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Effects of a Child Development Package: Children Aged 30–35 Months at Daycare Programs in Phnom Penh, Cambodia

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Abstract

Aim/Purpose: This research study investigated the effect of daycare programs on improving developmental outcomes for children aged 30–35 months in Phnom Penh, Cambodia, highlighting the critical importance of Early Childhood Care and Development (ECCD) and the significant role of daycare centers in stimulating physical and health, cognitive, language, and social-emotional development. This paper examines how daycare programs can improve ECCD outcomes in Phnom Penh, Cambodia. It highlights the importance of structured interventions, such as the Child Development Package (CDP) and Parenting Education Program (PEP), in addressing the developmental needs of children from urban settings, where access to quality education and care is limited.

Introduction/Background: Early Childhood Care and Development is essential for health, well-being, and lifelong learning for children. The first 1,000 days are critical for brain development, with proper nutrition, healthcare, and stimulation being vital. In Cambodia, most young children are cared for by relatives, particularly grandmothers, who often lack adequate ECCD knowledge. Despite government efforts through national policies, implementation is uneven, especially in urban areas like Phnom Penh, where demand for quality daycare exceeds supply. The lack of proper daycare programs leaves many children without essential early learning opportunities, hindering their development. Daycare centers provide care and also serve as critical environments for early learning and development.

For working women, access to quality daycare is essential, as it allows them to pursue employment opportunities without compromising their children's safety and developmental needs. Women's active participation in the workforce supports the Cambodian government's goals by contributing to economic growth, enhancing GDP through entrepreneurship, reducing poverty by increasing household income, promoting education and skill development, advancing gender equality and empowerment, improving health outcomes for families, and fostering social stability and community development through advocacy for better childcare options.

Methodology: To explore these dynamics, a mixed-methods approach was employed in this study to investigate the effects of daycare programs on developmental outcomes for children aged 30–35 months in Phnom Penh, Cambodia. Utilizing a quasi-experimental design, the research involved a sample of 60 children, divided into an experimental group of 30 participants who received the CDP and a control group of 30 children who received no intervention.

Quantitative data were collected using the Child's Early Learning Assessment Tool, which assessed four domains of child development, including physical and health, cognitive, language, and social-emotional development. Pre-test assessments established a baseline for comparison, followed by post-tests to evaluate changes resulting from the intervention.

Complementing this quantitative approach, qualitative data were gathered through thematic analysis of interviews with 21 respondents, including seven caregivers/teachers, seven caregivers caring for children at home, and seven caregivers with children in daycare, along with observational notes that provided insights into children's engagement and social interactions. Data analysis involved Analysis of Covariance to compare post-test scores between groups while controlling for pre-test

scores, thus assessing the true effect of the CDP. This methodology facilitated a thorough examination of the daycare program's effectiveness, providing valuable insights into the role of structured early childhood interventions in enhancing developmental outcomes.

Findings: Significant improvements in the experimental group were found across all developmental domains. Specifically, physical and health development showed significant differences (F (1, 56) = 28.891, $p < .05$), with a large effect size (Partial $\eta^2 = .340$). Cognitive development also demonstrated significant gains (F (1, 56) = 75.958, $p < .05$, Partial $\eta^2 = .576$), while language development showed positive trends, although not statistically significant (F (1, 56) = 1.497, $p > .05$). Social-emotional development showed significant improvements (F (1, 56) = 23.600, $p < .05$, Partial $\eta^2 = .296$).

The interviews with teachers, caregivers, and parents revealed significant positive impacts of the CDP and PEP on child development. Caregivers reported notable improvements in children's physical, cognitive, language, and social-emotional skills. Parents involved in the PEP adopted more positive parenting techniques, such as gentle discipline and engaging in educational activities, leading to enhanced child behavior and self-esteem. In contrast, parents without PEP support relied on punitive measures. Overall, the findings emphasized the effect of structured early childhood interventions in fostering child development and improving parenting practices in Cambodia.

Contribution/Impact on Society: This paper contributes to the body of knowledge by providing empirical evidence of the effect of structured daycare programs in enhancing child development in a Cambodian context. The findings underscore the necessity of investing in ECCD to foster holistic development, thereby supporting Goal 4 of the Sustainable Development Goals, as well as the National Policy and National Action Plan on ECCD in Cambodia.

Recommendations: Considering the findings, the study recommends that policymakers and practitioners prioritize the establishment and funding of quality daycare centers that implement evidence-based programs like the CDP. Additionally, training for caregivers, teachers, and parents should be enhanced to ensure effective delivery of ECCD.

Research Limitation: The study's limitations include a relatively small sample size and a focus on a specific urban area, which may affect the generalizability of the findings. The reliance on self-reported data from caregivers, teachers, and parents may also have introduced bias.

Future Research: Future research should explore the long-term impacts of daycare interventions on child development and academic success. Studies could investigate the scalability of the CDP in rural areas and its integration with national education policies to enhance ECCD across diverse contexts.

Keywords: *Early childhood care and development, child development package*

Introduction

Early Childhood Care and Development (ECCD) is of critical importance during the period that lays the foundation for health, well-being, and lifelong learning for children (Black et al., 2017). The first few years of life are characterized by rapid brain development, with neural connections forming at an astounding rate of 1 million per second (Siegel, 2020). Given this rapid development, investments in ECCD provide significant benefits not only for children, but also for governments, private sectors, communities, parents, and caregivers (UNICEF, 2023; WHO, 2018). Key interventions during the first 1,000 days of life, such as proper nutrition, healthcare, and stimulation, are essential for developing stronger brains, which in turn support future academic success and overall development (Hurley et al., 2016). Thus, high-quality ECCD programs play a crucial role in fostering children's physical, cognitive, language, and socio-emotional skills, which enhance their full potential (World Bank, 2019).

In Cambodia, the landscape of ECCD presents unique challenges. Children are primarily cared for by relatives such as mothers and grandmothers, with 72% of households relying on grandparents as caregivers (World Bank, 2024). However, the knowledge and practices of caregivers remain questionable. Studies have indicated that grandmothers who take on the role of caregivers score

lower in knowledge, attitudes, and practices related to ECCD compared to primary caregivers (Save the Children, 2022). This gap in caregiver understanding, coupled with an unsatisfactory home environment, poses significant challenges to children's development during the critical first 1,000 days (UNICEF, 2021; World Bank, 2020).

Recognizing these challenges, the Royal Government of Cambodia has made notable efforts to improve the situation through national policies and guidelines, such as the National Policy on ECCD and the National Action Plan on ECCD (2022–2026) (MoEYS, 2010; MoEYS, 2022). But implementation remains uneven, particularly in urban areas like Phnom Penh, where urbanization, rapid economic growth, and increasing female workforce participation are transforming traditional family structures (Ackerman, 2021). In Phnom Penh, demand for daycare programs has surged due to these societal shifts and growing awareness of the importance of ECCD. Yet, the supply and quality of such programs have not kept pace with demand, leaving a significant gap in ECCD services (Chea & Wongchai, 2022).

While global evidence has underscored the benefits of structured early childhood interventions (Britto et al., 2017; Engle et al., 2011), research on their effectiveness in Cambodia remains limited. The unique cultural, social, and economic context of Cambodia necessitates targeted studies to inform policy and practice. As Burchinal et al. (2016) emphasized, the impact of early childhood interventions varies significantly based on cultural and implementation factors. This study seeks to address this gap by examining the effects of a structured CDP implemented in Phnom Penh daycare centers. The CDP is a comprehensive, culturally adapted intervention designed to enhance multiple domains of child development, including physical and health, cognitive, language, and socio-emotional competency. By comparing children in daycare centers implementing the CDP with those in home settings, this study aims to evaluate the potential impact of structured interventions in Cambodia's unique context.

Despite the recognized importance of ECCD, Cambodia faces significant challenges in providing equitable access to quality early childhood services. High rates of malnutrition, inadequate early learning opportunities, and gaps in caregiver knowledge hinder child development, particularly in low- and middle-income households. While the government has introduced policies to improve ECCD, implementation challenges persist, especially in urban areas like Phnom Penh, where demand for daycare services exceeds supply. Furthermore, research on the effectiveness of structured early childhood interventions in Cambodia's specific cultural and socioeconomic context is limited. This study addresses these gaps by investigating the impact of a structured Child Development Package (CDP) in daycare centers, comparing developmental outcomes with those of children in home settings. The aim is to improve ECCD services and contribute to a global understanding of early childhood interventions in diverse settings. Specifically, this study seeks to enhance childcare quality in Cambodia by evaluating the short-term and long-term impacts of the CDP, integrating parenting education, and strengthening ECCD policies through comprehensive training and community involvement.

Literature Review

Role of Daycare in Early Childhood and Development: Opportunities and Challenges

Daycare refers to care and education at centers for children aged 3 months to 5 years, offering a mix of care, education, and recreational activities such as running, drawing, and imaginative play (Council of Ministers, 2024). In contrast, home care is delivered by parents, relatives, or nursing assistants (Dwiyatna, 2020). Daycare centers play a crucial role in enhancing children's physical, cognitive, and social-emotional development (WHO, 2018). They create stimulating environments where children improve their numeracy, literacy, self-control, self-esteem, and communication skills, preparing them for preschool (Shonkoff et al., 2012). Additionally, daycare programs can help reduce inequality in developing societies (Engle et al., 2011; Heckman, 2006).

However, such programs have been neglected in Cambodia since the 1990s, despite their emphasis during the 1980s socialist regime. A 2007 report indicated that approximately 102 public childcare centers existed in the 1980s, but these were closed in the early 1990s, resulting in a lack of support for public daycare in government programs. Reliable data on daycare centers in Cambodia is

scarce, with only 25 identified, mainly serving factory workers and private sector employees (CCR CSR & PE&D, 2020). The coverage of formal daycare center services for children below three years remains very low; there is no official curriculum, and activities are either developed by centers or drawn from other countries (World Bank, 2024). The absence of a suitable curriculum for daycare complicates the situation, as most caregivers receive training solely from their management teams (OECD, 2017).

Examining the quality of early educational interventions is essential, as research shows that high-quality programs significantly enhance child development (Yoshikawa & Kabay, 2015). Quality includes structural aspects, such as class size and caregiver qualifications, and process quality that pertains to caregiver interactions. For instance, Morgan (2019) found that children in high-quality preschool programs exhibited better academic performance and social skills later in life**.** This underscores the need for improved daycare standards in Cambodia, as children from quality programs are less likely to require special education services and more likely to graduate from high school (Barnett, 2011).

Many studies have compared the early learning outcomes of children in daycare centers and home care. According to de Mattos Amaro et al. (2020), assessments revealed high percentages of abnormal results in child development, particularly among home-cared children (40.47%) compared to those in daycare (37.35%). But statistical tests showed no significant differences across various developmental domains (de Mattos Amaro et al., 2015). Similarly, in the first assessment, 53.3% of home-cared children differed from those in daycare (38.8%), and by the second assessment, 44.4% of home-cared children faced social disruptions. Despite these findings, motor and speech skills improved significantly over six months, with no developmental differences noted between the two groups (Dwiyatna et al., 2020). Overall, while children benefited from childcare in both the short- and long-term, especially in language and social development, studies have indicated that those in childcare centers exhibit improved self-confidence, along with social and cognitive skills. By contrast, children in the control group experienced fewer positive outcomes when compared with the treatment group. Those in the treatment group committed fewer crimes and earned more pay later in life (Morgan, 2019).

Theoretical Framework for Creating the CDP and Child's Early Learning Assessment Tool (CELAT)

The Childhood Development Package (CDP) and Child's Early Learning Assessment Tool (CELAT) are designed to promote holistic development in early childhood, specifically in physical and health, cognitive, language, and social-emotional domains. Grounded in established theories, these tools aim to enhance ECCD through a comprehensive framework. By employing an integrated approach, interventions can be designed that simultaneously address various developmental aspects, leading to more effective outcomes for children (Bagnato, 2007).

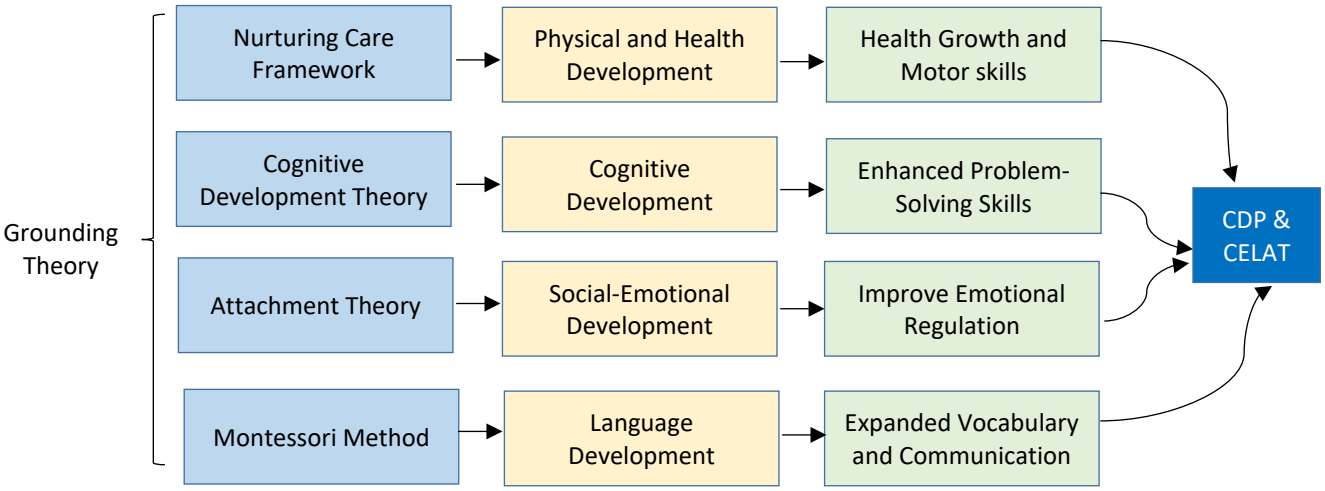
One of the key areas of focus within the framework is physical and health development. The CDP emphasizes the importance of good health and adequate nutrition as outlined in the Nurturing Care Framework. This framework highlights that optimal child development requires a supportive environment that fosters physical well-being (Britto et al., 2017; WHO, 2018). To this end, the CDP incorporates structured activities aimed at improving motor skills and promoting healthy growth, ensuring that children gain the necessary nourishment for their development (WHO, 2018).

Building upon this foundation of physical and health development, the framework also addresses cognitive development, drawing on Jean Piaget's cognitive development theory, which states that children learn actively through exploration and interaction with their environment (McLeod, 2018). The CDP includes hands-on, engaging activities that stimulate curiosity and problem-solving skills, allowing children to build knowledge through experiential learning (MoEYS, 2022). Additionally, the Montessori Method complements this cognitive growth by providing individualized learning experiences tailored to each child's developmental level (Saha, 2023).

In addition to cognitive skills, the language development domain is significantly influenced by attachment theory, which emphasizes the role of secure relationships in language acquisition (Vidrine-Isbell, 2017). The CDP fosters responsive interactions between caregivers and children, encouraging rich conversations and storytelling that enhance vocabulary and communication skills (Vidrine-Isbell, 2017). By creating a linguistically rich environment, the CDP supports children in developing strong language abilities, which are crucial for their overall development.

Moreover, the social-emotional development of children is nurtured through both attachment theory and the Montessori Method. Secure attachments formed with caregivers are essential for emotional well-being and influence children's ability to regulate their emotions (Knitzer, 2002). The CDP emphasizes building these secure relationships, helping children develop trust and emotional security, while also promoting social skills through group activities that encourage cooperation and empathy (Yulidar & Sari, 2024). These theories and their relation to the CDP and CELAT are shown below in Figure 1.

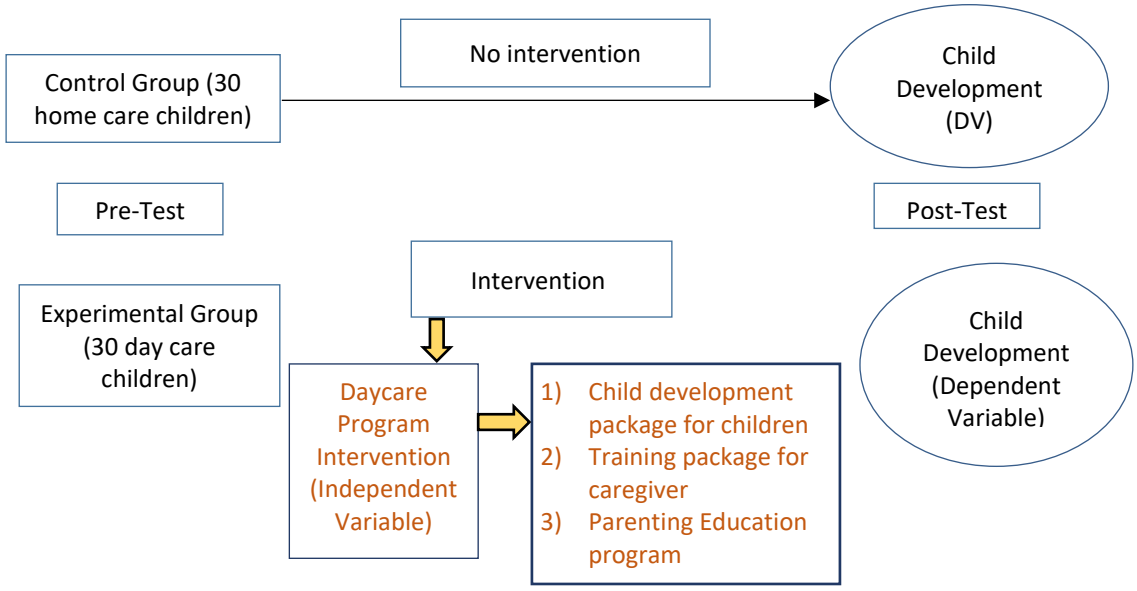
Figure 1 *Simplified Grounding Theories and Connections in CDP and CELAT*



Methodology

This study employed a mixed-methods approach with a quasi-experimental design, involving 60 children from seven daycare centers and 30 homes in Phnom Penh. Participants were divided into an experimental group (EG) (*N*=30) receiving a CDP, and a control group (CG) (*N*=30) with no intervention. Over four months, the EG participated in structured activities, while the CG did not. Quantitative data were collected using the CELAT, measuring various developmental domains. Data analysis included Analysis of Covariance (ANCOVA) to assess the CDP's effect, complemented by thematic qualitative analysis of caregiver and teacher interviews to explore children's engagement and interactions. The process that was followed in conducting the research study is shown below in Figure 2.

Figure 2 *Summary of the Process of the Research Study*



The Child's Early Learning Assessment Tool (CELAT) was adapted from the learning standards and parenting education program of the Ministry of Education, Youth and Sport (MoEYS), as well as from the Caregiver-Reported Early Development Instruments (Save the Children, 2017), the Cambodian Milestone Assessment Tool, (Ngoun et al., 2020), and the International Development and Early Learning Assessment tool (Save the Children, 2019). To ensure effectiveness, the CELAT was validated by experts in ECCD and piloted to confirm its validity and reliability (Tavakol & Dennick, 2011).

In terms of content measurement, the CELAT measured four developmental components. The physical and health component consisted of 10 items, measuring fine and gross motor skills and awareness of nutrition (MoEYS, 2018). The cognitive component covered 9 items, measuring logical thinking, quantity, measurement, and comparison (MoEYS, 2018). The language component consisted of 6 items, measuring vocabulary, communication, and listening comprehension (Indrayani, 2016). The social-emotional component consisted of 5 items, measuring children's awareness of their feelings and social interactions (Denham, 2003). Each item was scored on a 4-point Likert scale, where 1 indicated "Does not meet expectations", 2 "Meets expectations", 3 "Often exceeds expectations", and 4" Always exceeds expectations". The sampling was purposively selected based on children aged 30 to 35 months who were part of daycare programs or home care)Brysbaert, 2019(.

To ensure the content validity of the CELAT, a technical committee assessed this tool. The committee members rated the quality of the 30 items across the four domains using a 4-point Likert scale. The evaluation process included item examination (Beck, 2020), criteria review, and material assessment. The evaluation results were calculated into means and compared against established criteria to determine item quality. Items scoring higher than 2.01 were retained, while those scoring lower were modified.

The reliability was measured using Cronbach's Alpha (Cronbach, 1951). A Cronbach's Alpha of .70 is generally considered acceptable, while values above .80 indicate good reliability, and a value of .90 suggests excellent reliability (Tavakol & Dennick, 2011).

The overall Cronbach's alpha of the physical and health component with 10 items was .848, indicating a good level of internal consistency among the items in the scale. Similarly, the cognitive component with nine items yielded an overall Cronbach's alpha of .931, indicating that the scale was highly reliable. The language component with six items had an overall Cronbach's Alpha of .829, while the social-emotional component with five items had an overall Cronbach's Alpha of .885, both indicating good internal consistency among the items in the scale.

In addition to the CELAT, the researcher observed daily activities of both children and caregivers in the daycare centers. This observation focused on child engagement in activities, implementation fidelity of the CDP, teacher-child interactions, peer interactions, and use of learning materials.

To facilitate the data collection process, the researcher trained 11 assessors and caregivers over a 5-day training course covering ECCD concepts, as well as the usage of the CDP and CELAT. The quantitative method involved assessing 30 children in the Experimental Group who received interventions over four months, compared to 30 children in the Control Group who did not receive intervention, with both groups assessed before and after using CDP.

Quantitative data was analyzed using a statistical software package, focusing on descriptive statistics and One-Way Analysis of Covariance (ANCOVA) to examine differences between the experimental and control groups while controlling for pre-test scores. Effect sizes were calculated using partial eta squared (η^2). The qualitative data were transcribed and thematically analyzed, providing insights from interviews that enriched the quantitative findings and highlighted participants' experiences, thus offering a comprehensive view of intervention impacts.

Findings/Results

Physical and Health Development

This component assessed 10 core competencies of children to determine the effect of the CDP. It focused on individual children's motor skills (both gross and fine motor) and their knowledge of the health and safety environment.

The descriptive statistics presented in Table 1 highlight a marked improvement in the post-test scores for the EG, which increased from a mean of 1.25 to 2.89, while the CG showed only a slight increase from 1.28 to 1.34. This stark contrast underscored the effectiveness of the CDP in promoting physical and health development among the children who participated in the intervention. Moreover, previous research emphasized that high-quality early educational interventions can lead to significant improvements in various developmental domains, including physical health (Lovison et al., 2021).

Table 1 *Pre-Test and Post-Test Descriptive Statistics for Component #1: Physical and Health Development*

		Pre-Test		***Post-Test***	
Variable/Group	***N***	***M***	***SD***	***M***	***SD***
Control	30	1.28	.21	1.34	.17
Experimental	30	1.25	.26	2.89	.30

The ANCOVA results for the CDP's effect on physical and health components are given in Table 2. The results indicated significant differences between the EG and the CG regarding post-test physical and health outcomes, F (1, 56) = 28.891, $p < .05$, Partial $\eta^2 = .340$. These effect sizes were very large, F (1, 56) = .822, $p < .05$, Partial $\eta^2 = .014$.

Table 2 *ANCOVA Results for the CDP's Effect on Physical and Health Development*

Source	***df***	***MS***	***F***	***p***	***Partial*** η^2
Correct model	3	12.062	200.673	.000	.915
Intercept	1	6.175	102.736	.000	.647
Group*Pre-Physical & Health	1	.49	.822	.369	.014
Group	1	1.737	28.891	.000	.340
Pre-Physical & Health	1	.265	4.414	.040	.073
Error	56	.60			

Note. $p < .05$; $R^2 = .915$, Adjusted $R^2 = .910$.

Furthermore, the ANCOVA results suggested that the pre-test scores had no significant influence on the post-test outcomes, reinforcing that the improvements observed in the EG were not merely a function of initial competency levels. This finding aligns with the work of Jeong et al. (2021), who posited that effective interventions can produce meaningful changes in child development outcomes independent of baseline characteristics. The absence of a significant covariate effect reinforced the notion that the CDP was the primary driver of the observed improvements in the EG.

In addition to the statistical findings, qualitative data from caregivers and teachers strongly supported the ANCOVA results (de Mattos Amaro et al., 2015). All caregivers (100%) in the EG reported noticeable improvements in their children's gross and fine motor skills (Corsi et al., 2016). Teachers observed enhanced coordination during activities such as dancing, jumping, and ball-throwing. One teacher noted, "The structured physical activities have made a remarkable difference in children's movement confidence and control'' (Cliff et al., 2009; Hands & Martin, 2003). These findings align with previous research highlighting the importance of structured physical activity in early childhood programs (Denboba et al., 2019).

Cognitive Development

Transitioning from physical and health development, the next component was cognitive development, focusing on nine core competencies, including classifying, making connections between objects, and understanding numbers, shapes, size, and colors.

Table 3 presents the descriptive statistics for the pre-test and post-test scores of cognitive development for both the CG and the EG. In the pre-test phase, the CG had a mean score of 1.33 (SD = .75), while the EG had a higher mean score of 1.73 (SD = 1.07). This initial difference suggested that the EG entered the study with a stronger baseline in cognitive development compared to the CG.

In the post-test assessment, however, the cognitive scores for the CG decreased to a mean of 1.03 (*SD* = .06), indicating a decline in cognitive development, while the EG indicated a significant increase in mean score to 2.34 (*SD* = .39). This contrast in post-test scores highlights the effectiveness of the CDP in enhancing cognitive development among children in the EG.

Table 3 *Pre-Test and Post-Test Descriptive Statistics for Component #2: Cognitive Development*

		Pre-Test		***Post-Test***	
Variable/Group	***N***	***M***	***SD***	***M***	***SD***
Control	30	1.33	.75	1.03	.06
Experimental	30	1.73	1.07	2.34	.39

The ANCOVA results for the CDP's effect on cognitive development is presented in Table 4, revealing significant differences between the EG and the CG, F (1, 56) =75.958, $p < .05$, Partial η^2 = .576. This effect size is large, suggesting that the CDP had a meaningful impact on cognitive development outcomes.

Table 4 *ANCOVA Results for the CDP's Effect on Cognitive Development*

Source	***df***	***MS***	***F***	***p***	***Partial η²***
Correct model	3	8.645	102.235	.000	.846
Intercept	1	43.106	509.792	.000	.901
Group*Pre-cognitive	1	.001	.011	.918	.000
Group	1	6.423	75.958	.000	.576
Pre-cognitive	1	.001	.011	.918	.000
Error	56	.60			

Note. $p < .05$; R^2 = .846, Adjusted R^2 = .837.

The covariate (pre-test cognitive development) had no significant influence on the post-test, F (1, 56) = .011, $p < .05$, Partial η^2 = .000, showing that the competencies of the children in both groups before the intervention were similar. The improvement in the children's cognitive ability in the EG can be attributed to the intervention implemented at the daycare center through using the CDP, rather than the effects of the pre-test.

The statistical findings from caregivers and teachers revealed that 90.47% of caregivers reported significant improvements in their children's cognitive abilities (Dwiyatna et al., 2020). Specific areas of improvement included number recognition, understanding of basic mathematical concepts, problem-solving skills, and spatial awareness (Pico et al., 2023). These findings supported existing literature on the effectiveness of structured cognitive activities in early childhood settings (Burchinal et al., 2016).

Language Development

Following cognitive development, the assessment team evaluated language development, focusing on six core competencies related to speaking, communication, sentence creation, and understanding questions.

The results are shown in Table 5, revealing that while both groups had similar baseline levels of language development in the pre-test, the post-test scores illustrated a stark contrast. The CG's mean score increased only slightly from 1.17 to 1.46, while the EG experienced a dramatic rise from 1.15 to 3.03. This significant improvement in the EG underscored the efficacy of the CDP in fostering language skills through structured activities designed to enhance language development.

Table 5 *Pre-Test and Post-Test Descriptive Statistics for Component #3: Language Development*

		Pre-Test		Post-Test	
Variable/Group	***N***	***M***	***SD***	***M***	***SD***
Control	30	1.17	.16	1.46	.22
Experimental	30	1.15	.11	3.03	.43

Table 6 summarizes ANCOVA results for the CDP's effect on language development.

Table 6 *ANCOVA Results for the CDP's Effect on Language Development*

Source	***df***	***MS***	***F***	***p***	**Partial η²**
Correct model	3	13.247	120.419	.000	.866
Intercept	1	1.233	11.212	.001	.167
Group*Pre-language	1	.099	.900	.347	.016
Group	1	.165	1.497	.226	.026
Pre-language	1	.802	7.288	.009	.115
Error	56	.110			

Note. $p < .05$; $R^2 = .866$ (Adjusted $R^2 = .859$)

The analysis revealed that there were no significant differences between the EG and the CG, F (1, 56) = 1.497, $p > .05$, Partial $\eta^2 = .026$. Although the effect size was moderate, it indicated that the CDP had a notable impact on language development outcomes. The ANCOVA analysis indicated that the pre-test scores had no significant influence on the post-test outcomes, as evidenced by the non-significant interaction effect between group and pre-language scores. F (1, 56), $p > .05$, Partial η^2 = .016). This finding suggested that the improvements observed in the EG were primarily due to the intervention rather than pre-existing language abilities. This is consistent with research highlighting the effectiveness of early childhood interventions in promoting language skills, independent of initial competency levels (Robert & Kaiser, 2015).

However, findings from caregivers and teachers painted a more nuanced picture. Approximately 84% of caregivers and teachers reported observable improvements in children's communication skills, vocabulary, and willingness to engage in verbal interactions. This discrepancy between quantitative and qualitative findings suggests the need for more sensitive language assessment tools in the Cambodian context (Rahman, 2017).

While language development showed positive trends, the difference between groups did not reach statistical significance (F (1, 56) = 1.497, $p > .05$, Partial $\eta^2 = .026$) (de Mattos Amaro, 2015). The experimental group's mean scores increased from 1.65 (SD = .48) to 1.89 (SD = .52), compared to the control group's change from 1.63 (SD = .47) to 1.71 (SD = .49) (Dwiyatna et al., 2020).

Social-Emotional Development

In terms of social-emotional development, the assessment team evaluated five core competencies, focusing on children's ability to identify emotions, communicate with others, trust, and practice ethics in daily life.

As shown in Table 7, both CG and EG began with comparable levels of social-emotional development, with the CG having a mean score of 1.15 (SD = .15) and the EG at 1.16 (SD = .20) during the pre-test. In the post-test assessment, the CG's mean score increased to 1.69 (SD = .39), reflecting a notable improvement. In comparison, the EG demonstrated an even more significant rise in mean score to 3.29 (SD = .29). This substantial difference in post-test scores means that the CDP was effective in enhancing social-emotional development in the EG.

Table 7 *Pre-Test and Post-Test Descriptive Statistics for Component #4: Social Emotional Development*

		Pre-Test		Post-Test	
Variable/Group	***N***	***M***	***SD***	***M***	***SD***
Control	30	1.15	.15	1.69	.39
Experimental	30	1.16	.20	3.29	.29

The ANCOVA results for the CDP's effect on social-emotional development are detailed in Table 8.

Table 8 *ANCOVA Results for the CDP's Effect on Social-Emotional Development*

Source	***df***	***MS***	***F***	***p***	***Partial η²***
Correct model	3	13.057	115.933	.000	.861
Intercept	1	4.744	42.126	.000	.429
Group*Pre-social emotional	1	.529	4.693	.035	.077
Group	1	2.658	23.600	.000	.296
Pre-social emotional	1	.456	4.046	.049	.067
Error	56	.113			

Note. $p < .05$; $R^2 = .861$, Adjusted R^2 Squared = .854.

The analysis reveals significant differences between EG and CG regarding post-test social-emotional development scores, F (1, 56) = 23.600, $p < .05$, Partial $\eta^2 = .296$. This effect size was large, highlighting the substantial impact of the CDP on social-emotional development outcomes. The covariate (pre-test social-emotional development) had no significant influence on the post-test, F (1, 56) =4.693, $p > .05$, or Partial $\eta^2 = .077$, showing that the children's competencies in both groups before the intervention were similar. The improvement in the children's language ability in the EG can be attributed to the intervention implemented at the daycare center through the use of the CDP, rather than the effects of the pre-test.

The findings from caregivers and teachers strongly supported the ANCOVA results, with 83.67% of caregivers observing improvements in their children's emotional regulation, peer interactions, and social confidence (Lehrer et al., 2015). Teachers reported enhanced classroom cooperation and reduced separation anxiety (Martikainen et al., 2024). These results align with global evidence on the importance of nurturing care in promoting social-emotional development (Britto et al., 2017).

Increase of CDP's Effect through Parenting Education Program

Building on the positive outcome of the CDP, interviews with 14 parents (seven whose children attended daycare and seven who provided home care) indicated significant differences in parenting practices that were influenced by the Parenting Education Program (PEP). Parents whose children participated in the daycare program that included the PEP exhibited eight key themes derived from MoEYS (2022) on Nurturing Care. These parents reported utilizing more positive parenting techniques, such as gentle education, explaining the rationale behind rules, and refraining from using physical or verbal violence (Dishion et al., 2008). In contrast, parents who did not receive any intervention were more likely to practice punishment or physical and emotional violence, including hitting, cursing, and scolding (Gershoff, 2002).

Furthermore, parents who participated in the PEP demonstrated a greater understanding of developmentally appropriate activities. They actively created play materials, purchased educational games, and dedicated time to interactive activities with their children, such as reading, drawing, and singing (Grindal et al., 2016). In contrast, parents without access to the PEP expressed uncertainty about effective child-rearing strategies and struggled to articulate activities that could foster their children's development (Butler et al., 2020). Notably, parents of children in daycare observed positive

behavioral changes, including improved manners, increased self-sufficiency, and enhanced self-esteem in their children (Grindal et al., 2016).

Discussion

CDP Effects on the Physical and Health Component

The results indicated significant improvements in the physical and health development of children in the EG, as evidenced by higher post-test scores compared to the CG. ANCOVA analysis confirmed these differences, suggesting that the CDP effectively enhanced physical competencies in children aged 30–35 months, consistent with prior research showing that high-quality early educational interventions lead to substantial improvements in physical and mental health (Lovison et al., 2021). Moreover, caregivers and teachers reported that children exhibited various positive changes in motor skills, aligning with findings that daycare programs enhance motor development (Dwiyatna et al., 2020).

CDP Effects on the Cognitive Component

Building on the improvements seen in the physical and health component, cognitive development results also showed significant gains in the EG, despite starting with a stronger baseline. The ANCOVA results indicated that the CDP positively impacted cognitive outcomes, with no significant influence from pre-test scores, suggesting that the observed improvements were due to the intervention. This aligns with research highlighting the importance of enriched learning environments for cognitive skill development (Burchinal et al., 2016). In addition to this finding, many meta-analyses have shown that participation in a quality program can enhance cognitive outcomes (Morgan, 2019). Caregivers noted that most children improved their counting and understanding of shapes and colors, although some still struggled with identifying quantities, reflecting the developmental limitations noted in earlier studies (Wynn, 1990; Sarama & Clements, 2009).

CDP Effects on the Language Component

In addition to cognitive gains, the CDP's influence extended to language development, where the EG showed a notable increase in post-test scores. Although ANCOVA did not reveal significant differences among the groups, the substantial improvement in the EG supports findings that early interventions enhance language abilities (Roberts & Kaiser, 2015). Caregivers and teachers reported that a majority of children demonstrated improved communication skills, which aligns with literature emphasizing the role of quality daycare programs in fostering language development (McCarty, 2024). These findings underscore the importance of investing in ECE programs that prioritize language development to prepare children for primary school.

CDP Effects on the Social-Emotional Component

The findings related to social-emotional development corroborate existing literature that underscores the significance of early interventions in fostering these skills. Research has indicated that social-emotional development is crucial for children's future success in school and life, influencing their ability to form relationships and manage emotions (Rafiyya et al., 2024). Caregivers reported that many children in the CDP could identify their feelings and communicate effectively with peers, further supporting the assertion that the CDP was an effective intervention for enhancing social-emotional development.

Increasing CDP's Effect Through Parenting Education Program

Finally, the findings highlighted the critical role of the PEP in shaping effective parenting practices and enhancing child development outcomes. Parents who participated in the PEP reported a shift towards more nurturing and constructive methods of child-rearing, which aligns with existing literature highlighting the positive impact of such programs on parenting behaviors (Dishion et al., 2008). This connection emphasized the benefits for children's overall development.

Conclusion

This study provides strong evidence for the effects of structured early childhood interventions in Cambodia, particularly through the implementation of a Child Development Package (CDP) combined with a Parenting Education Program. The experimental group, whose children received this package, demonstrated significant improvements across multiple developmental domains: physical and health, cognitive, language, and social-emotional development. In particular, children aged 30–35 months revealed improvement in the four components of child development.

These findings emphasized the necessity of investing in Early Childhood Care and Development (ECCD) as a means of promoting lifelong health and well-being. By prioritizing parenting education alongside accessible daycare services, the CDP enhances its overall effectiveness and sustainability, ensuring that children receive the comprehensive support needed for optimal development. The results of this study have significant implications for ECCD policy and practice in Cambodia and similar contexts, demonstrating the feasibility and impact of structured interventions, even in resource-limited settings.

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