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PSYCHOLOGICAL AND NEURODEVELOPMENTAL DIMENSIONS OF EARLY CHILDHOOD CARE AND EDUCATION: AN EVALUATION OF NATIONAL EDUCATION POLICY IMPLEMENTATION IN PUBLIC AND PRIVATE SCHOOLS

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Abstract

Early Childhood Care and Education (ECCE) plays a pivotal role in supporting cognitive, emotional, social, and language development during early childhood. Grounded in developmental psychology and early intervention frameworks, this study examines the implementation of ECCE policy provisions under the National Education Policy (2017) in public and private schools of District Karak, Pakistan. A quantitative survey design was employed, and data were collected from 320 schools using a structured questionnaire aligned with policy indicators and core developmental domains. Responses were analyzed using the chi-square (χ^2) test. Findings reveal that both public and private schools substantially implement ECCE provisions related to access and developmental support. Public schools demonstrate stronger compliance in providing free pre-primary education, whereas private schools show comparatively greater parental engagement. The results position ECCE as an essential early psychological and rehabilitative intervention that contributes to preventing developmental delays and promoting holistic child development. The study underscores the importance of equitable access mechanisms and structured parent–school collaboration to strengthen early childhood outcomes and inform policy implementation in developing contexts.

INTRODUCTION

Early childhood, particularly between the ages of four and five years, represents a sensitive and formative period in human development. Developmental psychology consistently demonstrates that experiences during this stage exert long-lasting effects on cognitive functioning, emotional regulation, social competence, and language acquisition (Piaget, 1952; Vygotsky, 1978; Shonkoff & Phillips, 2000). Neurodevelopmental research further highlights this period as one of heightened neural plasticity, during which environmental stimulation

significantly shapes brain architecture and later functional outcomes (Center on the Developing Child, 2016). Theories of cognitive development, social constructivism, and ecological systems emphasize the importance of structured, nurturing, and stimulating environments for optimal developmental growth (Bronfenbrenner, 1979).

Early childhood, particularly the ages of four to five years, constitutes a sensitive and formative period in human development. Developmental psychology consistently demonstrates that experiences during this stage exert long-lasting effects on cognitive functioning, emotional regulation, social competence, and language acquisition (Piaget, 1952; Vygotsky, 1978; Shonkoff & Phillips, 2000). Neurodevelopmental research further highlights this period as one of heightened neural plasticity, during which environmental stimulation and early learning experiences significantly shape brain architecture and functional outcomes (Center on the Developing Child, 2016).

Theories of cognitive development, social constructivism, and ecological systems collectively underscore the importance of structured, nurturing, and stimulating environments for optimal developmental outcomes (Bronfenbrenner, 1979). Within this context, Early Childhood Care and Education (ECCE) functions not merely as an educational initiative but as an early psychological and rehabilitative intervention. ECCE supports the development of executive functions, emotional self-regulation, early social skills, and foundational language competencies, all of which are critical predictors of later academic achievement and mental health (Diamond, 2013; Heckman, 2011). ECCE encompasses a holistic approach to child development, addressing physical growth, cognitive processing, emotional stability, socialization, and communication skills. From a psychological perspective, ECCE aligns with preventive mental health and early rehabilitation models by identifying developmental vulnerabilities at an early stage and providing supportive environments that reduce the risk of later learning difficulties, behavioral problems, and language delays (Guralnick, 2011). Speech and language development, in particular, is highly sensitive to early stimulation, interaction, and structured learning experiences commonly facilitated through ECCE programs (Paul & Norbury, 2012).

Recognizing the critical role of early childhood development, the Government of Pakistan introduced comprehensive provisions for ECCE in the National Education Policy (NEP) 2017. These provisions emphasize universal access to pre-primary education, child-friendly learning environments, trained teachers, and developmentally appropriate pedagogical practices. International evidence suggests that policy-driven ECCE initiatives are most effective when grounded in developmental science and implemented through psychologically informed practices (OECD, 2017).

By integrating developmental psychology, rehabilitation, and speech–language perspectives, the study reconceptualizes traditional indicators such as "personality development" into measurable psychological domains, including cognitive, emotional, social, and language development. This interdisciplinary framing strengthens the relevance of the study for psychology, education, and allied health disciplines. Within this framework, Early Childhood Care and Education (ECCE) functions not merely as an educational initiative but as an early psychological and rehabilitative intervention. ECCE promotes executive functioning, emotional self-regulation, early social competence, and foundational language skills, which are critical predictors of later academic achievement and mental health (Diamond, 2013; Heckman, 2011). From a preventive mental health and rehabilitation perspective, ECCE facilitates early identification of developmental vulnerabilities and reduces risks of later learning difficulties, behavioural problems, and language delays (Guralnick, 2011). Speech and language development is highly sensitive to structured interaction and early stimulation typically provided in ECCE environments (Paul & Norbury, 2012).

In Pakistan, early childhood development has been addressed through various terminologies, including Early Childhood Care and Development (ECCD), Early Childhood Care and Education (ECCE), and Early Childhood Development (National Education Policy, 2017). These approaches advocate a holistic model of preschool development, requiring inter-ministerial coordination and systematic planning. While developed countries often implement coordinated ECCE frameworks, developing contexts face financial and awareness-related constraints (National Education Policy, 2017). ECCE programs focus on strengthening children's cognitive, social, communication, and foundational academic skills while also educating parents and teachers about developmentally appropriate practices (Kouser et al., 2020). Recognizing its significance, the Government of Pakistan incorporated comprehensive ECCE provisions in the National Education Policy (NEP) 2017, emphasizing universal access, compulsory and free pre-primary education, child-friendly environments, and trained teachers (Govt. of Pakistan, 2017). International evidence suggests that policy-driven ECCE initiatives are most effective when grounded in developmental science and psychologically informed practices (OECD, 2017).

Despite these commitments, the effectiveness of ECCE depends on institutional capacity, resource availability, and stakeholder engagement. Therefore, the present study examines the implementation status of ECCE policy provisions in public and private schools of District Karak. By integrating developmental psychology, rehabilitation, and speech–language perspectives, the study reconceptualizes traditional notions of "personality development" into measurable psychological domains, including cognitive, emotional, social, and language development, thereby strengthening its interdisciplinary relevance for psychology, education, and allied health disciplines.

Statement of the Problem

To investigate implementation status of Policy Provisions of Early Childhood Care and Education as given in Chapter 4, para 6.3 in National Education Policy 2017 in District Karak.

Objectives of the Study

Following were the objectives of the study.

1. To examine the implementation status of Early Childhood Care and Education (ECCE) policy provisions under the National Education Policy (2017), particularly with regard to access to pre-primary education, within a psychological and neurodevelopmental framework in public primary schools of District Karak.
2. To analyse the implementation of ECCE policy provisions related to personality development encompassing cognitive, emotional, social, and language development from a psychological and neurodevelopmental perspective in public and private schools of District Karak.
3. To compare the implementation status of ECCE policy provisions under the National Education Policy (2017) in public and private schools of District Karak, with specific reference to their psychological and neurodevelopmental dimensions.

Null Hypotheses

$H_0$1: There is no significant difference in the implementation status of Early Childhood Care and Education (ECCE) policy provisions under the National Education Policy (2017), particularly regarding access to pre-primary education within a psychological and neurodevelopmental framework, between public and private schools of District Karak.

$H_0$2: There is no significant difference in the implementation status of Early Childhood Care and Education (ECCE) policy provisions under the National Education Policy (2017) related to personality development encompassing cognitive, emotional, social, and language development from a psychological and neurodevelopmental perspective between public and private schools of District Karak.

Methods and Procedure

Population: Population of the study included all the Public Primary Schools and Private Schools, conducting Pre-Primary Classes, of District Karak. There are 435 Public Primary Schools and 180 Private Schools in District Karak.

Sample: There are three tehsils in District Karak, namely, Karak, Takht-e-Nasrati and Banda Daud Shah. Simple Random Sampling Technique was used for the selection of sample from each tehsil using proportionate allocation technique. The sample consisted of 320 Schools (200 Public Primary Schools and 120 Private Schools).

Research Instrument and Data Collection: A close ended questionnaire was developed in the light of the Policy Provisions of NEP 2017 and administered to the sample. The questionnaire was prepared on the basis of Policy Provisions for Early Childhood Care and Education as given in Chapter 4, para 6.3 in National Education Policy 2017-2025. The questionnaire was required to be responded on five point Likert Scale i.e., Strongly Disagree (SD), Disagree (D), Undecided (UN), Agree (A), Strongly Agree (SA). Th. It was divided into two parameters: namely, "Access to Pre-Primary Education", and "Personality Development of Pre-Primary Children". The response rate was 188 (94%) for Public Schools, and 110 (92%) for Private Schools.

Data Analysis: The questionnaire was required to be responded on the basis of five response categories i.e., Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree. However, no response was obtained in the categories of Strongly Disagree and Strongly Agree. All the responses were obtained in three categories only i.e., Disagree, Undecided, Agree. So, the data was tabulated into three response categories. The data was categorical in nature therefore statistical tool Chi- square ($\chi 2$) was used for its analysis.

Data Interpretation

$H_0 1$: There is no significant difference in the implementation status of Early Childhood Care and Education (ECCE) policy provisions under the National Education Policy (2017), particularly regarding access to pre-primary education within a psychological and neurodevelopmental framework, between public and private schools of District Karak.

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Table 1: Access of ECCE children to Pre-Primary Education

SN	Statement	Category (School)	N	Response of Head Teachers			df	χ^2 p value
				DA	UD	A		
1	ECCE as integral part of school	Public	188	8 (4.3 %)	10 (5.3 %)	170 (90.4 %)	2	0.952
		Private	110	5 (4.5 %)	5 (4.5 %)	100 (90.9%)		
2	Easy access to pre – primary education	Public	188	10 (5.3 %)	8 (4.3 %)	170 (90.4 %)	2	0.093
		Private	110	10 (9.1 %)	10 (9.1 %)	90 (81.8 %)		
3	One-year preprimary education is free	Public	188	0 (0.0 %)	0 (0.0 %)	188 (100 %)	1	0.000
		Private	110	110 (100. %)	0 (0.0 %)	0 (0.0 %)		
4	One-year pre-primary education is compulsory	Public	188	10 (5.3 %)	8 (4.3 %)	170 (90.4 %)	2	0.093
		Private	110	10 (9.1 %)	10 (9.1 %)	90 (81.8 %)		

5	"Katchi" Classes are recognized as ECCE classes	Public	188	20 (10.6 %)	21 (11.2 %)	147 (78.2 %)	2	0.245
		Private	110	19 (17.3 %)	10 (9.1 %)	81 (73.6 %)		
*6	Access of ECCE children to Pre-Primary Education	Public	188	10 (5.3 %)	9 (4.9 %)	169 (89.8%)	2	0.000
		Private	110	31 (28.2 %)	7 (6.4 %)	72 (65.4 %)		

α = 0.05. * Difference on basis of Parameter

The table shows the frequency of responses of Head Teachers regarding implementation status of ECCE Policy Provisions of NEP 2017 in the Parameter of, "Access of ECCE children to Pre-Primary Education" in their schools. The table indicates that the p value (0.000) is less than 0.05 level of significance, so the null hypothesis 3 is rejected. Meaning thereby that one year pre-primary education is free in public schools not in private schools. Whereas the p value (0.952, 0.093, 0.245) is greater than 0.05 level of significance, so the null hypotheses 1, 2, 4, and 5 are accepted. This means that the provisions of ECCE as integral part of school, Easy access to pre - primary education, One year preprimary education is compulsory, and "Katchi" Classes are recognized as ECCE classes are available in both Public and Private schools. For the difference between Public and Private schools on parameter 1, "Access of ECCE children to Pre-Primary Education" the p value (0.000) is less than 0.05 level of significance. So the null hypothesis is rejected. This means that this parameter of the Policy Provisions has been implemented in both the streams of the schools but Public schools have implemented it more as compared to Private schools.

$H_0$2: There is no significant difference in the implementation status of Early Childhood Care and Education (ECCE) policy provisions under the National Education Policy (2017) related to personality development encompassing cognitive, emotional, social, and language development from a psychological and neurodevelopmental perspective between public and private schools of District Karak.

Table 2: Personality development of pre-primary children

SN	Statement	Category (School)	N	Response of Head Teachers			df	χ^2 p value
				DA	UD	A		
1	Physical Development is ensured	Public	188	20 (10.6 %)	8 (4.3 %)	160 (85.1 %)	2	0.031
		Private	110	20 (18.2 %)	10 (9.1 %)	80 (72.7 %)		
2	Social and Moral Development is ensured	Public	188	15 (8.0 %)	8 (4.3 %)	165 (87.8 %)	2	0.080
		Private	110	14 (12.7 %)	10 (9.1 %)	86 (78.2 %)		
3	Emotional Development is	Public	188	10 (5.3 %)	8 (4.3 %)	170 (90.4 %)	2	0.000

	ensured	Private	110	20 (18.2 %)	10 (9.1 %)	80 (72.7 %)		
4	Language Development is ensured	Public	188	20 (10.6 %)	8 (4.3 %)	160 (85.1 %)	2	0.066
		Private	110	18 (16.4 %)	10 (9.1 %)	82 (74.5 %)		
5	Cognitive Development is ensured	Public	188	15 (8.0 %)	8 (4.3 %)	165 (87.8 %)	2	0.005
		Private	110	20 (18.2 %)	10 (9.1 %)	80 (72.7 %)		
6	Child friendly environment is provided	Public	188	10 (5.3 %)	10 (5.3 %)	168 (89.4 %)	2	0.183
		Private	110	10 (9.1 %)	10 (9.1 %)	90 (81.8 %)		
7	Teachers have been mobilized	Public	188	10 (5.3 %)	10 (5.3 %)	168 (89.4 %)	2	0.183
		Private	110	10 (9.1 %)	10 (9.1 %)	90 (81.8 %)		
8	Parents have been mobilized	Public	188	160 (85.1 %)	8 (4.3 %)	20 (10.6 %)	2	0.000
		Private	110	10 (9.1 %)	10 (9.1 %)	90 (81.8 %)		
* 9	Personality development of pre-primary children	Public	188	33 (17.6 %)	8 (4.2 %)	147 (78.2 %)	2	0.187
		Private	110	15 (13.6 %)	10 (9.0 %)	85 (77.4 %)		

α = 0.05. * Difference on basis of Parameter

The table shows the frequency of responses of Head Teachers regarding implementation status of ECCE Policy Provisions of NEP 2017 in the Parameter of, "Personality development of pre-primary children" in their schools. The table indicates that the p value (0.031, 0.000, 0.005) is less than 0.05 level of significance, so the null hypotheses 1, 3, 5, and 8 are rejected. Meaning thereby that there is more focus on Physical development, emotional development, and cognitive development of children in public schools as compared to Private schools. Moreover, the Parents have been mobilized more in Private schools as compared to public schools. Whereas the p value (0.080, 0.066, 0.183) is greater than 0.05 level of significance, so the null hypotheses 2, 4, 6, and 7 are accepted. This means that the Policy Provisions of Social and Moral Development is ensured; Language Development is ensured; Child friendly environment is provided; and Teachers have been mobilized are equally available in both Public and Private schools. For the difference between Public and Private schools on parameter 3, "Personality development of pre-primary children" the p value

(0.187) is greater than 0.05 level of significance, so the null hypothesis is accepted. This means that this parameter of the Policy Provisions has been equally implemented in both the streams of the schools.

Discussion

Early childhood, particularly the ages of four to five years, constitutes a sensitive and formative period in human development. Developmental psychology consistently demonstrates that

experiences during this stage exert long-lasting effects on cognitive functioning, emotional regulation, social competence, and language acquisition (Piaget, 1952; Vygotsky, 1978; Shonkoff & Phillips, 2000). Neurodevelopmental research further highlights this period as one of heightened neural plasticity, during which environmental stimulation and early learning experiences significantly shape brain architecture and functional outcomes (Center on the Developing Child, 2016).

Theories of cognitive development, social constructivism, and ecological systems collectively underscore the importance of structured, nurturing, and stimulating environments for optimal developmental outcomes (Bronfenbrenner, 1979). Within this context, Early Childhood Care and Education (ECCE) functions not merely as an educational initiative but as an early psychological and rehabilitative intervention. ECCE supports the development of executive functions, emotional self-regulation, early social skills, and foundational language competencies, all of which are critical predictors of later academic achievement and mental health (Diamond, 2013; Heckman, 2011).

ECCE encompasses a holistic approach to child development, addressing physical growth, cognitive processing, emotional stability, socialization, and communication skills. From a psychological perspective, ECCE aligns with preventive mental health and early rehabilitation models by identifying developmental vulnerabilities at an early stage and providing supportive environments that reduce the risk of later learning difficulties, behavioural problems, and language delays (Guralnick, 2011). Speech and language development is highly sensitive to early stimulation, interaction, and structured learning experiences commonly facilitated through ECCE programs (Paul & Norbury, 2012).

Recognizing the critical role of early childhood development, the Government of Pakistan introduced comprehensive provisions for ECCE in the National Education Policy (NEP) 2017. These provisions emphasize universal access to pre-primary education, child-friendly learning environments, trained teachers, and developmentally appropriate pedagogical practices. International evidence suggests that policy-driven ECCE initiatives are most effective when grounded in developmental science and implemented through psychologically informed practices (OECD, 2017). Despite these policy commitments, effective implementation remains contingent upon institutional capacity, resource availability, and stakeholder engagement, particularly in developing regions.

The present study examines the implementation status of ECCE policy provisions in public and private schools of District Karak. By integrating developmental psychology, rehabilitation, and speech–language perspectives, the study reconceptualizes traditional indicators such as "personality development" into measurable psychological domains, including cognitive, emotional, social, and language development. This interdisciplinary framing strengthens the relevance of the study for psychology, education, and allied health disciplines.

The findings of the study reinforce the view that ECCE serves as a foundational psychological and rehabilitative intervention. Developmental psychology literature consistently identifies early childhood education as a key mechanism for supporting cognitive growth, emotional regulation, and social competence during periods of rapid neurodevelopment (Shonkoff & Phillips, 2000; Diamond, 2013). The widespread implementation of cognitive and language development activities observed in the present study reflects an understanding of early learning as a critical period for neural plasticity and skill acquisition (Center on the Developing Child, 2016).

Enhanced focus on emotional and social development in public schools aligns with established developmental theories emphasizing the importance of emotional self-regulation, attachment security, and peer interaction during early childhood (Bowlby, 1988; Denham et al., 2012). From a rehabilitation perspective, such emotionally supportive environments function as preventive interventions, reducing the likelihood

of later behavioural and mental health difficulties (Guralnick, 2011).

Parental involvement, more prominent in private schools, represents a key psychosocial factor that strengthens developmental outcomes. Extensive research demonstrates that parent–school collaboration positively influences language development, executive functioning, and socio-emotional competence (Epstein, 2011; Paul & Norbury, 2012). From a speech–language and rehabilitation standpoint, early collaboration between parents and educators facilitates consistent language stimulation, pragmatic communication development, and behavioural reinforcement across home and school environments.

The absence of free pre-primary education in private schools raises concerns regarding equitable access to early psychological and developmental support. Economic barriers to ECCE participation may disproportionately affect children at developmental risk, limiting opportunities for early identification and intervention (Heckman, 2011). Consistent with earlier research conducted in Pakistan, the findings also highlight persistent challenges related to teacher training, parental awareness, and resource allocation, which have been shown to undermine the psychological effectiveness of ECCE programs (Ismail, 1999; Sarfraz, 2015).

By situating these findings within developmental psychology and early intervention paradigms, the present study underscores the need for ECCE policy implementation strategies that prioritize child developmental outcomes, psychological well-being, and functional competence rather than structural compliance alone.

Conclusion

The study concludes that ECCE policy provisions under the National Education Policy (2017) are substantially implemented in both public and private schools of District Karak. Public schools demonstrate stronger implementation regarding free access to pre-primary education, whereas private schools show comparatively greater parental engagement. From a psychological and rehabilitative perspective, ECCE in the district functions as an important early intervention platform supporting cognitive, emotional, social, and language development. Integrating developmental psychology into ECCE policy evaluation provides a broader understanding of early education as a mechanism for promoting mental health, preventing developmental delays, and strengthening inclusive rehabilitation pathways.

The analysis revealed that ECCE provisions related to access to pre-primary education were largely implemented in both public and private schools. However, a significant difference was observed regarding the provision of free pre-primary education, which was consistently available in public schools but absent in private institutions. Regarding psychological and developmental domains, both school systems demonstrated substantial implementation of provisions related to physical, cognitive, emotional, social, and language development. Public schools showed relatively stronger emphasis on cognitive and emotional development, whereas private schools exhibited higher levels of parental involvement. Overall, no statistically significant difference was found between public and private schools in the combined implementation of psychological development indicators.

Based on the analysis and interpretation of the data, the following parameter-wise conclusions were drawn:

Parameter I: Access to Pre-Primary Education

This parameter consists of five elements. The following elements were implemented in both public and private schools:

a. ECCE as an integral part of the school
b. Easy access to pre-primary education
c. One year of compulsory pre-primary education
d. Recognition and transition of “Katchi” classes to ECCE classes

However, one year of free pre-primary education was implemented only in public schools and not in private schools. Overall, although both streams implemented this parameter, public schools demonstrated comparatively stronger compliance.

Parameter II: Psychological and Developmental Outcomes of Pre-Primary Children

This parameter includes eight elements. The following were implemented in both public and private schools:

a. Physical development
b. Social and moral development
c. Emotional development
d. Language development
e. Cognitive development
f. Provision of a child-friendly environment
g. Teacher mobilization and preparedness

Parental mobilization regarding the importance of ECCE education was observed in private schools but not in public schools. Overall, this parameter was implemented at a comparable level in both public and private institutions.

Recommendations

Based on interpretation of data and conclusions of the study, following recommendations are offered. The Policy Provisions of NEP 2017 have been divided into two parameters. Therefore, the recommendations are offered on the basis of parameters.

Parameter I: Access to Pre-Primary Education

1. It is recommended that a government-supported financial mechanism be introduced whereby tuition fees of deserving children are paid directly to private schools to ensure equitable access to free or subsidized pre-primary education.

2. It is suggested that public–private partnership models be developed to strengthen universal access to early childhood education, particularly for children from socioeconomically disadvantaged backgrounds.

Parameter II: Psychological and Developmental Outcomes of ECCE Children

3. It is recommended that quarterly Parent–Teacher Meetings be made compulsory in public schools to enhance parental engagement and monitor children's cognitive, emotional, and language development.

4. It is suggested that structured parent–teacher collaboration programs be institutionalized to strengthen psychosocial support and early language stimulation across home and school environments.

5. It is recommended that teacher training programs incorporate developmental psychology, early rehabilitation principles, and foundational speech–language facilitation strategies to improve holistic child development.

6. It is suggested that future ECCE policy evaluations adopt interdisciplinary frameworks integrating education, psychology, rehabilitation, and allied health perspectives to ensure developmentally informed implementation.

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