក្ខេបបទបញ្ចប់ការសិក្សាពីថ្ងៃទី ០២ ខែ មករា ឆ្នាំ ២០១៨ ដល់ ថ្ងៃទី ៣១ ខែ កក្កដា ឆ្នាំ ២០១៨ ។

**យោង :** -លិខិតលេខ Our Ref.MOE 5404/052/2017 ចុះថ្ងៃទី ០៨ ខែ វិច្ឆិកា ឆ្នាំ ២០១៧ របស់សាកលវិទ្យាល័យយើងមង្គ្រត នៃព្រះរាជាណាចក្រកម្ពុជា ។

-ពាក្យស្នើសុំរបស់សាមីជនចុះថ្ងៃទី១១ ខែ ធ្នូ ឆ្នាំ ២០១៧ ។

សេចក្តីដូចមានចែងក្នុងកម្មវត្ថុ និងយោងខាងលើ ខ្ញុំសូមជម្រាបជូន **លោកនាយក** មេត្តាជ្រាបថា លោក **បាត់ សុខុម** ជានិស្សិតអាហារូបករណ៍ថ្នាក់បណ្ឌិតផ្នែកនវានុវត្តន៍ ការសិក្សា និងបច្ចេកវិទ្យា នៃសាកលវិទ្យាល័យយើងមង្គ្រតប្រទេសថៃ បានស្នើសុំចុះធ្វើកម្មសិក្សាស្រាវជ្រាវ និងប្រមូលទិន្នន័យលើប្រធានបទ " ឥទ្ធិពលនៃការបង្រៀនទៅលើការលើកទឹកចិត្តខ្លួនឯង និងការចូលរួមក្នុងការសិក្សារបស់គុសិស្សដើម្បីលើកកម្ពស់លទ្ធផលសិក្សាភាពជឿជាក់លើសមត្ថភាពខ្លួនឯងក្នុងការបង្រៀនរបស់គេ "សម្រាប់សរសេរនិក្ខេបបទបញ្ចប់ការសិក្សានាពេលខាងមុខនេះ ។

អាស្រ័យដូចបានជម្រាបជូនខាងលើ ខ្ញុំសូម **លោកនាយក** មេត្តាអនុញ្ញាតឲ្យលោក **បាត់ សុខុម** បានចុះធ្វើការសិក្សាស្រាវជ្រាវប្រមូលទិន្នន័យនៅតាម វិទ្យាស្ថានគរុកោសល្យ និងមជ្ឈមណ្ឌលគរុកោសល្យភូមិភាគខេត្ត ដូចបានរៀបរាប់ខាងលើ ចាប់ពីថ្ងៃទី០២ ខែ មករា ឆ្នាំ២០១៨ ដល់ ថ្ងៃទី ៣១ ខែ កក្កដា ឆ្នាំ ២០១៨ តាមការស្នើសុំតាមការគួរ ។

សូម **លោកនាយក** ទទួលនូវការរាប់អានដ៏ស្មោះត្រង់

- ចម្លងជូន
- ស្ថានទូតព្រះរាជាណាចក្រកម្ពុជា ប្រចាំព្រះរាជាណាចក្រកម្ពុជា
  - គ្រប់មន្ទីរអយករាជធានីខេត្តពាក់ព័ន្ធ
  - "ដើម្បីជូនជ្រាបជាព័ត៌មាន"
  - កាលប្បវត្តិ-ឯកសារ នា.១/អ

**ជ. រដ្ឋមន្ត្រីក្រសួងអប់រំ យុវជន និងកីឡា**

**អគ្គនាយកដ្ឋានអប់រំ**

**សាមីឌី ស៊ីវឌ្ឍនា**

**Appendix J.**

Consent form: Khmer version

**ព្រះរាជាណាចក្រកម្ពុជា**  
**ជាតិ សាសនា ព្រះមហាក្សត្រ**  
**៖៖៖ ៖៖៖**

**លិខិតយល់ព្រមចូលរួមក្នុងគម្រោងស្រាវជ្រាវ**

លិខិតយល់ព្រមនេះអាចមានខ្លឹមសារដែលអ្នកពិបាកយល់។ ដូច្នេះប្រសិនបើអ្នកមានសំណួរ ឬ មិនយល់ត្រង់ ចំណុចណាមួយ សូមមេត្តាទាក់ទងប្រធានគម្រោងស្រាវជ្រាវ ឬ អ្នកតំណាងគម្រោង។ អ្នកនឹងត្រូវបានផ្តល់ជូននូវ លិខិតយល់ព្រមនេះមួយច្បាប់ ហើយអ្នកអាចពិភាក្សាជាមួយឪពុកម្តាយ សាច់ញាតិ មិត្តភក្តិ គ្រូពេទ្យ ឬ អ្នកដទៃ ទៀតផ្សេងទៀត មុននឹងសម្រេចចិត្តចូលរួមក្នុងគម្រោងស្រាវជ្រាវនេះ។

**ផ្នែកទី១៖ ព័ត៌មានទាក់ទងនឹងគម្រោងស្រាវជ្រាវ**

**១.១ ព័ត៌មានទាក់ទងនឹងអ្នកស្រាវជ្រាវ**

- ១) ប្រធានគម្រោងស្រាវជ្រាវ (គ្រូណែនាំនិក្ខេបបទ)៖ Asst. Prof. Sorakrich Maneewan, PhD  
ដេប៉ាតឺម៉ង់បច្ចេកវិទ្យានិងទំនាក់ទំនងការសិក្សា មហាវិទ្យាល័យឧស្សាហកម្មសិក្សានិងបច្ចេកវិទ្យា  
សាកលវិទ្យាល័យបច្ចេកវិទ្យាយឹងមុងរុតធនបុរី  
លេខទូរស័ព្ទ៖ +66 89-3514542 និង អ៊ីមែល៖ sorakrich.man@kmutt.ac.th
- ២) អ្នកស្រាវជ្រាវ (បេក្ខជនបណ្ឌិត)៖ ចាន់ សុខុម (Chan Sokhom)  
គ្រូបង្រៀននៅអនុវិទ្យាល័យហ៊ុន សែន លេស ខេត្តកំពត ព្រះរាជាណាចក្រកម្ពុជា  
លេខទូរស័ព្ទ៖ +855 89 270 280 និង អ៊ីមែល៖ channsokhom@gmail.com

**១.២ ព័ត៌មានទាក់ទងនឹងការស្រាវជ្រាវ**

- ១) ប្រធានបទស្រាវជ្រាវ  
ឥទ្ធិពលនៃឥរិយាបថក្នុងការបង្រៀនរបស់គ្រូឧទ្ទេសទៅលើការជំរុញទឹកចិត្តខ្លួនឯងក្នុងការរៀន ការចូលរួមក្នុងការរៀន ចំណេះដឹងលើមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការបង្រៀនរបស់គរុនិស្សិត
- ២) គោលបំណងនៃការស្រាវជ្រាវ  
ពិនិត្យមើលឥទ្ធិពលនៃការបង្រៀនបែបសហការនិងបែបបាត់បង់ ទៅលើការជំរុញទឹកចិត្តខ្លួនឯងក្នុងការរៀន ការចូលរួមក្នុងការរៀន ចំណេះដឹងលើមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការបង្រៀនរបស់គរុនិស្សិត
- ៣) អត្ថប្រយោជន៍នៃការស្រាវជ្រាវ
  - ៣.១) ការស្រាវជ្រាវនេះនឹងផ្តល់ជូនបន្ថែមនូវភស្តុតាងទាក់ទងនឹងអថេរប្រកបដោយលទ្ធផលមានឥទ្ធិពលលើការជំរុញទឹកចិត្តក្នុងការរៀន ការចូលរួមក្នុងការរៀន ចំណេះដឹងក្នុងមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការបង្រៀនរបស់គរុនិស្សិត។
  - ៣.២) ជាមួយនឹងភស្តុតាងបែបវិទ្យាសាស្ត្រនេះ គ្រូឧទ្ទេសនឹងអាចបង្កើតបរិស្ថានសិក្សាមួយដែលអាចជំរុញឱ្យមានការបណ្តុះបណ្តាលគ្រូប្រកបដោយគុណភាព។
  - ៣.៣) ការស្រាវជ្រាវនេះនឹងក្លាយជាសូចនាករមួយដ៏សំខាន់សម្រាប់អ្នកអនុវត្ត និង អ្នកកំណត់គោលនយោបាយក្នុងការធ្វើកំណែទម្រង់កម្មវិធីបណ្តុះបណ្តាលគ្រូបង្រៀនដែលនឹងអាចផ្តល់ការអប់រំដ៏មានគុណភាពដល់ក្មេងជំនាន់ក្រោយ។

៤) រយៈពេលនៃការស្រាវជ្រាវ

ការស្រាវជ្រាវនេះ (ការពិសោធន៍ការបង្រៀន) នឹងមានរយៈពេលប្រហែល ០៥ខែ។

៥) ការឧបត្ថម្ភដល់គម្រោងស្រាវជ្រាវ

គម្រោងស្រាវជ្រាវនេះមិនទទួលបានការឧបត្ថម្ភអ្វីទាំងអស់។

៦) ដំណើរការនៃការស្រាវជ្រាវនិងឧបករណ៍ប្រមូលទិន្នន័យ

៦.១) ដំណើរការនៃការស្រាវជ្រាវ

- ក. ការចែកក្រុមគុណិតស្មិតសម្រាប់ការបង្រៀនពិសោធន៍៖ ក្រុមពិសោធន៍ និងក្រុមធម្មតា។
- ខ. ការប្រមូលទិន្នន័យមុនការពិសោធន៍៖ ទិន្នន័យទាក់ទងនឹងការជំរុញទឹកចិត្តខ្លួនឯងក្នុងរៀន ការចូលរួមក្នុងការរៀន ចំណេះដឹងដើមលើមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការបង្រៀន។
- គ. ការអនុវត្តវិធីសាស្ត្របង្រៀន៖ ក្រុមពិសោធន៍នឹងត្រូវរៀនតាមបែបសហការ ហើយក្រុមធម្មតានឹងត្រូវរៀនតាមបែបបាត់បង់។ ខាងក្រោមនេះជាវិធីសាស្ត្របង្រៀនសំខាន់ៗក្នុងការបង្រៀនពិសោធន៍នេះ។

- គ្រូឧទ្ទេសនឹងឱ្យគុណិតស្មិតក្នុងក្រុមពិសោធន៍ធ្វើការជាក្រុមបួនឬប្រាំនាក់រយៈពេលប្រហែល ០៥ខែ ដើម្បីរៀនមេរៀននិងធ្វើកិច្ចការស្រាវជ្រាវជាមួយគ្នា។ គុណិតស្មិតក្នុងក្រុមធម្មតានឹងត្រូវធ្វើកិច្ចការស្រាវជ្រាវដែរ ប៉ុន្តែគ្រូឧទ្ទេសជាអ្នកបង្រៀនមេរៀនដល់ពួកគេ។ គុណិតស្មិតក្នុងក្រុមធម្មតានឹងត្រូវបានផ្តល់ឱកាសក្នុងការពិភាក្សាក្រុមដែរ តែពួកគេនឹងមិនរៀនឬធ្វើការក្នុងក្រុមដដែលនោះដូចគុណិតស្មិតក្នុងក្រុមពិសោធន៍ទេ។
- គ្រូឧទ្ទេសនឹងជំរុញគុណិតស្មិតក្នុងក្រុមពិសោធន៍ឱ្យបង្រៀនឬជួយគ្នាទាក់ទងនឹងការរៀនមេរៀនដែលគ្រូប្រគល់ឱ្យឬការធ្វើកិច្ចការស្រាវជ្រាវតាមក្រុម។ គុណិតស្មិតក្នុងក្រុមធម្មតានឹងត្រូវរៀននិងធ្វើកិច្ចការស្រាវជ្រាវជាលក្ខណៈបុគ្គល។
- គ្រូឧទ្ទេសនឹងឱ្យក្រុមគុណិតស្មិតនីមួយៗក្នុងក្រុមពិសោធន៍ឡើងបង្រៀនមេរៀនដែលបានទទួលដល់មិត្តរួមថ្នាក់ក្នុងក្រុមផ្សេងទៀត។ ក្នុងករណីនេះ សមាជិកក្រុមម្នាក់ៗនឹងត្រូវជ្រើសរើសតាមបែបចាប់ឆ្នោត។ ក្នុងក្រុមធម្មតា គុណិតស្មិតនឹងមិនត្រូវបង្រៀនអ្វីសោះឡើយ។
- គុណិតស្មិតទាំងពីរក្រុមត្រូវរៀបចំនិងធ្វើបទបង្ហាញអំពីកិច្ចការស្រាវជ្រាវរបស់ពួកគេ។
- បន្ទាប់ពីទទួលបានមតិកែលម្អពីគ្រូឧទ្ទេស គុណិតស្មិតទាំងពីរក្រុមត្រូវកែកិច្ចការក្រុមរបស់ពួកគេ ហើយប្រគល់វាទៅឱ្យគ្រូឧទ្ទេស។

ឃ. ការប្រមូលទិន្នន័យក្រោយការពិសោធន៍៖ ទិន្នន័យទាក់ទងនឹងការជំរុញទឹកចិត្តខ្លួនឯងក្នុងរៀន ការចូលរួមក្នុងការរៀន ចំណេះដឹងលើមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការបង្រៀន។

៦.២) ឧបករណ៍ប្រមូលទិន្នន័យ

ឧបករណ៍ប្រមូលទិន្នន័យក្នុងការស្រាវជ្រាវនេះគឺកម្រងសំណួរសម្រាប់វាស់ការជំរុញទឹកចិត្តខ្លួនឯងក្នុងរៀន ការចូលរួមក្នុងការរៀន និង ភាពជឿជាក់ក្នុងការបង្រៀនរបស់អ្នកចូលរួមនិង តេស្តសម្រាប់វាស់ចំណេះដឹងលើមុខវិជ្ជា។

**ផ្នែកទី២៖ ព័ត៌មានទាក់ទងនឹងអ្នកចូលរួម**

២.១ ចំនួននិងលក្ខណៈសម្បត្តិរបស់អ្នកចូលរួម

គុណិតស្មិតប្រហែល ៦៥នាក់នឹងចូលរួមក្នុងគម្រោងស្រាវជ្រាវនេះ។ ខាងក្រោមនេះជាលក្ខណៈសម្បត្តិរបស់គុណិតស្មិតដែលនឹងត្រូវជ្រើសរើសឱ្យចូលរួមក្នុងការបង្រៀនពិសោធន៍នេះ។

- ១) អ្នកចូលរួមមិនធ្លាប់ត្រូវបានជ្រើសរើសឱ្យចូលរួមក្នុងគម្រោងស្រាវជ្រាវដែលធ្វើឡើងដើម្បីសិក្សាឥទ្ធិពលនៃការបង្រៀនបែបសហការនិងបែបបាត់បង់ ក្នុងគោលបំណងបង្កើនការជំរុញទឹកចិត្តក្នុងការរៀន ការចូលរួមក្នុងការរៀន ចំណេះដឹងលើមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការក្នុងការបង្រៀន។
- ២) អ្នកចូលរួមមិនមែនជាក្រុមងាយរងគ្រោះ ឬ មានអាយុក្រោម ១៨ឆ្នាំ។
- ៣) អ្នកចូលរួមមានសុខភាពធម្មតាទាំងផ្លូវកាយ ផ្លូវអារម្មណ៍ និង ផ្លូវគំនិត។
- ៤) អ្នកចូលរួមមិនត្រូវបានបង្ខំឱ្យចូលរួមក្នុងគម្រោងស្រាវជ្រាវនេះឡើយ។

**២.២ បញ្ហាដែលអាចកើតមានឡើងចំពោះអ្នកចូលរួម**

- ១) អ្នកចូលរួមអាចមានការមិនចុះសម្រុងគ្នា ឬ ជម្លោះណាមួយអាចនឹងកើតឡើងនៅពេលរៀនជាក្រុម។
- ២) អ្នកចូលរួមអាចនឹងត្រូវចំណាយពេលឬការប្រឹងប្រែងជាងមុនទៅលើការរៀននិងរៀបចំមេរៀនដែលទទួលបាន និង ទៅលើការធ្វើនិងរៀបចំកិច្ចការស្រាវជ្រាវអំឡុងពេលមួយឆមាស។
- ៣) ក្នុងក្រុមនីមួយៗ អ្នកចូលរួមនឹងត្រូវទទួលបានពិន្ទុដូចគ្នាចំពោះកិច្ចការស្រាវជ្រាវជាក្រុម។

**២.៣ អត្ថប្រយោជន៍ចំពោះអ្នកចូលរួម**

- ១) អ្នកចូលរួមនឹងត្រូវបានលើកទឹកចិត្តខ្ពស់ឱ្យចូលរួមក្នុងសកម្មភាពរៀនជាងមុន ដើម្បីអភិវឌ្ឍចំណេះដឹងលើមុខវិជ្ជា និង ភាពជឿជាក់ក្នុងការបង្រៀនរបស់ខ្លួន។
- ២) គ្រូឧទ្ទេសដែលបង្រៀនក្រុមពិសោធន៍នឹងយល់ពីការរៀបចំនិងប្រើប្រាស់វិធីសាស្ត្របង្រៀនបែបសហការ ហើយអាចប្រើប្រាស់វិធីសាស្ត្របង្រៀននេះក្នុងការបង្រៀននាពេលអនាគត។

**២.៤ ការលើកទឹកចិត្ត និង ការចំណាយ**

- ១) អ្នកចូលរួមនឹងទទួលបានអំណោយតិចតួចពីការចូលរួមជាមួយនឹងគម្រោងស្រាវជ្រាវនេះ។
- ២) អ្នកចូលរួមនឹងមិនត្រូវចំណាយអ្វីទាំងអស់អំឡុងពេលបង្រៀនពិសោធន៍។

**២.៥ វិធីសាស្ត្ររក្សាសម្ងាត់**

អ្នកស្រាវជ្រាវនឹងប្រើប្រាស់លេខកូដជំនួសឈ្មោះពិតរបស់អ្នកចូលរួម ដើម្បីរក្សាការសម្ងាត់ចំពោះរាល់ទិន្នន័យដែលប្រមូលបានពីអ្នកចូលរួម ហើយអ្នកស្រាវជ្រាវនឹងមិនប្រើឈ្មោះពិតរបស់អ្នកចូលរួមក្នុងរបាយការណ៍ស្រាវជ្រាវឬការបោះពុម្ពណាមួយឡើយ។

**២.៥ ការទាក់ទងបន្ទាន់អំឡុងពេលចូលរួមក្នុងគម្រោងស្រាវជ្រាវ**

អ្នកចូលរួមអាចចាកចេញពីគម្រោងស្រាវជ្រាវពេលណាក៏បាន ដោយមិនមានផលប៉ះពាល់អ្វីទាំងអស់ដល់ការសិក្សាឡើយ ហើយពួកគេអាចទាក់ទងពិភាក្សាជាមួយអ្នកស្រាវជ្រាវបានភ្លាមៗ ក្នុងករណីដែល៖

- ១) អ្នកចូលរួមមានអារម្មណ៍មិនស្រួលក្នុងការធ្វើការក្នុងក្រុម។
- ២) មានការមិនចុះសម្រុងគ្នា ឬ ជម្លោះណាមួយកើតឡើងក្នុងក្រុម។
- ៣) អ្នកចូលរួមមានអារម្មណ៍ថាការរៀនតាមបែបសហការជារឿងឥតប្រយោជន៍ ឬក៏កិច្ចការស្រាវជ្រាវតាមក្រុមពិបាកធ្វើពេក។

ទោះជាយ៉ាងណាក៏ដោយ អ្នកចូលរួមអាចបដិសេធមិនចូលរួមក្នុងគម្រោងស្រាវជ្រាវនេះបាន ហើយនឹងមិនមានផលប៉ះពាល់អ្វីទាំងអស់ដល់ការសិក្សារបស់ខ្លួនអំឡុងពេលមានការពិសោធន៍។

**បញ្ជាក់៖**

- ១) ប្រសិនបើអ្នកចូលរួមមិនមានអារម្មណ៍ល្អ ឬ ពួកគេគិតថាគម្រោងស្រាវជ្រាវនេះអាចប៉ះពាល់ដល់សមត្ថភាពផ្លូវកាយ ផ្លូវអារម្មណ៍ និងផ្លូវគំនិតរបស់ពួកគេអំឡុងពេលបង្រៀនពិសោធន៍ ពួកគេចាំបាច់ត្រូវទាក់ទងក្រុមអ្នកស្រាវជ្រាវភ្លាម។
- ២) ប្រសិនបើមានព័ត៌មានបន្ថែមទាក់ទងនឹងអត្ថប្រយោជន៍និងផលប៉ះពាល់របស់គម្រោងស្រាវជ្រាវនេះ អ្នកស្រាវជ្រាវនឹងជម្រាបអ្នកចូលរួមភ្លាម។
- ៣) ទិន្នន័យទាក់ទងនឹងអ្នកចូលរួមនឹងត្រូវរក្សាទុកជាការសម្ងាត់ ព្រោះអ្នកស្រាវជ្រាវនឹងមិនប្រើឈ្មោះពិតរបស់ពួកគេក្នុងការសរសេរបាយការណ៍ស្រាវជ្រាវ ឬ ផ្សព្វផ្សាយលទ្ធផលស្រាវជ្រាវ។
- ៤) តែទោះជាយ៉ាងណាក៏ដោយ ទិន្នន័យទាក់ទងនឹងអ្នកចូលរួមនឹងត្រូវបានបង្ហាញដល់ក្រុមពិសេស ដូចជា៖ ម្ចាស់ជំនួយរបស់គម្រោងស្រាវជ្រាវ បុគ្គលិកពីអង្គភាពដែលត្រូវត្រួតពិនិត្យមើលភាពត្រឹមត្រូវនៃគម្រោងស្រាវជ្រាវ និង គណៈកម្មការត្រួតពិនិត្យការស្រាវជ្រាវជាមួយមនុស្ស ។ល។
- ៥) អ្នកចូលរួមអាចចាកចេញពីគម្រោងស្រាវជ្រាវពេលណាក៏បានដោយមិនចាំបាច់ជូនដំណឹងជាមុន។ អ្នកស្រាវជ្រាវសន្យាយ៉ាងស្មោះត្រង់ថានឹងមិនមានផលប៉ះពាល់អ្វីកើតឡើងចំពោះការសិក្សារបស់អ្នកចូលរួមឡើយ ទោះបីជាពួកគេបដិសេធមិនចូលរួមក្នុងគម្រោងស្រាវជ្រាវនេះ ឬ បោះបង់ចោលមុនគម្រោងនេះត្រូវបានបញ្ចប់ក៏ដោយ។

គម្រោងស្រាវជ្រាវនេះត្រូវបានពិនិត្យនិងវាយតម្លៃដោយគណៈកម្មការត្រួតពិនិត្យការស្រាវជ្រាវជាមួយមនុស្សនៃសាកលវិទ្យាល័យបច្ចេកវិទ្យាឃីងមុងកុតធនបុរីដែលមានអាសយដ្ឋានដូចខាងក្រោម៖

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ប្រសិនបើអ្នកត្រូវអនុវត្តតាមអ្វីដែលមិនមានចែងក្នុងលិខិតនេះ សូមមេត្តាទាក់ទងគណៈកម្មការត្រួតពិនិត្យការស្រាវជ្រាវជាមួយមនុស្សតាមអាសយដ្ឋាននិងលេខទំនាក់ទំនងខាងលើ។

ខ្ញុំបាទ/នាងខ្ញុំ (អ្នកចូលរួម) បានអាននិងយល់គ្រប់ចំណុចនៃលិខិតយល់ព្រមចូលរួមក្នុងគម្រោងស្រាវជ្រាវនេះ។  
ថ្ងៃទី..... ខែ..... ឆ្នាំ ២០១៨  
ហត្ថលេខា

បានឃើញ និង យល់ព្រម  
ប្រធានគម្រោងស្រាវជ្រាវ  
ថ្ងៃទី..... ខែ..... ឆ្នាំ ២០១៨  
ហត្ថលេខា

**Appendix K.**

Consent form: English version

## Kingdom of Cambodia

### Nation Religion King



### Consent Form

This form may have some information that you do not understand. If you have questions or do not understand it, please feel free to contact the research project manager or the research project representative. You will be given a copy of this consent form, and then you can consult your parents, relatives, friends, doctors, or other people before you decide to participate in this research project.

#### **Part 1: Research Project**

##### **1.1 Information about the researchers**

- 1) Research project manager (thesis advisor): Asst. Prof. Sorakrich Maneewan, PhD  
 Department of Educational Communications and Technology  
 Faculty of Industrial Education and Technology  
 King Mongkut's University of Technology Thonburi  
 Mobile Phone: +66 89-3514542 and Email Address: sorakrich.man@kmutt.ac.th
- 2) Researcher (PhD candidate): Sokhom CHAN  
 Workplace in Cambodia: Hun Sen Roluos Secondary School  
 Mobile Phone: +855 89 270 280 and Email Address: channsokhom@gmail.com

##### **1.2 Information about the research Project**

- 1) Research title  
 Effects of teacher educators' instructional behaviours on pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy
- 2) Purpose of the research project  
 To examine the effects of cooperative learning and lecture-based learning on EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy



### 3) Significance of the research project

- 3.1) This study will provide more empirical evidence about determinants of EFL pre-service teachers' learning motivation, academic engagement, content knowledge, and teaching self-efficacy.
- 3.2) With such scientific evidence, teacher educators will definitely establish a learning environment that encourages the establishment of effective teachers.
- 3.3) The present study will become a significant indicator for practitioners and policy makers to reform teacher preparation programmes, which in turn ensures quality education for the next generation.

### 4) Period of the research project

This experimental research project will last about five (5) months or so.

### 5) Research fund

There are no research funds for this research project.

### 6) Research procedure and instruments

#### 6.1) Research procedure

- a) Setting the experimental group and control group.
- b) Pre-test on motivation, engagement, content knowledge, and teaching self-efficacy.
- c) Applying teaching techniques. The cooperative learning will be used with the experimental group and the lecture-based learning will be used with the control group. Here are the main teaching techniques in this research.
  - The teacher educator will have the pre-service teachers in the experimental group work in groups of four or five on the material and assignments for the whole semester. The pre-service teachers in the control group will be given a task or assignment, but the teacher educator will teach the material to them. They will be given opportunities for group discussion, but they will not stay in the regular group as those in the experimental group will.
  - The teacher educator will encourage the pre-service teachers within the experimental group to teach or help each other with learning the assigned material or completing group assignments. The pre-service teachers in the control group will learn and complete assignment individually.
  - The teacher educator will have each group of pre-service teachers in the experimental group teach the assigned material or course content to the class. In this case, each member will be randomly selected. In the control

group, the pre-service teachers will never have to teach any material to any classmate or the class.

- The pre-service teachers in both groups have to prepare and present their assignments to the class.
  - After receiving feedback from their teacher educators, the pre-service teachers in the two groups will have to revise their assignment and submit it to the teacher educators.
- d) Post-test on motivation, engagement, content knowledge, and teaching self-efficacy.

#### 6.2) Research instruments

The instrument used in this experimental design are adapted scales on learning motivation, academic engagement, and teaching self-efficacy and a learning achievement test

## **Part 2: Participants**

### 2.1 Number and characteristics of participants

There will be about 65 pre-service teachers for the experimental study. Below are the characteristics of participants that will participate in this experiment.

- 1) The participants have never been selected for an experimental research that aims to examine the effects of cooperative learning and lecture-based learning so as to improve their learning motivation, academic engagement, content knowledge, and teaching self-efficacy.
- 2) The participants are not vulnerable or under 18 years of age.
- 3) The participants have normal physical, emotional, and mental health.
- 4) The participants have not been forced to join the research study, that is, they are willing to participate in the experiment during the semester.

### 2.2 Possible risk to participants in the experimental group

- 1) The participants might have misunderstanding or some conflicts while learning or working in groups.
- 2) The participants might spend more time and effort on learning and preparing the assigned material and on doing and preparing group assignments during the course.
- 3) The participants will have to share the scores given to their group, that is, they will receive the same score for group work.

### 2.3 Benefits to participants

- 1) The participants will be highly motivated to engage in learning activities so as to improve their content knowledge and teaching self-efficacy.
- 2) The teacher educator teaching the pre-service teachers in the experimental group will understand how cooperative learning techniques are used or organized in the teaching and learning process, and thus will be able to use such techniques in their future teaching practices.

### 2.4 Incentive/Expense

- 1) There will be some presents for the participants of this research project.
- 2) The participants will not have to pay for anything during the experiment.

### 2.5 Methods for anonymity

The researchers will use codes instead of real names for data collection in order to keep all the participants anonymous, and the researchers will not report real names in the research report or any publication.

### 2.6 Emergency contact during the experiment

The participants can leave the experiment without any impact on their study or contact the researchers or the teacher educator for immediate consultation in the case that:

- 1) The participants do not feel comfortable working in the group.
- 2) There is a misunderstanding or conflict in group work.
- 3) The participants feel that learning through the experimented techniques is a waste of time or that group work or assignments are too difficult to do.

However, the participants can refuse to join the research study, and there will be no effects on the result of their study during their education course.

### NOTES:

- 1) If participants do not feel well or if they think that the research project can harm their physical, emotional, or mental ability, they will have to contact the researchers immediately.
- 2) If there will be more information about both benefits and drawbacks of this research project, the researchers will inform the participants about it immediately.

- 3) Data of participants will be kept anonymous as the researchers will not use their real names when writing a research report or disseminating the research findings.
- 4) However, data of participants will be shown to a specific group of people such as donors of the research project, staff from a public organisation that are responsible for checking the accuracy of the project, and humans research ethics committee, etc.
- 5) Participants can leave the research project any time without informing about it in advance. Honestly, the researchers promise that there will be no effects on the participants' study at all whether they refuse to join the research project or drops from it before it is finished.

This research project has been evaluated by the committee of research ethics in humans of King Mongkut's University of Technology Thonburi, which is located in the following address.

Research, Innovation, and Partnerships Office  
 7th Floor of the Office of the President Building  
 King Mongkut's University of Technology Thonburi  
 126 Prachautid Road, Bangmod, Thongkru, Bangkok 10140  
 Telephone number: 0-2470-9623  
 Fax number: 0-2872-9083

If you are treated or asked to do in such a way that is not stated in this form, you can contact the humans research ethics committee at the above address and contact number.

I, a participant, have read and understood this consent form clearly.

Signature.....  
 (.....)  
 Date:.....

Seen and Approved

**Research Project Manager**

Signature.....  
 (.....)  
 Date:.....

## CURRICULUM VITAE

<b>NAME</b>	Mr. Sokhom Chan
<b>DATE OF BIRTH</b>	2 May 1979
<b>EDUCATIONAL RECORD</b>	
BACHELOR’S DEGREE	Bachelor of Education (Teaching English as a Foreign Language) University of Management and Economics, 2011
MASTER’S DEGREE	Master of Education (Educational Measurement and Evaluation) Chulalongkorn University, 2015
DOCTORAL DEGREE	Doctor of Philosophy (Learning Innovation and Technology) King Mongkut’s University of Technology Thonburi, 2020
<b>WORK EXPERIENCE</b>	Teacher of English at Bakan High School from 2000 to 2011 Teacher of English at Hun Sen Roluos Secondary School from 2011 to 2020 Teacher Educator of English at Kampot Provincial Teacher Training Centre from 2020 until present Teacher of English at Angkor Khemara University from 2008 to 2013 and from 2019 until present
<b>PUBLICATION</b>	Chan, S., Maneewan, S. and Koul, R., 2021, “Cooperative learning in teacher education: Its effects on EFL pre-service teachers’ content knowledge and teaching self-efficacy”, <b>Journal of Education for Teaching</b> , pp. 1–14, doi:10.1080/02607476.2021.1931060.

Chan, S., Maneewan, S., and Koul, R., 2021, “An examination of the relationship between the perceived instructional behaviours of teacher educators and pre-service teachers’ learning motivation and teaching self-efficacy”, **Educational Review**, pp. 1–23, doi:10.1080/00131911.2021.1916440

Chan, S., Maneewan, S., and Koul, R., 2021, “Teacher educators’ teaching styles: Relation with learning motivation and academic engagement in pre-service teachers”, **Teaching in Higher Education**, pp. 1–22, doi:10.1080/13562517.2021.1947226.

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Date: 11 August 2021

Name Mr. Sokhom Chan Student Number 59080800008 who is a student of King's Mongkut's University of Technology Thonburi (KMUTT) in Doctoral Degree Program Learning Innovation and Technology Faculty of Industrial Education and Technology Home Address Tvy Khang Cheung Village, Sangkat Andaung Khmer, Krong Kampot, Kampot Province, Cambodia. I, as 'Transferer', hereby transfer the ownership of my thesis copyright to King Mongkut's University of Technology Thonburi who has appointed Assoc. Prof. Dr. Tanes Tanitteerapan Dean of Faculty of Industrial Education and Technology to be 'Transferee' of copyright ownership under the 'Agreement' as follows.

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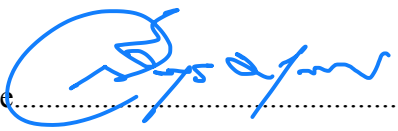
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(Mr. Sokhom Chan)

Signature..........Transferee  
(Assoc. Prof. Dr. Tanes Tanitthapan)

Signature..........Witness  
(Asst. Prof. Dr. Sorakrich Maneewan)