

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND APPLICATION  
OF A CBVE-BOPPPS TEACHING  
MODEL FOR HIGHER  
VOCATIONAL INFANT AND  
CHILDCARE  
CURRICULUM IN CHINA**

**WANG QIAN**

Thesis submitted in fulfilment  
of the requirements for the degree of  
**Doctor of Philosophy  
(Education)**

**Faculty of Education**

**February 2026**

## ABSTRACT

Higher vocational and technical colleges bear the responsibility of cultivating professionals aligned with the development of the infant and childcare industry, and curriculum design serves as the direct pathway for nurturing such talent. Therefore, this study employs the Design and Development Research (DDR) methodology, integrating the ADDIE instructional design model under the Competency-Based Vocational Education (CBVE) and BOPPPS teaching model (CBVE-BOPPPS), to systematically design and implement the Infant and Childcare Curriculum (ICCC). Based on the Research Objectives, the study proposes a closed-loop research question framework encompassing: how to design and develop the ICCC based on CBVE-BOPPPS; whether differences exist between the CBVE-BOPPPS group and the traditional teaching model group in terms of Student Academic Achievement (SAA), UWES-S scores, and Enterprise tutors' scores (ETS) of infant and childcare service skills; and what challenges and coping strategies teachers encounter when designing and implementing ICCC based on CBVE theory using the BOPPPS model. To validate teaching effectiveness, this study sampled 32 students (CBVE-BOPPPS group) and 30 students (TTM group) from NP College for a three-month investigation. The results show that the ICCC teaching design and the core CBVE indicators, determined through a systematic literature review and expert interviews, achieved remarkable results when applied to the CBVE-BOPPPS group. Parametric tests revealed that the post-test SAA of the CBVE-BOPPPS group was significantly higher than that of the TTM group ( $t=3.18$ ,  $p<0.05$ ,  $d\approx 0.80$ ). Regarding learning engagement, the CBVE-BOPPPS group demonstrated greater Vitality ( $t=2.580$ ,  $P<0.05$ ,  $d\approx 0.656$ ), concentration ( $t=3.744$ ,  $P<0.05$ ,  $d\approx 0.952$ ), and Dedication ( $t=3.695$ ,  $P<0.05$ ,  $d\approx 0.939$ ). However, no significant difference existed in pre-test and post-test Absorption scores for CBVE-BOPPPS ( $t=1.725$ ,  $P>0.05$ ,  $d_k\approx 0.459$ ). Regarding the ETS dimension, the CBVE-BOPPPS group demonstrated significantly higher post-test scores than the TTM group in Safety and Security ( $t=3.063$ ,  $P<0.05$ ,  $d\approx 0.78$ ), Life Care ( $t=4.617$ ,  $P<0.05$ ,  $d\approx 1.17$ ), Early Development ( $t=4.617$ ,  $P<0.05$ ,  $d\approx 1.03$ ), Daily Health ( $t=5.118$ ,  $P<0.05$ ,  $d\approx 1.34$ ), and Environment Creation ( $t=4.056$ ,  $P<0.05$ ,  $d\approx 1.05$ ). Finally, teacher interviews corroborated the CBVE-BOPPPS group's coping strategies for addressing implementation challenges from an instructional design optimisation perspective. They also explained why Absorption did not improve significantly in this group. Teachers employed strategies such as multi-centred teaching concepts to resolve the tension between CBVE competency standardisation and BOPPPS openness in the design. They addressed implementation challenges, such as excessive workload, by clarifying professional roles. Thus, quantitative findings validate the model's effectiveness, while qualitative research further elucidates and supplements its practicality. This study not only establishes implementation pathways for the ICCC system design and CBVE indicator tools but also innovates a research framework integrating theory and models. It also provides a competency-based perspective on cultivating high-quality childcare talent in China's vocational education.

## ACKNOWLEDGEMENT

Looking back on five years of academic pursuit, time has flown, yet it remains vividly etched in my memory. From China to Malaysia, from solitary nights studying by lamplight to exploring the unknown in a foreign land - this doctoral journey spanning mountains and seas was fraught with challenges. Yet, it grew ever more precious through steadfast commitment to my original aspirations. As I put pen to paper now, my heart overflows with gratitude and reverence.

First and foremost, I am profoundly grateful for this invaluable academic journey. It has not only deepened my knowledge and honed my scholarly abilities but also broadened my horizons and strengthened my convictions through cross-cultural encounters, leaving an irreplaceable mark on my personal growth.

Here, I extend my most sincere gratitude to my two advisors, Main Supervisor - Dr. Fatin Aliana Mohd Radzi and Co Supervisor - Dr. Nor Tutiani Ab. Wahid. From refining my thesis topic and establishing the research framework to advancing the empirical process and polishing the manuscript, you consistently guided me with meticulous academic rigour. Your mentorship not only charted the course for my research but also taught me the essence of scholarly pursuit and the passion for learning.

I extend my gratitude to the leadership and faculty of Universiti Teknologi MARA (UITM) for providing an excellent academic environment and comprehensive research support. My gratitude extends to all colleagues at the School of Health Management and Social Services, Ningxia Polytechnic, China. Your trust and assistance served as a solid foundation for the successful implementation of my sampling research. Furthermore, I sincerely thank all the students who participated in this study. Your active cooperation ensured the smooth collection of research data, laying a crucial groundwork for the completion of this thesis!

# TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY PANEL OF EXAMINERS</b>	<b>ii</b>
<b>AUTHOR’S DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF TABLES</b>	<b>xii</b>
<b>LIST OF FIGURES</b>	<b>xv</b>
<b>LIST OF PLATES</b>	<b>xvii</b>
<b>LIST OF SYMBOLS</b>	<b>xviii</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xix</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Research Background	2
1.2.1 High-Quality Childcare Services Are Essential for Harmonious Physical and Mental Development in Infants and Toddlers: Policy Orientations and Practical Contradictions	2
1.2.2 Competency-Based Vocational Education (CBVE) Theory Provides Direction for Infant and Childcare Curriculum (ICCC): Limitations of Current Reforms and Theoretical Applicability	4
1.2.3 Infant and Childcare Curriculum (ICCC) Requires More Efficient Teaching Models: Shortcomings of Traditional Approaches and the Adaptive Value of BOPPPS	6
1.3 Problem Statement	7
1.3.1 Disconnect Between Professional Skills Development Pathways for Childcare Practitioners and Social Demand	7
1.3.2 Constraints of Traditional Teaching Models on Infant and Childcare Curriculum Learning Outcomes	8

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

With China's clear proposal of the "Healthy China" initiative and the comprehensive three-child policy, the focus on social development has gradually shifted from pursuing the "demographic dividend" to the "quality demographic dividend" (Yang & Yan, 2017). However, despite the government's efforts to promote the construction of the infant and childcare system and the improvement of supporting institutions (Alexiadou et al., 2024), the dilemma of childcare service quality (Cheng, 2023) and the contradiction in producing high-quality childcare professionals remain severe. To address this challenge, the Infant and Childcare Services and Management program at Chinese higher vocational colleges is further exploring the training pathways for infant and childcare professionals by offering childcare courses (Wu et al., 2022; West, 2022).

However, existing infant and childcare curriculum still face numerous challenges, such as increasing homogeneity with preschool education for ages 3–6 (Wang & An, 2023a; Wang & An, 2023b), insufficient cultivation of core competencies (Wu et al., 2022; Wang & An, 2023b), overlapping content within curriculum modules, lack of technical operations (West, 2022), and limited diversity in teaching approaches (Wang & An, 2023a; Wang & An, 2023b). These issues negatively impact students' academic performance and classroom engagement while hindering the continuous improvement of teachers' professional competencies (Yang & Wang, 2022). Additionally, limited teaching methods (Wang & An, 2023a; Zhu, 2022) constrain students' academic achievement and classroom participation. Consequently, there exists a disconnect between students' professional skills and the actual job requirements after employment (Li & Yang, 2023).

Therefore, based on the aforementioned context of nurturing talent in early childhood care and curriculum development, this study reconstructs the early childhood care curriculum system by combining Competency-Based Vocational Education (CBVE) theory with the BOPPPS teaching model. CBVE, as a practice-oriented educational approach, places vocational competence at the core of curriculum