

## INTEGRATED VERSUS SPLIT APPROACH FOR BETTER EARLY CHILDHOOD CARE AND EDUCATION IN INDIA: LESSONS FROM THE FIELD AND POLICY IMPLICATIONS

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### **Abstract**

*Early Childhood Care and Education (ECCE) has two major components—care (child nutrition, health & physical care) and education (pre formal education). In India, for children below the age of six years, both the components are being implemented through the Department of Women and Child Development through Integrated Child Development Services. Countries like Brazil have opted for integration within education system while countries like France have taken split approach, which is managed by both the education and child welfare department. In the view of very less literature available on whether the split or integrated model is better for achieving early childhood care, this study has tried to explore which approach could be considered better and adopted. This study is a comparative analysis of outcomes of child development amongst three different ECCE institutions (Integrated-within-education, Integrated-within-Social Welfare and Split model ECCE) conducted in Rampur Block, Shimla District, Himachal Pradesh, India. In this study, the physical, mental, language abilities and the nutritional status of 31 children (13 children - 4 to 5 years, 18 children - 5 to 6 years) were examined. As per the results of this study, the outcomes in split model of ECCE were considerably better for the younger age group while for the older age groups, both the split and integrated-within-education models were equally efficacious. Hence, the results of this study are more inclined towards adopting the split approach*

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*for ECCE. Further, placing a functional infrastructure at Anganwadi centers and need of diverse workforce in the system is encouraged for the best outcomes.*

**Keywords:** ECCE, India, Anganwadi, Integrated model, Split Model, Pre School Education, supplementary nutrition

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## **Introduction**

Early Childhood Care and Education (ECCE) initiatives denote the measures taken to ensure holistic development of a child in its early years including health, nutrition, social welfare and protection. The objective of ECCE is to enable the child to develop his or her full cognitive, social and physical potential and ensure successful and meaningful integration into the society. In order to ensure optimal development of children, a planned curriculum framework that encompasses developmentally appropriate knowledge and skills, with flexibility for contextualization and diverse needs of young children needs to be adopted. It should be able to address the needs of the children, their families, the specific setting, the linguistic culture and the local community.

It has been long recognized that the initial six years of life are the most crucial as regarding the physical, mental, social, emotional and cognitive development of a child (Edie and Schmid, 2007). According to the Census 2011 data, there are 158.7 million children between 0 to 6 years of age in India and the challenges for catering to this important segment of population for ensuring their holistic development are well acknowledged. ECCE in India is being provided by a plethora of institutions managed by the State, Non-Governmental Organisations and private entities. These ECCE centres include the anganwadis, kindergartens, nursery schools, crèches and day care centres. Some of the centres which were started just after independence like balwadis are still functional. However, the State run program of Integrated Child Development Services (ICDS) consisting of the network of Anganwadi centres has become the world's largest and a unique

package based outreach intervention aimed at providing supplementary nutrition, Preschool Education (PSE), immunization, health check up, referral and nutrition & health education as an integrated approach.

ECCE encompasses two aspects of child development – care and education. While the former is concerned with child nutrition, health and physical care; the latter is related to the pre primary educational activities prior to formal schooling. In many countries of the world, the two are being governed, in terms of policy making and administration, by departments of Social Welfare and Education respectively signifying a split approach. There has been some discussion in international literature regarding the relative pros and cons of a split approach vis-à-vis an integrated approach for attaining ECCE targets, but these studies are quite few in number and that too are country specific (Bennet and Kaga, 2010). However, the case of India is unique in terms of governance model since this integration in public sector has been done within Women and Child Development (WCD) Department from the very beginning. Many studies have evaluated the impact of ICDS but these are largely limited to the coverage and infrastructure facilities (Chudasama et al, 2016; Meena et al, 2017; NITI Aayog Programme Evaluation Organisation, 2015; Azim Premji Foundation, 2012). As such, the results of such studies are output based rather than outcome oriented. Moreover, the low hanging fruits of the ECCE have been harvested in the past 44 years of ICDS and no study has evaluated whether a change in approach to a split or integration within education approach is required. The purpose of this study, therefore, was to evaluate the outcomes of child development in integrated and split models of ECCE care in India and understand the policy implications.

## **Methods**

This study is a comparative analysis of outcomes of child development amongst three different institutions of ECCE in Block Rampur, District Shimla, Himachal Pradesh, India.

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ECCE Centre A was an Integrated-within-WCD centre i.e. anganwadi being run under the administrative and regulatory control of Child Development and Program Officer (CDPO), Rampur. ECCE Centre B was split system where the same set of students were subjected to interventions of both the departments. ECCE Centre C was a pre-primary school, a type of integrated-within-education ECCE centre operating under the control of Block Primary Education Officer, Rampur.

The children between the ages of 4 to 6 years were included in the study and were divided into two groups of 4-5 and 5-6 years each. The evaluation of the children was carried out on the following parameters:

1. Physical development
2. Mental/intellectual development
3. Language development
4. Nutritional indices

The first three parameters were evaluated on a standardized format employing modified age specific development charts developed by Department of WCD, Government of Himachal Pradesh (Table 1).

**Table 1: Age specific parameters used for evaluation**

	4-5 years	5-6 years
<b>Physical Development</b>	Running in fast or slow speed in forward or backward direction	Reeving pearls in a thread in a particular pattern (sequence)
	Reeving pearls in a thread in sequential manner	Tearing the paper along the given margin
	Tearing the paper along the given margin	Catching and throwing the ball with one hand in the stated direction
	Catching and throwing the ball in the stated direction	Able to walk forward, backward or sideways in the stated direction
	Kicking the ball in the stated direction	Able to work in book/practice book/activity book
<b>Mental/ Intellectual Development</b>	Mimic the surrounding sounds after listening to them	Grouping objects and photos based on characteristics (4-6 level)

	To categorize objects based on one or more characteristics e.g. sorting based on colour or shape	To solve a 5 piece puzzle on their own
	To identify the missing part of a picture	Identifying the easier sequence and to predict the sequence that follows
	Putting together a 4-6 piece puzzle	Solving day to day problems (verbally)
	Matching one item with another similar item	Placing the numbers in order
	To match and count the given number of items	Identifying the bigger, smaller numbers and missing number
	To recite and arrange numbers in chronological order	Identifying the numbers upto 20 and matching them with the given objects
<b>Language Abilities</b>	Listening carefully to stories and poems and to recite them back in sequence	To carefully listen to and recite stories and poems
	To speak on topics like family, birds, plants or animals	To clearly speak with right pronunciation
	To recognize words related to the context of one's surroundings	Asking "why" and "how" type questions on topics like people, birds and animals
	To recognize the sound of the first and last alphabet of a word and to compose new words	Composing story based on the given picture
	To recognize the written alphabet and to compose words	Making simple sentences using word card
	Able to use the book	To be able to read a simple story

The evaluation was carried out by a Supervisor of the WCD Department who has been designated a State Level Master Trainer. For each age specific task, a score of 1 was given if the child was able to perform the task independently while a score of 0.5 was awarded if the child was able to perform it with help. No score was given if the child was not able to perform the task at all.

For evaluation of nutritional development; height for age, weight for height and weight for age indices were employed for stunting, wasting and underweight status of the children respectively. The normative references of these nutritional indices were taken from World Health Organisation Child Growth Standards.

**Statistical analysis:** Since the majority of ECCE centres in India are anganwadis (type A Centre as per the study), the primary comparison lies between Type A and Type B ECCE centres. Although, the type C ECCE are quite few in govt. sector in India, for the sake of academic interest, a comparison of the difference in outcomes between type A, B and C centres has also been done in the study. Qualitative baseline characteristics were compared in the groups using Fisher's exact test; continuous variables like outcome indices were compared between two groups using two- tailed Mann-Whitney test and between the three groups employing Kruskal Wallis test. Statistical analysis was carried out using SPSS version 19 (SPSS Inc., Chicago, Illinois); statistical significance was set with a p-value of 0.05.

## Results

A total of 31 children aged 4 to 6 years were enrolled in the study out of which 13 children were of age group 4 to 5 and 18 children belonged to age group 5 to 6 years. The profile of children aged 4-5 years is tabulated as table 2.

**Table 2: Profile of children aged 4-5 years enrolled in the study**

Parameter	ECCE A	ECCE B	ECCE C	Total	p-value
Number (n)	5	5	3	13	-
Boy:girl	2:3	2:3	0:3	4:9	0.5804#
Mean (SD) Age (in months)	55.8 (3.7)	53.4 (2.61)	53 (5.57)	54.23 (3.7)	0.3383*

#Two tailed Fisher's Exact test

\*two tailed Mann-Whitney test between ECCE A and ECCE B

Since the sample size in ECCE C in age group 4-5 years was 3 and was inadequate for carrying out the required statistical analysis, the primary analysis carried out in children aged 4-5 years was between ECCE A and ECCE B. The profile of children aged 5-6 years is tabulated as Table 3.

**Table 3: Profile of children aged 5-6 years enrolled in the study**

Parameter	ECCE A	ECCE B	ECCE C	Total	p-value
Number (n)	6	6	6	18	-
Boy:girl	3:3	3:3	4:2	10:8	1#
Mean (SD)	64.5	64.17	67.33	65.33	0.0644*
Age (in months)	(3.45)	(1.6)	(2.07)	(2.76)	

#Two tailed Fisher's Exact test

\*Kruskal Wallis test

It is clear that the three groups were comparable in terms of basic demographics.

The outcome in the age group 4-5 years and age group 5-6 years has been depicted in Table 4 and 5 respectively.

**Table 4: Outcome of children aged 4-5 years**

Outcome Parameter	ECCE A	ECCE B	ECCE C	Total	p-value
Mean (SD) Physical score	4.1 (0.89)	4.9 (0.22)	4 (0.5)	4.38 (0.71)	0.1579*
Mean (SD) Mental score	3.4 (1.88)	4.5 (0.5)	3.67 (0.58)	3.88 (1.26)	0.3428*
Mean (SD) Language score	1.6 (1.08)	2.1 (0.55)	1 (0.87)	1.65 (0.90)	0.3808*
Mean (SD) Height for age (cms/months)	1.82 (0.07)	1.92 (0.06)	1.9 (0.15)	1.88 (0.09)	0.0593*
Non stunted:stunted	3:2	4:1	3:0	10:3	1#
					0.738†
Mean (SD) weight for Height (kgs/cms)	0.14 (0.01)	0.14 (0.01)	0.15 (0.01)	0.14 (0.01)	0.5008*
Non wasted:wasted	4:1	4:1	3:0	11:2	1#
					1†
Mean (SD) weight	0.26 (0.03)	0.28 (0.02)	0.28 (0.001)	0.27 (0.02)	0.3383*

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for age (kgs/months)					
Normal: underweight	3:2	5:0	3:0	11:2	0.4444#
					0.2949†

#Two tailed Fisher's Exact test between ECCE A and ECCE B

† Two tailed Fisher's Exact test between the three groups

\*two tailed Mann-Whitney test between ECCE A and ECCE B

**Table 5: Outcome of children aged 5-6 years**

Outcome Parameter	ECCE A	ECCE B	ECCE C	Total	Comparison between A & B p-value	Comparison between three groups p value
Mean (SD) Physical score	4 (0.78)	4.25 (0.27)	4.58 (0.67)	4.28 (0.62)	1#	0.2586*
Mean (SD) Mental score	3.75 (1.41)	4.5 (0.55)	4.83 (1.6)	4.36 (1.28)	0.2495#	0.347*
Mean (SD) Language score	1.17 (1.03)	1.25 (0.42)	1.25 (0.42)	1.22 (0.65)	0.5025#	0.701*
Mean (SD) Height for age (cms/months)	1.7 (0.13)	1.69 (0.08)	1.63 (0.04)	1.67 (0.09)	0.9358#	0.4821*
Non stunted : stunted	5:1	6:0	6:0	17:1	1‡	1†
Mean (SD) BMI (kgs/m2) X 100	13.97 (2.25)	13.87 (1.82)	13.18 (1.08)	13.67 (1.71)	1#	0.7509*
Non wasted : wasted	2:4	4:2	3:3	9:9	0.5671‡	0.8355†
Mean (SD) weight for age (kgs/months)	0.26 (0.07)	0.25 (0.05)	0.24 (0.02)	0.25 (0.05)	0.8085#	0.7378*
Normal : underweight	3:3	4:2	4:2	11:7	1‡	1†

# two tailed Mann-Whitney test between ECCE A and ECCE B

‡Two tailed Fisher's Exact test between ECCE A and ECCE B

† Two tailed Fisher's Exact test between the three groups

\* Kruskal Wallis test

## Discussion

The first six years of human life are critical because the rate of development in these years is more rapid than at any other stage of development. Higher quality child care in these formative years has been consistently linked with optimal development of a child's cognitive skills, social attitudes, behavior



and personality. Research has shown that upto 85% of development of human brain is complete by five years of age (Edie and Schmid, 2007). If the children are neglected in this crucial phase of life, the impairment in cognitive capacities and other developmental abilities may last throughout life and may not be amenable to correction by subsequent remedial measures. In this regard, a pragmatic and public policy is paramount for achieving high quality care in these seminal years of children yields the highest return of any social sector investment in terms of enhancement of the Human Development and contributing to the social and economic capital of any nation.

ECCE includes inseparable elements of care, health, nutrition, play, and early learning within a protected and enabling environment. In this regard, ECCE makes a positive contribution to the long term development of children and learning by facilitating an enabling and stimulating environment ensuring comprehensive learning and growth. Recognizing the need of a holistic multi-centric program for ensuring development of a child in its formative years, the Government of India started the Integrated Child Development Services (ICDS) Scheme on 2nd October 1975 [7]. Over the years, the ICDS has provided for a grass-root level convergence of all the basic services for improved childcare, early stimulation and learning, health and nutrition, water and environmental sanitation aimed at the young children, expectant and lactating mothers, other women, and adolescent girls in the community. These services are provided through a network of Courtyard Play centres – the Anganwadi centres by the Anganwadi Worker, who acts as the key functionary of the scheme. The scheme has symbolized India's commitment to improve the human resource through investments in the early childhood care and the figures for 2015-16 indicate that as many as 1347890 AWCs are functional which are providing supplementary nutrition facilities to 1015.45 lakh children (0-6 years) and PSE to 358.80 lakh children (3-6 years) [8]. Besides anganwadi centres, the ECCE in India is also being provided for by not for profit and for profit organizations, with the former catering to the disadvantaged communities

while the latter targeting the children of socio-economically better off families. With these privately owned ECCE for profit centres being highly oversubscribed and an estimated more than a 10 million children receiving ECCE from them; in absence of any regulatory framework, the quality of care and education being imparted shall always remain doubtful [9]. The Ministry of Women and Child Development, Government of India further formulated and notified the National Early Childhood and Care Development (ECCE) policy in the year 2013 to reiterate the commitment to promote inclusive, equitable and contextualized opportunities for promoting optimal development and active learning capacity of all children below 6 years of age besides bringing the ECCE centres under regulatory framework through a multipronged approach of laying down norms and quality standards; developing curriculum framework and through conducting continuous program and child assessment [10].

Because of its multi-sectoral nature, a coordinated and coherent approach involving convergence of efforts of all departments aimed at maximizing the intended outcomes is always a challenge. There are two basic approaches described in literature to achieve the basic tenets of ECCE – Split and integrated approaches. In split approach the divergent functions of child care and education are carried out by different ministries. The split can be both temporal and spatial, implying that the same set of children can be subjected to interventions of two ministries at the same time or at different times. The potential disadvantages of the system are related to inefficiency due to duplication and wastage of resources; disparities in access and quality due to the differences in entitlement policies, opening hours, regulatory frameworks, staff training and qualification requirements and due to failure to take a holistic approach to children's needs [2]. On the other hand, integrated approach involves integration of all elements of ECCE within one ministry and the documented benefits include greater consistency across sectors in regulation, funding and staffing regimes, smoother transition to primary school, improved supervision of services and greater public accountability [11]. Countries like Brazil, Sweden and New

Zealand have opted for integration within education while those like Finland have successfully integrated ECCE within Social Welfare; while those like France, Belgium and Hungary have traditionally taken split systems approach for implementation [12]. However, there is no up to date comparative research evaluating a split versus integrated model for optimal delivery of ECCE[12] and the various models are country specific precluding any comparative analysis between the models due to a host of underlying confounding factors. To elucidate, the ECCE model in India (integrated within Social Welfare) cannot be compared with the integrated within Education ECCE model in Brazil or any other country because of the stark differences in the social fabric and the underlying expectation and the mode of delivery. The models can be compared only within the same community to derive any meaningful analysis, in the absence of which there cannot be one-key-fits-all solution in all the cases. Further, the various experimentation models adopted by different countries differ in the degree of integration or split which cannot be standardized as some have achieve complete structural integration whereas in the other models, only conceptual integration has been achieved. It is more of a continuum ranging from a complete split to maximal integration.

India's model of optimal ECCE delivery has grown on integration within the Social welfare, more precisely Department of Women and Child Development. The integration is complete; involving all aspects including administrative, workforce, financing, structuring and regulation. Several studies have attempted the output analysis of the working of the anganwadis. Meena et al found mean coverage of ICDS to be 58.3% in slum areas and reported poor community perception for services with exception of supplementary nutrition [4]. Chudasama et al reported on various parameters including coverage of services, degree of malnourishment and reported that only 14.6% of anganwadis had 100% coverage of preschool education amongst children [3]. These studies have been largely limited to the assessment of infrastructure and service coverage in the drainage areas of anganwadis. Even the 2015 programme

evaluation report of NITI Aayog is largely silent on the effectiveness and efficacy of the ICDS [5]. An independent analysis by the Azim Premji Foundation has commented on efficacy of Anganwadis as regarding the pre-school education and found that irregular children attendance and worker absence is affecting activities related to pre-school education adversely more than other services [6]. As such, all such studies are mainly based on output and no outcome oriented study could be found in literature. The main objective of the current study was to evaluate the outcomes of child development in integrated and split models of ECCE care in India. The integrated models were maximally integrated within the ministries of Social Welfare and Education respectively whereas the split model was based on workforce split while still remaining administratively integrated. A loose conceptual split was also visible in the system with education department functionaries catering to pre-school education needs while the anganwadi worker taking care of health and nutrition primarily. The inference of the results in respect of physical, mental and linguistic development outcomes can be seen at Figure 1.

Outcome parameters	4-5 yrs			5-6 yrs		
	Centre A	Centre B	Centre C	Centre A	Centre B	Centre C
Physical	Yellow	Green	Red	Red	Yellow	Green
Mental	Red	Green	Yellow	Red	Blue	Green
Language	Yellow	Green	Red	Red	Green	Green

Lowest score among all ■

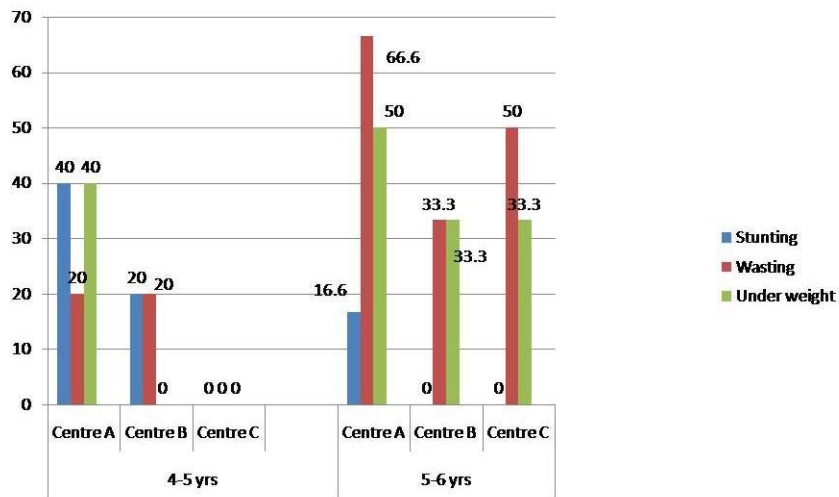
Lower than average but not the lowest ■

Highest score among all ■

Higher than average but not the highest ■

The children between the age of 4-5 years had the best outcomes in the split system as regarding their physical, mental and linguistic development. In contrast, the children aged 5-6 years had best physical and mental development outcomes in integrated within education ECCE model and the

split and integrated within education models gave similar results as far as linguistic development of the children is concerned. The other component of the study involved evaluating the children based on Nutritional indices. Three parameters were used for assessment in this case which included physical growth/stunting, muscle wasting and weight for age of the children and the same has depicted in Figure 2.



Overall, 12.9% (4 out of 31 children) of children from both the age groups were stunted out of which 75% of the stunted children were from the younger age group. No child in any of the age group in integrated within education ECCE centre was stunted. The percentage of stunting was highest in the anaganwadi model of ECCE with 40% of children stunted in age group 4-5 years and 16.6% in children aged 5-6 years. 15.4% of the children of 4-5 years age group had wasting while the percentage of wasting in children belonging to 5-6 yrs age group was significantly higher to the tune of as high as 50%. As regards the best outcomes in terms of stunting, the integrated within education ECCE centre fared better in younger age group while split model outperformed the other model for age group 5-6 years. Overall 29 % (9 out of 31) of the children were underweight among both the age groups, out of which more than 3/4th of them were from older age group. As regards weight for age, both the split and the

integrated within education ECCE centres fared equally and were better than anganwadi in both the age groups. To summarise, for the age group 4-5 years, the split model of ECCE was consistently better whereas for 5-6 years of age, both the split and integrated within education models of ECCE were by and large equally efficacious. The anganwadi, which is the backbone of ICDS in India, could not deliver particularly exciting results in this comparative study.

The results of the study raise serious concerns over the approach being followed for optimizing ECCE outcomes in contemporary times and underscore the need for a revision in strategy. Various studies [3-6] have advised measures like improvement in infrastructure and filling of gaps in various services being provided under ICDS. The authors on the basis of the study feel that the most rational approach would be to split the system in terms of workforce to achieve specialization in the two basic facets of ECCE-care and education. The model should remain integrated in administrative, regulatory and financial terms. Alternatively, the already engaged manpower as Anganwadi workers may be better trained in the provision of services particularly the pre-school component. Baliga et al have already reported that regular training camps should be organized for anganwadi workers to increase their knowledge regarding different aspects especially growth monitoring and supplementary nutrition [13]. However, the narrative regarding requirement of improvement in pre-school education is grossly understated in these evaluation reports and needs to be undertaken through efforts on war footing. In the recent times, because of changes in family structure from joint to nuclear families and other social factors, many children are receiving early education and care outside the home in child care centres, preschool programs, and other community-based early learning settings and this aspect also needs to be kept in mind while designing ECCE programs in new India. Revamping the facilities in tune with the deficiencies and requirements, would also wean off the masses from the for-profit ECCE centres offering questionable care and would offer an effective and continuous link with state owned primary schools for optimal utilization of public resources. States like Himachal

Pradesh in the country are deliberating experimentation which is a welcome step but the relative degree and depth of integration and split needs to be worked out very finely.

We acknowledge that the results in the age groups 4-5 years and 5-6 years will be different for the split model if it is put in place since the start of childhood, with more glaring effect with the progress of age i.e. in 5-6 years of age. However, the results are encouraging for the split model and without fail indicate a need for change in existing policy. Furthermore, a flaw of the study was a small sample size and consequent inability to throw up statistically significant results. However, considering the paucity of available literature on the subject, the study definitely offers valuable insights and can stimulate further field trials and policy changes.

### **Conclusion**

There is a dire need to revamp the ICDS and upgradation of facilities and infrastructure at Anganwadi centers. A degree of split in the workforce and the specialization of service providers are desirable.

### **Endnotes**

There were two ECCE centres which were integrated-within-education type operating in the jurisdiction of the author. During one of the inspections in November 2017, it was found that the students were not being provided benefits of ICDS program including health check-ups and nutritional services. In contrast the nearby anganwadi centre (an integrated-within-WCD type ECCE centre) had only one child. The author achieved convergence between the two departments and the curriculum was divided as such that the children remained with the education department teacher and with the anganwadi worker for a period of two hours a day each.

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